

SENSE OF PLACE AND PRO-ENVIRONMENTAL BEHAVIOR IN BEACH VOLLEYBALL

By

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To my beloved family

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LIST OF TERMS

Attitude	A settled way of thinking, feeling and intent to behave about an object or behavior (Eagly & Chaiken, 1993).
Beach	A shore of a body of water covered by sand and particles in coastal areas (Bonaiuto et al., 1996).
Beach volleyball	The sport of volleyball played on the sand, on the beach officially with two teams of two players (Giatsis et al., 2016).
Beach volleyball tournament player	A physically active participant that plays and competes in beach volleyball events and she or he usually pay her or his registration fee to participate in the beach volleyball tournaments (Giatsis et al., 2016). Also, she or he refers and as beach volleyball participant (Volleyball USA, 2018).
Behavioral intentions	Intentions occupy a position between antecedent attitudinal variables and actual behavior (Ajzen, 1991).
Carbon dioxide (CO ₂) emissions	Carbon dioxide emissions is a greenhouse gas formed by combustion of carbon and in metabolic process of living organisms (Wiedmann & Minx, 2008).
Carbon offsetting	Voluntary neutralization of CO ₂ emissions (Whitmarsh & O'Neill, 2010).
General pro-environmental behavioral intentions	Behavioral intentions towards a general behavior that a participant self-report its efforts to save natural resources (Moser & Kleinhüchelkotten, 2017).
Genres of pro-environmental behavior	Two genres include the positive to the environment behavior as (1) the general pro-environmental behavior that have low-impacts (small benefits) and (2) impact-oriented behavior (larger benefits) such as the voluntary carbon offsetting (Whitmarsh & O'Neill, 2010).
Impact-oriented voluntary carbon offsetting intentions	Intentions of a person towards a behavior that cause a positive and measurable impact on the environment and its protection, such as reduction of CO ₂ emissions (Ramkissoon et al., 2012).
Natural environment	All living and non-living elements that occur naturally on planet Earth or on a setting, and encompasses the interactions with these elements (Goudie, 2013).
Nature bonding	Implicit or explicit connection to some part of the non-human natural environment, based on history, emotional response or cognitive

representation (e.g., knowledge generation) (Raymond et al., 2010; Raymond et al., 2017).

Personal norms	The self-expectations for specific behavior conditions that are constructed by the person (Bamberg et al., 2007).
Place dependence	Functional connection based on the individual's physical connection to a place; for example, it reflects the degree to which the physical setting provides conditions to support an intended use (Williams & Vaske, 1993).
Place identity	Personal position with respect to a place where people's self-identity has been influenced by the place (Proshansky et al., 1983; Raymond et al., 2017; Scannell & Gifford, 2017).
Play	Conducting or engaging in an activity for enjoyment and recreation or a contest (e.g., action in a game or sport), such as the beach volleyball (Morgan, 2007).
Pro-environmental behavior	The behavior that alters or forms positively (i.e., in benefit) the natural environment resources and their protection (Walton & Jones, 2017). As well as, is a behavior that consciously seeks to minimize the negative impact of one's actions on the natural and built world (Kollmuss & Agyeman, 2002; Stern, 2000).
Pro-environmental behavioral intentions	The intentions of a person towards pro-environmental behavior or a behavior that is undertaken with an individual's intent to benefit the environment (Stern, 2000).
Pro-environmental consciousness	Multi-dimensional construct that includes environmental knowledge, environmental concerns, pro-environmental behavioral intentions (Diamantopoulos et al., 2003; Schlegelmilch et al., 1996). Kollmuss and Agyeman (2002) defined pro-environmental consciousness as a complex construct that includes environmental knowledge, values, attitudes and emotional involvement of a person with the nature.
Pro-environmental self-identity	One's identity, affinity, and connectedness to nature (Raymond et al., 2017).
Self-enhancement values	Values that relate to wealth, authority, influence over others, and refer to egoistic and hedonic value system of individuals (Urien & Kilbourne, 2011).
Sense of place	The special relationship formed between people and places based on the experiences, the emotional bonding, the symbolic meanings and personal values of individuals with the setting, its natural environment, the community and people's self-perceptions to the environment of the place

(Altman & Low, 1992; Herrick, 2018; Pretty et al., 2003; Raymond et al., 2017; Tuan, 1974).

Social bonding

The feelings of belongingness or membership to a group of people, as well as the emotional connections based on shared history, interests or concerns (Kyle et al., 2005).

Types of pro-environmental behavior

The types of pro-environmental behavior include behaviors related to (1) private sphere, (2) public sphere, (3) organizations and (4) environmental activism (Fujii, 2006; Steg & Vlek, 2009; Stern, 2000; Vincente-Molina et al., 2013).

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Human actions emit carbon dioxide and degrade environmental quality. Sport activities correspond to environmental impact mainly due to sport consumers behavior. Even so, consumers of sport can undertake behaviors that favor the environmental wellbeing.

Environmental degradation is larger in some places compare to others and individuals have a certain bonding with specific places. The concept of sense of place is a psychological indicator that explain this special relationship between human beings and places.

Thereby, people who engage in sport associate places with their personal values due to their self-perceptions and self-expectations, connectedness to nature and communal bonding. Small-scale sport events are a major sport activity that take place on settings where people are associated with. A place that recently presented the interest of scholars is the beach, where sport events are taking place. Beach volleyball tournaments is an example of small-scale sport event that its participants are highly affected psychologically by the features of the beach, such as the natural resources and the social interactions.

Along with, the concept of pro-environmental consciousness plays a major role on how people perceive these places. Especially, when research evaluates a person's connection with a place and aim to understand their pro-environmental behavior. Due to the lack of research on

beach volleyball participants pro-environmental behavior, the current dissertation investigates the association of sense of place with pro-environmental consciousness by exploring their pro-environmental self-identity. Ultimately, new knowledge on how this systematic relationship can influence pro-environmental behavioral intentions can be provided.

A quantitative research approach was utilized to document beach volleyball tournament players perceptions across the United States. Data collected to capture sense of place, pro-environmental self-identity and pro-environmental behavioral intentions of the active participants of beach volleyball tournaments. Regression analyses used to explore the data and test four research objectives. Results supported a coherent link between sense of place and pro-environmental behavior through a value-oriented system, pro-environmental perceptions and two genres of pro-environmental behavioral intentions. Findings supported the novel hypothetical model where sense of place predicts pro-environmental self-identity and pro-environmental behavioral intentions. Implications of the findings are displayed regarding the theoretical contribution and practical implications in sport management and beach volleyball. Lastly, in conclusion section discussion goes beyond the theoretical and practical implications by presenting delimitations, limitations and future research.

CHAPTER 1 INTRODUCTION

Sport Events and Environmental Degradation

Sport events are entertainment products that attract many people in a concentrated period and place and they are associated with the degradation of environmental quality (Collins & Cooper, 2017; Triantafyllidis, Ries, & Kaplanidou, 2018). Degradation of natural environment and its resources has been highlighted by climate and physics scientists because of human activities that generate greenhouse gas emissions (Mann & Kump, 2015; Mann et al., 2017). People who participate in sport events engage in activities that pollute the environment (Dosumu et al., 2017; Triantafyllidis & Kaplanidou, 2018). Specifically, sport event participants consume products and services as well as travel to the place of the events (Collins & Cooper, 2017; Dolf & Teehan, 2015).

United Nations Environmental Program (UNEP) 2018 has turned its focus on sport activities due to their negative impact on global ecosystems. Specifically, UNEP's latest commentary stated that sport events, sport facilities, sport activities and manufacture of sporting goods have an impact on natural environment. Equivalently, United States Environmental Protection Agency (US EPA) 2018 has been involved in sport and the environment and has developed an agenda to reduce the impact of sport on nature. An objective of US EPA's agenda is to advocate environmental sustainability on sport consumers and motivate them to become more pro-active in terms of environmental conservation, biodiversity preservation and more responsible water and energy usage (US EPA, 2018). For example, by controlling consumption and travel behaviors of participants in sport event settings, it could potentially mitigate the environmental pollution and the degradation of local habitats on these settings.

Greenhouse gas emissions include carbon dioxide (CO₂) by 82% (US EPA, 2018). Several studies suggest that generation of CO₂ emissions is the primary driver of environmental deterioration (e.g., Dolf & Teehan, 2015; Mastny, 2015; Triantafyllidis et al., 2018; Wicker, 2017). The CO₂ emissions that a person generates is described as ‘carbon footprint’ (Wang et al., 2018). Wiedmann and Minx (2008) specifically defined carbon footprint as: “a measure of the exclusive total amount of CO₂ emissions that is directly and indirectly caused by an activity or is accumulated over the life stages of a product” (Wiedmann & Minx, 2008, p. 4).

Individuals who have active participation in sport events, they use different transportation modes to attend the place of the events (Collins & Cooper, 2017; Dolf & Teehan, 2015; Du Preez & Heath, 2016; Triantafyllidis et al., 2018). Along with behaviors related to the consumption of water, energy drinks and food products, the carbon footprint of active sport event participants becomes larger (Collins & Cooper, 2017; Dolf & Teehan, 2015; Dosumu et al., 2017). These practices in sport events pollute and degrade the quality of air (i.e., atmosphere), of water (i.e., ocean and lakes), and of land (i.e., wildlife and plants) (Mann et al., 2017). As a result, animal and plants species are getting harmed, beautiful landscape change into landfills, and are polluted by CO₂ emissions. In return, environmental pollution affects the health of amateur athletes, and large amounts of CO₂ emissions create the greenhouse effect which occurs the rise of global temperature (Mann et al., 2017).

A genre of sport events that illustrates a significant increase the past decade according the number of people that participate is beach volleyball tournaments (Kelly & Fairly, 2018). The market of beach volleyball has met a rapid rise in the United States (Volleyball USA, 2018). As it has been reported, 5.69 million amateur active tournament players/participants are part of the

market of beach volleyball in the United States (Health & Fitness Association, 2018; Statista, 2018).

Sport Event Participation and Transportation

Research highlights that environmental impacts are primarily derive from sport event participants' transportation (Triantafyllidis et al., 2018). Specifically, participants use of different modes of transportation, primarily motor vehicles (e.g., automobile) that require to burn fossil fuels to transit (Collins & Cooper, 2017). In average, people who travel to sport events generate approximately 15 kg of CO₂ emissions per person (Triantafyllidis et al., 2018). Therefore, event attendees who travel or drive their automobiles alone they have a larger carbon footprint compare to those who share a vehicle with other people (GREET, 2018; Triantafyllidis & Kaplanidou, 2018). Accordingly, when people share a vehicle with one more person, they generate approximately 5 to 8 kg of CO₂ emissions per person (Triantafyllidis et al., 2018). This highlights that shared traveling constitutes at least half of the impact (Dosumu et al., 2017; US EPA, 2018).

Active sport event participants travel to certain places to experience the event itself and the destination (Kaplanidou et al., 2012; Whitehead & Wicker, 2018). Many times, the event and destination attributes interact to form the event's image (Hahm et al., 2018; Kaplanidou et al., 2012). The event takes place in certain destinations that have a natural resources profile (Du Preez & Heath, 2016). For example, coastal areas destinations are dominated by the natural elements of the beach (Apostolakis, 2014; Larson et al., 2013). In that sense, people who compete in sport events that take place on the beach, such as beach volleyball tournaments, usually need to travel longer distances and use transportation modes relate to personal vehicles and carpooling to reach their destination (Triantafyllidis & Kaplanidou, 2018). Compare to individuals who attend sport events in urban environments have more options with regards the

transportation modes they can use, as in the United States urban high-density places have developed infrastructures and transportation systems where public transportation is available to residents, as well as the infrastructure design usually offer pedestrian and bicycle lanes for people who prefer alternative transportation modes (Bamberg et al., 2007; Triantafyllidis et al., 2018).

Significance of Place in Beach Volleyball Tournaments

Beach volleyball players travel to the place of the tournaments and spend time in it (Volleyball USA, 2018). According to the volleyball association of the United States (2018), beach volleyball tournaments are annually held most often in coastal areas across the nation of the United States. Sometimes, coastal areas where beach volleyball tournaments take place are including the beaches that are formed in the coast of large lakes (e.g., Chicago and Lake Michigan). In short, the location of beach volleyball tournaments creates two outcomes regarding participants' traveling and consumption behavior.

Specifically, beaches are located by the ocean or by the coast of large lakes, and second the combination of the natural resources and elements represent the natural environment. Therefore, the first outcome concerns beach volleyball tournament players who do not live close to the beach that host the tournaments and the participants should use their personal auto vehicles to travel to the beach long distances (e.g., more than 80 miles). According to Association of Volleyball Professional (AVP) (2018) this group of beach volleyball tournament players usually travel alone or by sharing their car with other players (i.e., carpooling).

As far as the second outcome is concerned, beach volleyball players who compete at the tournaments spend at least a day on the beach, which means that they are exposed to the characteristics that relate to natural environment (Apostolakis, 2014); the exposure to the beach's natural features can have an influential role on how players perceive the natural environment and

its protection (Du Preez & Heath, 2016; Peterson et al., 2013). On the other hand, of beach volleyball tournaments participants behaviors related to traveling and consumption have negative effects on the natural environment (Peterson et al., 2013). In addition, the longer the time participants spend on the beach, the more waste and CO₂ emissions are generated. Examples associated with the larger environmental pollution due to the longer time spend on the place of the event, include usage of water, electricity, gas and products (Du Preez & Heath, 2016; Walton & Jones, 2017).

Taken together, the physiological necessity of beach volleyball players' body and health condition requires event larger consumption of drinks and food products (Cui, 2015; Garth & Burke, 2013; Giatsis et al., 2016; Volleyball USA, 2018). Along with the environmental conditions, beach volleyball tournaments are hosted in beaches where temperatures all year long range between 65 to 80 Fahrenheit's, i.e., Florida and California (Fallon et al., 2018). Therefore, the place of the beach volleyball tournament, players' connection to it and weather conditions may influence differently the perceptions and behaviors as far as their impact on the environment.

Within that mindset, sense of place captures the way people think and feel about a place, their self-expectations based on the behavioral outcomes of a place when sport event activity is taking place and how people connect to other people sharing identical experiences to a place (Jorgensen & Stedman, 2001; Raymond et al., 2010; Sakurai et al., 2017; Tonge et al., 2015). This is especially true for the beach volleyball tournaments as is a place dependent sport, that takes place on the beach i.e., sport-place fit (Sakurai et al., 2017). Due to the roots of beach volleyball, amateur participants are people that develop psychological connections with both the natural environment and the other beach volleyball participants (Herrick, 2018). Accordingly,

participants form their perceptions regarding the natural environment and its preservation based on their collective experiences on the beach, their personal values and their bonding with other beach volleyball tournament players (Sakurai et al., 2017). Accordingly, beach volleyball tournament players can shape their pro-environmental consciousness based on their special connections that form with the beach that hosts the tournaments. As far as the fit of the place is concerned, beach volleyball tournaments are highly depended on sand, its quality, the width of the beach and the weather characteristics on the relevant place (e.g., cold or heat, level of winds and sun radiation) (Juno et al., 2017; Sakurai et al., 2017). Consequently, beach volleyball tournament players form their psychological predispositions towards the beach through their experiences relate with the place characteristics (e.g., tournament, natural resources and people) (Juno et al., 2017). As a result, beach as the primary place of beach volleyball tournaments may form players behaviors (Raymond et al., 2010).

Moreover, human perceptions and emotional bonding with a place has been introduced as the concept of sense of place (Stedman, 2003). According to Raymond et al. (2010) sense of place is formed by personal, environmental and communal connections and values. Sense of place has been defined as: “the meanings of a setting held by people, based on people’s experiences with the setting” (Stedman, 2003; p. 822). Sense of place as an attitudinal concept has been formed through the variables of place identity (i.e., cognitive and affective aspects) and place dependence i.e., conative aspect (Jorgensen & Stedman, 2001; Stedman, 2003; Scannell & Gifford, 2010; Williams & Vaske, 2003).

However, studies have been using sense of place concept to capture mainly the personal connections that people develop with a place (Altman & Low, 1992; Jorgensen & Stedman, 2001). However, empirical evidence argue that a place has both physical and communal features

(Raymond et al., 2010). Hence, people bond with the natural features and the other people in the place through their sense of self, and this develops connectedness to nature and a sense of community in a place (Herrick, 2018). This means that individuals' perceptions towards a place are influenced by the psychological connections with the natural resources of a place and the bonding within the other people that sharing similar experiences in that place. As a result, it is critical to view sense of place as component that is shaped also by connections and meanings related with environmental and communal factors, taken together their personal connections (Ramkissoon et al., 2012; Raymond et al., 2017; Scannell & Gifford, 2017).

In more detail, nature bonding has been defined as the implicit or the explicit connection between a person and some part of the non-human natural environment, based on history, emotional response or cognitive representation (e.g., knowledge generation) (Raymond et al., 2017; Scannell & Gifford, 2017). Social bonding has been described as feelings of belongingness or membership to a group of people, as well as the emotional connection based on shared history, interests or concerns (Raymond et al., 2017). Based on current studies, self-oriented connections illustrated with place identity which is the personal position to a place based on a person's self-identity (Scannell & Gifford, 2010). Place identity also captures cognitive and affective components regarding the physical world (Porshansky, 1983). Also, the variable of place dependence is related to people's perceptions towards the availability of natural resources in where specific human activities can take place (Pretty et al., 2003). Therefore, the concept of sense of place is justified as the compilation of place identity, place dependence, nature bonding and social bonding (Raymond et al., 2017; Scannell & Gifford, 2010; Tuan, 1974).

Due to the lack of empirical research, a study by Raymond et al. (2010) discussed a number of psychological connections that formed between a person and a place (Ganzevoort &

Van den Born, 2018; Gosling & Williams, 2010; Ramkissoon et al., 2012; Scannell & Gifford, 2010). Consequently, and in support with current literature and studies on sense of place, this construct can be viewed through the lenses of the three different connection types, namely personal, environmental and communal connections.

Sense of Place Links with Pro-Environmental Behavior

It has been noted in the literature that sense of place can be a positive predictor of various pro-environmental related behaviors (Du Preez & Heath, 2016; Raymond et al., 2017; Scannell & Gifford, 2017). Sense of place effects people's perceptions of wilderness, environmental phenomena and conditions, as well as it has an impact on how people perceive the consequences of their actions (Jorgensen, 2016; Moser & Kleinhüchelkotten, 2017). Studies also, have proposed that sense of place associated with the sense of oneself, and it captures a person's self-perceptions towards an issue (Herrick, 2018; Jorgensen, 2016). However, people's self-perceptions towards environmentalism may vary (Walton & Jones, 2017). For example, sense of place shapes sense of self as places have meanings to people based on their experiences, personal growth, memories and symbolic meanings when all these are shared among members of a community, such as beach volleyball tournaments.

Evidence showed that a place become integrated to people's self-identity, through the way that individuals posit themselves with respect to a place (Jorgensen & Stedman, 2001). In the literature, pro-environmental self-identity has been introduced as 'pro-environmental consciousness' (Herrick, 2018; Jorgensen, 2016; Kollmuss & Agyeman, 2002; Moser & Kleinhüchelkotten, 2017). Pro-environmental consciousness is a construct that explains people's experiences, feelings and self-identification with the natural world, as well as the meanings and values that places have for them (Jorgensen, 2016). According to Moser and Kleinhüchelkotten (2017), a legitimate measure that captures pro-environmental consciousness is the pro-

environmental self-identity. Accordingly, pro-environmental self-identity is defined as the level that a person views its self as an environmentalist (Jorgensen, 2016; Whitmarsh & O'Neill, 2010).

In addition, pro-environmental self-identity has been used as an antecedent of predicting people's pro-environmental behavior and intentions (Moser & Kleinhüchelkotten, 2017). Specifically, pro-environmental self-identity is shaped by people's environmental values, and integrate people's environmental knowledge, awareness, concerns, personal norms and pro-environmental responsibility (Jorgensen, 2016; Steg et al., 2014; Walton & Jones, 2017). Essentially, pro-environmental self-identity has been proposed as the most effective predictor of pro-environmental behaviors and intentions and indicate levels of pro-environmental consciousness (Kollmuss & Agyeman, 2002; Moser & Kleinhüchelkotten, 2017).

Pro-environmental behavior indicates peoples' actions that are not damaging the quality of the environment or people's behaviors that have less negative impacts on the natural environment (Fujii, 2006; Stern, 2000; Walton & Jones, 2017). Literature introduces different genres of pro-environmental behaviors and intentions, such as the general and the impact-oriented pro-environmental behavioral intentions (Du Preez & Heath, 2016; Ramkissoon et al., 2012; Raymond et al., 2017). Specifically, general pro-environmental behavioral intentions do not require specific skills and knowledge on how to act in a responsible way and it has been found that most people can engage with the general behaviors that contribute positively to the environment (Stern, 2012). Examples of general pro-environmental behaviors include recycling practices and environmentally friendlier modes of transportation such as public transportation, carpooling and walking or cycling (e.g., carbon neutrality modes) instead of driving the car (Steg et al., 2014). In addition, other examples of general pro-environmental behaviors are people's

avoidance of habits and practices relate to over usage of water and electricity and practices that would not pollute or generate waste to the environment (Steg et al., 2014; Stern, 2000). In contrast, impact-oriented pro-environmental behavioral intentions capture individuals' intentions towards actions that require previous experience and knowledge, specific skills, fiscal wealth and high levels of education (Du Preez & Heath, 2016; Stern, 2000). In that sense, both genres of pro-environmental behavioral intentions indicate the likelihood levels that people act in a way that would minimize their negative impact on the natural environment (Fujii, 2006; Ramkissoon et al., 2012).

At greater length, general pro-environmental behavioral intentions capture people's willingness to engage in certain environmentally friendly behaviors, that consider ordinary and relatively low-impact behavior, in terms of the degree that affects the environment positively (Fujii, 2006). Whereas, impact-oriented pro-environmental behavioral intentions capture specific schemes and practices where its impacts are relatively high on their positive effects on the environment and people require more information and skills to perform them (Stern, 2000; Ramkissoon et al., 2012). The most common and effective impact-oriented pro-environmental behavior is the voluntary carbon offsetting schemes which its technological practices include physical processes that controls environmental pollution by CO₂ emissions (Clayton et al., 2016; Mann et al., 2017; Perlaviciute & Steg, 2012; Steg et al., 2006; Stern, 2012).

Significance of Voluntary Carbon Offsetting and Beach Volleyball

As mentioned, people's actions appear to be responsible for the degradation of the natural environment due to the large production of greenhouse gas emissions (e.g., transportation and consumption) (Mann et al., 2017; Steg et al., 2014) and CO₂ emissions by 82% (US EPA, 2018). Consequently, impact-oriented pro-environmental behavioral intentions will be represented through the people's intentions to offset the CO₂ emissions they generate (i.e., carbon footprint)

(Mann et al., 2017); and therefore, from now on, this concept will be described as people's voluntary carbon offsetting intentions (Dietz et al., 2013; Stern, 2012).

Research showed that impact-oriented behavior can be influenced by the geographic location (Clayton et al., 2016; Moser & Kleinhüchelkotten, 2017; Triantafyllidis et al., 2018). According the study by Triantafyllidis, Ries and Kaplanidou (2018) a sport event that takes place in a non-urban area generates less quantity of CO₂ emissions by the people traveling to it. However, it has not been investigated yet, how does sport event participants' sense of place affect people's impact-oriented pro-environmental behaviors and intentions and therefore their willingness to voluntary offset their carbon footprint (Triantafyllidis et al., 2018). In accordance to McCullough and Kellison (2016) conceptual model, there is a need for research in sport event context to investigate sport event participants' sense of place importance on their pro-environmental behavior.

Studies have introduced several variables that capture sense of place and they potentially impact people's carbon offsetting schemes and strategies (Clayton et al., 2016; Dietz et al., 2013; Steg et al., 2014; Whitmarsh & O'Neill, 2010). However, there is still a gap on which psychological variables can form successfully sense of place construct, and it is still unknown how sense of place can directly influence their voluntary carbon offsetting intentions (Ramkissoon et al., 2012). By accounting the evidences of travel research and tourism literature usually people travel long distances to participate in an event, mainly by using a car travel with airplane flights (Dolf & Teehan, 2015; Mair, 2011; Tam & Chan, 2018). Research has indicated that the personal use of cars by people constitute the key source of CO₂ emissions in the atmosphere (Dolf & Teehan, 2015; Dosumu et al., 2017; Triantafyllidis et al., 2018).

Specifically, the one-third of the overall CO₂ that is emitted annually in the atmosphere of Earth is due to people's traveling behaviors (US EPA, 2018).

Empirical studies have shown that in sport events context, most participants travel long distances (e.g., more than 80 miles) (Dosumu et al., 2017; Triantafyllidis et al., 2018). Consequently, beach as the location of sport events provides a good example of a place where participants need to use their personal vehicles and attend the events, mainly because there is a lack of alternative transportation modes, such as public transportation (Colwell et al., 2016; (Sirgy & Su, 2000). Accordingly, sport events located in coastal areas attract many participants, that most likely drive alone their personal vehicles and generate a larger quantity of CO₂ emissions on the environment (AVP, 2018; Leggett et al., 2014). This highlights the crucial need to develop voluntary carbon offsetting strategies in contexts of sport events that took place on the beach and participants have a large carbon footprint.

Importance of this Study

The findings of this dissertation provide insights regarding the connection that individuals form with places where sport events are hosted. Also, this study offers recommendations on how the sport event participants can behave in a pro-environmental manner and engage in environmental degradation recovery behaviors such as the voluntary carbon offsetting schemes (Dosumu et al., 2017; Helm et al., 2018; Mann et al., 2017; Triantafyllidis et al., 2018; Wiedenhofer et al., 2018). This is important because of the constant rise in numbers that sport events are hosted across the United States and the increase quantity of CO₂ emissions in the atmosphere which increase environmental pollution and habitats degradation (Dietz et al., 2013; Du Preez & Heath, 2016; Helm et al., 2018; Wicker, 2017).

The place of sport events can be stimulated by event directors and influence positively participants pro-environmental consciousness, because people have a bonding with the places

where sport events are hosted (Du Preez & Heath, 2016; Jorgensen, 2016; Walton & Jones, 2018). Withal, beach volleyball tournament players pro-environmental behavior can be investigated and explore how this group of people can start behaving in a more beneficial way towards the natural environment and its protection (McCullough & Kellison, 2018; Sato et al., 2017). Across the board the appropriate selection of sport events place can play a role in shaping participants' environmentalism (Thapa, 1999; Triantafyllidis & Kaplanidou, 2018). Ultimately, sport events may become effective platforms for pro-environmental interventions (Dolnicar et al., 2017; Kellison & Mondello, 2014; Triantafyllidis & Kaplanidou, 2017).

Conceptual Framework

The conceptual investigation among sense of place, pro-environmental consciousness and pro-environmental behavior can provide new information for conceptual variables that could narrow down the gap between attitude-behavior. Attitude-behavior paradigm discusses that positive attitude towards an object or behavior, lead to higher probability for the individual to have more favorable thoughts about the object at hand or engage in the pertinent behavior (Eagly & Chaiken, 1993). Given this, sense of place as an attitude can be a good antecedent of behavioral intentions and behaviors related to sport event participation and environmental protection (McCullough & Kellison, 2018).

In environmental psychology scholarship, there is a significant less attention on explaining pro-environmental behavior through a conceptual synthesis of place identity, place dependence, nature bonding and social bonding. Therefore, adding to sense of place environmental and communal concepts as values and meanings it was proposed that sense of place can shape people's pro-environmental consciousness and explain pro-environmental behavioral intentions. Accordingly, the hypothetical formation for sense of place can be

illustrated in Figure 1-1 and the hypothetical process for beach volleyball tournament players pro-environmental behavioral intentions can be viewed in Figure 1-2.

Problem Statements

First, the conceptualization of sense of place has been challenged in the literature of environmental psychology because it has been explored through place identity and place dependence variables. This indicates that sense of place is formed primarily by capturing the personal connections between a person and a place (Ganzevoort & Van den Born, 2018; Raymond et al., 2010). Essentially, literature is not emphasizing sense of place through concepts that captures human's environmental and communal bonding with places (Raymond et al., 2017; Scannell & Gifford, 2017; Wiedenhofer et al., 2018).

Second, there is dearth of research on capturing people's pro-environmental consciousness (Clayton et al., 2016; Moser & Kleinhüchelkotten, 2017). Accordingly, there are limitations on the effects that a person's environmental attitude may have on pro-environmental behavior (Kollmuss & Agyeman, 2002). This problematic link has been a challenge for scholars in the field of sport management to identify environmentally conscious sport consumers (Du Preez & Heath, 2016; McCullough & Kellison, 2018; Wicker, 2017).

Third, studies are limited in explaining people's general pro-environmental behavior, without emphasizing behaviors relate to reduction of CO₂ emissions (Clayton et al., 2017; Helm et al., 2018; Wiedenhofer et al., 2018; Whitmarsh & O'Neill, 2010). Essentially, literature is not clear whether behaviors such as to recycling and conserving energy and water can affect people's intentions towards voluntary carbon offsetting schemes (Lu & Wang, 2018; Wiedenhofer et al., 2018). Therefore, there is a lack of knowledge on how sport event consumers can reduce their carbon footprint when they participate in sport events and generate CO₂ emissions by their travel

and consumption behavior (Hiratsuka et al., 2018; Olya & Akshik, 2018; Ramkissoon et al., 2012; Steg et al., 2014).

Purpose of the study

The purpose of this dissertation was to understand beach volleyball tournament players sense of place, through the lenses of personal, environmental and communal connections, explore how sense of place shapes participants' pro-environmental self-identity and behavioral intentions and finally examines how general environmental outcomes affect behavioral intentions towards specific schemes that helps significantly environmental conservation (Du Preez & Heath, 2016; Junot et al., 2017; Ramkissoon et al., 2012; Sakurai et al., 2017; Stern, 2012).

Research Objectives

This dissertation was guided by the following four-research objectives which seek:

1. To critically assess the contribution of natural bonding and social bonding variables on sense of place, when controlling for place identity and place dependence.
2. To determine the impact of sense of place on pro-environmental self-identity and pro-environmental behavioral intentions.
3. To examine the influence of pro-environmental self-identity on pro-environmental behavioral intentions.
4. To evaluate the potential spillover effects within the genres of pro-environmental behavioral intentions such as general on impact-oriented intentions and how impact-oriented intentions are influenced by sense of place and pro-environmental self-identity.

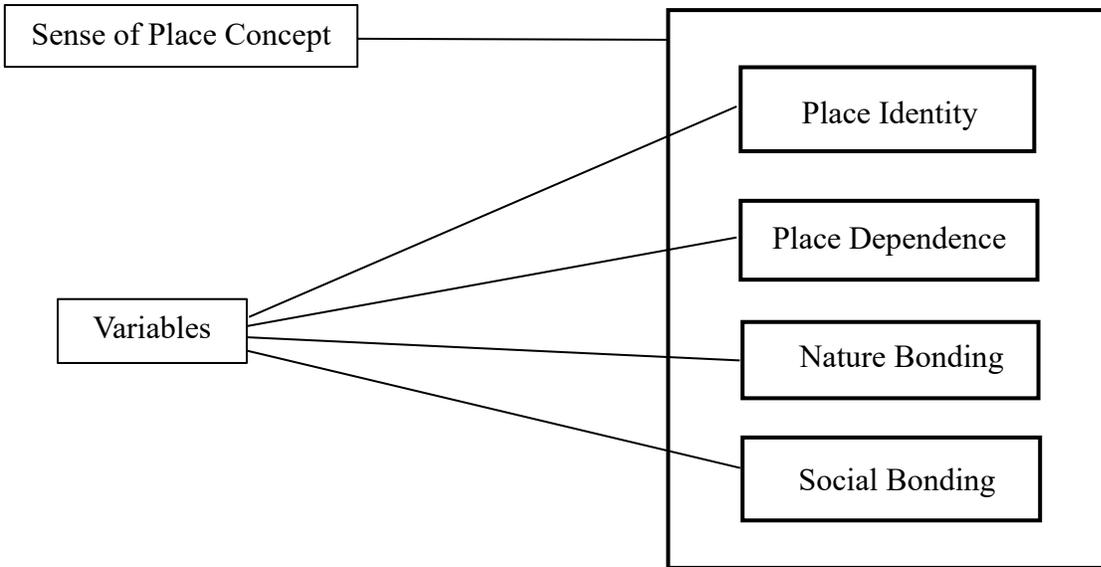


Figure 1-1. Conceptual formation for sense of place.

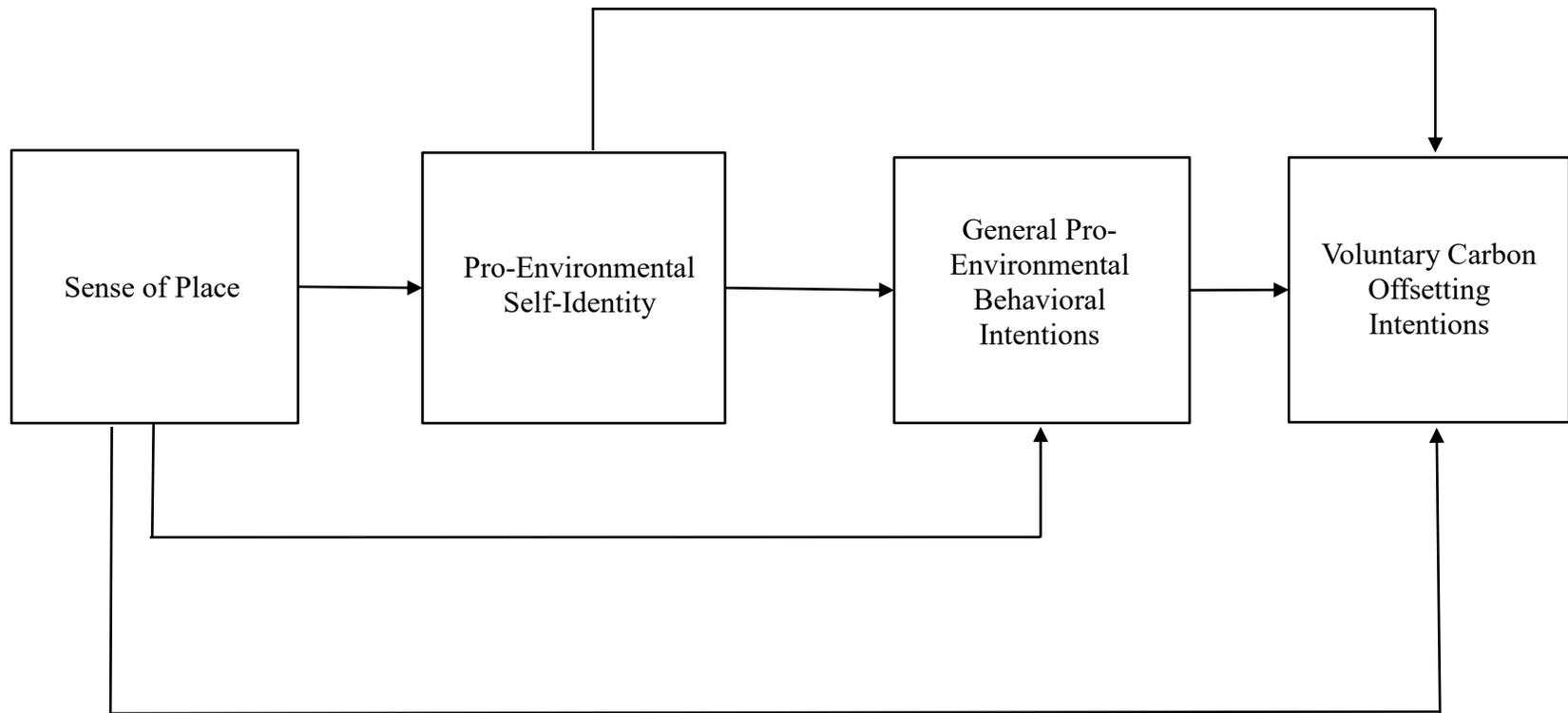


Figure 1-2. Conceptual process of beach volleyball tournament players pro-environmental behavior.

CHAPTER 2 LITERATURE REVIEW

Overview

Chapter 1 highlighted the conceptualization and evaluation of sense of place. Specifically, sense of place formation should be re-evaluated with regards to the place that sport events are hosted and the negative impacts they have on the environmental quality. Sport event participants are the key stakeholders of this negative impact and the place of sport events is highly connected with their behaviors. For example, in the case of beach volleyball tournaments, active participants traveling habits emit large amounts of CO₂ emissions on the environment. In contrast, the place of a sport event is associated with beach volleyball tournament players personal values and psychological characteristics. Furthermore, an appropriate formation of the psychological variables that relate to people's self-perceived environmentalism for the place should be further examined. As a result, personal meanings towards a place is captured theoretically as sense of place, psychological or internal factors presented as pro-environmental self-identity (or consciousness) and general pro-environmental behavioral intentions are distinguished from voluntary carbon offsetting behavioral intentions.

Chapter 2 surveys the current literature and discusses how sport event participation relates with the environmental degradation, sustainability, sense of place, people's pro-environmental psychological factors, pro-environmental consciousness, pro-environmental behavior and mitigation practices for environmental destruction. Chapter 2 closes with the theoretical framework the study used to develop its conceptual model. In short, the conceptual framework is the attitude-behavior paradigm, and within are discussed several theories that relate to environmental conservation, the concept of pro-environmental behavior and the

philosophical aspects of environmentalism. At the end of Chapter 2, there is a discussion on how hypotheses were formed and developed based the theorems.

Participants Behavior in Sport Events

Sport event participation has a tremendous growth in the United States the last decade (Funk et al., 2011; Kaplanidou et al., 2012). The unique trait of sport events is the attraction of many participants, in a place, for a limited course of time where people are highly engaged in consumption behaviors (Brymer et al., 2010; Du Preez & Heath, 2016; Kaplanidou & Vogt, 2010). Sport event participants' behaviors vary and usually depend on the place where sport event is hosted and the type of the event (Brymer et al., 2010; Ko et al., 2011). For example, a person uses different transportation modes to attend an event that takes place on a college campus compare to someone that attends an event off-campus (Triantafyllidis et al., 2018). In addition, a marathon runner would consume more energy drinks and water compare to spectators of a football college game (Triantafyllidis & Kaplanidou, 2017; 2018).

As reported, people engage in sport event activities differently (Triantafyllidis & Kaplanidou, 2018). In more detailed theoretical terms, an individual can have a vigorous participation on a sport event, when it has the vital role at the sport event context and defined as active sport event participants (Kaplanidou & Gibson, 2010). For instance, running event participants and people who compete in sport events are part of this group (Ko et al., 2011). Typically, active sport event participant engages physically with the sport activity. In contrast, people participate in sport events as spectators, where they do not engage in any active competition that require active participation of the sport (Kaplanidou & Karadakis, 2010).

Active and passive sport event participants' activities (e.g., consumption and traveling) generate CO₂ emissions which is the primary cause of environmental pollution (Kellison et al., 2015). In fact, sport event participants' behaviors affect negatively environmental quality

(Collins et al., 2012; Du Preez & Heath, 2016). There is evidence that the place of sport events may influence its participants' behaviors, and therefore their impact on environment can be controlled (Du Preez & Heath, 2016).

Sport events can range in terms of their size and their impact on sustainability (Higham & Hinch, 2002). Accordingly, sport events range from small-scale, to major-scale and mega-scale events (Getz & Page, 2016). Also, the level of their impacts range among the social, the environmental and the economical domains of sustainability (Collins & Cooper, 2017). Sustainability has been defined as the development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Robinson, 2012).

In principle, small-scale sport events defined as regular season sport competitions that they usually take place locally and operate existing sport infrastructures and outdoor spaces (Gibson et al., 2003). Some examples include, running and cycling events, beach volleyball tournaments, soccer intramural competitions, archery, and senior games (Higham & Hinch, 2003). Their impact on sustainability varies and it depends by the location, they number of participants, the type of sport, team or solo participation and sport consumers' behaviors (Wiedenhofer et al., 2018).

Impacts on Environmental Sustainability

Sustainability is the ability to maintain any environmental, social and economic outcomes that concern the relationships among people, the natural environment and the society (Heijungs et al., 2010; Wiedenhofer et al., 2018). Sustainability has roots on sustainable development (UNEP, 2017). According to Brundtland (1987) sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet

their own needs (Brundtland, 1987). In other words, is the ability to societies to develop and maintain outcomes that benefic people, natural resources and communities (Robinson, 2012).

In terms of environmental sustainability, the goal of societies across the globe and political leaders should focus on the maintenance of the natural capital and its resources (Goodland, 1995; Ries et al., 2006). Essentially, people should consider that environmental resources are limited and that they consume in a more responsible manner towards the natural capital (Bilec et al., 2007; Robinson, 2012; Goodland, 1995). Natural capital is the world's stock of environmental assets which include soil, air, water and all living things (Ries et al., 2006). For example, consumers use a wide range of services that are often called ecosystem services (Coole, 2013; Ries et al., 2006). Therefore, environmental sustainability aims to conserve the natural capital so future generations could also benefit from it (Bilec et al., 2009; Goodland, 1995; Wiedenhofer et al., 2018).

Sport events have a tremendous impact on natural resources (Collins et al., 2009). The impact is negative and relates with reduction of natural capital and destruction of existent natural resources (Collins & Cooper, 2016; Preez & Heath, 2016; Mann et al., 2017). These impacts link to natural environment because sport events use natural outdoor spaces to locate the sport equipment and sport infrastructure, such as bleachers (Burgin & Handiman, 2012; Casper & Pfahl, 2015; Ko et al., 2008). There have been four main activities relatively to sport events that highly impact the environment: (1) the construction of sport facilities, (2) the function of these facilities during the sport events, (3) the food and water consumption by the event participants, and (4) most important the transportation of the sport event participants (Triantafyllidis et al., 2018).

In contrast, extreme weather conditions impact the function of sport events, and therefore participants' experiences with the place of sport events (Brymer, et al., 2009; Burgin & Handiman, 2012; Casper & Pfahl, 2015). The most common type is small-scale sport events, that usually are taking place in outdoor natural environments such as natural parks, mountains, beach, lakes and rivers (Brymer et al., 2009). Accordingly, the experience that small-scale sport event participants have with natural environment influence their bonding with it (Raymond et al., 2010). In fact, characteristics, situational factors (i.e., weather), other participants and the overall experiences among these factors determine people's perception for a place (Kyle et al., 2005). Sport events' place as a point of attachment for the participants often affect their feelings and beliefs about the place and influence their pro-environmental perceptions and behaviors (Steg et al., 2014; Stern, 2012).

Pro-Environmental Practices

In sport and tourism literature, Du Preez and Heath (2016) conducted a study in a small-scale cycling event. Accordingly, there are efforts made by the sport events to advocate pro-environmental practices with sustainable outcome (Du Preez & Heath, 2016). The study supported that the nature of the event itself is an indirect promoter of environmentally friendly transportation, as cycling and use of bicycles as an alternative transportation mode have a zero impact on the natural environment (Du Preez & Heath, 2016). Furthermore, small-scale sport events have contributed to environmental sustainability and preservation of natural resources by having a charitable cause (Spector et al., 2012). Specifically, sport event participants were offered to donate a small monetary amount in supporting the construction of new and pro-environmental recreational facilities (Gibson et al., 2012). Particularly, an example includes the construction of sport facilities following the approved guidelines of Leadership in Energy and

Environmental Design (LEED) (Lin et al., 2015). After the construction process of the sport facilities, LEED provides certifications according to the level that these guidelines were followed through the construction process and with respect to the environmentally friendly efficiency that these sport facilities are functioning (Lin et al., 2015). Therefore, based on the level of environmentally friendly efficiency of sport facilities, LEED provides certification that varies among silver for lower efficiency, gold for sufficient environmentally friendly functioning and platinum for high efficient sport facilities function (Lin et al., 2015).

In addition, an example of environmentally friendly sport facility that use energy and water efficiently is the Pocono raceway track which hosts sport events related to auto racing (Boddie, 2001). Pocono raceway is one of the most environmentally friendly sport race tracks in in the United States with respect the efficiency that follows the LEED guidelines but also the way it promotes green initiatives that benefit the local environment and community (Boddie, 2011). Specifically, the Pocono facility track has developed a solar project, that includes 39,960 American photovoltaic modules covering twenty-five acres, and in average produces 15,000,000 kilowatt hours (kWh) (Pocono raceway, 2018). It has been estimated that the raceway track will produce 72 Million kWh over the next twenty-years. In addition, the quantity of CO₂ emissions that were offset in 2017 were over 2,300 metric tons of CO₂ emissions annually (Pocono raceway, 2018).

This pro-environmental project of Pocono track can run 100% of the facility with the power that is produced, as well as to offset all the additional power is required by national association for stock car auto racing (NASCAR) sport events (Pocono raceway, 2018). Finally, Pocono project include a planting tree program where its effectiveness equals with neutralizing

CO₂ emissions that generated by 443,460 propane barbeque (BBQ) grills (Pocono raceway, 2018).

Traveling Behavior

The following section discussed about traveling behavior and transportation modes that used by sport event participants. As far as the quantity of CO₂ emissions are emitted in the atmosphere during a sport event and the size of the negatively impact on natural environment, transportation and traveling is the champion (Collins & Cooper, 2016; Dolf & Teehan, 2015).

Collins and her colleagues (2007; 2009; 2012; 2016) investigated the impact that sport events have on natural capital based on the quantity of CO₂ emissions. Specifically, they accounted total of 560 tons of CO₂ emissions (Triantafyllidis et al., 2018). Also, each individual participant found to generate 7.67 kg of CO₂ emissions per sport event (Collins et al., 2007). In addition, in 2004 rally event that took place in Wales, United Kingdom, there were generated 1,260 tons of CO₂ emissions in total with approximately 20.2 kg CO₂ emitted per participant (Collins et al., 2009). In Tour de France sport event, studies estimated that 144,120 tons of CO₂ emissions were emitted approximately 50.5 kg of CO₂ emissions per attendee (Collins, Munday, & Roberts, 2012). Collins, Jones and Munday (2009) discussed that sport event participants' transportation has the most significant and negative impact on the natural environment. to the high amount of CO₂ emissions that various vehicles release into the atmosphere. A recent study by Triantafyllidis et al. (2018) found that in just one collegiate sport event is generated 1,140,300 kg of CO₂ emissions are generated in total and each participant generated 12.7 kg CO₂ emissions.

Taken the above numbers together, traveling behaviors of sport event participants can contribute most of the overall impact of sport events on the environment. Therefore, there is an urgent need for solutions and decision-making processes with regards the traveling behavior of

sport event participants. First, there is a need in scholarship to understand sport event participants' pro-environmental beliefs and behaviors. Typically, several theories identify pro-environmental beliefs as pro-environmental perceptions in general terms (Clayton et al., 2017; Dunlap et al., 2008; Sato et al., 2017; Stern, 2000).

Attitude-Behavior Gap

In the literature of sport management, the attitude–behavior gap has been characterized as a value-action plan (Blake, 1999). Correspondingly, the study by McCullough and Cunningham (2011) explored the recycling intentions of the sport event participants' in youth baseball events. This study by McCullough and Cunningham (2011) used the theory of planned behavior as a foundation to examine the recycling intentions of sport event participants. They found that subjective norms played an important role for participants to engage in recycling practices when they attend sport events (McCullough & Cunningham, 2011). However, attitude towards environmentally friendly practices was not significant predictors of sport event participants intentions (McCullough & Cunningham, 2011). The authors explained that this may happen because the mean score of attitudes was high (McCullough & Cunningham, 2011).

As a result, there is a need to explore why sport event participants have a positive attitude towards pro-environmental practices, but they do not act in a pro-environmental responsible manner (McCullough, 2013). In accordance with the problem of sport event participants' transportation and its large effects on the environment, a review of the current literature was conducted on studies that investigated the gap between human pro-environmental perceptions and pro-environmental behavior (Casper et al., 2012; Mallen et al., 2011; McCullough & Cunningham, 2010; McCullough, 2013; Kellison & Mondello, 2014).

In the literature, pro-environmental perceptions have been captured by pro-environmental consciousness and pro-environmental self-identity (McCullough & Kellison,

2018; Walton & Jones, 2017). For instance, Casper et al. (2012) studied the collegiate athletics responsibilities towards the environmental protection of sport events in a university campus. Results revealed that sport event participants believe that the athletic department of each university has the responsibility to control the environmental impacts that generated from sport event consumption (Casper et al., 2012; Trendafilova et al., 2017). Similarly, McCullough (2010) illustrated that levels sport event participants' recycling behaviors in collegiate sport events was explained based on the spatial management of recycling bins and the support of recycling by the athletic department.

Furthermore, it has been found that in collegiate sport events the majority 79% of the athletic departments recycle extensively all year long (Casper et al., 2017; McCullough & Cunningham, 2012). Also, Trendafilova et al. (2017) indicated that sport organizations have started adopting practices of pro-environmental certification, such as LEED certified stadiums, but it is still a growing process. Accordingly, evidence has showed that collegiate sport event participants are willing to donate towards LEED projects of their favorite collegiate football teams (Jin et al., 2015); and this small number of sport organizations and athletic departments that pursuing pro-environmental projects have found to have a positive impact on participants recycling and donation intentions towards green initiatives (Jin et al., 2015; Walker, 2013).

Moreover, Martin, Ross and Irwin (2015) findings illustrated that community based environmentally friendly approaches have a positive effect on sport event participants when these green practices take place during tailgating. Specifically, it was found that tailgating can be utilized as a platform for pro-environmental interventions (Martin et al., 2015). For example, recycling interventions with tailgaters constitute an educational and perceptual change strategy towards sport event participants' environmentalism (Kellison & Mondello, 2014).

Summary

Initial evidence illustrated that sport events can be platforms for pro-environmental interventions, where sport events advocate environmentalism. In other words, sport event participants have special characteristics that associate to their identification and emotional attachment to sport teams, and they may affect their pro-environmental perceptions and behavioral intentions regarding transportation and sport event consumption (Triantafyllidis et al., 2018). Finally, a unique aspect of sport events includes the ancillary practices that take place in the surrounding areas of the sport event. An example is tailgating where participants are passionate about it and their emotional connections with the areas of tailgating is part of their psychological sense of place. For instance, tailgaters are emotional involved with the activity of tailgating because of the communal characteristics and symbolic values that tailgating place have on their mindsets (Martin et al., 2015).

Social- and community-based activities, as part of the place of sport event can change pro-environmental perceptions and influence people positively to engage in general and impact-oriented pro-environmental behavioral intentions (Martin et al., 2015). A sport event place is a compilation of several 'phenomena' such as participants social bonding, symbolic meanings and embodiment of ethical and culture values according to sport ethics and sportsmanship. Also, sport events associate with participants nested collection of experiences and memories through the collective practices with other people and communities on the place of the event.

According to sport events literature, sport event activates several other phenomena of its place, the time is hosted. These phenomena include sport event participants' experiences, happiness, coherence, symbolic meaning and people give to place an identity (Funk et al., 2011; Ma & Kaplanidou, 2017). Therefore, participants' views of the place where sporting events are

hosted generate a dominant bonding with it and therefore pro-environmental practices that take place in the sport event space may change permanently their pro-environmental perceptions.

Sato and colleagues (2017) highlighted that active sport event participants in small-scale events intent to behave in a more responsible manner towards the environment because of their outdoor space-based sport involvement. This finding comes in support with Larson et al. (2018) as participation in outdoor-space sports, such as skiing, trail marathons, beach volleyball and open-water swimming influences through sport nature-based places on participants' sense of place and their environmental conservation behaviors. Ultimately, nature-based sport events, such as beach volleyball could provide novel findings towards pro-environmental behavior of sport event participants.

Review of Sense of Place Literature

The sense that people develop when they visit a place has been an interest of many scholars, especially when the research interest is on environmental issues (Manzo & Devine-Wright, 2014; Tuan, 1974). Sense of place has been used as a construct to explore people's special connections with a place and understand their pro-environmental behavior (Altman & Low, 1992). Environmental studies explored people's cognitive, affective and conative functioning towards the place in nature and how this attitudinal construct alters general pro-environmental behavioral intentions (Jorgensen & Stedman, 2001; Stern, 2000). Cognitive aspects include variables such as people's knowledge, understanding, beliefs and cognitions towards the natural environment place (Raymond et al., 2017). As discussed, the affective part of sense of place construct includes variables related with the emotional, symbolic and cultural attachments of individuals to the setting and its features (Manzo & Devine-Wright, 2014; Scannell & Gifford, 2017). Conative aspects such as the functional characteristics of a place

towards a human activity includes variables that associated with the behavioral aspects of a person in a place (Jorgensen & Stedman, 2001; Manzo & Devine-Wright, 2014; Stern, 2000).

Studies explored how natural environment places affect people to engage in sport and recreational activities (Kaplanidou & Gibson, 2010; Ramkissoon et al., 2012). Natural environment place defined as all living and non-living elements that occur naturally on planet Earth or on a setting, and encompasses the interactions with these elements (Goudie, 2013). Therefore, a physical setting includes natural environment elements such as mountains, parks, greenery of neighborhoods, beaches, marine coastal environment, forests, lakes, trails, rivers, animals (i.e., wildlife), plants, etc. (Bonaiuto et al., 2003; Goudie, 2013; Mann et al., 2017). These are the elements of nature and they are all part of the biosphere (Whitburn et al., 2018). When the sport activity takes place in one of these places peoples' behaviors are influenced significantly by the places' features (Manzo & Devine-Wright, 2014). For instance, people visit national parks to engage in recreation activities because they know that the park is environmental healthy and pristine (i.e., greenery, lack of waste) (Du Preez & Heath, 2016; Hinch & Holt, 2016; Ramkissoon et al., 2012).

Additionally, runners and bikers, often prefer to participate in a small-scale sporting events that take place in an outdoor natural environment (e.g., mountain) (Peterson et al., 2013). Accordingly, if sport event participants' link with nature is strong, they will attend the event (Du Preez & Heath, 2016; Peterson et al., 2013). Also, a sporting event that takes place in an area where sport event participants relate to other people or have memories from their past experiences, this place has symbolic meanings and therefore sport event participants are more likely to attend the sport event.

Studies have used the term of ‘place attachment’, whereas other studies used the term of ‘sense of place’ to describe the connection of humans to a place (Du Preez & Heath, 2016; Raymond et al., 2010; Scannell & Gifford, 2010). Also, previous studies used the term ‘topophilia’ such as Tuan (1974) and his book publication called ‘topophilia’ (i.e., a Greek word that means friendship with a place). Tuan’s book was the milestone of sense of place concept. Topophilia by Tuan (1974) mainly explored the environmental perceptions, attitudes and values of the people to places with different environments (Tuan, 1974). Tuan (1974) has been considered as a pioneer of the research in the bonding of people with places (Altman & Low, 1992; Manzo & Devine-Wright, 2014). Later, Altman and Low (1992) published a book called ‘place attachment’ mainly influenced by Harold Proshansky, the scholar who introduced the place identity, and was the pioneer who highlighted the relationships between a person and the natural place (Altman & Low, 1992). As far as the book publications are concerned the latest publication was by Manzo and Devine-Wright (2014) and includes advances in theory, methods and applications of place attachment. The review of sense of place literature continues to illustrate challenges and theoretical limitations. Therefore, sense of place is discussed further in the following paragraph to understand what place and what sense means.

What is a Place?

Place refers to meanings of a place held by individuals (Manzo & Devine-Wright, 2014). However, there are different interpretations of each person towards a place such personal, community bonding and care for natural environment (Raymond et al., 2017). For example, a place may have symbolic meanings for an individual. Symbolic meanings defined as: “center of meaning or field of care” (Stedman, 2003, p. 672). Also, a place is not only an integration of physical and geographical factors (Herrick, 2018). Place captures people’s memories, self-image,

symbols and emotions (Tuan, 1974). Places are destinations of people that share common cultural values (Raymond et al., 2010). Therefore, place is a combination of people's experiences with the natural environment, people and communities, as well as a representation of themselves (Jorgensen & Stedman 2006; Porshansky, 1978; Twigger-Ross & Uzzell, 1996).

What is Sense?

The symbolic meanings that a person has for a place create an emotional bonding between this person and the place (Raymond et al., 2017). Specifically, emotional bonding defined as: "emotional connections based on shared history, interests or concerns" (Raymond et al., 2010, p. 423). Altman and Low (1992) started the conversation for the conceptualization of the senses that a person has towards a place. On this inquiry Altman and Low (1992) proposed that sense of a person for a place is when this person gives a value to the place. Essentially, when a place is not anymore just another common geolocation for an individual, when a place is not an ordinary landscape, but instead it has a special and unique characteristic that associated with the identity and emotions of a person (Manzo & Devine-Wright, 2014). Also, the sense towards a place becomes stronger based on individuals' perceptions (Jorgensen & Stedman, 2001).

Sense and Place

Sense of place represents a connection between a person and a place (Raymond et al., 2017). Studies aimed to make up sense of place as a measurable concept and therefore introduced the following two dimensions: one the place identity and second the place dependence (Jorgensen & Stedman, 2001; Porshansky et al., 1991). Proshansky et al. (1983) introduced place identity as a cognitive mechanism, a component of self-concept and of personal identity in relation to the place one belongs to. Place identity is defined as: "those features of one's self, where there is a mixture of feelings about specific physical setting and symbolic

connections to place that define who a person is” (Raymond et al., 2010, p. 426). Manzo and Devine-Wright (2014) defined place dependence as a “functional connection based specifically on the individual physical connection to a place” (Manzo & Devine-Wright, 2014, p. 66). Manzo and Devine-Wright (2014) highlighted that, place dependence indicates how specific characteristics of a natural environment place serves a purpose to an individual over other alternatives.

Several studies such as Jorgensen and Stedman (2001), Kyle et al. (2004), Raymond et al. (2010), Scannell and Gifford (2010) and Vaske and Williams (2003) showed that sense of place should include more variables rather than only the place identity and place dependence. For example, Kyle et al. (2005) argued the existence of a third variable, the social bonding. Kyle et al. (2005) defined social bonding as: feelings of belongingness or membership to a group of people, as well as the emotional connections based on shared history, interests or concerns with others. Furthermore, Raymond et al. (2010), proposed a model of sense of place adding a fourth variable, the nature bonding. Raymond et al. (2010) defined nature bonding as an “implicit or explicit connection to some part of the non-human natural environment, based on history, emotional response or cognitive representation (e.g., knowledge generation)” (Raymond et al., 2010, p. 426).

A study by Scannell and Gifford (2010) discussed the importance of natural place attachment. Natural place attachment is a type of physical attachment directed toward the natural environment characteristic of a place (Scannell & Gifford, 2010). Nature bonding and natural place attachment represent the same construct and they both capture the emotional affinity, the environmental values and the environmental self-identity of a person (Raymond et al., 2010;

Scannell & Gifford, 2010). For this dissertation, the term nature bonding will be used as a summary term of the previously reviewed definitions.

Limitations of Sense of Place

The sense of place has been characterized by scholars as an unclear, with lack of theory, and little empirical progress concept (Manzo & Devine-Wright, 2014). The bonding between place and people has not been accompanied by advances in the theoretical and practical aspects (Jorgensen & Stedman, 2001; Raymond et al., 2010; Scannell & Gifford, 2010). Many scholars in the research of sense of place have argued towards the proliferation of variables that form sense of place, as well as the measurement of these variables (Kyle et al., 2005; Raymond et al., 2017; Scannell & Gifford, 2017). The diversity of the terms made the measurement of the concept of sense of place difficult and sometimes vague (Hernandez & Hidalgo, 2011). Scholars such as Raymond et al. (2010) measured sense of place with five different variables in three different types of connections (Hernandez & Hidalgo, 2011). These variables were: place identity, place dependence, family bonding and friends bonding (i.e., social bonding) and nature bonding. Studies have been measured sense of place with three different variables such as place inherited, place relativity, place discovered (Manzo & Devine-Wright, 2014; Stedman, 2001).

Scholars have been using the concept of place attachment as a variable of sense of place construct (Manzo & Devine-Wright, 2014). For example, Jorgensen and Stedman (2001) used sense of place as an attitudinal concept measured through place identity (cognitive), place dependence (conative) and place attachment (affective) components. However, lines of research have been proposed that place attachment has two variables the place identity and place dependence, so instantly place attachment as a third variable is problematic, because there are correlations between the three variables of sense of place (Kaplanidou et al., 2012; Manzo &

Devine-Wright, 2014). Due to the vague nature of measurement of sense of place concept and the number of different terms, problems related to validity of the concept and its measurement have been found (Manzo & Devine-Wright, 2014). Finally, another aspect of sense of place have been operationalized according to its geographical location, such as people's connection to an urban versus connection to a non-urban area (Manzo & Devine-Wright, 2014). Consequently, literature introduces different measurement scales used to evaluate sense of place in an urban environments and different scales to measure sense of place in rural environments (Manzo & Devine-Wright, 2014).

Sense of Place in Tourism, Recreation and Sport Management

The sense of place and sport management can be associated in many ways (Kaplanidou et al., 2012). First, many sports take place on the outdoor natural environment (Kaplanidou & Gibson, 2010). Furthermore, natural environment place as an emotional and symbolic setting can be associated with the identity of the fans, the stadium, the city of their favorite sport team's home games and the other fans (e.g., Gainesville and Gators football team) (Altman & Low, 1992; Kyle et al., 2004; Lee, 2011). As such, it has been found that natural environment places are associated with healthier behaviors and improve people's task performance (e.g., physical activity-exercise-compete and mental-studying-reading-work) (Kyle et al., 2003; Kyle et al., 2004). Thus, exploring the attachment of sport involved people to the natural place that hosts a sport event plays a significant role as well.

A study by Alexandris et al. (2006) explored the concept of sense of place on sport tourists' loyalty to a ski resort. Findings presented that place identity and place dependence significantly predicted consumer loyalty (Alexandris et al., 2006). Furthermore, sense of place plays a role on the individual's intentions to engage with sports, physical activities and tourists

related travelling decisions (Alexandris et al. 2006; Kyle et al., 2004; Kaplanidou & Gibson, 2010; Lee, 2011). Kyle and colleagues (2003; 2004; 2005) highlighted that further research should be conducted to have a better understanding of the development, antecedents and behavioral outcomes of sense of place.

Sense of Place Dimensions

According to the discussion of the past, present and future of sense of place concept this section illustrates in detail the dimensions of sense of place, the types of connections that sense of place creates in people and the variables that form the sense of place construct. The circle of the three connections that a person can develop with a place are consisted by the: (1) personal, (2) environmental and (3) communal connections. Accordingly, these three connections represent the following variables respectively: (1) place identity and place dependence; (2) nature bonding, and (3) social bonding (Lee, 2011; Manzo & Devine-Wright, 2014; Raymond et al., 2010; Scannell & Gifford, 2010).

For example, it has been found that when people are in places, rather than their home or neighborhood, they may not engage in any genre of pro-environmental behavior (Ramkissoon et al., 2012; Stern, 2012). However, people who are connected to nature, and care about the environment, they engage in pro-environmental behaviors more often when they are physically present in places with natural environment features, without being on their home or neighborhood (Herrick, 2018; Raymond et al., 2017; Scannell & Gifford, 2017). Moreover, individuals depend on a place usually due to its functioning benefits and behavioral outcomes, they may take care of the natural environment, and they keep this place waste-free. With respect, the social bonding, people keep places clean and protect their natural resources when these places are shared through people's collective experiences, such as the neighborhood or

recreational parks. Following these examples, next paragraph introduces in detail the theoretical concept that captures the different connections between people and places.

Personal connections to a place

According to self-enhancement values, namely, egoistic and hedonic, a place is associated with a person's beliefs that this place can offer him relaxation, personal gain and pleasure (Steg et al., 2014). Likewise, expectations that people have from a place, such as benefits on specific behavioral outcome (e.g., fit of the place towards specific sport activities) (Twigger-Ross & Uzell, 1996). Therefore, personal connections to a place has two parts, that should capture separately by sense of place. The one part is the egoistic self-determined values and are capture by place identity, and the second part is the hedonic values that captured by place dependence.

Place identity

Place identity is associated with self-enhancement and egoistic aspects of one's self towards the place, such as distinctiveness, continuity and personal worth (Herrick, 2018). These concepts relate also to the identity process theory (Twigger-Ross & Uzell, 1996; Raymond et al., 2017). Accordingly, place identity is a variable that can capture the self-enhanced psychological aspects that connect a person with a place because the person is self-identified with the place (Epstein, 1983).

Place identity defined as the connection between one's self with a setting and has both affective and cognitive meaning to a person (Ramkissoon et al., 2012). Place is defined as "a set of individuals' memories, conceptions, interpretations, ideas, and related feelings about specific natural environment places" (Proshansky et al., 1983, p. 60). The emotional attachment and affinity to a place may generate a sense of belonging that includes emotional and symbolic meanings to an individual's life (Tuan, 1980). Overall, place identity is the emotional and

symbolic connection of an individual with a place (Williams & Roggenbuck, 1989; Williams et al., 1992). Also, Stedman (2002) described the importance of symbolic interaction between an individual and a place (Moore & Graefe, 1994). Accordingly, place identity can be described as the interpretation of the self that uses environmental meanings to symbolize the individual's identity (Manzo & Devine -Wright, 2014). In other words, a person's identity can be formed and maintained based on the features of a place (Manzo & Devine-Wright, 2014).

Studies in tourism, recreation and sport management field, discussed people's visitation in natural attractions, where the physical place enhanced their sense of place identity (Ramkissoon et al., 2012). Accordingly, place identity showed potential to influence general pro-environmental behavioral intentions of sport tourist recreational settings (Kyle et al., 2004). Also, place identity has been found to correlate with environmentally friendly perceptions in social settings where one's self identified with the people and the natural environment (Ramkissoon et al., 2012). For example, one's attachment to natural elements were stronger in the neighborhood (Raymond et al., 2010).

Place dependence

The second variable is also associated with the personal connections between people and place and thus the concept of sense of place is place dependence. Place dependence is considered as a goal-oriented behavioral component of individuals' sense of place (Korpela, 1989). Also, place dependence captures the expectations of people from a specific place in terms of available natural resources that will satisfy their needs and goal directed behavior (Jorgensen & Stedman, 2001). As far as the oneself is concerned, a person's sense of place is determined by the recreational activity who engages in and that will benefit from it (Gifford & Nilsson, 2014). This illustrates hedonic values, where a person is satisfied with itself because of the place (Gifford & Nilsson, 2014; Scannell & Gifford, 2010).

Both variables place identity and place dependence are illustrated as concepts under the personal connection circle, and capture people's self-enhancement values such as egotistic, self-determined and hedonic values (Pretty et al., 2003). However, place identity and place dependence are argued that should measure separately from each other because place identity is conceptualized based on the cognitive structure of an attitude, such as the global self-categorization and social identity process, where place dependence is only conation, as the conative component of an attitude, and therefore reflects on functional characteristics of a person, such as self-efficacy (Twigger-Ross & Uzzell, 1996).

Place dependence is defined as a functional form of attachment an individual should a place or setting where the needs and goals of an individual can be met (Shumaker & Taylor, 1983; Stokols, 1981; Williams & Roggenbuck, 1989). Place dependence indicates how well a place serves as a potential and intended place people use over other alternatives (Shumaker & Taylor, 1983; Stokols, 1981). Thus, place dependence captures the conative aspects of their attitudes towards a place (Ramkissoon et al., 2012). This suggests the importance of a place in offering a setting that is necessary for desired activities and needs (Stokols, 1981; Vaske & Kobrin, 2001; Williams & Roggenbuck, 1989). In other words, individuals assess the quality of a place to some degree, based on the ability of a place to satisfy their activities (Lee, 2011; Perlaviciute & Steg, 2012; Warzecha & Lime, 2001).

Some recreational activities (e.g., mountain climbing and whitewater rafting) require more specific resources (e.g., rocks and water) (Warzecha & Lime, 2001). Consequently, place identity and place dependence can have opposite effects on attitudes towards changes (e.g., environmental actions) as they represent personal values and beliefs of a person (Manzo & Devine-Wright, 2014). Finally, the dependent relationship between place identity and place

dependence has determined the evolution of sense of place and place identity and place dependence are antecedents of place attachment (Manzo & Devine-Wright, 2014). Place attachment includes the influence of a place on a person's cognition and emotions, as an extension of self, and a sense of investment to a place because of place's functional features (Lee, 2011).

Research related with recreationalists explored the relationship of place dependence with the people's loyalty to the setting, place dependence effects on levels of attraction of a setting and the effect of place dependence on environmental attitudes and general pro-environmental behavioral intentions (Kyle et al., 2004). However, place dependence varied as recreationalists depend of the functional infrastructure of the setting to engage in their recreational activity (Kyle et al., 2003). This results on concerns about the bonding of people with the place as resources and development of the area can determine their future general pro-environmental behavioral intentions (Lee, 2011). For the former finding, research highlighted that predictions of place dependence on environmental perceptions and general pro-environmental behavioral intentions is still vague and there is lack of understanding on how place dependence interacts with environmentalists' intentions in recreational settings (Ramkissoon et al., 2012).

Environmental connections to a place

The connection of a person with nature is determined by its biospheric values (Kollmuss & Agyeman, 2002; Raymond et al., 2010; Stern, 2000). Biospheric or environmental values are based on experiences of a person with the natural world and how it perceived it on its childhood (Jorgensen, 2016; Lee, 2011). The perceptions that someone has for nature were developed in early age and the place who grew up in relation to the interaction with the natural resources determined its environmental values (Ramkissoon et al., 2012; Stern, 2012). In addition, environmental connections associate to the emotional involvement that people have with nature

(Kollmuss & Agyeman, 2002). Therefore, environmental affection is a component that related with the natural resources and the bonding that people have with them. The emotional connection to nature, it is limited when researchers use place attachment and place identity, as natural resources are one important part of a place, but not the place itself (Raymond et al., 2010; Scannell & Gifford, 2010).

In the next sections the environmental connection of e person with a place is discussed and its effectiveness of this connection on people's pro-environmental consciousness. Accordingly, environmental connection is related with past actions and experiences of people with the natural environment (Kollmuss & Agyeman, 2002; Scannell & Gifford, 2010). Also, the connection is formed and shaped by the environmental education that people have exposed in childhood (e.g., elementary and high school courses) (Diamantopoulos et al., 2003). An early study by Stapp and colleagues (1969) posit environmental education as a practice that produces a citizenry and knowledge towards the natural resources and their related problems. Also, the purpose of environmental education is to make people aware if how to help and solve the environmental problems, but also how sustain their pro-environmental behaviors until there will be a solution (Feinstein & Kirchgasser, 2015).

This study utilizes the variable of nature bonding that was introduced by Raymond et al. (2010), and it captures the emotional connection that a person has with nature. In support to Kollmuss and Agyeman (2002) nature bonding is derived from the emotional involvement of a person with the natural resources of a place, and therefore, nature bonding was proposed as part of sense of place.

Nature bonding

An area of sense of place scholarship highlights the importance assigned to the connections a person has with the natural environment features, which as noted refer to the

bonding of a person with the elements of the natural environment and captures by a person's experience with nature and its features (Martin & Czellar, 2016; Raymond et al., 2010). Nature bonding has been operationalized in a variety of ways, including environmental self-identity, emotional affinity towards nature, and connectedness to nature (Scannell & Gifford, 2010). Environmental identity theory which has its origin in ecological perceptions and consciousness describes people's experiences with nature as integral to one's sense of self (Martin & Czellar, 2016; Wang et al., 2017).

Research on environmental identity theory supported emotional affinity towards nature focused on individual emotional connections to nature, such as a love of nature (Scannell & Gifford, 2010). This theory also relates to the biophilia which claims that human's connection to nature and well-being is strongly influenced by their relationships with the surrounding natural world (Ulrich et al., 1993; Scannell & Gifford, 2010). According to Kollmuss and Agyeman (2002), the affective relationship between a person and the natural world can be identified as emotional involvement and therefore, emotional involvement with nature, can be translated through the nature bonding variable. Lastly, Kollmuss and Agyeman (2002) highlighted that nature bonding or emotional involvement can affect people's pro-environmental consciousness.

A study by Scannell and Gifford (2017) highlighted the importance of nature bonding by using the term natural place attachment. Natural place attachment is a type of physical attachment directed toward the natural environment characteristic of a place (Wang et al., 2017). For example, lakes, beaches, mountains, forests, trails, parks, are characteristics of natural environment places (Scannell & Gifford, 2010). The concept of natural place attachment that was proposed by Scannell and Gifford (2017) is highly correlated with the environmental self-identity of an individual, like the study of Raymond et al. (2017), which refers to the perceptions

of a person towards the natural environment. It is critical to mention that natural place attachment is the same construct with as nature bonding because represents a construct that measures individuals' meaningful connection with the natural environment features of the place (Raymond et al., 2010; Raymond et al., 2017; Scannell & Gifford, 2010; Scannell & Gifford, 2017).

Communal connections to a place

Communal connections reflect on people's communal, cultural and altruistic values as well as fond memories and symbolic meanings for a place (Herrick, 2018). Accordingly, communal values defined as the meanings of a place for the individuals who relate to it or the people that shared with them collective experiences that stayed on the long-term memories (Wang et al., 2017). The communal connections to a place are enhanced relationships between people and communities or other people in a place (Martin & Czellar, 2016; Scannell & Gifford, 2017; Wang et al., 2017). Essentially, memories and experiences with other people in a place, as well as people's altruistic values determine people's peoples' sense of place (Pretty et al., 2003). In addition, the communal connections are rooted back to sense of community which is based on people's symbolic meanings, communal and cultural values (Martin & Czellar, 2016). Accordingly, sense of place is related crucially to the people and communities of a place, as both compile to a place and they both determine a person's bonding to a place (Wang et al., 2017).

Sense of community has a valuable impact to the connection between a person and a place (Pretty et al., 2003). Specifically, sense of community is related with the social component of a place and people's beliefs that they belong to a specific community (Scannell & Gifford, 2017). Accordingly, communal connections are formed by people's bonding with other people that share similar values (Raymond et al., 2017). As mentioned, altruistic values are playing a

crucial role when people are forming their social relationship and build their friendships as people care for and are cared by those who feel they belong to (Fujii, 2006).

Since people's collective beliefs, past experiences and similar patterns of behavior with a group of people (e.g., rituals and traditions) and a place's artefacts, symbols, and history, it is proposed that a place is also a cultural construct (Tuan, 1974; Williams & Vaske, 2003).

Therefore, the qualities that people attribute to a place refer as cultural values (Perkins & Long, 1992). Cultural values are defined as the believes, rituals and symbols that generate collective outlooks and behaviors (Perkins & Long, 1992).

In sum, people develop their social relationships according to places that people share common values. Communal connections capture meanings of others' behaviors places where the outcomes of the behaviors derived from collective work (Raymond et al., 2017). Therefore, it was concluded that communal relationships can capture soliciting place-based meanings that makes a place special to people (Brown & Raymond, 2007). People's fond memories and feelings towards their past experiences in a place are the key traits on the communal connections dimension as part of sense of place (Raymond et al., 2010). As it was suggested by Raymond et al. (2010) social bonding is a concept that was developed to capture the communal connections that are developed by individuals and form their sense of place.

Social bonding

In the literature of sense of place, the role of communal connections is critical to form the bonding of people with a place and its people (Raymond et al., 2010). A study by Perkins and Long (2002) introduced the concept of sense of community. Specifically, sense of community is defined as feelings of membership to a group, included the emotional attachment to this group of people based on past experiences (Perkins & Long, 2002). Furthermore, this social context of sense of community has been operationalized in a variety of ways, including community

attachment, belongingness, rootedness, and familiarity (Raymond et al., 2017). Community refers to the systemic model of connections between residents and their communities (Raymond et al., 2010).

This systemic model discusses that community attachment is highly related to individual connections to local social bonds and the interactions which occur with them (Raymond et al., 2017). According to the literature, Manzo and Devine-Wright (2014) found that the social connectedness that developed between people over the course of their residence in each place was a more powerful predictor of community attachment than population size and density of the community population (Brown & Raymond, 2007; Raymond et al., 2010). As noted, Perkins and Long (2002) referred to these social connections in place as social bonding that includes the feelings of belongingness or membership to a group of people, as well as the emotional connections on shared history, interests and concerns. Therefore, social bonding captures the symbolic meanings, as well as the communal and the altruistic values of a person.

Researchers interested in the socio-cultural dimension of a place argue that the two-dimensional model of sense of place (i.e., place identity and place dependence) is inadequate in sense of place and they highlighted the need to consider social bonding, as a concept that captures people's social interactions and symbolic meanings (Raymond et al., 2017). Hence, the social, cultural and communal connections generate meanings of people to places (Raymond et al., 2010). As Raymond et al. (2017) discussed that cultural connections are critical for the development of a rooted attachment to place and highlighted that social attachments were stronger than setting attachments within houses, neighborhoods, and cities (i.e., place identity).

Empirical studies examined the relationships between involvement and sense of place for recreational hikers along the Appalachian Trail (Jorgensen & Stedman, 2006; Manzo & Devine-

Wright, 2014; Scannell & Gifford, 2010; Williams & Vaske, 2003). As recreationists' social ties to the setting grew so too did their emotional attachment (e.g., place identity) to the setting. In a study by Raymond and colleagues (2010) the importance assigned to place experiences shared with family and friends for the development of place meanings within social meetings was underlined. Social bonding with places have been explained using a variety of constructs that in some cases have similar meanings (Raymond et al., 2017). Eventually, social bonding is a part of sense of place included place belongingness where people feel a membership to a place (Martin & Czellar, 2016).

An inquiry by Ramkissoon et al. (2012) introduced the social bonding as a variable that determines people's sense of place and works in concert with place identity and place dependence. Social bonding found to facilitate interpersonal relationships and boost place belongingness, which is also an aspect that builds communal connections (Ramkissoon et al., 2012). For example, in sport the communal connections capture people's symbolic meanings and cultural values within a sport context (Ramkissoon et al., 2012). Therefore, social bonding captures the symbolic meanings of a person across social and cultural group within the place of the sport context (Scannell & Gifford, 2010). Accordingly, social bonding is the interpersonal, community and cultural relationships among people in a place with the place and as a concept illustrates the bonding that a person has to a place through its fond memories, past experiences that generate symbolic meanings and community related values with the place (Ramkissoon et al., 2012).

Social bonding has played a significant role on recreationalists pro-environmental perceptions, intentions and behavior (Kyle et al., 2005). People that visit a place to exercise, participate in physical activities, sport and competition, usually associate this place with other

people, such as friends, competitors, coaches, and family support (Martin & Czellar, 2016). For example, national parks and mountains are areas where people make stronger bonds with people that visit and attend the activities there, and therefore has been found that pro-environmental knowledge is gained through the social encounters in the natural places (Ramkissoon et al., 2012; 2013). Social bonding is considered as a foster variable towards pro-environmentalism, especially when place of a sport and recreational contest takes place in a natural environment place, i.e., beach. Consequently, social bonding will be considered as a variable of sense of place for the purposes of this dissertation and investigation of sport event participants' pro-environmental consciousness, general pro-environmental behavioral intentions and voluntary carbon offsetting intentions.

Review of Pro-Environmental Consciousness Literature

Human life experiences have a multi-sensory mode that creates meanings between people and nature (Jorgensen, 2016). It would be crucial to discuss further this multi-conceptual mechanism that determines what is known as 'pro-environmental consciousness' (Eilam & Trop, 2012). In the literature of social-psychology, pro-environmental consciousness is considered generally as humans' view of the natural world and its protection (Stern, 2000). Stern and his colleagues (1995) introduced the new environmental paradigm to capture the essential personal perceptions towards the interconnection that humans have with the natural environment (Dunlap & Van Liere, 1978; Stern, 2012). In other words, perceptions that people have towards their actions and how these actions affect the biosphere (Dunlap, 2008). The new environmental paradigm was the novelty in environmental scholarship as introduced the term of 'environmental attitude' as people's perceptions for the natural environment and its protection (Dunlap & Van Liere, 1978; Steg et al., 2006; Steg et al., 2014; Stern, 2012).

Following the new environmental paradigm, another study published by Kollmuss and Agyeman (2002) shed the light on a new perspective towards the philosophy of the environmentalism. Kollmuss and Agyeman (2002) described pro-environmental consciousness as a complex system of internal factors, including environmental values, environmental knowledge, awareness and environmental concerns, together with emotional involvement of a person with nature. As it was highlighted, pro-environmental consciousness is not what Dunlap et al. (2008) introduce as ‘environmental attitudes’ and general perceptions of people for to the natural world. But pro-environmental consciousness is a system that builds people’s mindsets and a process that makes people environmentalists (Kollmuss & Agyeman, 2002; Moser & Kleinhüchelkotten, 2017; Stern, 2000).

The difference between a person’s consciousness with the term attitude has been highlighted by publications in American Psychological Association (APA) literature (Gallup, 1977; Nelson, 1996; Stern, 2012). Therefore, ‘consciousness’ is referred to the internal aspects that define one’s self and a person reflects to the state of mindfulness that determines in natural its behavior (Baruss, 2017; Pinel, 1999; Sperry, 1969). Accordingly, consciousness is the internal aspects that work as catalyst of people’s behavior, such as self-awareness, knowledge and emotions that through sense of self a person can be self-identified, and respond instantly to behaviors (Moser & Kleinhüchelkotten, 2017; Nelson 1996). On the contrary, attitude is the predisposition of people towards a behavior (Baruss, 2017; Kollmuss & Agyeman, 2002; Moser & Kleinhüchelkotten, 2017; Walton & Jones, 2017).

Furthermore, Kollmuss and Agyeman (2002) introduced environmental attitudes in a different perspective. Specifically, environmental attitudes were identified as a vague outcome of environmental awareness, environmental knowledge, environmental beliefs and emotions

(Kollmuss & Agyeman, 2002). Thus, environmental attitudes are a concept that should be broken down based on its antecedents and not as whole (Tam & Chan, 2018). Concepts such as environmental awareness, emotional involvement with nature (e.g., feelings of fear or love), environmental knowledge (e.g., as a separate component from awareness), in a cumulative function with environmental (i.e., biospheric values) define the pro-environmental consciousness (Kollmuss & Agyeman, 2002; Steg et al., 2014; Walton & Jones, 2018). Essentially, in accordance with the philosophy of environmentalism, pro-environmental conscious is a person views her/himself as an environmentalist (Moser & Kleinhüchelkotten, 2017). Based on identity theory and self-determination conceptual reasoning someone who views himself as environmentalism, he is an environmentalist (Walton & Jones, 2017).

There have been almost two decades from the time that the concept of pro-environmental consciousness was introduced in ecological psychology scholarship. Specifically, scholars started measuring the meanings that natural environment has on people and, researchers were able to estimate people's personal position within the integrated natural environment. Specifically, studies were able to define an environmental conscious individual and identify her or him from another non-conscious person (Cleveland et al., 2005; Moser & Kleinhüchelkotten, 2017; Vicente-Molina et al., 2013). Literature from consumer research started growing as far as the environmental conscious consumers at the end 1990 (Schlegelmilch et al., 1996). Studies were interested in people's decision-making process in purchases green (i.e., environmentally friendly) products and services (Diamantopoulos et al., 2003).

In addition, Diamantopoulos and his colleagues (2003) aimed to profile consumers based on their levels of pro-environmental consciousness. Specifically, pro-environmental consciousness was used as a multidimensional concept that captures consumers' knowledge

about environmental issues, attitude towards environmental quality and environmentally sensitive behavior (Diamantopoulos et al., 2003). To rate peoples' green consumerism, they measured pro-environmental consciousness with five measures, namely environmental knowledge, environmental attitudes, recycling behavior, and intentions towards green purchasing actions. Accordingly, pro-environmental consciousness started to grow as the commitment, environmental concern and environmental responsibility of people in Western world (Diamantopoulos et al., 2003).

Following the studies by Kollmuss and Agyeman (2002) and Diamantopoulos et al. (2003), Sanchez and Lafuentes (2010) suggested that pro-environmental consciousness has four dimensions, namely the affective, the cognitive, the dispositional and the active. Particularly, Sanchez and Lafuentes (2010) went back to findings of Dunlap and his colleagues, where pro-environmental consciousness has an attitudinal form.

Furthermore, Sharma and Bansal (2013) introduced pro-environmental consciousness as the social nature of environmentalism. Specifically, Sharma and Bansal (2013) recommended that pro-environmental consciousness should be captured by environmental knowledge and awareness, environmental concerns (e.g., affective component of environmental attitude variable), of people in relationship with their cultural values. Essentially, introduced pro-environmental consciousness as the facet of social environmentalism. Specifically, social environmentalism was defined as: "the strengths of a consumer's beliefs about society's role in considering and protecting the environment through environmentally conscious behavior" (Sharma & Basal, 2013, p. 203). Essentially, social environmentalism explains how an environmental conscious person behaves within the society, and how this person views himself as an environmentalist. On these lines, social environmentalism is shaped by a person's

communal connections (e.g., pro-social and altruistic values), its own knowledge and concerns for the environment, and how this person views itself compare to other members of its community, in terms of its environmentalism (Sharma & Basal, 2013).

Internal Pro-Environmental Factors

As a result, after reviewing the literature of pro-environmental consciousness, it was observed that consciousness is built on the internal pro-environmental factors. Specifically, the current study summarized all these theoretical concepts that have been used in the literature to determine environmentalism. Therefore, after explaining the concept of an environmental attitude and discussing for the process of environmentalism, pro-environmental consciousness is the next concept that described as a psychological system that captures peoples' environmental awareness, environmental knowledge, environmental sensitivity (e.g., environmental concerns, feelings of fear or love, environmental care), environmental responsibility, personal norms, general perceptions towards natural resources and pro-environmental beliefs towards one's self.

The pro-environmental beliefs as a concept associated with pro-environmental self-identity, which is discussed in the next section. Theoretically, the current dissertation uses theorems of environmentalism literature to support the interconnection of sense of place and pro-environmental consciousness. Specifically, in support to attitude-behavior paradigm, sense of place can be explored as an attitude related to then environment and place, and in support of value-belief-norm theory it can also be viewed as the values orientation of a person that explain beliefs and norms, which are captured by pro-environmental consciousness.

To understand the nature of environmental attitude, and how its antecedents have been broken down and reformed to develop pro-environmental consciousness, this sections it discusses its internal pro-environment factor. According to Dunlap and colleagues (2000), beliefs

(as a cognitive element) and concerns (as an affective component) construct environmental attitude. However, Chawla (1998) argued that Dunlap and his colleagues (2008) found that people with high levels of environmental attitude have low levels of pro-environmental behavior. However, the new environmental paradigm has been criticized as the environmental attitude-behavior relationship was weak and therefore the new environmental paradigm failed in capturing environmental education (Eilam & Trop, 2012). Thus, to explore the attitude-behavior gap, people's environmental knowledge and awareness should be considered because an individual's actions make the difference, and therefore the appropriate environmental knowledge on how and why people's actions degrade the environmental quality should be included as a concept that forms its pro-environmental consciousness. Even the literature is limited towards these two variables, however, it has been identified that knowledge and awareness are two separate factors but capture the cognitive aspect of environmental attitude concept.

Environmental Knowledge

It has been discussed that high levels of knowledge towards the environment derives from high school education (Bradley et al., 1999; Diamantopoulos et al., 2003; Thapa et al., 2001). For example, Bradley et al. (1999) demonstrated that students' exposure to environmental courses of a high school curriculum increased their responsible environmental behavior and become aware towards environmental issues. Therefore, environmental knowledge is defined as the basic knowledge that an individual has about environmental problems (Bradley et al., 1999; Diamantopoulos et al., 2003). Essentially, environmental knowledge captures people's level of fact-based information about general environmental phenomena (Stern, 2012; Tam & Chan, 2018).

Environmental Awareness

In contrast to environmental knowledge, environmental awareness is defined as “knowing of the impact of human behavior on the environment” (Kollmuss & Agyeman, 2002, p. 253). As it has been indicated in the literature, environmental knowledge and environmental awareness are two different concepts. Also, in the environmental attitude formation, environmental awareness is determined by the importance and relativity that an environmental problem has on a person’s life (Tam & Chan, 2018). For instance, the intensity of an environmental problem, such as the sea-levels rising and their effects on residents that live in coastal areas. Therefore, the location and place have an important impact on people’s environmental awareness.

Environmental Concerns

Other studies have ignored environmental awareness and knowledge and instantly used environmental concern as the catalyst predictor of pro-environmental behavior (Vincente-Molina et al., 2013; Thapa, 2001). However, environmental concern has been found as the affective component of environmental attitude (Fujii, 2006; Thapa, 2003). For example, the study by Fujii (2006) captured people’s awareness of consequences that their actions have on the environment as environmental concern, in support to value-belief-norm theory (Fujii, 2006; Steg & Vlek, 2009; Steg et al., 2014; Thapa, 1999). Also, residents of poor and urban areas versus residents of richer non-urban areas presented differences in their environmental concern (Steg et al., 2014). One factor that creates this chasm is the social dilemma of the people in terms of human needs (Tam & Chan, 2018). For example, in places with poverty, people fear about environmental problems as they do not have the means and power to change the problem, and illustrated higher environmental concerns compare to places with higher socioeconomically status. Tam and Chan

(2018) stated that in rich societies there were lower levels of environmental concern due to the trust richer people have on their power to contribute positive and save the environment.

Therefore, environmental concern is defined as the level of awareness and confidence people have towards supporting efforts that would solve environmental problems (Dunlap & Van Liere, 1978). Therefore, people's emotional involvement with nature interacts with their environmental concern which shape pro-environmental consciousness (Kollmuss & Agyeman, 2002).

Personal Norms

In the literature it has been discussed extensively that people who support the process of environmentalism they develop her/his pro-environmental consciousness (Schwartz, 1977). Specifically, the norm-activation model suggests that pro-environmental behavior arises in response to personal norms (Steg et al., 2006). Therefore, personal norms defined as: "the self-expectations for a behavior backed by the anticipation of self-enhancement or deprecation" (Schwartz, 1977, p. 307).

Personal norms are activated from people's beliefs that specific human activities pose threats on the natural environment and on another people's life (Schwartz, 1977; Schwartz, 2006). These beliefs are built from people's value system and are experienced as feelings of moral obligation to perform in a way that would protect the environment (Stern, 2000). The current study argues that sense of place influence people's personal norms because it captures people's self-enhancement, altruistic and biospheric values. Accordingly, personal norms are the beliefs related to people's self-expectations on behaving responsible. Therefore, self-expectations towards environmental protection are identified as the sense of self where individuals believe that are responsible to protect the environment, and these self-related pro-

environmental beliefs are shaping their pro-environmental consciousness (Kollmuss & Agyeman, 2002).

Environmental Responsibility

Following this line of research, people's environmental awareness of the negative consequences of their activities (i.e., transportation) on the natural environment, influence their pro-environmental consciousness in a positive way as they believe that they are environmentally responsible (Stern et al., 1999). Thus, environmental responsibility associates with person's personal norms and self-identity (Steg et al., 2006). Therefore, people who believe that they are environmentally friendly are those who self-identified as protectors and nurturers of natural environment, and they are environmentally conscious (Kollmuss & Agyeman, 2002). Therefore, environmental responsibility is defined as people's sense of personal responsibility to engage in pro-environmental behavior (Steg & Vlek, 2009). Empirical findings showed the environmental responsibility is a key factor of pro-environmental consciousness (Hiramatsu et al., 2015). Accordingly, a person who feels responsible for her/his contribution towards the global environmental issues is internal factor that forms pro-environmental consciousness (Hiramatsu et al., 2015). As people who feel that they can change the consequences of their actions are more likely to engage in pro-environmental practices (Kollmuss & Agyeman, 2002). For example, a pro-environmental responsible person will offset its CO₂ emissions because she or he knows her or his negative impact that activities such as driving vehicles for long distances has. Therefore, these people have feelings of responsibility towards minimizing their travel behaviors limiting their carbon footprint.

Ultimately, environmental knowledge is considered as part of environmental awareness, because awareness is a knowledge-based variable and it emphasizes a more cognitive awareness

of environmental problems (Kollmuss & Agyeman, 2002). Environmental knowledge, environmental awareness, environmental concerns, personal norms and environmental responsibility are the internal factors that captured by pro-environmental consciousness (Steg et al., 2014; Whitmarsh & O'Neill, 2010). Hence, it is concluded that pro-environmental consciousness is measured by: environmental knowledge, environmental awareness, environmental concern, personal norms and environmental responsibility are the internal factors that structure pro-environmental consciousness.

Review of Pro-Environmental Behavioral Intentions Literature

In the literature of environmental psychology, Stern and colleagues (1995; 1999; 2000) provided the definition of pro-environmental behavior according to its impact on the environment. Particularly, pro-environmental behavior alters the vacancy of resources from the natural environment or modifies the formation of ecosystems (Stern, 2000). In addition, there are behaviors that do not have a direct impact on the natural resources or formation of eco-habitats (Schmitt et al., 2018; Stern, 2012). These behaviors have relatively low-impact in forming ecosystems and modify level of pollution in the environment (Schmitt et al., 2018). For example, recycling and reducing water use and electricity helps the environment in terms of shifting consumption patterns and habits and have an indirectly impact on environmental improvements (Stern, 2000).

Following Stern (2000), there has been an inconsistency of what genres of pro-environmental behavior are the most effective in mitigating environmental problems, what genres are following by people's behavioral intentions to adopt practices that mitigate global warming and which type is part of a person's household habits and practices. In general, the challenges have been employed by the lack of consistency with the definition of pro-environmental behavior (Vincente-Molina et al., 2013). Accordingly, the author of this

dissertation explains that to predict any genre of a pro-environmental behavior, a definition that clearly defines the predisposition of this behavior should be utilized (Stern, 2000).

On these lines, this dissertation adopts the following definition to capture the behavioral intentions nature of pro-environmental behaviors. Specifically, a definition is that a pro-environmental behavior is an action that is undertaken with the level of a person's behavioral intention to alter or form its lifestyle and habits with primary goal to protect the environment (Vincente-Molina et al., 2013; Stern, 2012). The author highlights that this definition is the ultimate term for studies that explore pro-environmental behavioral intentions. According to the theoretical framework of this study, the philosophy of environmentalism is utilized to explain and support that the internal factors that are intergraded together to explain pro-environmental behaviors have been defined, identified as pro-environmental self-identify or pro-environmental consciousness.

This proposition aims to provide a contribution to the literature, as several studies have yet to indicate a concept that captures all these psychological or internal variables that are following environmental concerns to explain pro-environmental behavior (e.g., Diamantopoulos et al., 2003; Dunlap et al., 2008; Steg et al., 2006; Steg & Vlek, 2009; Steg et al., 2014; Stern, 2000; Vincente-Molina et al., 2013; Whitmarsh & O'Neill, 2010).

Genres of Pro-Environmental Behavioral Intentions

Research has found that the intent people have towards the general pro-environmental behaviors is expected to influence various other genres of pro-environmental behaviors, such as the impact-oriented (Fujii, 2006). Specifically, the impact-oriented genre of pro-environmental behavior that utilized on this study included people's behaviors that have a direct and relatively high-impact effects on the vacancy of natural resources and environmental pollution in a positive

way (Fujii, 2006). Therefore, the intend of people for these pro-environmental practices person can drive them to engage in the behavior which has a significant impact towards the protection of the natural environment (Stern, 2000). For instance, voluntary carbon offsetting schemes are practices that reduce pollutants (e.g., CO₂ emissions) from the atmosphere directly and they have been recently announced as the most effective pro-environmental practice (Mann et al., 2017; Ramkissoon et al., 2012).

According to pro-environmental theorem, behavioral intentions are a predisposition of a person towards the behavior and it is predicted directly from the pro-environmental internal factors (Vincente-Molina et al., 2013). Also, according to attitude-behavior paradigm factors with attitudinal nature are predicting behavioral intentions and behavioral intentions are explaining pro-environmental behavior (Ajzen, 1991). Essentially, the effect attitudes have on behaviors have been limited and usually it is not consistent in terms of its reliable prediction on behavior (Dunlap et al., 2008). As the actual behavior has a weaker effect from the attitudes than the behavioral intentions, in fact pro-environmental behavioral intentions have been found to mediate the relationship between environmental attitudes and pro-environmental behavior (Ajzen, 1991; Dunlap, 2008).

Also, Stern (2000) introduced the term ‘intent-oriented pro-environmental behavior’ and defined it as “the actor’s standpoint behavior that is undertaken with the intention to change the environment” (Stern, 2000, p. 408). This definition has been criticized by many scholars as it has not been used as behavioral intentions but as just regular general pro-environmental actions (Fujii, 2006; Scannell & Gifford, 2010; Steg et al., 2014; Walton & Jones, 2017). Accordingly, general pro-environmental behavioral intentions are people’s willingness to engage in actions

that benefit (only positive) relatively with low (positive) effects when people engage general actions that usually concern their household (Steg & Vlek, 2009).

In the section of theoretical framework, it is reported that according to the concept of pro-environmental behavior there are four types of pro-environmental behaviors. The first is the private-sphere, the second is the public-sphere, the third is actions of organizations and the fourth is environmental activism. Accordingly, this study utilized two genres of pro-environmental behavioral intentions that are under one type of pro-environmental behavior, namely the private-sphere. The author argues in detail why and how the genre of positive and low-impact behavior that is used with the term general pro-environmental behavioral intentions is under the private sphere. But also, the study explains why the second genre of the impact-oriented pro-environmental behavior are under the same type of the private sphere.

General Pro-Environmental Behavioral Intentions

Fujii (2006) discussed for general pro-environmental behavioral intentions and its determinants. Empirical findings showed that environmental attitudes and environmental awareness had major effects on general pro-environmental behavioral intentions (Steg et al., 2006). Studies supported that if people care about an environmental issue and they are aware of the consequences of certain activities (e.g., attendance in sporting events and transportation), then people acquire a sense of responsibility and therefore form strong pro-environmental behavioral intentions (Groot & Steg, 2010; Kollmuss & Agyeman, 2002; Stern, 2012; Walton & Jones, 2017; Whitmarsh & O'Neill, 2010). Findings have concluded that an aspect that affects people's general pro-environmental behavioral intentions is the attitude towards frugality, where frugal behavior guides the consumption of electricity, water and use of gas (e.g., Walton & Jones, 2017; Whitmarsh & O'Neill, 2010). As mentioned, attitude towards frugality captures the

environmental concerns and as the sequential framework of value-belief-norm theory suggests the system of pro-environmental beliefs is captured by the pro-environmental consciousness which is catalyst predictor of general pro-environmental behavioral intentions (Groot & Steg, 2010).

Examples of General Pro-Environmental Behavioral Intentions

General pro-environmental behavioral intentions include environmentally friendly practices such as recycling, less usage of electricity and water, use of public transportation, responsible behaviors as waste management and clean-ups (Steg et al., 2014). Furthermore, people's support of environmental policies and participation in environmental movements constitute another example of indirect general pro-environmental behavior (Stern, 2000). In the human–environment relationship, general pro-environmental behavioral intentions are determined mainly from people's decision-making process and environmental education (Stern, 2000). In the literature, pro-environmental behaviors with low-impact environmental effects have boosted the interest of social and environmental psychologists due to the immediate engagement of a person with them (Stern et al., 1995).

Other examples of general pro-environmental behavioral intentions reflect on peoples' intentions to consumption of organic and local grown food (Walton & Jones, 2017). Also, the intentions to avoid meat and food that requires distribution of the products using transportation modes, are examples of general pro-environmental behavioral intentions that may help to the reduction of CO₂ emissions in the long term, but also, they may influence people's intentions to offset their carbon footprint (Brouwer et al., 2008; Chung et al., 2011). Lastly, use of sustainable transportation (e.g., carpooling and travel with other people, use of public transportation, bike

and walk in short distances) has been increasingly reported as one of the most affordable and general pro-environmental practices (Bamberg et al., 2007).

Consequently, the current study investigates general pro-environmental behavioral intentions of beach volleyball players as literature is limited on how people that engage in physical and recreational activities, and particular participate in more competitive contexts such as sport events (i.e., beach volleyball tournaments) intend to engage in general pro-environmental practices (Brouwer et al., 2008; Chung et al., 2011; Diamantopoulos et al., 2003; Mann & Kump, 2015; Stern, 2000; Whitmarsh & O'Neill, 2010).

In short, general pro-environmental behaviors and intentions are defined by the level that a person engages on these behaviors in regular base (Fujii, 2006). However due to its low-impact outcomes, this genre of behavior is most likely to not contribute directly in environmental improvements (Casalo & Escarion, 2018).

Impact-Oriented Pro-Environmental Behavioral Intentions

Many scholars emphasized the importance of personal values for predicting impact-oriented pro-environmental behavioral intentions (De Groot & Steg, 2010). Studies that explored people's values, they did not explore only the value-action relationship, but the studies paid close attention on value-attitude and value-behavioral intention relationships (De Groot & Steg, 2010). For instance, a study by Halpenny (2010) explored the effect of Canadian residents' sense of place for a National park on their impactful pro-environmental behavioral intentions. Sense of place was measured through place identity, place dependence and place affect (i.e., emotional components), and captured resident's bonding with the national park, and as such, the place bonding was assigned through individual's meanings and values to that spatial location (Halpenny, 2010).

The impact-oriented pro-environmental behaviors captured by relatively high-impact outcomes and usually people have difficulties to engage with. Reasons include high financial costs of the practices and lack of knowledge (Steg et al., 2006). However, the impact-oriented behaviors are more effective compare to the general pro-environmental behavioral intentions with regards the environmental protection (Halpenny, 2010). For instance, when a person engages in impactful and negative behaviors towards the environmental quality, the voluntary carbon offsetting behavior captures the behavioral intention to offset the amount of CO₂ that their activities emitted into the environment (Mann et al., 2017). As a result, voluntary carbon offsetting, has the meaning of neutralizing a person's engagement in activities that have a negative impact on natural environment.

Halpenny (2010) stated that positive attachment with a nature-based setting may be strongly linked to a person's levels of intentions to perform in a way that helps the environment significantly, and therefore human values, namely, egoistic, altruistic and biospheric, are relevant impact-oriented pro-environmental behavioral intentions such as the voluntary carbon offsetting. Accordingly, the personal values may affect significantly people's voluntary carbon offsetting intentions in sport events context and especially, when the sort events are taking place in various coastal areas and the beach that is defined by its natural environment characteristics across the United States (De Groot & Steg, 2010).

Examples of Impact-Oriented Pro-Environmental Behavioral Intentions

In the context of sport and tourism literature, research has not yet been done to explore a conceptual model that includes the variables of sense of place, pro-environmental consciousness, general and impact-oriented pro-environmental behavioral intentions. However, a few observational studies have reported the following outcomes. First, sport event participants may

be worried for the degradation of a place, because the municipality plans to build a hotel, and then they may act pro-environmentally to stop the construction of the hotel (Herrick, 2018). Thus, sport event participants present high levels of impactful pro-environmental behavioral intentions because of the sport event dependence towards the place.

Essentially, a place such as the beach for beach volleyball is a functional place for the tournament players' behavioral recreational activities and their actions are more likely to be impactful to change the current uncomfortable situation (Fujii, 2006). As a result, these people may be highly influenced by the environmental degradation of their best fit location to play beach volleyball and they may engage in carbon offsetting schemes. For example, the variable of sense of place such as it is place dependence, it can predict voluntary carbon offsetting intentions as it captures theoretically egoistic values of sport event participants and have an impact on their behavioral outcomes on this place (Halpenny, 2010).

Accordingly, impact-oriented pro-environmental behavioral intentions are affected by a person's values orientation, which can be captured by the sense of place variables (De Groot & Steg, 2010). Furthermore, a person is more likely to engage in schemes such as carbon offsetting, which is the most efficient impactful pro-environmental practice (Steg et al., 2014). This shows that carbon offsetting schemes are affected by a person's personal values which form their personal norms and personal norms are captured by its pro-environmental self-identity. For example, some people may not be willing to act in general terms, such as beach-clean ups or recycling, due to the lack of the direct contribution on the environmental protection.

As a result, these people may be willing to have a high-impact on the environmental protection by participating in carbon offsetting practices as they believe that they are highly represent environmentalists and feel obliged to engage in a behavior that will cost them

financially (Fujii, 2006). General and impactful pro-environmental behavioral intentions can illustrate significant differences among people's intentions (Ramkissoon et al., 2012). That is the reason that this study's model examines different concepts where the general has an impact on the impactful behavioral intentions.

Examples of strategic schemes with respect preservation of environmental quality have been discussed in the literature and several different approaches and strategies have been introduced (Kyle et al., 2005; Mair, 2011). As mentioned, an example of a strategy for environmental improvement is the voluntary carbon offsetting schemes (Mair, 2011; Wicker, 2017). In the literature, the likelihood that people have towards voluntary carbon offsetting is captured by their voluntary carbon offsetting intentions (Peterson et al., 2013; Stern, 2012).

Voluntary Carbon Offsetting Intentions

The voluntary carbon offsetting intentions are the most effective strategy in terms of its impactful pro-environmental contribution and people provide monetary donations to organizations that offset the CO₂ emissions from the environment (Lu & Wang, 2018). Voluntary carbon offsetting behavior focuses mostly on the reduction of air pollutants such as CO₂ emission from the atmosphere (Lu & Chang, 2018). Specifically, voluntary carbon offsetting aims to reduce CO₂ emissions in the atmosphere and control a potential increase of environmental problems in the future (Brouwer et al., 2008; Peterson et al., 2013). Carbon offsetting focuses on neutralizing emissions caused by consumption in one sector (e.g., transportation) through compensation in another sector (e.g., investment in energy efficient schemes) (Mair, 2011). Also, carbon offsetting contributes to the improvement of air and atmospheric quality (Babakhani et al., 2017). Accordingly, the reduction of these pollutants constitutes the desirable outcome of

carbon offsetting schemes and this outcome becomes more critical when the health and well-being of people is formed by the air quality of the place that they live in (Babakhani et al., 2017).

Globally, sport industry constitutes a large market that has significant impacts on the natural environment due to the generation of CO₂ emissions (Peterson et al., 2013) Within the sport event context CO₂ emissions generated mainly by sport event participants' activities (Collins et al., 2012). Common activities that emit CO₂ are the transportation and the generation of waste from the sport event consumption. However, there is a lack of knowledge as far as the active sport event participants (i.e., beach volleyball tournament players) and their intention towards voluntary carbon offsetting schemes. However, a study by Peterson et al. (2013) aimed to explore trail runners' voluntary carbon offsetting behaviors in marathon races that took place in nature (Getz, 2008; Peterson et al., 2013). Although, research utilized secondary data and it was not captured the psychological variables that predict carbon offsetting behaviors. Accordingly, behavioral intentions for voluntary carbon footprint or CO₂ emissions offsetting is one important psychological variable to understand people's behavioral intentions on effective pro-environmental behavior and it has not yet investigated in sport management literature (Brouwer et al., 2008; Mair, 2011).

Studies in behavioral intentions for voluntary carbon offsetting have grown rapidly in the past twenty-years, and as a scheme it started first in the airlines industry, and later was extended in tourism industry (Mair, 2011). The last five-years, carbon offsetting started to have an interest by the sport industry but also by scholars in sport management (Peterson et al., 2013). Carbon offsetting has been certified by various organizations as a credible solution (Mair, 2011). However, the efficiency and credibility of offsetting strategies have been criticized (Gosling, 2009). For example, media has published documentations where carbon offsetting strategies

cannot be reliable resulting influencing negatively people and not towards voluntary carbon offsetting (Gosling, 2009). However, carbon offsetting providers continue to follow the standards and validation protocols; although there is still low degree of transparency (Gosling, 2009).

In addition, many airline companies were giving the opportunity to passengers to voluntary offset their carbon footprint that generate through their travelling with the airplane (Mair, 2011). Nowadays, due the large expansion of sporting events globally, the high levels of place attraction events have, and the large number of sporting events participants that are travelling, the promotion of voluntary carbon offsetting practices has become quite frequent (Collins et al., 2007, 2012; Mair, 2011).

General Pro-Environmental vs Voluntary Carbon Offsetting Behavioral Intentions

Environmental problems such as environmental pollution has become important discourses for government bodies, educators, businesses and sport organizations (Mann et al., 2017). These problems are mainly due to people's habits such as transportation and overconsumption (Kollmuss & Agyeman, 2002; Stern, 2012). Specifically, in studies that conducted in the United States, overconsumption has been identified as a significant driver of global environmental degradation (Han, 2015; Mann et al., 2017). In addition, mobility and transportation, has been by thirty-two percent the main global source of greenhouse gas emissions (US EPA, 2018). Other actions include global trade, industrial development, and humans' physical comfort and convenience (Casalo & Escarion, 2018; Han, 2015; Mann et al. 2017).

In the literature of consumer behavior, online marketing and web-shopping has been increased tremendously the past two years (Park & Ha, 2012). Specifically, studies have explored people's unawareness of their negative impacts through the online shopping (Van

Birgelen et al., 2011) and found that people believe the online stores do not have any impact on nature as they are not physically constructed in a specific place (Martinez-Espineira & Lyssenko, 2011).

Accordingly, it has been found that the online consumption has negative impact on the environment, due to the transportation and distribution of the products. Instantly, it can be seen that a wrong belief that a general pro-environmental behavior such as online shopping, creates a human action (transportation) that has a negative impact on natural environment (Belk, 2014; Demarque et al., 2015; Martinez-Espineira & Lyssenko, 2011). Taking under consideration the role of education, it is very urgent to understand which type of pro-environmental behaviors (e.g., private and public sphere) should be taught to people in order their actions outcome to be beneficial for the environment (Stern, 2000).

Despite these examples, there are differences between the general and the impact-oriented pro-environmental behavioral intentions (Stern, 2012). As a result, pro-environmental behavior is introduced with two terms, first with the choices people intent to make to reduce their consumption habits, and second people's intent to do in terms of the recovery behaviors towards their impact on the environment (Stern, 2000). For example, while people shopping through an online platform, at first the platform may have to inform them about their impact on the environment, and thus 'educate' them, but also it may be necessary to explain in more detail consumers' environmental impact and provide them the alternative option to offset their carbon footprint.

Both genres of pro-environmental behavior play an important role in environmental protection, but they are predicted by different factors and they have different outcomes on environmental protection (Ramkissoon et al., 2012). Particularly, the difference between these

two genres of pro-environmental behavior, is highly influenced by the psychological aspects of a person, their intentions and their actual actions (Walton & Jones, 2017). For example, a person may have positive attitude towards an environmentally friendly behavior, i.e., use of eco-mobility, but it may not act on same degree as its attitude predicts (Kollmuss & Agyeman, 2002). Another example is an individual that may believe that driving its car for short journeys is an action against its pro-environmental beliefs, but it may continue using it for personal comfort and time (Fujii, 2006). Furthermore, people may self-identified as environmentalists and illustrate positive behavioral intentions towards pro-environmental behaviors (Moser & Kleinhüchelkotten, 2017).

However, their outcome on the natural environment, is measured and determined by the amount of CO₂ emissions that their activities emit into the environment (Walton & Jones, 2017). In other words, people with high pro-environmental self-identity intend to behave in environmental friendly way, but at the same time may engage in actions that highly related with the generation of large amounts of CO₂ emissions (Tsaour et al., 2014). As a result, people with positive environmental perceptions may present positive general pro-environmental behavioral intentions, but they may have a negative impact on the environment (Moser & Kleinhüchelkotten, 2017; Walton & Jones, 2017). The latter pro-environment impact is explored in terms of behavioral intentions towards voluntary carbon offsetting behaviors. Accordingly, if a person willing to offset its carbon emissions than it mitigates its negative impact on the natural environment.

General Predicting Voluntary Carbon Offsetting Intentions

Studies have explored the relationship between general pro-environmental behavioral intentions and impactful intentions such as voluntary carbon offsetting (Fujii, 2006; Kahneman

et al., 1993; Kotchen & Reilling, 2000; Ramkissoon et al., 2012). Research on the concept of pro-environmental behavior showed that pro-environmental perceptions influence positively peoples' intentions to engage in actions that protect the natural environment (Steg & Vlek, 2009; Stern et al., 1995; Stern et al., 1999; Stern, 2000; Stern, 2012). People's environmental mindsets explain their future actions, but also their perceptions are affected from past pro-environmental behaviors (Steg et al., 2014). Past behaviors but also the future behaviors can be both general or impact-oriented (Steg et al., 2006; Steg et al., 2014; Stern et al., 1995). Accordingly, to Ramkissoon et al. (2012) individuals who are high intend to engage in general pro-environmental behaviors they are more likely to voluntary offset their carbon footprint (Kahneman et al., 1993; Liebe et al., 2011; Mann et al., 2017).

Ramkissoon et al. (2013) published a work which illustrated that people who engage general pro-environmental behavioral intentions such as recycling in national parks influenced people to adopt environmentally friendly habits in their everyday life. According to this study there is evidence that the exposure to environmentally friendly practices in certain places affect their pro-environmental behavior in general (Ramkissoon et al., 2012). Also, studies investigated the spillover effect of certain pro-environmental behaviors, on other genres of pro-environmental behaviors (Bem, 1972; Ramkissoon et al., 2012; Vaske & Kobrin, 2001). According to self-perception theory by Bem (1972), a person's behavior in one setting influences its behavior in another place. Accordingly, people's engagement in pro-environmental behavior in natural environment places has been critical determinants to behave with respect towards the environment in general (Vaske & Kobrin, 2001).

Theoretical Framework

As such, the goals of Chapter 2 are to examine the formation of sense of place as an attitude, its role on general pro-environmental behavioral intentions and on voluntary carbon

offsetting intentions; and lastly to investigate the internal factors that has been a critical bridge between attitude and pro-environmental behavior. Notwithstanding, scholars in environmental psychology science have suggested that sense of place as an attitude towards people's pro-environmental perceptions and behaviors have limited effects on voluntary carbon offsetting behaviors. Consequently, the internal factors were explored and captured by people's pro-environmental consciousness, which is highly affected by sense of place. In addition, general pro-environmental behavioral intentions are introduced as a catalyst predictor of voluntary carbon offsetting intentions and outcome of pro-environmental consciousness (Eusebio et al., 2018; Ganzevoort & Van den Born, 2018; Junot et al., 2018; Raymond et al., 2017). The last proposal derives from theories in environmental psychology that have discussed the spillover effects of one behavior to another (Ramkissoon et al., 2012; Truelove et al., 2014). Therefore, the final research objective was to examine the effect that general pro-environmental behavioral intentions have on impact-oriented intentions as voluntary offset carbon offsetting intentions are (Whitmarsh & O'Neill, 2010).

Attitude–Behavior Paradigm

In the attitude-behavior paradigm, concepts that have attitudinal nature predict behavioral intentions and actual behavior (Duarte et al., 2017; Dunlap et al., 2008; Fishbein & Ajzen, 1975). To better understand the origins of this paradigm the definitions of attitude and behavior are presented. Attitude is a “psychological tendency that is expressed by evaluating a particular entity or behavior with some degree of favor or disfavor” (Eagly & Chaiken, 1993, p. 1). Essentially, attitude towards a behavior is the observed response that a person has a positive or negative demeanor on the behavior that is investigated (Ajzen, 1991; Fishbein & Ajzen, 1975). The idea of changing people's attitudes in a certain entity is a prerequisite to changing the behavior towards this entity (Casalo & Escario, 2017). Consequently, some early studies

introduced the behavioral dimension of attitudes, namely conative component (Eagly & Chaiken, 1993). Therefore, attitude has three key domains, the affective, the cognitive and the behavioral responses (Ajzen, 2008).

Affective responses refer to emotional traits, such as the evaluations and feelings of a person (Fishbein & Ajzen, 1975). These emotions could be verbally expressed or detected as physiological reactions to an attitude object (Duarte et al., 2017). For example, a person can admire or disgust a non-profit environmental organization that helps the environment and do charities (Casalo & Escario, 2017). This is the verbal affective reaction (Ajzen, 2008). On the other hand, someone can make facial expressions or bodily reactions to the attitude stimulus, such as the non-profit organization (Casalo & Escario, 2017).

Cognitive domain refers to beliefs, knowledge, perceptions and thoughts about an attitude object (Casalo & Escario, 2017). Similarly, to the affective component of the attitude, the cognitive response can be expressed with verbal or non-verbal expression of beliefs regarding the attitude object. For instance, someone can have verbal expressions, such as the belief that charitable non-profit organization helps the environment and the wildlife, or people's belief that the charity does nothing but evoke a sense of guilt to citizens (Moser & Kleinhüchelkotten, 2017).

Lastly, the conative component represents behavioral outcomes (Duarte et al., 2017). For example, these conative or behavioral outcomes can be expressions of behavioral intentions or observed actions (Ajzen, 2008). A non-verbal outcome may be donation intention towards the non-profit, whereas a verbal may be expressions of someone's intentions to donate or not (Albarracin & Shavitt, 2018).

Substantial research focused on people's attitudes towards the pro-environmental behavior or pro-environmental intention and how it does influence them (Ajzen, 2008; Duarte et al. 2017; Thapa et al., 2005). Environmental attitude has been a critical concept in environmental psychology literature in explaining pro-environmental behavior or intent (Kroesen et al., 2017; Thapa, 1999). However, it has been noted that people's environmental attitudes do not always translate into pro-environmental behavior or intent (e.g., Cerri et al., 2018; Kilbourne & Pickett, 2008; Kollmuss & Agyeman, 2002; Moser, 2015; Rezvani et al., 2018; Tam & Chan, 2018; Thapa, 2010; Vermeir & Verbeke, 2006; Whitburn et al., 2018).

Since control of the global environmental degradation requires behavioral change in order people to reduce their negative impacts on environmental quality, there is a necessity to explore for concepts that narrow down the gap between attitude and behavior (Moser, 2015; Tam & Chan, 2018). In addition, scholars in psychology started having concerns towards the utility of the attitude in explaining behaviors (Whitburn et al., 2018). As a result, the idea of attitude explaining behavior started to shade (Whitmarsh & O'Neill, 2010; Moser, 2015; Stern, 2012; Truelove et al., 2014).

Taken together, attitudes towards the natural environment has expanded within the new environmental paradigm that was introduced by Dunlap and his colleagues (2008). Environmental attitude is defined as a psychological tendency expressed by evaluating human's perceptions on natural resources and conservation of environmental quality, with some degree of favor or disfavor (Albarracin & Shavitt, 2018; Dunlap, 2008). Although, as mentioned the connection between environmental attitudes and pro-environmental behavior or intention have been questioned in the literature and a few studies claim that there are a few variables that needs to be considered and empirically tested to investigate if the gap of environmental attitude-

behavior can become narrower (Chen & Chai, 2010; Kollmuss & Agyeman, 2002; Tam & Chan, 2018).

First, Kollmuss and Agyeman (2002) introduced a conceptual framework where they suggested that could fill-out and significantly narrows down the gap between environmental attitude and pro-environmental behavior. On their framework introduced the ‘internal factors’ which are influential variables that influenced by environmental attitude and foster significantly pro-environmental behavior. The internal factors that explain pro-environmental behavior are interpreted as pro-environmental consciousness (Kollmuss & Agyeman, 2002), and pro-environmental behavior has been defined in terms of its impact on the natural environment and the degree that a behavior alters natural resources (Stern, 2000).

On this study there are introduced and explored two genres of pro-environmental behaviors, the general and the impact-oriented and it is explored their intent (Ramkissoon et al., 2012). According to theory of planned behavior, attitudes predict behavioral intentions (Liu et al., 2018). The effect of environmental attitudes on general and impact-oriented pro-environmental behavioral intentions is supported, as well as environmental attitudes effects on internal factors and thus pro-environmental consciousness. Definitions and examples among internal factors and pro-environmental consciousness and pro-environmental behaviors and behavioral intentions behaviors are provided on the next paragraphs.

Environmental Attitudes

There are numerous of studies focusing on environmental attitudes in terms of a person’s predisposition towards the conservation of the natural environment and its protection (Fujii, 2006; Sakurai, Ota & Uehara, 2017). For example, people’s attitudes towards restoration of ecosystems and protection of plant and wildlife population habitats (Sakurai et al., 2017). For

example, Sakurai et al. (2016) suggests that a person's environmental attitudes can be captured with more targeted behavioral outcomes, such as attitudes towards preservation actions of natural resources in coastal areas. These attitudes explore general behaviors such as beach clean ups and recycling. Also, impact-oriented outcomes related to donations and initiatives that aim in conservation and practices such as voluntary carbon footprint offsetting is explained by attitudes towards impact-oriented behaviors. On these examples, behavioral outcomes differ in terms of the genres of pro-environmental behaviors. According to Kollmuss & Agyeman (2002), different genres of behaviors are affected by different attitudinal concepts in different levels.

In support to attitude-behavior paradigm, this study investigated sense of place concept as an environmental attitude that shapes pro-environmental consciousness which explains general and impact oriented pro-environmental behaviors. Information with regards the environmental nature of sense of place is provided based on work in psychology where attitudes and values have been conceptualized together (Kollmuss & Agyeman, 2002).

Sense of Place as an Environmental Attitude

The first study that considered sense of place as an attitude was conducted by Jorgensen and Stedman (2001). Thus, study was the first to consider place-related concepts as attitudes and develop the concept of sense of place. According to Jorgensen and Stedman (2001) sense of place can be viewed as a system of cognitive, emotional and behavioral aspects (Raymond et al., 2017). In accordance to the new environmental paradigm, but also research studies in environmental psychology the environmental attitudes may include tree sets of items; the self, the biosphere and the others/communal (Kroesen et al., 2017). On these lines, the concept of sense of place will be explored as an attitude by adding and testing the concepts of nature and social bonding with place identity and dependence (Chen & Sekar, 2018; Nicolosi & Corbett,

2018; Raymond et al., 2017). Furthermore, the factors that are tested to explore the formation of sense of place construct, such as the nature bonding, could affect positive or negative the pro-environmental consciousness (Sakurai et al., 2017).

A research study of Scannell and Gifford (2017) investigated the equivalent nature between sense of place and environmental attitudes based on a person's connectedness with the nature, and they name it nature bonding (Ganzevoort & Van den Born, 2018; Raymond et al., 2017). Also, Walton and Jones (2017) noted that connectedness to nature shapes an individuals' emotions, beliefs and behavioral outcomes towards the environmental protection (Ganzevoort & Van den Born, 2018). In terms of values concepts, it is expected that sense of place explains pro-environmental behaviors as construct that captures egoistic, environmental/biospheric and altruistic values (Raymond et al., 2017).

Sense of Place and Human Values

Despite its attitudinal nature, sense of place captures personal values that determine significantly people's several internal factors such as environmental concerns and personal norms (Stern, 2012). Value-belief-norm theory suggests that people's environmentalism can be reached when personal values as a core concept of people's mindsets is boosted (Stern, 2012). Specifically, (Fujii, 2006). In accordance to value-belief-norms theory, sense of place can predict several other internal factors such as people's awareness of consequences of their actions towards the environment (Fujii, 2006). Concisely, with the support of literature another factor that sense of place predicts as a personal value is human's feelings of responsibility towards environmental degradation, which is also known as moral obligation to behave in an environmentally friendly manner (Durr et al., 2017). Furthermore, sense of place shapes an individual's overall connectedness to the natural world. Kollmuss and Agyeman (2002) referred

to this internal variable as emotional involvement with nature. Accordingly, a study by Jorgensen (2016) found that sense of place shapes people's pro-environmental consciousness (Ganzevoort, & Van den Born, 2018; Jorgensen, 2016). The sense of place as personal values is described in the following section which shows how sense of place can associate with pro-environmental consciousness when it represents the internal factors.

Personal values included two domains: (1) the self-enhancement values (i.e., hedonic and egoistic) and (2) the self-transcendence values (i.e., communal, altruistic and biospheric) (Dietz et al., 2017). The reason that these two domains are relevant for this study, is because the sense of place captures people's symbolic meanings that theoretically can stem from a person's value structure towards a place (Jorgensen & Stedman, 2001; Jorgensen, 2016; Raymond et al., 2010; Scannell & Gifford, 2010). Accordingly, the personal values form people's consciousness and determine how they see and perceive themselves (Durr et al., 2017). In pro-environmental terms, personal values by including egoistic and hedonic values, in concert with environmental and altruistic values form the way that people perceived themselves in environmental terms, and this concept has been introduced as pro-environmental self-identity (Whitmarsh & O'Neill, 2010). It is discussed in more detail how the internal factors are captured from pro-environmental consciousness and why pro-environmental consciousness was measured in terms of pro-environmental self-identity.

Self-enhancement values

Self-enhancement values refer to the values of people that reflect their one's self (Hansen et al., 2018; Urien & Kilbourne, 2011). In most studies in consumer behavior area, self-interest is a determinant of consumption behavior (e.g., food and drink purchases) (Groening et al., 2018; Stern, 2000). However, to explore pro-environmental behavior, it has been considered that a person requires altruistic motives in order to protect the environment (Durr et al., 2017). Self-

enhancement values reflect on egoistic perspectives of one's self. For example, if a person is driven to act because of its egoistic values, would be less interest to protect something else than itself for such as the natural environment (Urien & Kilbourne, 2011). The reason that self-enhancement values, alone has this different direction on people's behavior is because people are led by their centered motivation, which is associated with their self-benefits (Groening et al., 2018). Self-enhancement values can be very important predictors of self-identity and pro-environmental consciousness. Thus, the interrelations between the factors is considered very important.

In addition, values related to authority, power, and wealth reflect to self-enhancement values (Urien & Kilbourne, 2011). These values are shaped early in life of an individual and are very difficult to change when a person get older (Steg et al., 2014). Many of the self-enhancement values relate to the hedonic traits of a person (Steg & Vlek, 2009). Self-enhancement values have the opposite meaning compare to self-transcendence values which reflect a concern with collective interest and care of others (Urien & Kilbourne, 2011). In environmental studies, self-enhancement values represented by the hedonic and egoistic values and usually correlate negatively with pro-environmental beliefs, concerns, identity, and behavior (Stern, 2012).

Unfortunately, the literature has been exploring for years how a person can change it environmental attitudes according to its self-enhancement values, but findings suggest that individuals are less concerned about the environment when they care more about themselves (Urien & Kilbourne, 2011). Nevertheless, theoretical frameworks have been developed to distinguish self-enhancement values under two categories, the hedonic and the egoistic (Urien & Kilbourne, 2011). Also, it has been suggested that when a study distinguish these two types of

values, there is a better understanding on the people's formation of the environmental attitudes, identity, personal norms, pro-environmental behavioral intentions and behavior (Ballantyne et al., 2018).

Hedonic values

Hedonic values reflect a key concern with improving one's feelings and reducing effort (Stern, 2012). The hedonic values influence the long-term accessibility of hedonic goals (Steg & Vlek, 2009). Research in environmental psychology discussed the roots of people's hedonic values (Stern, 2000). First, hedonic values reflect on an individual's hedonic consumption, such as decisions of people towards sport goods and services. The consumer behavior results environmental impact which can be increase equivalent with the level of hedonic consumption (Stern, 2012). This is happening because of the pleasure and satisfaction that consumers feel after purchasing the products and consume them (Balantyne et al., 2018). Hedonic values can also reflect on peoples' decisions relate to comfort, such as the sport event participants' choice to travel with their own car and not carpool with others or use the public transportation. However, researchers have highlighted that if studies show an understanding towards people's formation of hedonic values, a new knowledge towards predictions of pro-environmental behaviors and intentions will arrive (Stern, 2012).

Egoistic values

Egoistic values are oriented around person's self-interest and self-identification values and refers to people's concern about the environment of a place based on their own lives and self (Steg et al., 2014; Stern et al., 1999). Stern (2000) has characterized the egoistic values as unity of one's self with a place to cover its needs and enhance its self. For this study, sense of place connects functional needs with place dependence and identity (Raymond et al., 2017). Therefore, the egoistic values can capture sense of place first dimension, namely personal connections to a

place, such as the place identity and the place dependence variables (Raymond et al, 2017; Steg et al., 2014). Sense of self-identity towards environmentalism is a factor that captured by pro-environmental self-identity. Egoistic values associated with a person's self-transcendence values which motivate people to enhance their understanding and appreciation of a place for themselves (Walton & Jones, 2017).

Self-transcendence values

Self-transcendence values reflect that individuals consider the interest of the collective when making decisions (Cheung et al., 2014; Ploum et al., 2018). The value theory indicated that altruistic and biospheric values are under the category of self-transcendence values (Ploum et al., 2018). The difference between the altruistic and the biospheric values reflect on a person's environmental concerns, environmental awareness and emotional involvement, personal norms, pro-environmental behavioral intentions and behaviors (Stern, 2012). In other words, altruistic values reflect when a person cares and concerns for other people or other entities and object (Ploum et al., 2018). Biospheric values reflect on care and concern towards the natural environment and its resources (e.g., wild life).

In addition, self-transcendence values associate with the intrinsic motives to protect the environment, and psychologically they suppress personal interest on growth and power (Steg et al., 2014). According to the pro-environmental theorem there is a growing interest by scholars on the field of environmentalism regarding the relationship between communal values and pro-environmental perceptions (Stern, 2000). Because environmental problems are bigger than individual's problem, the key values of interest are communal, altruistic and biospheric values (Fujii, 2006). Essentially, self-transcendence values include values relative to sense of community, connectedness to nature, and openness for new social relationships (Herrick, 2018). According to Walton and Jones (2017), the self-transcendence values form pro-environmental

perceptions and particularly, pro-environmental self-identity. In the following paragraphs, author presents the self-transcendence values terms that used as a theoretical basis to support its argument of the new formation of sense of place.

Communal values

According to social psychology, communal values express appreciation of the value and importance of the community (Rozin et al., 2011). A key characteristic of communal values is the feature of collectivism which is defined as a distinct trait from individualism (Walton & Jones, 2017). Communal values are usually associated with social bonding in occasions when people seek for social interactions (Rozin et al., 2011). Examples relate to social gathering, events, and festivals (Stern, 2000). Social gatherings are good platforms for social interactions. Essentially, people meet and share their interests and opinions in social circles that are identical to themselves (Trapnell & Paulhus, 2012). It has been found that shared communal values among people form social bonding (Raymond et al., 2010). The current study investigates communal values through the lens of sport events as a place that may determine social interactions.

Altruistic values

Altruistic values reflect to an individual's concerns for the well-being of other human beings (Steg et al., 2014). For example, altruistic values associated with the community, family and friends' loyalty, people's duty in society and sense of rootedness to a place (Raymond et al., 2010; Stern et al., 1999). Therefore, altruistic values can back up the sense of place dimension that stands for a person's community connections to a place, such as the social bonding variable (Raymond et al., 2010). Altruistic values have found to be critical on a person's meanings towards an entity or person (Stern, 2000). For example, the symbolic meanings that a place has to a person can be shaped by its altruistic values, as a person's experience to a place with other

people creates fond memories, and fond memories of a place make it has symbolic meaning for someone (Stern et al., 1999).

Biospheric values

Biospheric values centralize individual's concerns towards the natural environment elements (e.g., ecosystems and animal and plant species) (Stern et al., 1999). Equivalently, biospheric values display the concern for the welfare of natural environment features, of a place and aim to a person harmony with nature (Steg et al., 2014; Scannell & Gifford, 2017; Stern, 2012). In that sense, environmental connection as a dimension of sense of place can be supported from a person's biospheric values and measured with the variable of nature bonding (Raymond et al., 2010). Studies in environmental education research have found that connectedness to nature is a variable that captures the biospheric or environmental values of people (Prevot et al., 2018). Also, it has been stated that people's experiences with nature directly determines their pro-environmental self-identity (Brugger et al., 2011; Jorgensen, 2016; Whitburn et al., 2018).

Sense of Place and Pro-Environmental Behavior Concepts

The concept of sense of place has been used as the construct that is formed by place identity and place dependence (Raymond et al., 2017). In terms of how sense of place might affect pro-environmental behavioral intentions at first place, Jorgensen and Stedman (2001) stated that sense of place is an attitude. In accordance to attitude-behavior paradigm sense of place as an attitudinal construct explains attitudes towards a place and it captures cognitive, affective and behavioral components that determine a person pro-environmental behavior in a place (e.g., Dunlap et al., 2008; Raymond et al., 2010; Stern, 2000; Whitburn et al., 2018).

However, in the literature, sense of place has challenged in explain directly people's pro-environmental behavior (Scannell & Gifford, 2010). As a result, there is a need for further exploration on the theoretical concepts that has been proposed to be critical components that

narrow down the gap between sense of place and pro-environmental behavior. These components have been used with the term of internal factors or psychological variables of a person. These psychological variables as mentioned constitute a person's pro-environmental consciousness.

Internal factors as pro-environmental consciousness

Stern (2000) developed the value-belief-norm theory to explore the process that a person can become an environmentalist. Essentially, value-belief-norm theory proposes that personal values predict several internal factors that form people's environmentalism and make individuals engage in pro-environmental behaviors and intentions (Stern, 2000). Stern et al. (1999) defined the value-belief-norm theory as the first theory of environmentalism. According to Stern et al. (1999), environmentalism is explained by a conceptual synthesis of norm-activation theory, the theory of personal values and the new ecological paradigm. Specifically, environmentalism is the theory that the environment has the primary role on a person's life and shapes its identity and consciousness. Similarly, an individual becomes an environmentalist when it advocates the preservation of natural environment and its features (e.g., wildlife, plants) and it has a developed pro-environmental ideology (Milton, 2002).

The process of environmentalism incorporates a few psychological (aka internal) factors that relate with people's beliefs and values (Sharma & Bansal, 2013). As discussed, the process starts with the variables of personal values, which determine pro-environmental beliefs. Pro-environmental beliefs are a complex system of the following internal factors: environmental awareness and concerns (aspects of the new ecological paradigm), ascription of responsibility and pro-environmental personal norms (Stern et al., 1999). Adding to these variables, recent studies have included on this psychological system factors such as environmental knowledge and emotional involvement with nature (Kollmuss & Agyeman, 2002). Ultimately, as humans' life

experiences have a multi-sensory mode that creates meanings between people and nature, it would be crucial to define this multi-conceptual mechanism as pro-environmental consciousness. By the same token, the multi-sensory system of pro-environmental consciousness refers to the internal factors related to people's tendencies to engage in pro-environmental behavior, and therefore the internal factors form pro-environmental consciousness (Sharma & Bansal, 2013).

Essentially, pro-environmental consciousness is a complex system that constitutes the catalyst of pro-environmental behavioral intentions (Herrick, 2018; Jorgensen, 2016; Moser & Kleinhüchelkotten, 2017; Prevot et al., 2018). In terms of direct impact, pro-environmental consciousness expected to predict both general and voluntary carbon offsetting intentions.

Pro-environmental self-identity

Furthermore, a recent study by Moser and Kleinhüchelkotten (2017) explained theoretically how pro-environmental consciousness connects with environmentalism. Thus, this connects derives from the way that a person views itself with regards the environment pro-environmental conservation. Similarly, the follow-up study by Walton and Jones (2017) reported in support to Moser and Kleinhüchelkotten (2017) that the most legit construct that can measure pro-environmental consciousness and be valid variable in terms of its construct validity is pro-environmental self-identity. As a result, pro-environmental self-identity is a concept that capture in statistical terms the internal factors that can narrow down the gap of the relationship sense of place and pro-environmental behavioral intentions (Herrick, 2018; Jorgensen, 2016; Moser & Kleinhüchelkotten, 2017; Prevot et al., 2018). In short, a person's pro-environmental self-identity is reflected on people beliefs, values and attitudes (Van der Werff et al., 2013). According to Jorgensen (2016) sense of place forms pro-environmental consciousness and it has been found that personal values, including self-enhancement, biospheric and communal are critical ingredients of people's pro-environmental self-identity.

In further support on this proposal, pro-environmental self-identity attempts to explain the multi-facets of self-identity and ‘consciousness’ into a more comprehensive theoretical construct that have been drawn from identity theory literature (Kollmuss & Agyeman, 2002; Moser & Kleinhüchelkotten, 2017). Specifically, identity theory conceptualizes general sets of personal expectations associated with the behavioral outcomes of a person (Landon et al., 2018; Wittenberg et al., 2018). In the environmental psychology pro-environmental self-identity is defined as “the elements by which an individual view itself as being part of an integrated social and biophysical system characterized by mutual beneficial processes and nested webs of relationships” (Walton & Jones, 2017, p. 10) Herrick (2018) proposed that the people’s pro-environmental self-identify captured sense of self and sense of place.

At the root of the theories of environmentalism it is discussed in the following paragraph the theorems of pro-environmental actions. Theoretically driven, people’s environmental worldview concepts can explain pro-environmental behavior and intentions. Likewise, according to the thorough review of the literature in Chapter 2, pro-environmental self-identity is the catalyst predictor of individuals’ pro-environmental behavioral intentions and determines both genres of general and impact-oriented intentions (Van der Werff et al., 2013).

Concept of pro-environmental behavior

Many scientific publications have developed theoretical frameworks to predict humans pro-environmental behaviors (e.g., Fujii, 2006; Kollmuss & Agyeman, 2002; Raymond et al., 2017; Stern, 2000; Tsaur et al., 2014; Tam & Chan, 2018; Walton & Jones, 2017). However, their findings did not illustrate a clear determinant of a behavior or intentions that could improve environmental quality. These challenges were occurred due to the misinterpretation of the pro-environmental theorem and the philosophy of environmentalism (Mann et al., 2017). The theoretical problem is the vague definition of which human actions are considered or not

considered as pro-environmental (Fujii, 2006); and especially, on what frequency and what level of impact a behavior can be identified as pro-environmental.

Environmental behavior defined as the way which people act towards environmental conservation and refer to the level of destruction or the level of protection towards the limited natural resources (Tam & Chan, 2018). From that specific definition, literature starts to misinterpret environmentalism. The most important detail of the term pro-environmental is the ‘pro-’ which indicates the ‘positive’ environmental behavior. In other words, pro-environmental behavior is people’s actions that protect the natural environment, is beneficial to all-natural elements and living organisms as well as is the action where people neutralize their activities negative impacts (Triantafyllidis & Kaplanidou, 2018; Tsaur et al., 2014; Vincente-Molina et al., 2013). As a result, this dissertation utilized two theoretical terms derived from the definition of ‘pro-environmental’ and not just ‘environmental’ definition.

In addition, the concept of pro-environmental behavior has been found to cover different meanings, forms, actions and discourses in a large variety of contexts (Stern, 2000). Accordingly, the concept pro-environmental behavior compiles four major types of behavior (Bamberg & Moser, 2007; Kollmuss & Agyeman, 2002; Steg et al., 2006; Stern, 2012). The first type has been defined by Stern (2000) as the private sphere of pro-environmental behavior. This behavior related to household activities, such as purchasing green products, recycling, and use public transportation for short journeys (Triantafyllidis et al., 2018; Walton & Jones, 2017). Also, private-sphere can be seen mostly as consumers’ behaviors strategies and has its roots on consumer behavior research (Stern, 2000).

The second type of pro-environmental behavior is the public-sphere and relates to practices related to policies, governmental decisions and technological schemes, such as the CO₂

emissions levels (Stern, 2000). The second type of behavior include practices such as environmental citizenship and support of environmental policies (Steg et al., 2014). Usually people engage on this type of behavior due to personal benefits, and sometimes because of financial conflicts (Stern, 2000).

The third type is the organizations actions, which is based on what workers of an organizations are doing in benefit the environment and this has been influenced mainly by the organizational culture (Stern, 2000). However, due to the spillover effects theorem of pro-environmental concept, it has been found that employee behaviors have the power to change organizations culture and engage in pro-environmental actions (Steg & Vlek, 2009; Steg et al., 2014; Stern, 2012).

The fourth type is the environmental activism where individuals are actively involved within environmental organizations and their major focus is to be committed and advocate the cause of the environmentalism movement (Stern, 2000). Even though the perceptions and purpose of this type of behavior is the environmental protection, it has been highlighted that environmental activism is part of the social movement scholarship. In fact, there are evidences that activism based on the roots of political and social change (Bennet, 2003).

This study argues that current literature has provided a variety of different terms among the genres and types of pro-environmental behaviors. Specifically, the terms used to describe several different types of pro-environmental behavior should be considered based on the context that it is used in. Accordingly, the current study utilized the private sphere of pro-environmental behavior, due to the context of sport event consumption. And specifically, the genres of general pro-environmental behavior and voluntary carbon offsetting intentions among sport event participants are explored as behaviors under the type of private sphere.

Pro-environmental behavioral intentions

This study captures the behavioral intentions through the genre of general pro-environmental behaviors, where people intent to engage in behaviors that have relatively lower negative impacts on the environment (Stern, 2000). And also, through the genre of impact-oriented pro-environmental actions through the voluntary carbon offsetting intentions (Vincente-Molina et al., 2013). Voluntary carbon offsetting intentions aims to capture the willingness of people to engage in an impact-oriented behavior that includes specific technological practices that directly affect in benefit of the natural environment (Stern, 2000).

In conclusion, people are influenced by certain types of behaviors and they engage in another behavior (Stern, 2000). Accordingly, general pro-environmental behavioral intentions can play a crucial role and predict impact-oriented behavior such as voluntary carbon offsetting intentions. In the literature there are many theories that support this spillover effect of one pro-environmental behavioral to another. Accordingly, the cause factors of each type (i.e., private and public sphere), may be different, and therefore this study utilizes the genres of general pro-environmental behavioral intentions and the voluntary carbon offsetting intentions as two genres that are included under the type of private sphere.

Hypotheses Development

This dissertation developed a conceptual model to test empirically a novel formation of sense of place. In support to attitude-behavior paradigm, sense of place was developed to understand the psychological connection between people and places. Accordingly, personal, environmental and communal connections formed the foundation of the hypothetical model that aimed to explain beach volleyball participants' pro-environmental behavior (Fujii, 2006; Raymond et al., 2010; Raymond et al., 2017; Steg & Vlek, 2009; Steg et al., 2014; Stern 2000). Through the lens of personal connections to a place, sense of place captured concepts related to

hedonic and egoistic values, such as place identity and place dependence (Raymond et al., 2017; Steg et al., 2014; Truelove & Gills, 2018; Whitmarsh & O'Neill, 2010). By means of environmental connections to a place, the environmental values represented with nature bonding (Brugger et al., 2011; Gosling & Williams, 2010; Junot et al., 2017; Lee, 2011; Raymond et al., 2010; Stern, 2012; Truelove & Gills, 2018). Lastly, within the scope of communal connections to a place, values related to community were denoted with social bonding (Fujii, 2006; Herrick, 2018).

Apart from the criticisms regarding sense of place deficiency, it has been proposed that research should view sense of place as a concept that reflects on the meaningful bonding between people and the features of a place (Manzo & Devine-Wright, 2014). Specifically, by literature emphasizes research mostly on people's personal connections with a place, without underscores the importance of people's bonding with the natural environment resources and other people of that place (Ramkissoon et al., 2013). Therefore, after constructing the new concept of sense of place, it was explored its formation on predicting pro-environmental self-identity. Taken together the important role of pro-environmental self-identity, the hypothetical model explored how sense of place can also affect pro-environmental behavioral intentions (Raymond et al., 2010). To this point, the ultimate scope of the hypotheses investigated how sense of place interact with people's environmentalism within the framework of sport event participation on the beach (e.g., Ramkissoon et al., 2012; Scannell & Gifford, 2010; Stern, 2012).

Hypothesis One

People's biospheric and communal values concurrently with cognition and conation, as well as self-enhancement values have a holistic picture of an applicable sense of place concept. The proposed sense of place relates with people's connectedness to nature and openness to social

interaction and build upon human values to enhance bonding with other people through collective experiences on a place (Herrick, 2018; Raymond et al., 2017). In addition, sense of place as an attitude where place identity captures people's cognitive aspects and place dependence captures the conative aspects does not comprise environmental and communal aspects (Jorgensen & Stedman, 2001; 2006). Therefore, the conceptual mechanism of nature bonding as the affective component of the features of a place and social bonding as the emotional and collective aspect in a place should be added together with personal connections and thus:

H₁. Sense of place is formed by place identity, place dependence, nature bonding and social bonding.

Hypothesis Two

Backing to human values, both self-enhancement and self-transcendence values shape people's perceptions, identity and behaviors. Given this, people are influenced by their own personal values and they form perceptions (Steg et al., 2014). Instantly, research that focus of environmental psychology of a person uphold that personal values ascertain pro-environmental perceptions, identity and behaviors. Following the research by Stern (2000) and Kollmuss and Agyeman (2002), personal values have significant effects on people's environmental consciousness. Taken together the importance of sense of place on explaining pro-environmental self-identity and work by Whitmarsh and O'Neill (2010), consciousness is indistinguishable with self-identity (Raymond et al., 2010; Scannell & Gifford, 2010) and therefore:

H₂. Sense of place has a positive effect on beach volleyball tournament players pro-environmental self-identity.

Hypothesis Three

Peoples psychological cognition, emotions and conation is highly associated their aspirations (Jorgensen & Stedman, 2006). In this way, attitudes towards environmental protection significantly clarifies people's intentions towards actions that protect the environment

(Dunlap, 2008). Within sense of place, nature bonding, in concert with communal values, identity and conation is viewed as an environmental attitude. Therefore, sense of place as a psychological mechanism can explain people's general pro-environmental behavioral intentions. (Vaske & Kobrin, 2001; Scannell & Gifford, 2010). In sport management literature, sense of place has not been tested yet as a determinant of sport event participants pro-environmental behavioral intentions (Du Preez & Heath, 2016; McCullough & Kellison, 2016); and therefore:

H₃: Sense of place has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions.

Hypothesis Four

Based on Stern's (2000) value-belief-norm theory this study investigated how pro-environmental self-identity explains individuals' general pro-environmental actions. Also, studies have found that environmental knowledge, awareness, environmental concerns, personal norms and pro-environmental responsibility form a system that represents pro-environmental consciousness (Kollmuss & Agyeman, 2002; Steg et al., 2006; Stern, 2000; Whitmarsh & O'Neill, 2010). Furthermore, empirical evidence indicated that internal pro-environmental factors are illustrated as pro-environmental consciousness or pro-environmental self-identity, and both explain general pro-environmental behavioral intentions (Fujii, 2006; Steg et al., 2014; Stern, 2000; Walton & Jones, 2017; Whitmarsh & O'Neill, 2010). The current research proposed the next hypothesis which was tested to explore the effects on beach volleyball tournament players' pro-environmental self-identity on general pro-environmental behavioral intentions.

Therefore:

H₄: Pro-environmental self-identity has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions.

Hypothesis Five

The effects of sense of place on impact-oriented pro-environmental behaviors has not been tested empirically yet. However, some evidence showed that personal values predict pro-environmental behaviors in specific places (Du Preez & Heath, 2016; Peterson et al., 2013; Sato et al., 2017). In addition, research detected evidence of a conceptual connection between sense of place and specific pro-environmental behaviors that have direct effects on areas (Halpenny, 2010; Jorgensen & Stedman, 2001; Ramkissoon et al., 2012; Raymond et al., 2010; Raymond et al., 2017). Accordingly, findings showed that sense of place affect pro-environmental behavioral intentions in nature-based recreational settings (Du Preez & Heath, 2016; Gosling & Williams, 2010; Han, 2015; Halpenny, 2010; Wicker, 2017). Collectively with studies that research nature bonding and openness to social relationships among residents in specific places, and its prediction on significantly specific behaviors that preserve and protect directly the natural environment of the local area (Halpenny, 2010; Scannell & Gifford, 2010) it was proposed that:

H₅: Sense of place has a positive effect on beach volleyball tournament players voluntary carbon offsetting intentions.

Hypothesis Six

Individuals who are pro-environmental conscious are highly willing to take actions that would directly and highly will protect the environment (Stern et al., 1995). Based on the attitude-behavior paradigm psychological factors such as emotional involvement with nature, environmental concerns and beliefs, are captured as a concept that is measured as pro-environmental self-identity (Kollmuss & Agyeman, 2002; Schlegelmilch et al., 1996). In support to the internal psychological pro-environmental factors such as pro-environmental responsibility and personal norms, it has been explained that voluntary carbon offsetting intentions are

explained by people who illustrate high levels of pro-environmental self-identity (Steg et al., 2014; Whitmarsh & O'Neill, 2010). Therefore, it was proposed:

H₆: Pro-environmental self-identity has a positive effect on beach volleyball tournament players voluntary carbon offsetting intentions.

Hypothesis Seven

Studies in sport management literature have not explored yet the relationship between general pro-environmental behavioral intentions and its effects on behaviors related to voluntary carbon offsetting. Studies by Truelove et al. (2013) and Ramkissoon et al. (2012) found that general pro-environmental behavioral intentions determined recreationists' impact-oriented pro-environmental behaviors in specific nature-based places. Their findings found theoretical support on the spillover effects among different types of pro-environmental behavior (Stern et al., 1999; Truelove et al., 2013; Ramkissoon et al., 2012). Thus, it was proposed that:

H₇: General pro-environmental behavioral intentions have a positive effect on beach volleyball tournament players carbon footprint offsetting intentions.

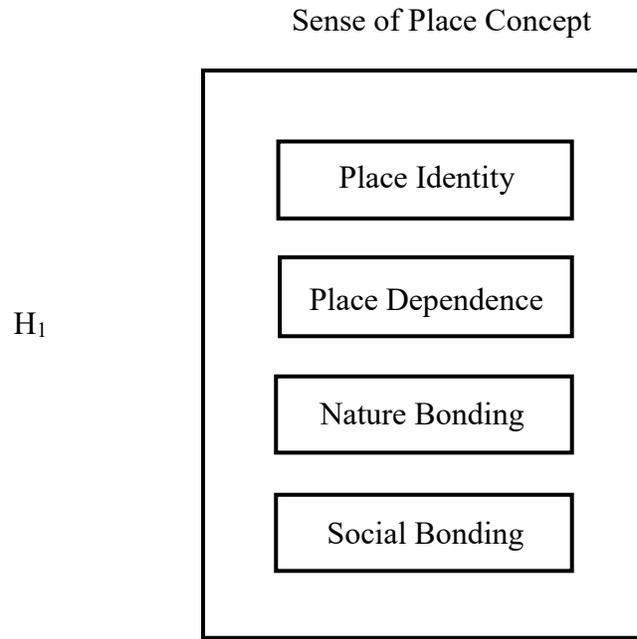


Figure 2-1. Hypothetical formation of sense of place.

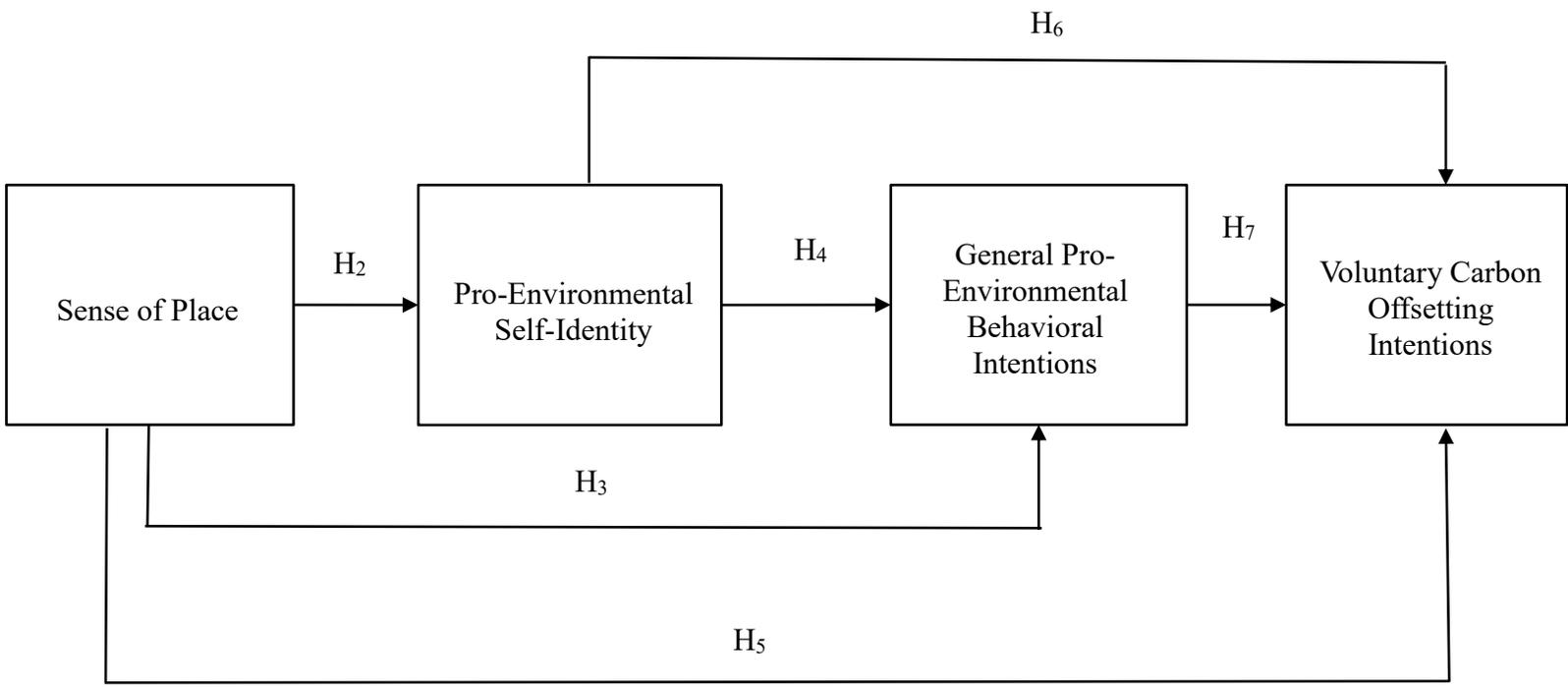


Figure 2-2. Hypothetical process for beach volleyball tournament players pro-environmental behavior.

CHAPTER 3 METHOD

Study Design

This dissertation was designed to understand formation of sense of place and how it influences pro-environmental behaviors. Therewith, the relative magnitude of people's perceptions towards natural environment and its resources, their pro-environmental self-identity and their willingness to behave pro-environmental, this research collected data from beach volleyball tournament players. The method section discusses the techniques that this dissertation used, and it illustrates how the data was collected and analyzed. Chapter 3 is divided into the following sections: (1) pilot study, (2) dissertation study, (3) instrumentation, and (4) data analysis.

Pilot Study

The questionnaire used for the dissertation study was adapted from previous work in the field of environmental psychology and tourism, recreation and sport management. For the completion of the final questions, a pilot study was conducted to determine the validity of the items. Data for the pilot study was collected through an on-line web-survey that was constructed through Qualtrics software and distributed through an online social media platform. Specifically, the web-survey link was sent to students, that were registered members of the university's beach volleyball club. According to Belland et al. (2017), in exploratory research, it is beneficial to pretest the survey to make sure that the items are clear and not intimidating.

The participants of the pilot study were beach volleyball players that had participated in beach volleyball tournaments the past twelve-months. Participants that were targeted included amateur beach volleyball players, which is the population of the market that has met tremendous growth the past decade in amateur sport event participation. The primary investigator sent the

web-surveys link through a social media platform to the members of the closed group of the university's beach volleyball club members.

The completion time ranged between five- to ten-minutes. The web-link was sent to ($N = 57$) registered members of the 2018 university beach volleyball club, from which, ($N = 33$) participants completed fully the web-survey. The response rate was 57.9%. Data from the pilot study were inputted, cleaned, screened and analyzed in Statistical Package for Social Science (SPSS). Results of the pilot study were carefully reviewed by the primary investigator and his academic advisor. As a result, items of the questionnaire that used in measurement scales and sociodemographic information were edited to be more adequate to content and purpose of the dissertation.

Dissertation Study

The questionnaire was finalized, and it was ready for the data collection of the main dissertation study. The primary investigator used the Amazon Mechanical Turk (MTurk) as a platform to collect the data. Amazon Mechanical Turk was launched in 2005 and it is a micro task marketplace run by Amazon.com, Inc. (Mason & Suri, 2011). The next paragraph discusses in detail the quality of the MTurk in data collection process, the procedure and its characteristics.

Amazon Mechanical Turk

According to Burhmester et al. (2011), MTurk is a novel and highly effective tool for data collection and research in social-psychology and other scientific fields such as consumer behavior and environmental psychology. There has been highlighted that research on these field is highly relying on student samples (Mason & Suri, 2011). Evidence recommends that collecting data through the web can reduce the biases that found in traditional data collocations techniques (Hamby & Taylor, 2016). Amazon charges consumers that are called as requesters a fee that ranges between 20% to 45% over the compensation of MTurk participants of the web-

surveys (Buhrmester et al., 2011). The MTurk participants include the people that ‘work’ for MTurk they complete web-surveys with a compensation exchange. The MTurk respondents are also known as MTurk workers. It has been found that currently there are over that 500,000 MTurk workers from over 190 countries (Stewart et al., 2016).

Amazon’s Mechanical Turk is a powerful tool for researchers with many advantages, and it has demonstrated the validity of research on MTurk (Buhrmester et al., 2011). First, MTurk provides easy access to the determined subject pool by the researcher (Mason & Suri, 2011). Also, there is a subject pool diversity which enhances the generalizability of the results and external validity (Hamby & Taylor, 2016). Essentially, MTurk provides a large access, a stable pool of participants with a diverse demographic background. In addition, MTurk is a low-cost tool and it is built-in compensation mechanism through flat rates and bonuses that significantly reduce the difficulties of compensating MTurk workers for their participation (Hamby & Taylor, 2016). Furthermore, MTurk is very fast and this makes convenient to researchers to replicate studies in a very short period, as well as to reduce the time that a researcher needs to go over the theory and hypotheses development and testing them, analyzing the results and updated the theoretical framework (Stewart et al., 2016). Therefore, for the current study MTurk was utilized as the tool for recruited participants that have experience with beach volleyball tournaments and there were beach volleyball tournament players.

Initially, a pre-test was conducted to evaluate the questions, but especially to evaluate the input of screening questions. Screening questions were included to capture and identify respondents that were not legitimate to the sample population. In detail all screening questions are reported (please see Data Analysis section). The web-link was launched in MTurk for about an hour. MTurk participants who completed the web-survey were received a compensation of \$

.50 cents. When the researcher ended the publicity of the web-survey, he downloaded and inserted the dataset in SPSS. After the data was cleaned and screened, he analyzed the data and confirmed that valid performance of the screening questions. Therefore, on the 26th March 2018, the final dissertation web-survey was launched and published in MTurk. Description of the research setting, the target population and the procedure of recruitment is presented below in detail.

Research Setting

This research documented perceptions of beach volleyball tournament players that were over 18-years old and they had participated in beach volleyball tournaments that took place on the natural environment of the beach the past twelve-months in the United States. The participants were identified as beach volleyball tournament players who had experience in a range of beach volleyball tournament divisions. A variety of beach volleyball tournaments were included such as double men's, double women's and double coed's tournaments. Coed tournaments are the competition where the team must have one male and one female (MacGregor & Scott, 1993).

Few beach volleyball tournaments may be hosted in places that are not close to coastal areas. However, these places include mainly environmental resources, such as natural parks, mountains, coastal space of lakes and rivers and small islands. The grass beach volleyball tournaments utilize the grass as the base of the volleyball courts. This type of beach volleyball tournaments has presented a significant rise in the amateur sport participation market (FIVB, 2018). However, the place that this study targeted was only beach volleyball on the beach of coastal areas (ocean and lakes) that courts are most likely on the sand. The characteristics are the

traditional components of beach volleyball activity and tournaments, and therefore the key goal of this research was to capture the connections of beach volleyball players with the beach.

Data collection fulfilled all the criteria that set by the authors for prior respondents complete the web-surveys. Specifically, beach volleyball players were subjects that had exposed in coastal environments by the ocean (e.g., Florida and California beaches) by the coastal spaces of large lakes in the United States, such as areas in northwestern region (e.g., Illinois, Ohio and Michigan). Overall, all participants have experiences to the natural environment the beach. Given that beach as a place for recreational activities constitutes a natural environment setting; beach elements and features, such as the ocean or lake, wildlife and habitats, constitute beach natural resources (Knez et al., 2018). Lastly, the setting of coastal areas and particularly the beach, has increase the concern of scientists and residents of coastal areas due to the increase number of the extreme weather conditions on the beach (e.g., conditions as wind, rain, high temperature). Specifically, causes relate to sea-levels rise (Dietz et al., 2013; Knez et al., 2018).

Participants and Procedure

The conceptual model formed eight main hypotheses that were tested through a sample of participants that were recruited through MTurk. Hypotheses and purpose of the study indicated that the total number of beach volleyball tournament players in the United States are approximately 5.49 million people (Statista, 2018). This number represents the 1.69% of the total ($N = 326$ Million) people that live in the United States. Also, the Amazon MTurk workers who are registered in Amazon are over 500,000 with a diverse demographic background and across all the 52 states of the United States. Evidence suggests MTurk workers provide rapid, high-quality, and inexpensive data (Truelove & Gillis, 2018). For collection of legit data, the web-survey included six screening questions across the questionnaire. Ultimately, it could be

identified by the researcher the MTurk workers that were legit representatives of the total population of beach volleyball tournament players took place on the beach; and which MTurk workers were not: (1) beach volleyball players, (2) beach volleyball participants in beach volleyball tournaments and (3) participants of beach volleyball tournaments that take place on the beaches across the United States.

Furthermore, measurement scales included thirty-one-items that captured the participants' sense of place, pro-environmental self-identity, general pro-environmental behavioral intentions and voluntary carbon offsetting intentions (Annoni & Charron, 2017; Florida Volleyball, 2018). At the end of the questionnaire participants were requested to respond in eight-sociodemographic questions.

To clarify participants' past experiences regarding their participation in beach volleyball tournaments that hosted only on beaches of the coastal areas in the United States exclusively, six-screening questions was included in the web-survey questionnaire to clarify the legit respondents (Annoni & Charron, 2017). Specifically, these six-screening questions were required to be answered by respondents who had to clarify the times of their tournament participation on beach volleyball tournament players, the name and the state that was in the United States as well as the frequency of respondents in participating in beach volleyball tournaments. Cases in data set who did not cover the criteria that were required for a person to have to identified as a beach volleyball player were deleted. The dates and the places that beach volleyball tournaments hosted in the season of 2017 and 2018 were gathered from the Volley America (2018) website. Specifically, Volley America (2018) illustrated the beach volleyball tournaments took place in 2017 and are taking place in 2018 in the United States.

A brief information of the purpose of the web-survey was provided at the first page of the web-survey to the MTurk workers. Specifically, the informed consent form was provided, and they had to read and agree with it to continue to the first question of the study. The informed consent was approved by the Institutional Review Board (IRB) of the University of Florida and it assured that all responses would be completely confidential, anonymous and the web-survey should not take more than 15 minutes to complete. According to Volley USA (2018), in 2017 in the United States, approximately 2,400 beach volleyball tournaments were hosted across the nation. Also, it was displayed that most of the beach volleyball tournaments were held in California, Florida, South Carolina and New York (Volley USA, 2018).

In more detail, the website of California beach volleyball association (CBVA) was investigated to receive information related to the number of tournaments hosted in California in 2017 (CBVA, 2018). Likewise, information regarding the tournaments hosted in Florida was obtained by the Florida beach volleyball (Florida Beach Volleyball, 2018; Volley America, 2018). Also, the volley America association websites was explored to double check for the number of tournament hosted in California and Florida, as well as in South Carolina and New York, since is the key administration that provides all necessary information for beach volleyball in the United States (Volley America, 2018). In short, researcher gathered: the number of events (i.e., tournaments) took place in the United States on 2017 and January, February and March of 2018; the names of these beach volleyball tournaments, the name for each tournament's beach; and the name of the state for each beach where each tournament took place.

Sampling Frame

The sampling frame included beach volleyball tournament players who had registered to play in beach volleyball tournaments in the United States coastal areas the past twelve months.

Data collection started on the 26th of March 2018 at 2:30 PM Eastern time and it was completed on the 27th of March 2018 at 1:15 PM Eastern time. As mentioned, screening questions assured that MTurk workers are legit representatives of the sample and they are all presented in Data Analysis section. Based on the results of the first screening item, respondents who had not participated at least in one beach volleyball tournament the past twelve months were screened out prior the preliminary data analysis stage. Specifically, the first screening question asked MTurk participants to determine if they are actual active players of beach volleyball tournaments. The Qualtrics software was set to exclude respondents that who chose ‘No’ to this question by skipping them to the end of survey. For example, the item was inserted at the beginning of the web-survey and was the first question of the entire questionnaire. Specifically, the statement was: ‘This web-survey targets only beach volleyball players. If you are not a beach volleyball player, please do not complete the web-survey.’ The question was: ‘Are you a beach volleyball player?’. Respondents must have chosen between ‘Yes’ or ‘No’.

Sample Size

The sample size represents the number of participants that is required to complete in least the web-survey. Also, it is required that sample size fulfills the criteria of a good representative sample of the target population of the research (Dillman et al., 2014). A sample can be defined as a selection of respondents, chosen in such a way that they represent the total population as much as possible (DeVellis, 2016). Literature has suggested several ways to determine the sample size (Dillman et al., 2014). First, for the minimum number of participants, studies have recommended that five participants are required per parameter (i.e., per item) of the key variables. In this study the key variables of the study included place identity (3-items), place dependence (3-items), nature bonding (3-items), social bonding (3-items), pro-environmental self-identity (7-items),

general pro-environmental behavioral intentions (8-items) and voluntary carbon offsetting intentions (4-items) (Tabachnick & Fidell, 2013).

The items of the proposed questionnaire that were used to measure the variables were in total thirty-one-items. Therefore, based on the formula ($N = 31$ -items) the number of parameters multiply, five-participants per parameter was equal to ($N = 155$). Therefore, sample size was required to be at least with ($N = 155$) respondents. Moreover, the sample size can ensure acceptable statistical power for the data analysis stage, as according to Dillman Smyth and Christian (2014) in social science research sample size of at least ($N = 200$) respondents is considered sufficient. Ultimately, for the dissertation study data collection targeted ($N = 200$) completed web-surveys; according to both Tabachnick and Fidell (2013) and Dillman et al. (2014). In addition, further literature review studies conformed that a sample of ($N = 200$) is very sufficient for the number of items measured and for the topic of the study in tourism, recreation and sport management, as well as, the scientific field of environmental psychology and consumer behavior (Mair, 2011; Mayers, 2013; Silverman, 2018; Stern, 2000).

In data collection, ($N = 300$) fully completed web-surveys were obtained from the MTurk participants. When the data collection process was completed, the total number of participants was evaluated in Qualtrics software. Qualtrics showed that ($N = 526$) MTurk respondents opened the web-survey link. However, there were ($n = 226$) participants that just pressed the web-link and they exit the web-survey. Therefore, the ($N = 300$) with MTurk workers that fully completed the web-survey.

On the screening process on data analysis, in total ($n = 42$) cases were deleted due to inconsistency with the screening questions, this number of forty-two cases, presented the 14% of ($N = 300$). In data analysis section, the exclusion of all forty-two cases are presented in detail and

explained the reason that each case was excluded. Total responses that was kept for the main data analysis was equal to ($N = 258$). Also, in data analysis, the items were checked for construct validity prior testing the hypotheses. As a result, the number of items in total that they were used was ($N = 31$). According to Dillman et al. (2014) if each item need five-cases, then the sample size should be ($n = 215$). Consequently, as mentioned the sample size ($n = 258$) was a very good representative sample towards total population of beach volleyball players in the United States. This number of sample size can ensure acceptable statistical power for the data analysis stage (Dillman et al, 2014; Silverman, 2018; Wong, 2013).

Estimated Response Rate

The response rate depends on the type of method that the researcher uses to collect the data (Szolnoki & Hoffmann, 2013). There are different types of data collection surveys, such as web-surveys, self-administered, email, telephone, face-to-face, and each survey type has a different expected response rate (Szolnoki & Hoffmann, 2013). Higher response rates increase the precision parameter estimates (e.g., sample size formula), reduce the risk of selection bias and enhance both internal and external validity (Hewson & Stewart, 2016). On the other hand, lower response rates lower the chance that the results of the sample population represent the target population (DeVellis, 2016; Sierles, 2003). For web-surveys response rate, literature has proposed that 15% to 20% is an appropriate rate. According to Dillman et al. (2014), low response rate increases the risks of bias. However, this study conducted through MTurk, where the specific number of the completed responses was estimated before the web-survey was launched to the public. Specifically, there was a set up in Qualtrics software that was activated for MTurk data collection to stop the data collection process when ($N = 300$) participants with completed responses are reached. According to MTurk requirements, and the IRB consent form,

each respondent was informed prior the start of the web-survey that he will receive a compensation of one dollar (\$1) if they fully complete the web-survey. In total, the researcher spent three-hundred dollars (\$300) in total without the 20% to 45% of the required fees on MTurk based on the (\$300) total compensation.

Instrumentation

Reliability of Measurement Scales

The reliability of the measurement scales played a critical role towards the quality of the research (Barry et al., 2017; Cronbach, 1951; DeVellis, 2016). Particularly, a trusted scientific instrument (i.e., web-survey questionnaire) requires having substantiate the sample for statistically reliability and validity (Barry et al., 2017; Mayers, 2013). Also, psychometrics is crucial to be evaluated in terms of their internal consistency, when researcher is interpreting and generalizing the constructs that used to measure the proposed theoretical concepts (Barry et al., 2017). The internal consistency of the items referred as the reliability of a measurement scale (DeVellis, 2016). Essentially, reliability is the degree to which the web-survey consistently measures a construct (i.e., sense of place), across items (e.g., internal consistency) and time periods (e.g., test-retest, reliability-stability) (Barry et al., 2017).

Inter-rater and inter-observer reliability are two types of reliability test that can be calculated through Cronbach's alpha (α), test-retest, and parallel-forms of reliability (Barry et al., 2017). For example, Cronbach's alpha determines the internal consistency of a construct and it is also an index of internal consistency that estimates the ratio of true score to error (Cronbach, 1951). Also, the Cronbach's alpha can determine measurement scale's reliability that is used to measure a construct (Barry et al., 2017). Therefore, in this study, psychometrics was measured by using a seven-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neutral, 5 = somewhat agree, 6 = agree, 7 = strongly agree) (Barry et al., 2017). The

agreement statements were used for the measurement scale to capture sense of place and they included twelve-items. Also, same agreement scale was utilized for pro-environmental self-identity that was captured via seven-items. The reliability for both sense of place and pro-environmental self-identity scales was calculated via SPSS and its test for internal consistency that indicated that values score of Cronbach's alphas (α). According to Hair et al. (2016), the value score of α should be equal or greater to ($\alpha \geq .70$) score (Barry et al., 2017; Creswell & Creswell, 2017; DeVellis, 2016).

The measurement scale of general pro-environmental behavioral intentions was measured with eight-items in a seven-point likelihood scale ranged from (1 = very unlikely, 2 = unlikely, 3 = somewhat unlikely, 4 = undecided, 5 = somewhat likely, 6 = likely, 7 = very likely). The questions requested participants to choose the degree that intend to engage in the statements. Similarly, the measurement scale of voluntary carbon offsetting intentions was measured with 4-items on an equivalent measurement scale. Accordingly, measurement scales were calculated for their α score values. Please notice that in data analysis section all Cronbach's alphas scores for each scale and variable created are presented.

Validity of Measurement Scales

Principal component analysis was conducted to test the construct validity of the measurement scales namely, sense of place, pro-environmental self-identity, general pro-environmental behavioral intentions and voluntary carbon offsetting intentions (Barry et al., 2017; Hair et al., 2010; Tabachnick & Fidell, 2013). It is highlighted here that the principal component analysis for sense of place was also the statistical test that used for hypothesis one (H_1).

Construct validity

Construct validity refers to the accuracy that the theoretical constructs of the study accurately represent the real-world situations (Mayers, 2013). Construct validity is important as it determines the generalizability of the findings of a study, like the external validity (Wong, 2013). In other words, construct validity is an assessment of quality of the web-survey's questions (Silverman, 2018). Construct validity has two subcomponents, namely the convergent validity and the discriminant validity (Hair et al., 2010; Mayers, 2013; Silverman, 2018; Tabachnick & Fidell, 2013; Wong, 2013).

Convergent validity

Convergent validity is the degree to which the operationalization of the scale is like another. Essentially, two different scales that measure the same construct (Barry et al., 2017; Silverman, 2018). Cronbach and Meehl (1955) suggested that the higher the correlation between the items that measure the same construct the better the measurement of the latent variables. In other words, convergent validity measures the performance of each indicator loadings on its latent theoretical construct; convergent validity is often investigated by factor loadings and *t*-value (Wong, 2013). In the current dissertation the factor loadings of the principal component analysis used to determine if there is convergent validity in the scales that measure the underlying constructs (please see Tables of Chapter 3) (Barry et al., 2017; Cronbach, 1951). As Hair et al. (2010) stated, factor loadings should be equal to or higher than .70 to indicate that the items reflect the construct well (please see Data Analyses). However, other studies have stated that indicator loadings equal to or larger than ($\geq .50$) can be acceptable as well (Barry et al., 2017; Cronbach, 1951; Cronbach & Meehl, 1955). According to Hair et al. (2010) a loading over the .70 shows that more than 50% of the variance expected to be common variance.

Discriminant validity

Principal component analysis provides information about the discriminant validity of the constructs as well (Bagozzi et al., 1991). Discriminant validity is the degree to which the operationalization of a given construct shows how contrasting it is from other constructs (Tabachnick & Fidell, 2013). Essentially, discriminant validity occurs when constructs that are not expected to correlate, do not in fact correlate (Cronbach & Meehl, 1955). Researchers can check the discriminant validity of a construct by examining the average variance extracted value through the squared correlation coefficients among the items of the constructs (please see Tables of Chapter 3 and Chapter 4) (Hair et al., 2016).

Alternatively, researchers can test for discriminant validity by exploring the correlations between the items of the construct; therefore, correlations of the items can be viewed via the correlation matrix on the output of SPSS (Bagozzi et al., 1991). Correlation matrix shows the correlation levels among the item-scales which they should be less than ($r < .85$) (see Tables of Chapter 3) (Wong, 2013). Therefore, convergent and discriminant validity are dependent on the correlation of items that measure the construct. These two subcomponents together create construct validity (Bagozzi et al., 1991).

Measures

The web-survey included twelve-item questions that captured respondents' place identity, place dependence, nature bonding and social bonding. Also, seven-items measured respondents' pro-environmental self-identity, eight-items general pro-environmental behavioral intentions, four-items voluntary carbon offsetting intentions and eight-items sociodemographic information. The questionnaire contained typical people's perceptions and experiences questions that did not threaten the respondents. Since the total thirty-one-items of the questionnaire were adapted from existing literature, the validity of the items for the final web-survey questionnaire was evaluated

through the pilot study. The following section of Chapter 3 describes the measurement scales used for the dissertation study.

Sense of Place

The web-survey included questions measuring the sense of place construct. Based on the definition mentioned in the introduction, sense of place was estimated by measuring place identity, place dependence, nature bonding and social bonding variables (Altman & Low, 1992; Jorgensen & Stedman, 2001). In the literature, each variable of sense of place has been measured with approximately three or four, and in some cases with five-items (Manzo & Devine-Wright, 2014; Proshansky et al., 1983; Raymond et al., 2010; Scannell & Gifford, 2010; Williams & Vaske, 2003). Accordingly, this dissertation measured each variable of sense of place with three items, namely, place identity, place dependence, nature bonding and social bonding in seven-points scale.

Place identity

Place identity has been measured with three-items that capture a person's cognitive and affective information related to a specific place (Scannell & Gifford, 2010; Ramkissoon et al., 2012; Williams & Vaske, 2003). Jorgensen and Stedman (2001) measured place identity with four-items scale. Place identity items adapted from Scannell and Gifford (2010) in lieu of Jorgensen & Stedman (2001) and Raymond et al. (2010) which measured place identity with the following three-items: (1) 'I feel that this beach is part of me', (2) 'I feel that I can really be myself in this beach' and (3) 'This beach reflects the type of person I am'. Raymond and colleagues (2010) used the same scale in another study and found high reliability score ($\alpha = .87$). Also, Williams and Vaske (2003) conducted a study with seven different places. The Cronbach's alpha scores varied from ($.84 \leq \alpha \leq .94$). The current study explored all twelve-items as

Raymond et al. (2010) recommended, to measure sense of place through their aggregates in a principal component analysis.

Place dependence

In the literature, place dependence variable has been measured with items that capture behavioral and functional information between a place and a person (Jorgensen & Stedman, 2001). Vaske and Kobrin (2001) examined the effects of place dependence on pro-environmental behavior capturing the behavioral components of a place to a person. Thus, three-items were utilized to measure place dependence. Items were adopted from Scannell and Gifford (2017) in lieu of Jorgensen and Stedman (2001). Particularly, the items included: (1) 'This beach is the best place to place beach volleyball', (2) 'I can only play beach volleyball on this particular beach' and (3) 'No other place can compare to this beach'. Vaske and Kobrin (2001) found that this item scale had reliability $\alpha = .82$. Similarly, Chen et al., (2013), used the same scale to measure place dependence effects on tourists' pro-environmental behavior, and found a high reliability as well, ($\alpha = .88$). These three-items were selected because had presented higher means in the literature of sense of place concept (Ramkissoon et al., 2012; Williams & Vaske, 2003).

Nature bonding

Three-items adapted to measure nature bonding and captured the connection between people and natural resources of a place (Raymond et al., 2010). In lieu of Raymond and his colleagues (2010), nature bonding measured through three-items: (1) 'It would feel less attached to this beach if the native plants and animals that live here disappeared', (2) 'I learn a lot about myself when I am spending time in the natural environmental of this beach' and (3) 'I am attached to the natural environment that make up that beach (e.g., ocean, sand, wind, wildlife etc.)'. The reliability from past studies using these scales range from ($.70 \leq \alpha \leq .81$).

Social bonding

The social bonding measured with three-items that captured connections related to and social interactions, symbolic meanings and communal values (Scannell & Gifford, 2010). Social bonding has been defined as: “feelings of belongingness or membership to a group of people as well as the emotional connections based on history, interests and concerns” (Raymond et al., 2010, p. 426). The following items used to capture social bonding: (1) ‘I have a lot of fond memories about this beach’, (2) ‘I have a special connection to this beach and the people I play with on this beach’ and (3) ‘The bonding between me and the other beach volleyball players is stronger when we play on this beach’. Literature showed ($\alpha = .78$) reliability of this scale (Raymond et al., 2010).

Pro-Environmental Self-Identity

Pro-environmental self-identity seven-items were used to measure pro-environmental consciousness (Walton & Jones, 2017). Specifically, the seven-items scale included by the following: (1) ‘I am aware of and care about my impact on the natural environment’, (2) ‘I think of myself as someone who is very concerned with environmental issues’, (3) ‘I am a protector/nurturer of wildlife and their habitats’, (4) ‘I am the type of person who would offset its carbon footprint’, (5) ‘I view myself as an environmentalist’, (6) ‘I am trying to be a better environmentalist’ and (7) ‘I make significant changes in my lifestyle for environmental reasons’. In addition, the seven-items presented above were part of a larger scale that measured ecological identity and presented a reliability score ($\alpha = .91$) (Walton & Jones, 2017). However, this dissertation utilized the seven-items of the scale because Walton and Jones (2017) used them as the sameness feature of the overall ecological identity. The rest of the items captured differentiation and centrality. Therefore, sameness features utilized as it has been recommended in the literature that is the most valid measure to capture pro-environmental consciousness.

General Pro-Environmental Behavioral Intentions

The next section of the web-survey used questions that captured the general pro-environmental behavioral intentions of the participants. Specifically, this dissertation used eight-items that were adapted from several studies in environmental psychology literature (Moser & Kleinhüchelkotten, 2017; Steg et al., 2014; Walton & Jones, 2017; Whitmarsh & O'Neill, 2010). Specifically, items that were adapted, represented behavioral intentions towards general pro-environmental practices that primarily capture typical behaviors that people engage in their everyday lives. A key characteristic of the general pro-environmental behavioral intentions is the fact that people does not acquire any specific skills and financial contribution to achieve them (Stern, 2012). The following eight-items utilized for the purpose of the current study and they were measured in a seven-point Likert scale (1 = very unlikely) and (7 = very likely): (1) 'Recycle items instead of throwing them away', (2) 'Reduce my overall consumption and use of products and materials', (3) 'Repair or properly maintaining the things I use or own', (4) 'Take shorter showers (e.g., conserve water), (5) 'Turn-off lights and air conditioning (e.g., conserve electricity)', (6) 'Walk, bike or take the public transportation for short distances journeys', (7) 'Use natural resources of the beach in a more responsible manner when I go for beach volleyball (e.g., I do not throw my plastic water bottle on the sand)' and (8) 'Engage in beach and coastal clean-ups (e.g., clean garbage, plastics and litter from the sand)'. Accordingly, the eight-items presented above have presented α that ranged from ($.84 \leq \alpha \leq .97$) (Fujii, 2006).

Voluntary Carbon Offsetting Intentions

The web-survey developed to document people's voluntary carbon offsetting intentions with four-items. Voluntary carbon offsetting intentions items were adapted by studies in sustainable tourism. Specifically, a study by Lu and Wang (2018) measured the voluntary carbon

offsetting intentions these items in lieu of Chen (2013). For the research objectives of this dissertation adapted and modified the four-items as follows: (1) 'Offset my carbon footprint that I will generate from my consumption of food and beverages (e.g., water, Gatorade) on the beach, when I play beach volleyball', (2) 'Offset my carbon footprint that I will generate from my transportation (i.e., travel) to the beach', (3) 'Offset my carbon footprint that I will generate from my everyday life's activities as a human, at least one time' and (4) 'Offset my carbon footprint that I will generate from my consumption of beach volleyball tournament promotional items' (Lee et al., 2013; Peterson et al., 2013). The four-items have presented α that ranged from $(.75 \leq \alpha \leq .91)$ (Lee et al., 2013; Lu & Wang, 2018).

Data Analysis

Prior to presenting the main data analysis and the results for each hypothesis, there were two important stages that took place. The first stage includes the way that data was collected through the Amazon Mechanical Turk (MTurk) and indicates how the data was explored and screened by using descriptive statistics. The second stage shows the preliminary analysis that was conducted primarily to check if the assumptions of the multivariate analyses techniques that were used for this study were violated.

In stage one, data was checked for potential statistical errors. For example, the cases (MTurk workers) that Qualtrics 'misread' as participants were in total ($n = 226$) and these cases were deleted. Essentially, MTurk workers who clicked the web-survey link and they did not complete the web-survey ($n = 226$) were not included in the final data set. Also, the primary researcher included screening questions in the web-survey to recognize cases that did not fulfil the criteria of being legit beach volleyball players. According to the research objectives respondents should have participated in tournaments that took place on the beach. Thus, they should have been exposed to beach volleyball events on the beach. In total, ($N = 526$) MTurk

workers opened the web-link for the completion of the questionnaire. The MTurk requester was set to stop collecting data when ($N = 300$) fully completed the web-survey. All questions were mandatory to have a complete response for participants to be able to continue to the next question. Essentially, Qualtrics Software was set to force participants to respond for each item question. Thus, the web-survey ensured no missing data on the item scales. Lastly, if a participant was not self-identified as a beach volleyball player, regarding the first question (i.e., are you a beach volleyball player?) or did not choose to agree with the second question (statement of agreement with IRB), they were sent to the end of the survey. Particularly, the second question was the statement of MTurk workers that they did agree to participate in the study based on the informed consent form that was provided in collaboration with the Institutional Review Board (IRB) of the University of Florida.

Therefore, ($n = 226$) participants did not respond appropriately on the first or/and the second question and were deleted from the analysis, which accounts for 43% of the initial number of the participants. Also, the deleted ($n = 226$) MTurk workers did not receive any compensation. In contrast, the ($N = 300$) respondents who fully completed the web-survey received one dollar (\$1). To assure that MTurk workers were legitimate participants that completed the web-survey, it was required to use a multi-number code that was provided at the end of the web-survey. Lastly, MTurk participants had to report the multi-number code to the primary researcher who did evaluate them prior the compensation.

Data Screening

The total sample size with only the fully completed responses and with no missing data, equaled with ($N = 300$) respondents. The second screening requirement included four different questions across the web-survey that investigated if the respondents who self-identified as beach

volleyball players and stated that had played on beach volleyball tournaments the past twelve-months were legitimate. Specifically, the four-screening questions required participants to write the name of the beach volleyball tournament they participated the past twelve-months. In the next question they had to write the name of the beach that the tournament took place and finally to write the name of the state in the United States that this tournament was located. In addition, the researcher provided a statement in the web-survey prior to answering the screening questions, which respondents had to have in mind while answering questions for the rest of the web-survey (i.e., think about the specific beach volleyball event on this beach). The purpose of this statement was to increase consistency with the respondents' responses in terms of answering all questions according to the one beach volleyball event to the specific beach that players participated in and responded to the specific screening question (think about the specific beach volleyball event on this beach). Therefore, participants who did not respond consistently to the name of the beach, state and tournament were excluded from the analysis. Only twenty-six cases (representing 8.7%) of the total ($n = 26$, 8.7%) of the total sample) did not satisfy these criteria. As a result, the new total sample was ($N = 274$).

Preliminary Analysis

Once it was assured that there are no statistical errors in the data file, the descriptive stage of analysis took place. Specifically, the second stage illustrates the univariate and the initial analysis with the use of multivariate descriptive statistics. For example, for sociodemographic characteristics, such as gender variable, data was analyzed by calculating the frequencies and percentages of males and females in the sample. Another example is the age, which represented a continuous variable, it was analyzed by examining the range and mean scores for age values. Similarly, for education and income levels, as two categorical variables, data was analyzed by

using frequencies and percentages. In addition, for the items of the scales that represented continuous variables, data was analyzed through univariate descriptive statistics. Consequently, descriptive statistics explored for each item their mean scores, standard deviations, range of scores, outliers, extreme values, kurtosis and skewness.

Univariate descriptive statistics

Univariate descriptive statistics analysis was performed on respondents' sociodemographic characteristics for accuracy of the data file (Silverman, 2018). Sociodemographic information was measured mainly through categorical variables such as gender, annual household income, education, ethnicity, marital status, residency, place of the beach volleyball tournaments, transportation modes used by participants, miles traveled groups, and past behaviors. As it was mentioned, the age variable was captured as a continuous variable. The researcher utilized the Statistical Package for the Social Sciences (SPSS) software to analyze the data by calculating univariate descriptive statistics. For instance, the categorical variables were checked for errors by calculating frequencies and percentages. The results revealed whether the data values fell outside of range of possible values for a variable (Mayers, 2013). Tests for the range, minimum and maximum values were calculated. For age, the minimum and maximum values were utilized as well as the mean scores and the standard deviations.

Item-scales

For the item scales and the continuous variables, the explore test was used by SPSS to calculate measures of central tendency such as mean scores, median and mode, and measures of variability such as range, variance and standard deviation (Tabachnick & Fidell, 2013). Specifically, univariate descriptive statistics calculated the items' mean, the 95% of their confidence interval (CI) for mean, the 5% of trimmed mean, their median, their variance, standard deviation (*SD*), standard error of the mean, minimum and maximum values, range,

interquartile range, skewness and kurtosis. In addition, tests for outliers and extreme values were conducted such as the Stem and Leaf (Hair et al., 2016). First, items that measure sense of place were investigated. Then, items of the pro-environmental self-identity scale were examined. Lastly, general pro-environmental behavioral intentions, and voluntary carbon offsetting intentions items were tested.

Sense of place. Twelve-items were adapted from the literature to measure participants' sense of place regarding the place of the beach in beach volleyball tournaments (Raymond, Brown & Webber, 2010). The sense of place was captured by items measuring place identity, place dependence, nature bonding and social bonding. The twelve-items were measured on a seven-point Likert scale (1 = strongly agree and 7 = strongly disagree) (please see Table 3-1). Several items appeared negatively skewed, whereas less items presented positively skewness, values were ranged from (-.721) to (+.331). Kurtosis presented mostly negative values that ranged from (-1.192) to one positive value (+.121). Furthermore, to check for outliers and extreme values the Stem and Leaf test and Boxplots tests were utilized. Results showed that there were several cases as outliers and/or extreme values across all the items of the data set. Based on Tabachnick and Fidell (2013) data transformation is recommended as a remedy for outliers and extreme values. Table 3-1 indicated all sense of place items names, abbreviations, percentages and the values of means, standard deviations, skewness and kurtosis.

Pro-environmental self-identity. Seven-items were adopted from Walton and Jones (2017) multi-item scale that captured ecological identity. The seven-items were measured on a seven-point Likert scale (1 = strongly agree and 7 = strongly disagree) (please see Table 3-2). The skewness of the seven-items ranged from (-.668) to (+.085). The skewness of this scale appeared negative. The kurtosis ranged from (-1.08) to (-.162) and was negative for all the

seven-items as well. Steam and Leaf did not indicate the presence of any outliers. Table 3-2 illustrates pro-environmental self-identity items names, abbreviations, percentages and the values of means, standard deviations, skewness and kurtosis.

General pro-environmental behavioral intentions. Eight-items were adapted from the literature and represented beach volleyball players' intentions towards engagement on general pro-environmental practices (Moser & Kleinhüchelkotten, 2017). The eight-items were measured on a seven-point likelihood item scale, where respondents had to indicate their intentions towards the behaviors that was indicated in the items (1 = very unlikely and 7 = very likely) (please see Table 3-3). Items indicated negative skewness with values ranged from (-1.101) to (-.577). Kurtosis presented positive values for multiple items and ranged from (-.469) to (+.739). Stem and Leaf test and Scatterplots indicated a few extreme values, which were transformed in the upper value number (i.e., 1 = very unlikely to 2 = unlikely) according the recommendations provided by Hair et al (2016). Please see Table 3-3 for the general pro-environmental behavioral intentions items names, abbreviations, percentages and the values of means, standard deviations, skewness and kurtosis.

Voluntary carbon offsetting intentions. Four-items were adapted from Lu and Wang (2018). All four-items have been tested as a scale that measures the intentions towards voluntary carbon offsetting schemes. The four-items were measured on a seven-point likelihood scale where respondents indicated their behavioral intentions to do the practices that are mentioned in the items (1 = very unlikely and 7 = very likely) (please see Table 3-4). The four-items presented only negative skewness ranged from (-.502) to (-.335) and negative kurtosis ranged from (-.295) to (-.536). There were no extreme values for the four-items. Please see Table 3-4 for the four-

items names, abbreviations, percentages and the values of means, standard deviations, skewness and kurtosis.

In total from all the cases ($N = 274$) they were found ($n = 12$) extreme values and these cases were deleted. This number of respondents that was excluded from the data set represented the 4.4% of the total ($N = 274$) sample population. In contrast, a few cases were transformed and remained to the analysis. Consequently, population became ($N = 262$). The total number ended up in 258 participants, which indicated the final total sample population.

Multivariate Descriptive Statistics

Multivariate descriptive statistics utilized to check for potential violation of the assumptions underlying the statistical techniques that the current study utilized to address the hypotheses. Specifically, the multivariate statistical techniques that were calculated were correlation, principal component analysis, standard multiple and hierarchical regression analysis. As mentioned, in total there were thirty-one-items. According to the assumption of the specific multivariate analysis techniques the items were checked for sample size, multivariate normality and linearity, multicollinearity, factorability of R , and homoscedasticity. Also, multivariate outliers and extremes have a significant influence on data analysis, especially in principal component and multiple regression analysis (Mayers, 2013). Therefore, outliers were checked through Mahalanobis distances measures and Scatterplot graphs. There were no missing data due to the fully completed responses of the web-survey. Histograms and Normal Q-Q plots were utilized to check if data were normally distributed and the relationship between the independent variables and the dependent variable is linear (Tabachnick & Fidell, 2013; Wong, 2013). For the final sample size, there were four-cases that violated one or more of these assumptions and they were deleted from the data set. The four-cases represented the 1.5% of the total sample ($N = 262$), and thus ($N = 258$) cases remained for analysis.

Sense of Place Items Scale and H₁ Testing

Sense of place was tested to explore if it can be measured as a construct with twelve-items. This H₁ was supported from the literature of environmental psychology. In the literature, sense of place has been conceptually introduced as a concept that includes four-variables: place identity and dependence, and nature and social bonding (Raymond et al., 2010). However, there has been no study that has empirically tested this conceptual suggestion for sense of place. Due to the strong literature review, the first hypothesis (H₁) of the study was formed:

H₁: Sense of place (SOP) is formed by place identity (PI), place dependence (PD), nature bonding (NB) and social bonding (SB).

In addition, all items descriptions are provided below. Specifically, the names and abbreviations for each of the twelve-items of sense of place are provided.

Place identity

1. I feel that this beach is part of me (PI1).
2. I feel that I can really be myself in this beach (PI2).
3. This beach reflects the type of person I am (PI3).

Place dependence

4. This beach is the best place to play beach volleyball (PD1).
5. I can only play beach volleyball on this particular beach (PD2).
6. No other place can compare to this beach (PD3).

Nature bonding

7. It would feel less attached to this beach if the native plants and animals that live here disappeared (NB1).
8. I learn a lot about myself when I am spending time in the natural environment of this beach (NB2).
9. I am attached to the natural environment that make up that beach (e.g., ocean, sand, wind, wildlife etc.) (NB3).

Social bonding

10. I have a lot of fond memories about this beach (SB1).
11. I have a special connection to this beach and the people who play beach volleyball on it (SB2).

12. The bonding between me and the other beach volleyball athletes is stronger when we play on this beach (SB3).

The twelve-items of sense of place scale were utilized in H_1 according to the conceptual framework proposed by Raymond et al. (2010). Therefore, a principal component analysis was calculated to estimate the maximal amount of variance among the twelve-items. Principal component analysis was preferred compared to principal component analysis because the analysis target all the variance among the twelve-items, not only the shared one. Essentially, principal component describes common and unique variance where the components are aggregates of correlated items (Hair et al., 2016). Therefore, it was explored the items that cause or produce the components of sense of place. The components that are generated they were not underlined by a theoretical framework and were empirically associated (Hair et al., 2016).

Correlation analysis

Prior to component analysis, a preliminary correlation analysis was conducted to explore data for potential violation of the assumptions of principal component analysis requires to be met (e.g., factorability of R) due to its sensitivity to the size of correlations (Baglin, 2014). Please find the results of the correlation analysis in Table 3-5.

Results of correlation analysis

Table 3-5 illustrates the results of the correlation analysis, which revealed positive significant correlations among the twelve-items, except of the items PD2 and PD3 which presented several non-significant correlations with other items (e.g., NB3, SB2 and PI2) and a negative correlation with SB1 item. Specifically, all items except PD2 and PD3 interrelations (bivariate correlations among all other items) were ($r \geq .17, p < .01$). The PD2 presented a very low Pearson correlation coefficient and not significant ($r = .10, p > .05$) with NB3, a negative Pearson correlation coefficient and not significant ($r = -.02, p > .05$) with SB1 and a low Pearson

coefficient correlation and not significant ($r = .11, p > .05$) with SB2. This indicated that PD2 moves in opposite direction than SB1 due to the negative and not significant correlation and the two-items have a weak relationship in the population of the sample (Mayers, 2013). For example, if SB1 increases, the PD2 decreases and vice versa (Hair et al., 2016; Wong, 2013). For the low positive but not significant correlation between PD2 with NB3 and SB2, it was illustrated that the relationships of the PD2 with the other two-items were weak in the sample population and it was very unlikely to present any correlation (Mayers, 2013).

Principal component analysis

Principal component analysis was calculated in SPSS to select the maximal amount of variance that is accounted for the twelve-items. Initially, data was tested for their sample size, missing data, normality, linearity, absence of outliers among cases, and factorability of R . Sample size was ($N = 258$), which is an acceptable sample size for analysis based on Tabachnick and Fidell (2013). Also, the preliminary principal component analysis showed communalities for the three-components calculated over ($> .59$) and this means that at least 59% of variance was explained in each component's item (Hair et al., 2016). Therefore, each component's items that presented more than ($> .50$) communalities were combined as one component (Mayers, 2013). Normality and linearity was not a problem as principal component analysis is based on correlation and assumes that the relationship among the items is linear and the distribution is normal (Wong, 2013). Also, outliers among cases had been checked through the univariate descriptive statistics and any case that was problematic was deleted or transformed (Baglin, 2014). Factorability of R was checked through Bartlett's Test of Sphericity, which was significant ($p < .05$) and the Kaiser-Meyer-Olkin value was ($KMO = .89$) (Silverman, 2018). According to Wong (2013), the Kaiser-Meyer-Olkin value should be more than ($KMO > .30$) and significant.

Results of principal component analysis

The twelve-items were subjected to principal component analysis with Oblimin rotation method with Kaiser normalization. Direct Oblimin rotation is the standard method for oblique (non-orthogonal) solution, where the factors are produced by the analysis are correlated (Tabachnick & Fidell, 2013). In addition, inspection for correlation matrix revealed the presence of all the coefficients ($r > .30$). Kaiser-Meyer-Olkin value was ($KMO = .89$) and Bartlett's test of Sphericity was significant, which supports the factorability of the correlation matrix (Wong, 2013). Principal component analysis revealed the presence of three components with eigenvalues exceeding (> 1), explaining 45.08%, 13.68% and 8.46% of the variance respectively (Hair et al., 2016). An inspection of the screeplot indicated a clear break at the elbow of the third component. Lastly, correlation among the three factors was more than ($> .13$) and less than ($< .39$).

According to Tabachnick and Fidell (2013) criteria, the three components can be retained for further analysis. Therefore, sense of place was represented by three different components, which represented the three elements of sense of place (Hair et al., 2010). Before combining the items for each component, a reliability test was calculated to check for the internal consistency among the items for each component respectively (Wong, 2013). Also, the average correlation coefficient r was calculated for each of component. Component One represented the first variable of sense of place and displayed a positive and significant correlation coefficient r ($r = .57, p < .01$), as well as for Component Two ($r = .45, p < .01$), and for Component Three ($r = .48, p < .01$). Table 3-6 presents the results of the principal component analysis.

Reliability and validity test for the three components of sense of place

A test of reliability was conducted to test the internal consistency among the items that included under its component. Component One included six-items, namely, PI1, PI2, PI3, SB1, SB2 and SB3. Component One had a Cronbach's alpha value equal to ($\alpha = .88$). Therefore, a

new variable was constructed after combining the six-items of Component One and it was named ‘Social Place Identity’ (SPI), which explained the most of sense of place (45.08%) (Mayers, 2013).

Component Two included three-items, namely, PD1, PD2 and PD3. In the results Table 3-6, principal components analysis factor loadings indicated that PD1 presented a value score of .56 under the Component One, .59 under the Component Two and .59 under the Communality values. In Component Three PD1 was not presented an aggregated loading. Therefore, as .59 was the higher loading PD2 was included under Component Two, as this item presented the higher statistical relevance with PD2 and PD3 items. Cronbach’s alpha was equal to ($\alpha = .72$), and the three-items were combined to form a new variable namely ‘Place Dependence’ (PD).

Component Three captured three-items as well, namely, NB1, NB2 and NB3. The reliability test showed ($\alpha = .71$) for these three-items and they combined into one new variable, the ‘Nature Bonding’ (NB). Table 3-7 shows the means, standard deviations and Cronbach’s alpha of the three variables of sense of place.

Results of the correlation matrix of principal components analysis illustrated evidence that support the construct validity of the combined three-variables of sense of place (Hair et al., 2016). According to Tabachnick and Fidell (2013) communalities of each of the three-variables, and correlation coefficients were supported evidence that scales measured what they supposed to measure according to the literature (Jorgensen & Stedman, 2001; Kyle et al., 2005; Raymond et al., 2010; Scannell & Gifford, 2010).

Results of hypothesis one

Results for H₁ indicated that sense of place is formed by three-variables, namely, social place identity (SPI), place dependence (PD) and nature bonding (NB). According to the factor loadings, eigenvalues, (%) of variance explained, as well as the communality values, it was

found that component one (SPI) explained the most of sense of place (Baglin, 2014). Specifically, items of place identity and social bonding were interrelated and formed most of sense of place perceptions of beach volleyball participants.

Therefore, the first hypothesis (H_1) was supported, as the items for the four-variables place identity, place dependence, nature bonding and social bonding were found to form three-correlated components. Pattern Matrix Table indicated the rotated-three-factor solution. Ultimately, there were six-items on Component One (SPI), three-items on Component Two (PD) and three-items on Component Three (NB). Therefore, as suggested by Mayer (2013) if three or more items are presented under each component then there is an optimal solution, and the most of sense of place was explained by the six-combined-items between place identity and social bonding.

Pro-Environmental Self-Identity Item-Scale Tested

After testing for H_1 as part of the preliminary multivariate analysis, a correlation analysis was conducted for the seven-items of pro-environmental self-identity. Correlation and factorability of R are the main assumptions for exploratory factors analysis. Also, a preliminary correlation analysis was important for potential violation of the assumptions of principal component analysis (e.g., factorability of R) due to its sensitivity to the size of correlations.

Please find the results of the correlation analysis of all seven-items in Table 3-8 and the names with the abbreviations for each item right below.

1. I am aware of and care about my impact on the natural environment (PESI1).
2. I think of myself as someone who is very concerned with environmental issues (PESI2).
3. I am a protector/nurturer of wildlife and their habitats (PESI3).
4. I am the type of person who would offset its carbon footprint (PESI4).
5. I view myself as an environmentalist (PESI5).
6. I am trying to be a better environmentalist (PESI6).
7. I make significant changes in my lifestyle for environmental reasons (PESI7).

Correlation analysis among the seven-items

Table 3-8 presents the intercorrelations among the seven-items that capture pro-environmental self-identity. The correlation analysis was conducted as a preliminary test to check for the assumptions of the exploratory factors analysis. Specifically, correlation analysis showed that seven-items pro-environmental self-identity presented in average a significant and positive correlation coefficient ($r = .63, p < .01$).

Principal component analysis

Principal component analysis was conducted to test for construct validity of the seven-items. Specifically, a principal component analysis with Oblimin rotation method with Kaiser normalization was calculated. Direct Oblimin rotation is the standard method for non-orthogonal solution (Tabachnick & Fidell, 2013). First, inspection of the correlation matrix revealed that all correlation coefficients r was more than .48. The Kaiser-Meyer-Olkin value was ($KMO = .91$), exceeding the recommended value of ($> .60$) and Bartlett's Test of Sphericity reached statistical significant ($p < .01$) supporting the factorability of the correlation matrix. Results of principal component analysis presented that the seven-items have factor loadings more than ($> .75$), (eigenvalue = 4.80) and percentage of variance equal to (68.61%) (see Table 3-9). After the principal component analysis, a reliability test was conducted to test for the internal consistency of the seven-items together.

Reliability and validity of pro-environmental self-identity scale

The reliability test obtained through SPSS and indicated a value of Cronbach's alpha equal to ($\alpha = .92$) (please see Table 3-10). Both results of principal component analysis and reliability test indicated that the seven-items can be combined into one-variable. The results of analysis illustrated evidence of construct validity (Hair et al., 2016). As eigenvalue was 4.80 and percentage of variance equal to (68.61%), which means that (68.61%) explained pro-

environmental self-identity and the scale measured what it claimed that the construct of pro-environmental self-identity supposes to measure (Tabachnick & Fidell, 2013). As well as the high correlation coefficients r was evidence that the items can be combined in one-variable (Hair et al., 2010). The new variable of pro-environmental self-identity that was generated had the following descriptive statistics ($M = 4.86$, $SD = 1.24$, $N = 258$).

General Pro-Environmental Behavioral Intentions Item-Scale Tested

The following eight-items were adapted from the literature to capture general pro-environmental behavioral intentions of beach volleyball players. Correlation and factorability of R are the main assumptions for principal component analysis. Also, a preliminary correlation analysis was important for potential violation of the assumptions of principal component analysis (e.g., factorability of R) due to its sensitivity to the size of correlations. Please find the results of the correlation analysis of all eight-items in Table 3-10 and the names with the abbreviations for each item right below.

1. Recycle items instead of throwing them away (GPEBI1).
2. Reduce my overall consumption and use of products and materials (GPEBI2).
3. Repair or properly maintaining the things I use or own (GPEBI3).
4. Take shorter showers (e.g., conserve water) (GPEBI4).
5. Turn-off lights and air conditioning (e.g., conserve electricity) (GPEBI5).
6. Walk, bike or take the public transportation for short distances journeys (GPEBI6).
7. Use natural resources of the beach in a more responsible manner when I go for Beach Volleyball (e.g., I do not throw my plastic water bottle on the sand) (GPEBI7).
8. Engage in beach and coastal clean-ups (e.g., clean garbage, plastics and litter from the sand) (GPEBI8).

Correlation analysis among the eight-items

A correlation analysis was initially calculated for the eight-items. The eight-items presented positive and significant correlations. Specifically, for all eight-items the average correlation coefficient r was significant and positive ($r = .52$, $p < .01$) (please see Table 3-10). Correlation analysis was utilized as a preliminary test for the exploratory analysis. Specifically, it

was indicated the assumption of factorability of R it was not violated (Tabachnick & Fidell, 2013).

Principal component analysis

Results showed that eight-items belong to one-component (see Table 3-11). Preliminary analysis was conducted. The data was screened for univariate outliers. The minimum amount of data for principal component analysis was satisfied with a final sample of ($N = 258$) beach volleyball participants. A principal component analysis with Oblimin rotation method and Kaiser normalization was calculated (Tabachnick & Fidell, 2013). Also, the Kaiser-Meyer-Olkin Measure of Sphericity value was significant (KMO) with a ($KMO = .91$) value (Bartlett's Test of Sphericity). The one and only component had an (eigenvalue = 4.64) explained a total of (57.9%) of the variance. The screeplot illustrated that the change of the elbow was mostly for all eight-items on the one component. The component matrix showed the unrotated loadings of the eight-items being over ($> .70$). Accordingly, these eight-items can represent one-variable statistically and were combined to create the general pro-environmental behavioral intentions by estimating a new variable from the mean of the eight-items.

Reliability and validity of general pro-environmental behavioral intentions scale

The reliability test obtained through SPSS and indicated a value of Cronbach's alpha equal to ($\alpha = .89$) (please see Table 3-10). Both results of principal component analysis and correlation analysis and reliability test indicated that the eight-items can be combined into one-variable. Also, it was supported the construct validity as the one component had an (eigenvalue = 4.64) explained a total of (57.9%) of the variance. As well as the high significant correlation coefficients indicated evidence of valid measurement scale. Therefore, results of principal component analysis were evidence that the construct measured what it claimed that measures

(Hair et al., 2016). The new variable of general pro-environmental behavioral intentions that was generated presented ($M = 5.36$, $SD = 1.06$, $N = 258$).

Voluntary Carbon Offsetting Intentions Item-Scale Tested

The following four-items were adapted from the study by Li and Wang (2018). However, the second item (VCO2) was modified according to the conceptual objective of this study. Please see the correlation analysis for all four-items in Table 3-12 and the names with the abbreviations for each item right below.

1. Offset my carbon footprint that I will generate from my consumption of food and beverages (e.g., water, Gatorade) on the beach, when I play Beach Volleyball (VCO1).
2. Offset my carbon footprint that I will generate from my transportation (i.e., travel) to the beach (VCO2).
3. Offset my carbon footprint that I will generate from my everyday life's activities as a human, at least one time (VCO3).
4. Offset my carbon footprint that I will generate from my consumption of Beach Volleyball tournament promotional items (VCO4).

Correlation analysis among the four-Items

A correlation analysis was initially calculated for the four-items which presented on average a correlation coefficient significant and positive ($r = .67$, $p < .01$) (see Table 3-12). Correlation analysis was utilized as a preliminary test for the exploratory analysis. Specifically, it was indicated the assumption of factorability of R was not violated (Tabachnick & Fidell, 2013).

Principal component analysis

A principal component analysis was calculated for the four-items of the voluntary carbon offsetting intentions. Specifically, a principal component analysis with Oblimin rotation method and Kaiser normalization was calculated. As reported by Mayers (2013), the direct Oblimin rotation is the standard method for oblique solution, where the factors are produced by the analysis are correlated. Table 3-13 shows the results of the principal component analysis.

Preliminary analysis was conducted, and the data was screened for univariate outliers. There was

no any outliers or extreme cases for the four-items. Also, Bartlett's test of Sphericity value was significant and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy showed a score equal to (KMO = .84). The component matrix showed that the factor loadings for all the four-items were over .85 and under only one component. Therefore, the one-component it had an (eigenvalue = 4.64) and it explained a total of (75.5%) of the variance for the unrotated factor loadings. A pattern matrix was not generated from the SPSS as the unrotated factor loadings were interpreted under only one component. Accordingly, statistically these four-items can represent one-variable, and as theory indicates the voluntary carbon offsetting intentions.

Reliability and validity of voluntary carbon offsetting intentions

The four-items were also tested for their internal consistency through a Cronbach's alpha which indicated that the four-items had ($\alpha = .89$). As Hair et al. (2016) suggested, a reliability α of over ($> .70$) is acceptable (please see Table 3-12). In addition, the results of principal component analysis illustrated that the construct of voluntary carbon offsetting intentions measured what it claimed that it measures. Specifically, the factor loadings ranged from (.85 to .89) with (eigenvalue = 3.02) and the one-component explained the (75.6%) of the total variance. Also, the high significant correlation coefficients r was showed evidence for validity of the scale (Hair et al., 2010). As a result, there was illustrated evidence on the research validity of the measurement scale of voluntary carbon offsetting intentions. Finally, the four-items generated the variable of VCO with ($M = 4.62, SD = 1.30, N = 258$).

Model Testing

After testing for H_1 , six more hypotheses were developed to test the conceptual model. Specifically, the model explored the effects of sense of place on pro-environmental self-identity, pro-environmental self-identity on pro-environmental behavioral intentions, and all the latter variables on voluntary carbon offsetting intentions. Initially, preliminary multiple regression

analyses were conducted for each hypothesis (Hair et al., 2016; Mayers, 2013; Silverman, 2018; Tabachnick & Fidell, 2013; Wong, 2013). Particularly, the preliminary analyses were calculated through standard multiple regressions, which is highly recommended by Silverman (2018), as it can illustrate errors in data and problematic cases that should be excluded from the regression model. Cases that present multivariate outliers should be transformed or deleted if they are used in the regression test. Items also may present problems on their explanatory power and significance on predicting the dependent variable (Silverman, 2018; Wong, 2013).

In addition, the variance explained by independent variables on dependent variables can be fabricated if there is not equal variance among the residuals of the regression (Mayers, 2013). Therefore, the hypotheses were tested using multiple regression tests which also checks for all assumptions through the utility of Normal P-P Plots, Scatterplots, correlation matrix, multicollinearity and Case wise diagnostics. These tests provide to the researcher information for potential violations of the assumptions of multiple regression analysis (Tabachnick & Fidell, 2013). Specifically, the researchers checked for the following assumptions: sample size, multivariate normality and linearity, multicollinearity (i.e., correlation among independent variables), and homoscedasticity (Hair et al., 2010).

Hypotheses Two and Sense of Place Predicting Pro-Environmental Self-Identity

H_{2a}: Social place identity (SPI) has a positive effect on beach volleyball tournament players pro-environmental self-identity.

H_{2b}: Place dependence (PD) has a positive effect on beach volleyball tournament players pro-environmental self-identity.

H_{2c}: Nature bonding (NB) has a positive effect on beach volleyball tournament players pro-environmental self-identity.

First Preliminary Standard Multiple Regression Analysis

A multiple standard regression analysis was calculated to predict pro-environmental self-identity (DV) ($M = 4.86$, $SD = 1.24$) based on SPI (IV₁) ($M = 5.38$, $SD = .96$), PD (IV₂) ($M = 4.22$, $SD = 1.35$) and NB (IV₃) ($M = 5.06$, $SD = 1.14$). In other words, the multiple regression model was used to test the effect that sense of place variables has on pro-environmental self-identity. Also, variance that independent variables (IV₁, IV₂ and IV₃) explain on the dependent variable (i.e., pro-environmental self-identity) was reported. The first multiple regression was estimated as a preliminary test to check for potential violation of the assumptions. As described above, the assumptions include sample size, multivariate normality and linearity, multicollinearity and homoscedasticity. Below the results of the multiple regression regarding its assumptions are presented.

Sample size. In multiple regression analysis the sample determines the generalizability of the results. According to Tabachnick and Fidell (2013), the required sample size is based on the formula ($N > 50 + 8m$), m the number of predictors). For H_{2a}, H_{2b} and H_{2c} the multiple regression used three predictors, therefore ($N > 74$). The N of the analysis was ($N = 258$) and therefore the sample size assumption was not violated (Tabachnick & Fidell, 2013).

Multivariate normality. A Histogram and a Scatterplot were utilized to explore normality of the four-variables, namely SPI (IV₁), PD (IV₂), NB (IV₃) and pro-environmental self-identity (DV) (Wong, 2013). The Histogram showed for the four-variables that the residuals of the regression had a bell shape, which indicated normal distribution among the residuals of regression (Berry, 1993). The Scatterplot showed that standardized residuals were rectangular distributed, with most of the scores concentrated in the center along zero-point, which indicates both multivariate normality and linearity (Tabachnick & Fidell, 2013). Normality assumption

was met, and it was not violated. Essentially, errors of prediction were normally distributed around the predicted pro-environmental self-identity score (Wong, 2013).

Linearity. Normal P-P Plot showed a linear distribution of residual across the diagonal line (from bottom left to top right) (Berry, 1993). Also, linearity of the regression residuals was examined with a Scatterplot graph (Fan et al., 2017). The graph illustrated an overall distribution of the standardized residuals roughly rectangular with most of the scores concentrated in the center along the zero-point (Hayes, 2017).

Outliers. They were checked through the scatterplot, the case wise diagnostics and the Mahalanobis distances scores that was provided by the output of SPSS and saved on the data view section of the software (Cooper, 2011; Fan et al., 2017). It was found that one-case of the data had a std. Residual value of (-3.004) (minimum). Based on Hair et al. (2010), the residual values should range from (- 3.0 to + 3.0). Therefore, this case was transformed, and the analysis was estimated again. When the multiple regression analysis was conducted there was a minimum std. Residuals (≤ -2.72) (Fan et al., 2017). Mahalanobis distances scores ranged from (.10 to 14.99). According, to Fan et al. (2017), when three independent variables are used any score of more than 16.27 provided by Mahalanobis distances test for any cases, should be deleted or transformed. The larger score indicated by a case with (Mahalanobis score = 14.99), and this it was not a problem (Berry, 1993).

Multicollinearity. The correlation coefficients among IV_1 , IV_2 and IV_3 ranged from ($r = .24$) to ($r = .61$) and they were all significant at ($p < .001$). Therefore, there were no problems of multicollinearity among the independent variables per the suggestions of the Tabachnick and Fidell (2013) on range of correlation coefficients for regression. Also, Crowder (2017) recommended that if a correlation coefficient (r) between two independent variables is more than

.70, the use of one of these two specific independent variables in the analysis may create multicollinearity problems. Same for an analysis where the prediction of three independent variables is explored. Also, the r among the independent variables and the dependent variable was checked ($r_1 = .48$, $r_2 = .24$, $r_3 = .60$). Fan et al. (2017) recommended that the independent variables should present a certain correlation coefficient with the dependent variable (e.g., $r > .30$). Tabachnick and Fidell (2013) also quoted that the larger the r coefficient between the independent variables and the dependent variable, the more sufficient the results of the regression analysis. Furthermore, collinearity statistics on IV_1 , IV_2 and IV_3 were explored. According to Mayers (2013), the Tolerance and Variance Indicator Factor (VIF) should be checked, as these two scores may indicate problems with multicollinearity that may not be evident in the correlation matrix. Specifically, in the Table of collinearity statistics Tolerance shows the amount of variability among the independent variables.

According to Hair et al. (2016) Tolerance can illustrate if an independent variable is not explained by another independent variable in the same model. Tolerance is estimated by using the formula $(1 - R^2)$ for each independent variable in the model (Hair et al., 2016). A Tolerance value of less than ($> .10$) indicates that the multiple correlations of this specific independent variable is high with the other variables, and this shows a potential multicollinearity (Mayers, 2013). Coefficient Tables of the analysis revealed that Tolerance was more than ($> .57$) and less than ($< .81$), for IV_1 , IV_2 and IV_3 and therefore there was no violation of the multicollinearity assumption (Hair et al., 2016). The value of VIF is the inverse of the Tolerance value, where (1.0) is divided by the value of Tolerance, and it results VIF. Thus, VIF values above (>10.0) indicate a potential multicollinearity. In the current analysis, ($VIF = 1.75$) and thus less than the suggested cut-off value of (10.0) . This indicated that there is no violation of multicollinearity

assumption (Crowder, 2017). Therefore, all three independent variables were retained (Hair et al., 2016).

Furthermore, due to the higher correlations among IV_1 with IV_3 compare to IV_2 and IV_1 and IV_2 and IV_3 , it is possible to affect the p -value, t -value, B and beta coefficients of any independent variable on DV. However, as the value scores of r were less than ($< .60$) and there were no more than ($> .70$) and due to the appropriated VIF and Tolerance scores, there was no need for any specific remedy towards multicollinearity for sub-hypotheses of hypothesis two. Please refer to Table 3-14 that indicates the correlation coefficients among the three independent variables.

Homoscedasticity. Homoscedasticity states that the variance of error terms is similar across the values of the independent variables (Crowder, 2017; Silverman, 2018). The Scatterplot showed the distribution of the standardized residuals versus the predicted values (Berry, 1993). The Scatterplot presented the points equally distributed across all values of the independent variables. In a multiple regression analysis points should be equal (Hair et al., 2016). Otherwise, there is a heteroscedasticity and there is violation of the assumption (Mayers, 2013). In the current analysis there was no violation of the assumption as the standardized residuals of IV_1 , IV_2 and IV_3 were equally distributed across all their values.

Results for First Preliminary Standard Multiple Regression Assumptions and H_{2a} , H_{2b} and H_{2c}

Results of multiple regression analysis are illustrated in Table 3-15. Also, assumptions such as sample size ($N = 258$), multivariate normality and linearity were not violated (Hair et al., 2016). Regarding multicollinearity, there was not any violation and the scores of collinearity statistics and correlation coefficients (r), with mean scores and standard deviation are presented

in Table 3-15. Specifically, for IV_1 , Tolerance was equal to (.57) and VIF equal to (1.75), also r with IV_2 and IV_3 were ($r = .42$) and ($r = .61$) respectively. For IV_2 , Tolerance was equal to (.81) and (VIF = 1.23), where IV_2 and IV_3 presented ($r = .32$). For IV_3 , Tolerance value score was equal to (.62) and (VIF = 1.60) (please see Table 3-16). In addition, values of (95%) Confidence Interval (CI) with the unstandardized and standardized coefficients are presented in Table 3-15.

Hypotheses Three and Four for Sense of Place and Pro-Environmental Self-Identity

Predicting General Pro-Environmental Behavioral Intentions

H_{3a}: Social place identity (SPI) has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions.

H_{3b}: Place dependence (PD) has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions.

H_{3c}: Nature bonding (NB) has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions.

H₄: Pro-environmental self-identity has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions.

Second preliminary standard multiple regression analysis

A multiple standard regression analysis was calculated to predict general pro-environmental behavioral intentions (DV) ($M = 5.36$, $SD = 1.06$) based on SPI (IV_1) ($M = 5.38$, $SD = .96$), PD (IV_2) ($M = 4.22$, $SD = 1.35$), NB (IV_3) ($M = 5.06$, $SD = 1.14$) and pro-environmental self-identity (IV_4) ($M = 4.86$, $SD = 1.24$). In other words, the second multiple regression model was calculated to test how sense of place variables (i.e., SPI, PD and NB) and pro-environmental self-identity predict general pro-environmental behavioral intentions. Also, it was indicated the percentage of variance that independent variables (IV_1 , IV_2 , IV_3 , IV_4) have on dependent variable (i.e., general pro-environmental behavioral intentions).

Accordingly, the second multiple regression was calculated as part of the preliminary analysis. Specifically, the assumptions for the regression model were scrutinized to help the

researcher recognize the problematic items that may affect the results of the test (Mayers, 2013). As described in the first multiple regression, the assumptions include sample size, multivariate normality and linearity, multicollinearity and homoscedasticity. Below are presented the results of the multiple regression regarding its assumptions (Hair et al., 2010). Specifically:

Sample size, multivariate normality and linearity. Due to the four-predictors, regression model requires a sample size larger than ($N > 82$). The N of the analysis was ($N = 258$) and therefore the sample size assumption was not violated (Hair et al., 2016). A Histogram, Normal P-P Plot and a Scatterplot were utilized to explore multivariate normality of the five-variables included in the regression model, namely SPI (IV_1), PD (IV_2), NB (IV_3), pro-environmental self-identity (IV_4), and pro-environmental behavioral intentions (DV). The Histogram showed for the four-variables that the residuals of the regression had a bell shape, which indicated normal distribution among the residuals of regression (Berry, 1993). The Normal P-P Plot showed a linear distribution of residual across the diagonal line (from bottom left to top right) (Silverman, 2018). The Scatterplot showed that standardized residuals were rectangular distributed, with most of the scores concentrated in the center along zero-point, which indicates both multivariate normality and linearity (Tabachnick & Fidell, 2013). Multivariate normality and linearity assumptions were met, and it was not violated (Wong, 2013).

Outliers. They were checked though a Scatterplot, the Casewise diagnostics and the Mahalanobis distances scores provided in SPSS output (Fan et al., 2017). It was found in Casewise diagnostics that one case of the data had a std. Residual value of (-3.754) (minimum). The case presented a low value in dependent variable. Therefore, this case was transformed, and the analysis was run again (Hair et al., 2016). According, to Hair et al. (2010; 2016), when four-

independent variables are used any score of more than (> 18.57) provided by Mahalanobis distances test for any cases, should be deleted or transformed (Fan et al., 2017). The current data set showed Mahalanobis distances scores that ranged from (.19 to 15.86). Multiple regression analysis was run again to check the Casewise diagnostics and Mahalanobis distances values. Finally, no unusual cases with extreme values were found.

Multicollinearity. The correlation coefficients among IV_1 , IV_2 , IV_3 and IV_4 ranged from ($r = .24$ to $r = .70$) and all r were significant at ($p < .01$). According to Tabachnick and Fidell (2013) the high correlations coefficients r among IV_1 and IV_3 ($r = .61$), IV_1 and IV_4 ($r = .48$) and IV_3 and IV_4 ($r = .60$) can generate problems in the analysis of the regression, when are all including in the same model simultaneously. Furthermore, the Tolerance and VIF scores were calculated and presented in Collinearity Statistics output of SPSS for IV_1 , IV_2 , IV_3 and IV_4 (please see Table 3-16). According to Mayers (2013), the Tolerance and the VIF should be more than .10 and less than 10.0 respectively. Specifically, in the Table of collinearity statistics Tolerance shows the amount of variability among the independent variables was more than .51 and less than 81. The value of VIF ranged from (1.23 to 2.0), thus VIF value was less than (< 10.0), but the value of (VIF = 2.0) for NB indicated potential problems due to high correlation among the independent variables (Hair et al., 2016).

For the second multiple regression analysis the high correlation coefficients r was considered, and a remedy was applied. Specifically, the high correlations among IV_1 , IV_3 and IV_4 , may have been responsible for the negative scores on PD (IV_2) t -value, B and beta coefficients (β) on dependent variable (see Table 3-16). According to Hair et al. (2016) when a researcher identifies a potential multicollinearity problem due to the high correlation between two or more independent variables, the researcher considered applying a remedy for the

potentially multicollinearity problem. Specifically, as Mayers (2013) has recommended the first remedy that a researcher may apply for the multiple regression where multicollinearity may be a problem, is to exclude an independent variable that correlates highly with another or more independent variables.

Therefore, after consulting the correlation matrix of the SPSS output, SPI (IV₁) and NB (IV₃) were excluded from the model as SPI presented the highest correlations with PD and with the pro-environmental self-identity (IV₄), ($r = .61, p < .001$) and $r = .60, p < .001$) respectively. After the multiple regression was calculated again without SPI and NB, to explore the explanatory power of PD and pro-environmental self-identity on general pro-environmental behavioral intentions. Results indicated that PD continued presenting negative scores.

The statistical problem was not only the multicollinearity because of the high correlations among IV₁, IV₃ and IV₄. But, PD variable itself, presented low and a non-significant correlation coefficient r with the dependent variable (i.e., pro-environmental behavioral intentions) ($r = .03, p = .31$). As a result, to have proper results without any potential influence of the high correlations among SPI, NB and pro-environmental identity, but also, to avoid any influence of the low and non-significant correlation that PD has with the dependent variable, i.e., general pro-environmental behavioral intentions, they were constructed two-hierarchical regression analyses.

Homoscedasticity. The Scatterplot showed the distribution of the standardized residuals versus the predicted values, which was rectangular across the zero-point, and thus homoscedasticity was confirmed.

Results for the Second Standard Multiple Regression Assumptions and H_{3a}, H_{3b}, H_{3c} and H₄

Results of second preliminary multiple regression analysis are illustrated in Table 3-16 and Table 3-17 below. Specifically, SPI (IV₁) had a Tolerance value equal to (.55) and (VIF =

1.81), also the correlation coefficient (r) with IV₂, IV₃ and IV₄ were ($r = .42$), ($r = .61$) and ($r = .48$) respectively. For IV₂, Tolerance was equal to .81 and VIF equal to 1.23, where IV₂ correlation coefficient (r) with IV₃ and IV₄ was ($r = .32$) and ($r = .24$). For IV₃, Tolerance value score was equal to (.51) and (VIF = 2.0), and the r between IV₃ and IV₄ was equal to ($r = .60$) (please see Table 3-16). In addition, values of (95%) Confidence Interval (CI) with the coefficients are presented in Table 3-17.

Third preliminary standard multiple regression analysis

The third preliminary multiple standard regression analysis was calculated to explore how the five predictors explain voluntary carbon offsetting intentions. Specifically, the third regression was used as the final step of the preliminary analysis. The variables that were included in the regression model as independent variables were SPI (IV₁) ($M = 5.38$, $SD = .96$), PD (IV₂) ($M = 4.22$, $SD = 1.35$), NB (IV₃) ($M = 5.06$, $SD = 1.14$), pro-environmental self-identity (IV₄) ($M = 4.86$, $SD = 1.26$) and general pro-environmental behavioral intentions (IV₅) ($M = 5.36$, $SD = 1.06$) and the dependent variable was voluntary carbon offsetting intentions (DV) ($M = 4.62$, $SD = 1.30$). In addition, it was indicated the percentage of variance that independent variables (IV₁, IV₂, IV₃, IV₄ and IV₅) has on voluntary carbon offsetting intentions. The third and final preliminary multiple regression scrutinized the regression model for potential violations of the assumptions. Specifically:

Sample size, multivariate normality and linearity. Due to the five predictors, regression model requires a sample size larger than ($N > 90$); the sample size was ($N = 258$) in total (Mayers, 2013). A Histogram, a Normal P-P Plot and a Scatterplot were used to examine multivariate normality and linearity of the six-variables of the regression model, namely SPI (IV₁), PD (IV₂), NB (IV₃), pro-environmental self-identity (IV₄), and pro-environmental behavioral intentions (IV₅) and voluntary carbon offsetting intentions (DV). The Histogram

showed for the six-variables where residuals of the regression had a bell shape, which indicated normal distribution among the residuals of regression (Wong, 2013). The Normal P-P Plot showed a linear distribution of residual across the diagonal line and the Scatterplot illustrated that standardized residuals were rectangular distributed, with most of the scores concentrated in the center along the zero-point (Tabachnick & Fidell, 2013).

Outliers. They were checked through the Scatterplot, the Casewise diagnostics and the Mahalanobis distances and it was found in Casewise diagnostics that two cases of the data set presented std. Residual value of (- 3.456) and (- 3.659) (minimum values for both cases). These two cases presented two low value in voluntary carbon offsetting intentions. Therefore, these two cases were transformed to one upper level value (Hair et al., 2016). Also, when five-independent variables are used any score of more than (> 20.52) provided by Mahalanobis distances test for any cases, should be deleted or transformed (Hair et al., 2016). The current data set showed that Mahalanobis distances scores ranged any case.

Multicollinearity. The correlation coefficients among IV_1 , IV_2 , IV_3 , IV_4 and IV_5 ranged from ($r = .03, p > .05$) to ($r = .74, p < .001$). The correlation coefficients among the five independent variables are presented in Table 3-18. Also, the interrelationship among the first four independent variables have been discussed, at this point it will be illustrated and discussed the interrelationship among the IV_5 with the four independent variables. The correlations coefficients r between the IV_5 with IV_1 was equal to ($r = .54, p < .001$); IV_5 and IV_2 was very low and not significant ($r = .03, p = .31$); the r between IV_5 and IV_3 was significant and equal to ($r = .53, p < .001$); and last, the r between IV_5 and IV_4 was significant and equal to ($r = .70, p < .001$). In addition, due to the high correlation coefficients among the IV_5 and IV_3 and IV_4 , the Tolerance and VIF scores were calculated in collinearity statistics (please see Table 3-18). The

Table of collinearity statistics showed that Tolerance ranged from (.40 to .71), and the value of VIF ranged from (1.42 to 2.53), thus VIF value was less than (< 10.0). However, SPI (IV₁) indicated a (VIF = 2.10), pro-environmental self-identity (IV₄) a (VIF = 2.38), and general pro-environmental behavioral intentions (IV₅) showed a (VIF = 2.53), whereas PD (IV₂) showed a low value of (VIF = 1.42), and NB (IV₃) illustrated a value of (VIF = 2.0) (Hair et al., 2016).

As it was presented in Table 3-18, NB (IV₃) has high and significant correlation with SPI (IV₁), pro-environmental self-identity (IV₄) and general pro-environmental behavioral intentions (IV₅). Thus, for the third preliminary multiple regression analysis the high correlation coefficients r among SPI, NB, pro-environmental self-identity and general pro-environmental behavioral intentions considered very critical for potential fabrication of the results. Therefore, the first remedy of multicollinearity was utilized as suggested by Mayers (2013). Specifically, the high correlations coefficients r among IV₁, IV₃, IV₄, and IV₅ played an important role for the negative scores that SPI presented on its prediction on voluntary carbon offsetting intentions and specifically its t -value, B and beta coefficients (β) on dependent variable were negative (please see Table 3-19). Therefore, according to the remedy for multicollinearity problem according to Mayers (2013) SPI (IV₁) and NB (IV₃) were excluded from the regression model. The multiple regression was calculated again with three predictors that time, and specifically with the PD, the pro-environmental self-identity and the general pro-environmental behavioral intentions, which the model used to test H_{5b}. Results did not indicate any negative values, and therefore as the remedy worked, the hypotheses were modified.

Homoscedasticity. The Scatterplot showed the distribution of the standardized residuals versus the predicted values, which was rectangular across the zero-point, and thus homoscedasticity was confirmed.

Results of The Third Preliminary Standard Multiple Regression Assumptions for H_{5a}, H_{5b}, H_{5c}, H₆ And H₇

Results of the third and last preliminary multiple regression analysis are illustrated in Table 3-18 and Table 3-19 below. Specifically, SPI (IV₁) had a Tolerance value equal to .48 and VIF equal to 2.10, also its r with IV₂, IV₃, IV₄ and IV₅ were ($r = .42$), ($r = .61$), ($r = .48$) and ($r = .54$) respectively. For IV₂, Tolerance was equal to (.71) and (VIF = 1.42), where IV₂ correlation coefficient r with IV₃ and IV₄ was ($r = .32$) and ($r = .24$) respectively, and significant ($p < .001$), and with IV₅ was equal to ($r = .03$) but not significant ($p = .31$). For IV₃, Tolerance value score was equal to (.50) and (VIF = 2.0), and the r between IV₃ and IV₅ was equal to ($r = .53$) (see Table 3-18). In addition, values of (95%) Confidence Interval (CI) with the coefficients are presented in Table 3-19.

Remedies for Multiple Regression Analysis

As a result, hypothesis four (H₄) was modified, and they were generated two-sub-hypotheses four. First, H_{4a} was tested for pro-environmental self-identity effects on the dependent variable when the remedy was applied, and the regression model include only with SPI (H_{3a}) and NB (H_{3c}) when PD (H_{3b}) was excluded. Second, the H_{4b} was tested when only PD (H_{3b}) was in the regression model, by excluding SPI and NB. Also, for the application of the remedy, hypothesis six divided in two-sub-hypotheses six. Accordingly, H_{6a} for the regression analysis that included SPI and NB, and H_{6b} for the regression analysis that included only PD. Lastly, hypothesis seven was divided in two-sub-hypotheses seven. First, the H_{7a} was generated for the regression analysis that tested for SPI and NB effects on voluntary carbon offsetting intentions, and H_{7b} for the regression analysis that tested for PD effect on voluntary carbon offsetting intentions. Consequently, according to preliminary analysis and the necessary

remedies that were applied, four hierarchical regression analyses were calculated. Therefore, Chapter 4 illustrates the results of the following analyses, that described below:

First hierarchical regression analysis. It tested H_{3a} , H_{3c} and H_{4a} by including SPI and NB in Block 1 and pro-environmental self-identity in Block 2. According to H_{3a} and H_{3c} the effects of SPI and NB on voluntary carbon offsetting were tested. Whereas for H_{4a} the effects of pro-environmental self-identity on the dependent variable were tested, when accounting for SPI and NB.

Second hierarchical regression analysis. It tested H_{3b} by inserting PD in Block 1 and H_{4b} by entering pro-environmental self-identity in Block 2. Thus, the effects of PD on voluntary carbon offsetting were tested as well as the effects of pro-environmental self-identity on the dependent variable, when accounting for PD in Block 2.

Third hierarchical regression analysis. For testing H_{5a} , H_{5c} , H_{6a} , and H_{7a} SPI and NB were inserted in Block 1 of the regression Model 1, pro-environmental self-identity in Block 2 and general pro-environmental behavioral intentions in Block 3. Therefore, the effects of SPI, NB, pro-environmental self-identity and general pro-environmental behavioral intentions on voluntary carbon offsetting intentions were explored through the third hierarchical regression analysis that tested the hypotheses that did not include PD, according to the remedy that was applied.

Fourth hierarchical regression analysis. In addition, the fourth hierarchical regression analysis was calculated according to the remedy and it explore the effects of PD on voluntary carbon offsetting intentions (H_{5b}). Specifically, PD was entered in Block 1, pro-environmental self-identity in Block 2 and general pro-environmental behavioral intentions in Block 3 (Hair et

al., 2016). Accordingly, the fourth hierarchical regression tested for hypotheses H_{5b}, H_{6b} and H_{7b} following the remedy solution.

Final Hypotheses Summary

The preliminary analysis drove the researcher to apply a statistic remedy and therefore the hypotheses were updated. The key reason for applying the remedy it was the indication for potential violation of multicollinearity assumption in multiple regression analysis when PI, PD, SPI and pro-environmental self-identity were included in the same regression model to predict voluntary carbon offsetting intentions. Therefore, hypotheses were updated as follows:

H_{3a}: Social place identity (SPI) has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions, controlling for pro-environmental self-identity.

H_{3b}: Place dependence (PD) has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions, controlling for pro-environmental self-identity.

H_{3c}: Nature bonding (NB) has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions, controlling for pro-environmental self-identity.

H_{4a}: Pro-environmental self-identity has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions, controlling for social place identity (SPI) and nature bonding (NB).

H_{4b}: Pro-environmental self-identity has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions, controlling for place dependence (PD).

H_{5a}: Social place identity (SPI) has a positive effect on beach volleyball tournament players voluntary carbon offsetting intentions, controlling for pro-environmental self-identity and general pro-environmental behavioral intentions.

H_{5b}: Place dependence (PD) a positive effect on beach volleyball tournament players voluntary carbon offsetting intentions, controlling for pro-environmental self-identity and general pro-environmental behavioral intentions.

H_{5c}: Nature bonding (NB) a positive effect on beach volleyball tournament players voluntary carbon offsetting intentions, controlling for pro-environmental self-identity and general pro-environmental behavioral intentions.

H6a: Pro-environmental self-identity a positive effect on beach volleyball tournament players voluntary carbon offsetting intentions, controlling for social place identity (SPI), nature bonding (NB) and general pro-environmental behavioral intentions.

H6b: Pro-environmental self-identity a positive effect on beach volleyball tournament players voluntary carbon offsetting intentions, controlling for place dependence (PD) and general pro-environmental behavioral intentions.

H7a: General pro-environmental intentions a positive effect on beach volleyball tournament players carbon footprint offsetting intentions, controlling for social place identity (SPI), nature bonding (NB) and pro-environmental self-identity.

H7b: General pro-environmental intentions a positive effect on beach volleyball tournament players carbon footprint offsetting intentions, controlling for place dependence (PD) and pro-environmental self-identity.

Table 3-1. Sense of place twelve-items with descriptive statistics

Variable / Item	Percentage (%) *							N	M	SD	Skewness	Kurtosis
	1	2	3	4	5	6	7					
Place Identity												
1.I feel that this beach is part of me (PI1).	.8	5.4	7.4	18.6	22.9	30.6	14.3	258	5.07	1.41	-.61	-.21
2.I feel that I can really be myself on this beach (PI2).	0	0	0	21.3	24.0	35.7	19.0	258	5.52	1.03	-.13	-1.13
3.This beach reflects the type of person I am (PI3).	.8	3.5	7	16.3	24.8	32.9	14.7	258	5.19	1.33	-.71	.12
Place Dependence												
1.This beach is the best place to place beach volleyball (PD1).	.4	7.8	7.8	18.6	23.6	24.4	17.4	258	5.00	1.49	-.47	.55
2.I can only play beach volleyball on this particular beach (PD2).	11.6	25.6	17.0	12.0	14.3	12.4	7.4	258	3.59	1.84	.33	-1.09
3.No other place can compare to this beach (PD3).	6.6	18.2	13.0	17.1	20.9	17.1	7.4	258	4.08	1.74	-.10	-1.07

Table 3-1. Continued

Variable / Item	Percentage (%) *							N	M	SD	Skewness	Kurtosis
	1	2	3	4	5	6	7					
Nature Bonding												
1.I would feel less attached to this beach if the native plants and animals that live here disappeared (NB1).	4.3	9.7	8.1	17.1	20.2	26.4	14.3	258	4.76	1.69	-.57	-.59
2.I learn a lot about myself when I am spending time in the natural environmental of this beach (NB2).	1.2	6.6	7.8	16.3	26.4	23.3	18.6	258	5.04	1.50	-.57	-.32
3.I am attached to the natural environment that make up that beach (e.g., ocean, sand, wind, wildlife etc.) (NB3).	0	0	0	24.8	30.2	26.0	19.0	258	5.39	1.06	-.14	-1.19

Table 3-1. Continued

Variable / Item	Percentage (%) *							N	M	SD	Skewness	Kurtosis
	1	2	3	4	5	6	7					
Social Bonding												
1.I have a lot of fond memories about this beach (SB1).	0	0	0	15.9	21.3	38.0	24.8	258	5.72	1.01	-.34	-.95
2.I have a special connection to this beach and the people who play beach volleyball on it (SB2).	0	0	0	19.8	23.3	33.7	23.3	258	5.60	1.05	-.19	-1.15
3.The bonding between me and the other beach volleyball athletes is stronger when we play on this beach (SB3).	.8	5.0	7.4	14.7	22.9	31.8	17.4	258	5.19	1.42	-.72	-.07

Note. M = mean. SD = standard deviation. *1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neutral, 5 = somewhat agree, 6 = agree, 7 = strongly agree.

Table 3-2. Pro-environmental self-identity seven-items with descriptive statistics

Item	Percentage (%) *							N	M	SD	Skewness	Kurtosis
	1	2	3	4	5	6	7					
1.I am aware of and care about my impact on the natural environment (PESI1).	0	0	0	24.0	29.8	32.0	14.3	258	5.36	1.00	.09	-1.08
2.I think of myself as someone who is very concerned with environmental issues (PESI2).	1.6	5.8	13.2	12.0	26.0	24.0	17.1	258	4.97	1.53	-.53	-.51
3.I am a protector/nurturer of wildlife and their habitats (PESI3).	1.6	6.2	6.6	16.3	28.7	26.0	15.1	258	5.02	1.45	-.66	-.01
4.I am the type of person who would offset its carbon footprint (PESI4).	5.8	7.8	10.9	23.6	20.9	18.0	12.8	258	4.52	1.67	-.36	-.58
5. I view myself as an environmentalist (PESI5).	5.8	8.9	11.2	17.4	27.1	17.0	12.9	258	4.52	1.66	-.40	-.60
6.I am trying to be a better environmentalist (PESI6).	5.4	5.4	8.1	14.7	29.1	19.0	17.8	258	4.86	1.65	-.67	.15
7.I make significant changes in my lifestyle for environmental reasons (PESI7).	5.0	8.5	7.4	17.1	28.3	21.0	12.4	258	4.69	1.63	-.67	-.16

Note. M = mean. SD = standard deviation. *1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neutral, 5 = somewhat agree, 6 = agree, 7 = strongly agree.

Table 3-3. General pro-environmental behavioral intentions eight-items with descriptive statistics

Item	Percentage (%) *							<i>N</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
	1	2	3	4	5	6	7					
1. Recycle items instead of throwing them away (GPEBI1).	0	4.3	3.5	7.8	20.5	29.5	34.5	258	5.71	1.33	-1.10	.74
2. Reduce my overall consumption and use of products and materials (GPEBI2).	1.9	2.3	7.4	17.4	23.6	24.0	23.3	258	5.24	1.45	-.67	-.05
3. Repair or properly maintaining the things I use or own (GPEBI3).	0	3.1	6.2	12.4	21.7	30.6	26.0	258	5.48	1.33	-.75	-.10
4. Take shorter showers (e.g., conserve water) (GPEBI4).	3.1	7.8	8.5	15.1	26.4	20.9	18.2	258	4.90	1.62	-.58	-.40
5. Turn-off lights and air conditioning (e.g., conserve electricity) (GPEBI5).	0	5.4	6.2	10.9	21.3	27.5	28.7	258	5.45	1.44	-.82	-.13
6. Walk, bike or take the public transportation for short distances journeys (GPEBI6).	2.7	3.9	5.8	14.0	22.1	29.8	21.7	258	5.25	1.51	-.91	.40

Table 3-3. Continued

Item	Percentage (%) *							N	M	SD	Skewness	Kurtosis
	1	2	3	4	5	6	7					
7. Use natural resources of the beach in a more responsible manner when I go for Beach Volleyball (e.g., I do not throw my plastic water bottle on the sand) (GPEBI7).	0	2.7	4.7	16.7	21.7	20.9	33.3	258	5.53	1.36	-.61	.50
8. Engage in beach and coastal clean-ups (e.g., clean garbage, plastics and litter from the sand) (GPEBI8).	1.6	4.7	5.0	17.8	25.6	24.8	20.5	258	5.18	1.45	-.70	.09

Note. M = mean. SD = standard deviation. *1 = very unlikely, 2 = unlikely, 3 = somewhat unlikely, 4 = undecided, 5 = somewhat likely, 6 = likely, 7 = very likely. GPEBI = general pro-environmental behavioral intentions.

Table 3-4. Voluntary carbon offsetting intentions four-items with descriptive statistics

Item	Percentage (%) *							N	M	SD	Skewness	Kurtosis
	1	2	3	4	5	6	7					
1.Offset my CF that I will generate from my consumption of food and beverages on the beach, when I play beach volleyball (VCO1).	4.3	6.6	13.2	15.5	30.2	20.2	10.1	258	4.62	1.56	-.50	-.36
2.Offset my CF that I will generate from my transportation to the beach (VCO2).	6.2	6.2	12.4	22.1	22.1	20.2	10.9	258	4.52	1.64	-.41	-.49
3.Offset my CF that I will generate from my everyday life's activities as a human, at least one time (VCO3).	4.3	7.4	7.8	24.0	24.0	20.5	11.6	258	4.65	1.57	-.49	-.30
4.Offset my CF that I will generate from my consumption of beach volleyball tournament promotional items (VCO4).	5.4	7.8	11.2	23.3	16.3	12.8	0	258	4.51	1.64	-.34	-.54

Note. M = mean. SD = standard deviation. *1 = very unlikely, 2 = unlikely, 3 = somewhat unlikely, 4 =undecided, 5 = somewhat likely, 6 = likely, 7 = very likely. CF = carbon footprint. VCO = voluntary carbon offsetting.

Table 3-5. Mean scores with standard deviations and intercorrelations for twelve-items of sense of place

Item	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1.PI1	5.07	1.41	-											
2.PI2	5.52	1.03	.59	-										
3.PI3	5.19	1.33	.68	.62	-									
4.PD1	5.00	1.49	.46	.36	.39	-								
5.PD2	3.59	1.84	.33	.12	.21	.32	-							
6.PD3	4.08	1.74	.38	.16	.33	.46	.59	-						
7.NB1	4.76	1.69	.31	.33	.24	.21	.23	.18	-					
8.NB2	5.04	1.50	.43	.52	.45	.29	.17	.26	.43	-				
9.NB3	5.39	1.06	.46	.53	.47	.24	.10	.18	.39	.61	-			
10.SB1	5.72	1.01	.49	.58	.47	.36	-.02	.08	.27	.39	.45	-		
11.SB2	5.60	1.05	.53	.67	.57	.36	.11	.23	.26	.54	.55	.68	-	
12.SB3	5.20	1.42	.49	.51	.50	.42	.19	.36	.30	.42	.45	.49	.63	-

Note. Boldface indicate non-significant Pearson correlation coefficient and negative; $p < .05$. *M* = mean. *SD* = standard deviation. PI = place identity, PD = place dependence, NB = nature bonding, SB = social bonding.

Table 3-6. Results of principal component analysis twelve-items of sense of place

Item	Factor loading			Communality
	1	2	3	
1.SB2	.86	.12	.40	.74
2.PI2	.82	.11	.45	.69
3.SB1	.79	-	.29	.68
4.PI3	.78	.33	.31	.63
5.PI1	.76	.44	.34	.65
6.SB3	.73	.32	.34	.56
7.PD3	.30	.86	.16	.76
8.PD2	.12	.84	.23	.74
9.PD1	.56	.59	-	.56
10.NB1	.27	.22	.83	.71
11.NB2	.58	.18	.76	.67
12.NB3	.62	-	.72	.66
Eigenvalues	5.41	1.64	1.02	-
% of variance	45.08	13.68	8.46	-
Factor 1	-			
Factor 2	.23	-		
Factor 3	.39	.13	-	

Note. N = 258. Boldface indicates highest scores. PI = place identity, PD = place dependence, NB = nature bonding, SB = social bonding.

Table 3-7. Cronbach's alpha scores and descriptive statistics for three-variables of sense of place

Variable	<i>M</i>	<i>SD</i>	α
1.SPI	5.38	.96	.92
2.PD	4.22	1.35	.72
3.NB	5.06	1.14	.71

Note. $N = 258$. For each variable three-items were combined, and their means were calculated. The symbol α column indicates the Cronbach's alphas. *M* = mean. *SD* = standard deviation. SPI = social place identity. PD = place dependence. NB = nature bonding.

Table 3-8. Mean scores with standard deviations and intercorrelations for seven-items of pro-environmental self-identity

Item	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1.PESI1	5.36	1.00	-						
2.PESI2	4.97	1.53	.70	-					
3.PESI3	5.02	1.45	.63	.68	-				
4.PESI4	4.52	1.67	.47	.59	.60	-			
5.PESI5	4.52	1.66	.48	.61	.67	.70	-		
6.PESI6	4.86	1.65	.53	.64	.64	.06	.73	-	
7.PESI7	4.69	1.63	.59	.62	.67	.70	.71	.71	-

Note. $N = 258$; All coefficients are significant at $p < .01$. All coefficients are significant at $p < .01$. M = mean. SD = standard deviation. PESI = pro-environmental self-identity. Cronbach's alpha is equal to $\alpha = .92$ for the seven-items.

Table 3-9. Results of principal component analysis for seven-items of pro-environmental self-identity

Item	Factor loading	
	1	Communality
1.PESI7	.86	.74
2.PESI5	.86	.73
3.PESI3	.85	.72
4.PESI6	.84	.83
5.PESI2	.83	.70
6.PESI4	.81	.65
7.PESI1	.75	.57
Eigenvalue	4.80	-
% of variance	68.61	-

Note. $N = 258$; Factor loadings over .70 appear in bold. PESI = pro-environmental self-identity.

Table 3-10. Mean scores with standard deviations and intercorrelations for eight-items of general pro-environmental behavioral intentions

Item	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1.GPEBI1	5.71	1.33	-						
2.GPEBI2	5.24	1.45	.53	-					
3.GPEBI3	5.48	1.33	.62	.60	-				
4.GPEBI4	4.90	1.62	.39	.54	.43	-			
5.GPEBI5	5.45	1.44	.60	.49	.57	.53	-		
6.GPEBI6	5.25	1.51	.48	.54	.45	.48	.51	-	
7.GPEBI7	5.53	1.36	.57	.51	.61	.48	.53	.47	-
8.GPEBI8	5.18	1.45	.49	.59	.46	.57	.45	.51	.55

Note. *N* = 258; All coefficients are significant at $p < .01$. *M* = mean. *SD* = standard deviation GPEBI = general pro-environmental behavioral intentions. Cronbach's alpha equal to $\alpha = .89$ for the eight items.

Table 3-11. Results of principal component analysis for eight-items of general pro-environmental behavioral intentions

Item	Factor loading	
	1	Communality
1.GPEBI2	.79	.62
2.GPEBI3	.78	.61
3.GPEBI7	.78	.60
4.GPEBI1	.77	.59
5.GPEBI5	.77	.52
6.GPEBI8	.76	.57
7.GPEBI6	.73	.53
8.GPEBI4	.72	.52
Eigenvalue	4.64	-
% of variance	57.94	-

Note. $N = 258$; Factor loadings over .70 appear in bold. GPEBI = general pro-environmental behavioral intentions.

Table 3-12. Mean scores with standard deviations and intercorrelations for four-items of voluntary carbon offsetting intentions

Item	<i>M</i>	<i>SD</i>	1	2	3	4
1.VCO1	4.62	1.56	-			
2.VCO2	4.52	1.64	.68	-		
3.VCO3	4.65	1.57	.63	.70	-	
4.VCO4	4.51	1.64	.65	.70	.69	-

Note. All coefficients are significant at $p < .01$. *M* = mean. *SD* = standard deviation. VCO = voluntary carbon offsetting intentions. Cronbach's alpha for the four-combined-items is $\alpha = .89$.

Table 3-13. Results of principal component analysis for four-items of voluntary carbon offsetting intentions

Item	Factor loading	
	1	Communality
1.VCO2	.89	.72
2.VCO4	.87	.78
3.VCO3	.87	.75
4.VCO1	.85	.76
Eigenvalue	3.02	-
% of variance	75.55	-

Note. $N = 258$; Factor loadings for all items appear in bold. VCO = voluntary carbon offsetting intentions.

Table 3-14. Descriptive statistics and intercorrelations with tolerance and VIF scores among social place identity, place dependence, nature bonding and pro-environmental self-identity

Variable	<i>M</i>	<i>SD</i>	1	2	3	Tolerance	VIF
Pro-Environmental Self-Identity	4.86	1.24	.48	.24	.60		
1.Social Place Identity	5.38	.96	-			.57	1.75
2.Place Dependence	4.22	1.35	.42	-		.81	1.23
3.Nature Bonding	5.06	1.14	.61	.32	-	.62	1.60

Note. $N = 258$, $p < .01$. *M* = mean. *SD* = standard deviation. VIF = variance indicator factor. Pro-environmental self-identity is the dependent variable.

Table 3-15. Preliminary regression analysis summary for social place identity, place dependence and nature bonding predicting pro-environmental self-identity

Variable	<i>B</i>	95% CI	β	<i>t</i>	<i>p</i>
1.Social Place Identity	.23	[.07, .40]	.18	2.78	.006
2.Place Dependence	.01	[-.09, .11]	.01	.19	.849
3.Nature Bonding	.53	[.39, .66]	.48	7.71	.001

Note. $R^2 = .38$ ($N = 258$, $p < .001$). Pro-environmental self-identity is the dependent variable.

Table 3-16. Descriptive statistics and intercorrelations with tolerance and VIF scores among social place identity, place dependence, nature bonding, pro-environmental self-identity and general pro-environmental behavioral intentions

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	Tolerance	VIF
General Pro-Environmental Behavioral Intentions	5.36	1.06	.54	.03	.53	.70	-	-
1.Social Place Identity	5.38	.96	-				.55	1.81
2.Place Dependence	4.22	1.35	.42	-			.81	1.23
3.Nature Bonding	5.06	1.14	.61	.32	-		.51	2.00
4.Pro-Environmental Self-Identity	4.86	1.24	.48	.24	.60	-	.62	1.61

Note. $N = 258$, $p < .001$. Boldface for non-significant $p < .05$. *M* = mean. *SD* = standard deviation. VIF = variance indicator factor. General pro-environmental behavioral intentions represent the dependent variable.

Table 3-17. Preliminary regression analysis summary for social place identity, place dependence, nature bonding and pro-environmental self-identity predicting general pro-environmental behavioral intentions

Variable	<i>B</i>	95% CI	β	<i>t</i>	<i>p</i>
1.Social Place Identity	.38	[.26, .49]	.34	6.42	.001
2.Place Dependence	-.21	[-.28, -.15]	-.27	-6.25	.001
3.Nature Bonding	.08	[-.02, .18]	.08	1.51	.132
4.Pro-Environmental Self-Identity	.47	[.39, .56]	.55	10.99	.001

Note. $R^2 = .61$, ($N = 258$, $p < .001$). CI = confidence interval for *B*.

Table 3-18. Descriptive statistics and intercorrelations tolerance and VIF scores among social place identity, place dependence, nature bonding and pro-environmental self-identity, pro-environmental behavioral intentions and voluntary carbon footprint offsetting intentions

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	Tolerance	VIF
Voluntary Carbon Offsetting Intentions	4.62	1.30	.43	.27	.49	.74	.62		
1.Social Place Identity	5.38	.96	-					.48	2.10
2.Place Dependence	4.22	1.35	.42	-				.71	1.42
3.Nature Bonding	5.06	1.14	.61	.32	-			.50	2.00
4.Pro-Environmental Self-Identity	4.86	1.24	.48	.24	.60	-		.42	2.38
5.General Pro-Environmental Behavioral Intentions	5.36	1.06	.54	.03	.53	.70	-	.40	2.53

Note. $N = 258$; $p < .001$. Boldface indicate non-significance $p > .05$. M = mean. SD = standard deviation. VIF = variance indicator factor. Voluntary carbon offsetting intentions represent the dependent variable.

Table 3-19. Preliminary regression analysis summary for social place identity, place dependence, nature bonding, pro-environmental self-identity and general pro-environmental behavioral intentions predicting voluntary carbon offsetting intentions

Variable	<i>B</i>	95% CI	β	<i>t</i>	<i>p</i>
1.Social Place Identity	-.05	[-.21, .10]	-.04	-.67	.503
2.Place Dependence	.13	[.04, .23]	.14	2.89	.004
3.Nature Bonding	.01	[-.11, .14]	.01	.22	.830
4.Pro-Environmental Self-Identity	.56	[.44, .69]	.54	8.61	.001
5.General Pro-Environmental Behavioral Intentions	.32	[.16, .47]	.26	4.00	.001

Note. $R^2 = .59$, ($N = 258$, $p < .001$). CI = confidence interval for *B*.

Sense of Place Elements

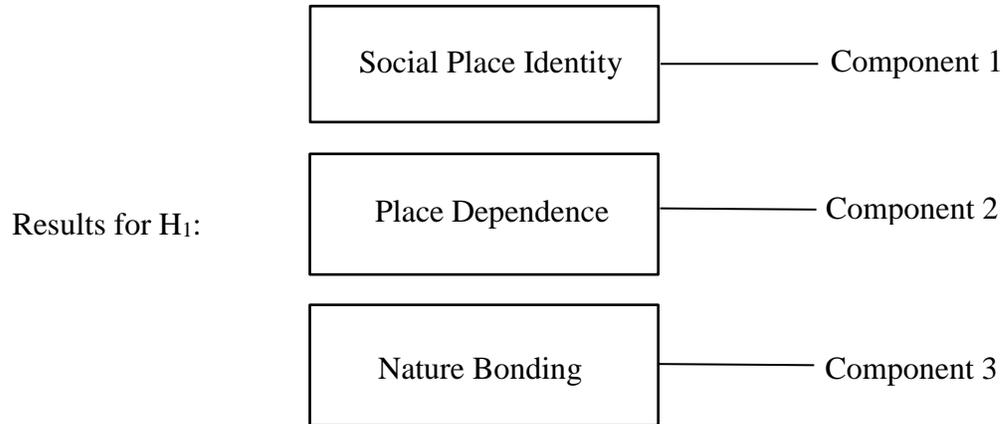


Figure 3-1. Final variables of sense of place after testing for H₁.

Note. The factor loadings illustrated the three-components that were extracted by the principal component analysis. Component 1 represented by social place identity (SPI) and it was constructed by the items of both place identity and social bonding. Component 2 represented by place dependence (PD) and it was constructed by the items of place dependence. Component 3 represented by nature bonding (NB) and it was constructed by the items of nature bonding.

CHAPTER 4 RESULTS

Chapter 4 reports the results of the dissertation study in the following three sections: (a) sociodemographic, (b) sense of place and (c) conceptual model.

Sociodemographic

The profile of MTurk respondents was based on their demographic information, their past experiences with beach volleyball participation, carbon offsetting and traveling. Also, respondents' preferences regarding the transportation mode that use to attend beach volleyball tournaments were displayed as well. Questions also gathered psychographic information with respect activities that MTurk workers were in favor to engage when they visit the beach. Furthermore, information was collected about the residency for each respondent, by requesting their zip code numbers. In addition, data collected about the name of the beach volleyball tournament they participate the past twelve-months and participants' responses for the rest of the web-survey referred to this particular beach volleyball tournament and its beach. For clarity of responses, respondents asked about the name of the state and the beach that they mention regarding the beach volleyball tournaments place.

Table 4-1 shows the sociodemographic characteristics of the sample. Results indicated that 55.8% of the participants were male ($n = 144$) and the 44.2% were female ($n = 114$). The average age was 31-years old ($M = 30.6$, $SD = 7.78$), the majority 77.9% of the respondents were white ($n = 201$), the 53.1% of the participants were single ($n = 137$) and the 48.4% of the respondents were holders of a bachelor's degree ($n = 125$). Most of the participants 91.5% indicated that their annual household income was more than \$20,001 ($n = 236$). All the respondents were residents in the United States ($n = 258$). Specifically, the majority 23.6% of

participants was living in the Northeastern region ($n = 61$), the 15.5% in California ($n = 40$), the 15.5% in the Midwestern region ($n = 40$) and the 14.3% in Florida ($n = 37$).

Table 4-2 illustrates information regarding the place of the beach volleyball tournament and about respondents' traveling preferences. Results showed that 26.7% of the participants ($n = 69$) played in beach volleyball tournaments that took place in Florida. The 25.2% participated in beach volleyball tournaments hosted in California ($n = 65$). The rest 47.9% of the participants ($n = 124$) played in several different places across the United States. For example, the 4.3% of the participants played in beach volleyball tournaments that located in South Carolina and Texas ($n = 11$), the 3.9% in Washington ($n = 10$) and the 2.3% Hawaii ($n = 6$). As far as the transportation modes respondents chose to use, the majority 59.3% of the respondents ($n = 153$) drove their car alone. With regards the distances that the participants traveled, the 13.2% of the respondents ($n = 23$) traveled with airplanes, for mileage that ranged from (100 miles to 3000 miles). Lastly, participants asked to state the amount of money in dollars (\$) that spent for voluntary carbon offsetting programs. The average amount of money that was spent was sixty-eight dollars (\$68) by the 58.1% of the participants that had previously engaged in carbon offsetting behaviors ($n = 18$), which represented the 7.0% of the total population ($N = 258$) (see Table 4-3).

Sense of Place

In Chapter 3, preliminary analysis explored the formation of sense of place. Results indicated that sense of place is formed by three variables namely, social place identity (SPI), place dependence (PD) and nature bonding (NB). Thereby, hypothesis one (H_1) was supported. Additionally, hypothesis two (H_2) explored the effects of sense of place on pro-environmental self-identity and H_2 divided into three sub-hypotheses. Accordingly, the prediction of each sense of place element was investigated. Specifically, H_{2a} tested for the effects of SPI on pro-environmental self-identity, H_{2b} tested the effects of PD on pro-environmental self-identity and

H_{2c} tested the effects of NB on pro-environmental self-identity. Similarly, hypothesis three (H₃) included the following sub-hypotheses, H_{3a} tested the influence of SPI on general pro-environmental behavioral intentions, H_{3b} explored the effects of PD on general pro-environmental behavioral intentions, and H_{3c} examined the effect of NB on general pro-environmental behavioral intentions. Likewise, hypothesis five (H₅), included H_{5a} which tested the effects of SPI on voluntary carbon offsetting intentions, H_{5b} that examined the effects of PD on voluntary carbon offsetting intentions and H_{5c} which tested the effects of NB on voluntary carbon offsetting intentions.

Considering the assumption of multiple regression analyses, preliminary tests illustrated multicollinearity problems among the variables of SPI, PD, NB and pro-environmental self-identity when they are included in the same regression analysis. The violation of this assumption generated problems on the effects of PD on both general pro-environmental and voluntary carbon footprint behavioral intentions. Particularly, when PD accounted in the same regression analysis with SPI, NB and pro-environmental self-identity results included negative beta coefficients. Therefore, a remedy was applied and the effects of PD on general pro-environmental behavioral intentions and on voluntary carbon offsetting intentions were tested in a separate hierarchical regression analysis from PSI and NB. For this reason, the hypotheses four (H₄) was divided in H_{4a} and H_{4b}, as well as hypothesis six (H₆) in H_{6a} and H_{6b} and hypothesis seven (H₇) which divided in H_{7a} and H_{7b}.

Conceptual Model

The conceptual model was analyzed by using one multiple regression analysis to test H_{2a}, H_{2b} and H_{2c}, and four different hierarchical regression analyses testing for H_{3a}, H_{3b}, H_{3c}, H_{4a}, H_{4b}, H_{5a}, H_{5b}, H_{5c}, H_{6a}, H_{6b}, H_{7a} and H_{7b}. Table 3-15 illustrates the findings of H_{2a}, H_{2b} and H_{2c}. Table 4-5 shows that findings from the first hierarchical regression that tested for H_{3a}, H_{3c} and H_{4a}.

Table 4-7 indicates the results from the second hierarchical regression analysis testing for H_{3b} and H_{4b}. Table 4-9 displays the findings from the third hierarchical regression that tested for H_{5a}, H_{5c}, H_{6a} and H_{7a}. Table 4-11 shows the results from the fourth hierarchical regression analysis that tested for H_{5b}, H_{6b} and H_{7b}. Finally, Table 4-12 illustrates the summary of all the results from the hypothetical model that was tested. Specifically, results indicated the standardized coefficients β , the levels of significance with the p -values and the R^2 that occurred from the multiple regression and the four different hierarchical regression analyses. Table 4-13 illustrates which hypotheses were supported and which were not supported.

Results for Hypotheses Testing

This section provides the findings from the statistical analysis used the twelve-hypotheses. The three-sub-hypotheses from hypothesis two (H_{2a}, H_{2b} and H_{2c}) were described in detail and presented in Method section Chapter 3 and as noted earlier results are displayed in Table 3-15.

Sense of Place and Pro-Environmental Self-Identity Predicting General Pro-Environmental Behavioral Intentions

H_{3a}: Social place identity (SPI) has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions, controlling for pro-environmental self-identity.

H_{3b}: Place dependence (PD) has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions, controlling for pro-environmental self-identity.

H_{3c}: Nature bonding (NB) has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions, controlling for pro-environmental self-identity.

H_{4a}: Pro-environmental self-identity has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions, controlling for social place identity (SPI) and nature bonding (NB).

H_{4b}: Pro-environmental self-identity has a positive effect on beach volleyball tournament players general pro-environmental behavioral intentions, controlling for place dependence (PD).

First hierarchical regression analysis for H_{3a}, H_{3c} and H_{4a} testing

The first hierarchical regression analysis included in Block 1, SPI (IV₁) ($M = 5.38$, $SD = .96$), NB (IV₂) ($M = 5.06$, $SD = 1.14$), and in Block 2 pro-environmental self-identity (IV₃) ($M = 4.86$, $SD = 1.24$) to predict general pro-environmental behavioral intentions (DV) ($M = 5.36$, $SD = 1.06$). Table 4-4 shows the mean scores, standard deviations and intercorrelations among SPI, NB, pro-environmental self-identity and general pro-environmental behavioral intentions. Table 4-5 displays the unstandardized regression coefficients (B), standard error (SE) of B , the standardized coefficients (β), R^2 , and R^2 changed (ΔR^2) of the first hierarchical regression analysis.

Block 1. In Block 1, $R^2 = .358$ (adjusted $R^2 = .353$) with a significant ($F(2, 255) = 71.14$, $p < .001$). The 35.8% of the variance explained on general pro-environmental behavioral intention by SPI and NB. Also, SPI predicted significantly general pro-environmental behavioral intentions ($\beta = .34$, $p < .001$) as well as NB with ($\beta = .32$, $p < .001$).

Block 2. To answer H_{3a}, H_{3c} and H_{4a} the results illustrated in Block 2 were accounted for. Specifically, when pro-environmental self-identity was added in Block 2, $R^2 = .544$ (adjusted $R^2 = .539$). The R^2 square change in Block 2 was ($\Delta R^2 = .186$), and this change on R^2 was significant with ($F(3, 254) = 103.69$, $p < .001$). The added variance explained by pro-environmental self-identity was 18.6% and displayed the highest beta coefficient ($\beta = .55$, $p < .001$). Regarding H_{3a}, SPI continued to predict positively and significantly general pro-environmental behavioral intentions with ($\beta = .24$, $p < .001$), whereas NB did not ($\beta = .06$, $p = .322$) (see Table 4-5).

Second hierarchical regression analysis for H_{3b} and H_{4b} testing

The second hierarchical regression model included PD (IV₁) ($M = 4.22$, $SD = 1.35$) in Block 1, and pro-environmental self-identity (IV₂) ($M = 4.86$, $SD = 1.24$) in Block 2 to predict general pro-environmental behavioral intentions (DV) ($M = 5.36$, $SD = 1.06$). Table 4-6 shows the mean scores, standard deviations and intercorrelations among PD, pro-environmental self-identity and general pro-environmental behavioral intentions. Table 4-7 illustrates the unstandardized regression coefficients (B), standard error (SE) of B , the standardized coefficients (β), R^2 , and R^2 changed (ΔR^2).

Block 1. It was illustrated that $R^2 = .001$ (adjusted $R^2 = -.003$) with a not significant ($F(1, 256) = .24$, $p = .622$). Thus, in Block 1, only 1.0% of the variance on general pro-environmental behavioral intention was explained by PD. Also, in Block 1, PD did not predict significantly general pro-environmental behavioral intentions ($\beta = .03$, $p = .622$).

Block 2. When pro-environmental self-identity was added in Block 2, $R^2 = .508$ (adjusted $R^2 = .504$) with a significant ($F(2, 255) = 131.66$, $p < .001$). The ΔR^2 for Block 2 was found equal to ($\Delta R^2 = .507$), and the variance explained only by pro-environmental self-identity was 50.7%. The following results indicated the hypotheses tested outcomes. Specifically, when all three predictors were included in Block 2, that explained a 50.8% of the total variance on the dependent variable. Also, in Block 2, PD presented a significant negative effect on general pro-environmental behavioral intentions with ($\beta = -.15$, $p < .01$) whereas pro-environmental self-identity displayed a positive and significant beta coefficient ($\beta = .73$, $p < .001$) (please see Table 4-7).

Sense of Place, Pro-Environmental Self-Identity and General Pro-Environmental

Behavioral Intentions Predicting Voluntary Carbon Offsetting Intentions

H_{5a}: Social place identity (SPI) has a positive effect on beach volleyball tournament players voluntary carbon offsetting intentions, controlling for pro-environmental self-identity and general pro-environmental behavioral intentions.

H_{5b}: Place dependence (PD) has a positive effect on beach volleyball tournament players voluntary carbon offsetting intentions, controlling for pro-environmental self-identity and general pro-environmental behavioral intentions.

H_{5c}: Nature bonding (NB) has a positive effect on beach volleyball tournament players voluntary carbon offsetting intentions, controlling for pro-environmental self-identity and general pro-environmental behavioral intentions.

H_{6a} Pro-environmental self-identity has a positive effect on beach volleyball tournament players voluntary carbon offsetting intentions, controlling for social place identity (SPI), nature bonding (NB) and general pro-environmental behavioral intentions.

H_{6b}: Pro-environmental self-identity has a positive effect on beach volleyball tournament players voluntary carbon offsetting intentions, controlling for place dependence (PD) and general pro-environmental behavioral intentions.

H_{7a}: General pro-environmental behavioral intentions have a positive effect on beach volleyball tournament players voluntary carbon offsetting intentions, controlling for social place identity (SPI), nature bonding (NB) and pro-environmental self-identity.

H_{7b}: General pro-environmental behavioral intentions influence positively beach volleyball tournament players voluntary carbon offsetting intentions, controlling for pro-environmental self-identity and place dependence (PD).

Third hierarchical regression analysis for H_{5a}, H_{5c}, H_{6a} and H_{7a} testing

The third hierarchical regression analysis included SPI (IV₁) ($M = 5.38$, $SD = .96$) and NB (IV₂) ($M = 5.06$, $SD = 1.14$) in Block 1, pro-environmental self-identity (IV₃) ($M = 4.86$, $SD = 1.24$) in Block 2 and general pro-environmental behavioral intentions (IV₄) ($M = 5.36$, $SD = 1.30$) in Block 3 to predict voluntary carbon offsetting intentions (DV) ($M = 4.62$, $SD = 1.30$). Table 4-8 shows the mean scores, standard deviations and intercorrelations among SPI, NB, pro-environmental self-identity, general pro-environmental behavioral intentions and voluntary

carbon offsetting intentions. Table 4-9 illustrates the unstandardized regression coefficients (B), the standard error of B , the standardized coefficients (β), R^2 , and R^2 square change (ΔR^2).

Block 1. In Block 1, SPI and NB explained significantly 26.7% of the variance in voluntary carbon offsetting intentions with a significant ($F(2, 255) = 46.41, p < .001$). Furthermore, SPI predicted significantly positive voluntary carbon offsetting intentions with ($\beta = .20, p = .003$), as well as NB with a significantly positive beta coefficient ($\beta = .37, p < .001$).

Block 2. When pro-environmental self-identity was added in the Block 2, $R^2 = .556$ (adjusted $R^2 = .550$), the ΔR^2 for Block 2 was equal to ($\Delta R^2 = .289$) and this change in R^2 was significant with an ($F(1, 254) = 164.85, p < .001$). Thus, the variance explained by pro-environmental self-identity was 28.9%, with a significant high beta coefficient ($\beta = .68, p < .001$). As far as the SPI (IV_1) and the NB (IV_2) is concerned in Block 2 they did not present significant effects on voluntary carbon offsetting intentions when pro-environmental identity was entered. Specifically, for SPI (IV_1) ($\beta = .07, p = .172$) and NB (IV_2) ($\beta = .07, p = .493$).

Block 3. When general pro-environmental behavioral intentions (IV_4) was entered in Block 3, the total variance explained in voluntary carbon offsetting intentions was equal to .572 (adjusted $R^2 = .565$). The ΔR^2 for Block 3 was equal to ($\Delta R^2 = .016$), and this change in R^2 was significant ($F(1, 253) = 17.60, p = .002$), which means that general pro-environmental behavioral intentions explained significantly 1.6% of the variance in voluntary carbon offsetting intentions. In addition, results of Block 3 revealed that for H_{5a} testing, SPI (IV_1) did not predict significantly voluntary carbon offsetting intentions ($\beta = .03, p = .616$). Similarly, for H_{5c} testing, NB (IV_2) presented ($\beta = .03, p = .615$). For H_{6a} testing, pro-environmental self-identity (IV_3) continued to present a significant high beta coefficient ($\beta = .58, p < .001$). Finally, for H_{7a} testing,

general pro-environmental behavioral intentions (IV₄) displayed a significant positive beta coefficient ($\beta = .19, p = .002$).

Fourth hierarchical regression Analysis for H_{5b}, H_{6b} and H_{7b} testing

For the fourth hierarchical regression analysis, PD (IV₁) ($M = 4.22, SD = 1.35$) was inserted in Block 1, pro-environmental self-identity (IV₂) ($M = 4.86, SD = 1.24$) was entered in Block 2, and general pro-environmental behavioral intentions (IV₃) ($M = 5.36, SD = 1.30$) was entered in Block 3 while predicting for voluntary carbon offsetting intentions (DV) ($M = 4.62, SD = 1.30$). Table 4-10 shows the mean scores, standard deviations and intercorrelations among PD, pro-environmental self-identity, general pro-environmental behavioral intentions and voluntary carbon offsetting intentions. Table 4-11 displays the unstandardized regression coefficients (B), the standard error (SE) of B , the standardized coefficients (β), R^2 , and R^2 square change (ΔR^2).

Block 1. In Block 1, $R^2 = .07$ (adjusted $R^2 = .067$) with a significant ($F(1, 256) = 19.32, p < .001$) (see Table 4-12). The 7.0% of the variance on voluntary carbon offsetting intentions was explained significantly only by PD. Also, PD predicted significantly positive voluntary carbon offsetting intentions with ($\beta = .27, p < .001$).

Block 2. When pro-environmental self-identity was added in Block 2, $R^2 = .556$ (adjusted $R^2 = .553$). The R^2 square change (ΔR^2) for the Block 2 was equal to ($\Delta R^2 = .486$) and this change in R^2 was significant with a ($F(1, 255) = 279.16, p < .001$). Thus, the variance explained only by pro-environmental self-identity was 48.6%, with a significant high beta coefficient ($\beta = .72, p < .001$). As far as the PD is concerned results showed ($\beta = .09, p = .035$).

Block 3. When general pro-environmental behavioral intentions (IV₃) was entered in Block 3, the total variance explained on voluntary carbon offsetting intentions was equal to .585 (adjusted $R^2 = .580$). The R^2 square change (ΔR^2) for Block 3 was equal to ($\Delta R^2 = .029$), and this

change in R^2 was significant ($F(1, 254) = 17.60, p < .001$), and therefore, general pro-environmental behavioral intentions (IV_3) explained significantly 2.9% of the variance in voluntary carbon offsetting intentions. Also, in Block 3, when testing for H_{5b} , PD predicted significantly and positive voluntary carbon offsetting intentions with ($\beta = .13, p = .003$). In addition, for H_{6b} testing, pro-environmental self-identity continued to present a significant high beta coefficient ($\beta = .54, p < .001$). Finally, when testing for H_{7b} , general pro-environmental behavioral intentions displayed a significant positive beta coefficient ($\beta = .24, p < .001$).

Table 4-1. Demographic characteristic of participants

Characteristic	Category	<i>n</i>	%
Gender	Female	114	44.2
	Male	144	55.8
Annual Household Income	\$20,000 or less	22	8.5
	\$20,001 to \$40,000	64	24.8
	\$40,001 to \$60,000	58	22.5
	\$60,001 to 80,000	55	21.3
	\$80,001 or more	59	22.9
Education	High School	17	6.6
	Some College	74	28.7
	Bachelor's Degree	125	48.4
	Master's Degree	36	14.0
	Doctoral Degree	6	2.3
Ethnicity	White/Caucasian	201	77.9
	African American	20	7.8
	Asian	16	6.2
	Hispanic	13	5.0
	Other	8	3.1
Marital Status	Single	137	53.1
	Partnered or Married	117	45.3
	Other	4	1.6
Age	<i>M</i> = 30.6 years old <i>SD</i> = 7.783 Minimum age = 18 Maximum age = 63	258	100
Residency	Northeastern	61	23.6
	California	40	15.5
	Midwestern	40	15.5
	Florida	37	14.3
	South	36	14.0
	Southeastern	23	9.0
	Western	18	7.4
	Hawaii	3	1.2

Note. Totals of percentages are not 100 for every characteristic because of rounding. All participants' residency is in the United States.

Table 4-2. Beach volleyball tournaments place characteristics

Characteristic	Category	<i>n</i>	%
Location	Florida	69	26.7
	California	65	25.2
	New York	15	5.8
	South Carolina	11	4.3
	Texas	11	4.3
	Washington	10	3.9
	New Jersey	9	3.5
	North Carolina	8	3.1
	Illinois	6	2.3
	Hawaii	6	2.3
	Michigan	6	2.3
	Alabama	4	1.6
	Oregon	4	1.6
	Connecticut	3	1.2
	Massachusetts	3	1.2
	Ohio	3	1.2
	Pennsylvania	3	1.2
	Rhode Island	3	1.2
	Virginia	3	1.2
	Delaware	2	.8
	Georgia	2	.8
	Maryland	2	.8
	New Hampshire	2	.8
	Wisconsin	2	.8
Arizona	1	.4	
Colorado	1	.4	
Louisiana	1	.4	
Maine	1	.4	
Missouri	1	.4	
Virgin Islands	1	.4	

Table 4-2. Continued

Characteristic	Category	<i>n</i>	%
Transportation Mode	Drive car alone	153	59.3
	Carpool	93	36.0
	Airplane flight	34	13.2
	Bus service	24	9.3
	Other (e.g., Bicycle, Uber, Train)	19	7.4
	Hybrid/electric car	16	6.2
Miles Traveled in Average	Airplane flight <i>M</i> = 88.1	227	-
	Drive car alone <i>M</i> = 21	105	-
	Carpool (two or three people in one vehicle) <i>M</i> = 11.6	165	-
	Hybrid/electric car <i>M</i> = 6.6	248	-
	Bus service <i>M</i> = 3.9	234	-
	Other (e.g., Bicycle, Uber, Train) <i>M</i> = 1.1	239	-
Recreational Activities	Beach Volleyball	237	91.9
	Walking	114	56.6
	Running	104	40.3
	Sightseeing	102	39.5
	Photography	83	32.2
	Surfing	43	16.7
	Biking	40	15.5
	Wildlife watching	32	12.4
	Other (e.g., BBQ, sunbathing and relaxing)	13	5.0

Note. Total number of responses are not 258 for every characteristic because of the open multiple question choice questions. Uber = is a peer-to-peer ridesharing and transportation network company headquartered in San Francisco, California.

Table 4-3. Voluntary carbon offsetting past behavior

Characteristic	Category	<i>n</i>	%
Past Voluntary Carbon Offsetting Behavior	Never	221	85.7
	More than one time	31	12.0
	At least one time	6	2.3
	Average amount of money spent for VCO in total <i>M</i> = \$68	18	58.1

Note. Total number of responses are not 258 for every characteristic because of the open multiple question choice questions. VCO = voluntary carbon offsetting.

Table 4-4. Descriptive statistics and intercorrelations among the variables of first hierarchical regression analysis

Variable	<i>M</i>	<i>SD</i>	1	2	3
General Pro-Environmental Behavioral Intentions	5.36	1.06	.54	.53	.70
1.Social Place Identity	5.38	.96	-		
2.Nature Bonding	5.06	1.14	.61	-	
3.Pro-Environmental Self-Identity	4.86	1.24	.48	.60	-

Note. *N* = 258. All coefficients presented $r < .001$.

Table 4-5. Results for first hierarchical regression analysis

Block and predictor variable	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Block 1:				.36***	
Social Place Identity	.38	.07	.34***		
Nature Bonding	.30	.06	.32***		
Block 2:				.54***	.19***
Social Place Identity	.27	.06	.24***		
Nature Bonding	.06	.06	.06		
Pro-Environmental Self-Identity	.47	.18	.55***		

Note. *N* = 258. ****p* < .001.

Table 4-6. Descriptive statistics and intercorrelations among the variables of second hierarchical regression analysis

Variable	<i>M</i>	<i>SD</i>	1	2
General Pro-Environmental Behavioral Intentions	5.36	1.06	.03	.70
1. Place Dependence	4.22	1.35	-	
2. Pro-Environmental Self-Identity	4.86	1.24	.24	-

Note. $N = 258$. All coefficients were significant at $p < .001$. Boldface indicated non-significant p -value, $p > .05$. Dependent variable is general pro-environmental behavioral intentions.

Table 4-7. Results for second hierarchical regression analysis

Block and predictor variable	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Block 1:				.001	
Place Dependence	.02	.05	.03		
Block 2:				.51***	.51***
Place Dependence	-.12	.04	-.15**		
Pro-Environmental Self-Identity	.63	.04	.73***		

Note. *N* = 258. ***p* < .01. ****p* < .001.

Table 4-8. Descriptive statistics and intercorrelations among the variables of third hierarchical regression analysis

Variable	<i>M</i>	<i>SD</i>	1	2	3	4
Voluntary Carbon Offsetting Intentions	4.62	1.30	.46	.49	.74	.62
1.Social Place Identity	5.38	.96	-			
2.Nature Bonding	5.06	1.14	.61	-		
3.Pro-Environmental Self-Identity	4.86	1.24	.48	.60	-	
4.General Pro-Environmental Behavioral Intentions	5.36	1.06	.54	.53	.70	-

Note. *N* = 258. ****p* < .001.

Table 4-9. Results for third hierarchical regression analysis

Block and predictor variable	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Block 1:				.27***	
Social Place Identity	.27	.90	.20**		
Nature Bonding	.42	.08	.37***		
Block 2:				.56***	.29***
Social Place Identity	.10	.07	.07		
Nature Bonding	.05	.07	.04		
Pro-Environmental Self-Identity	.71	.06	.68***		
Block 3:				.57***	.02**
Social Place Identity	.04	.07	.03		
Nature Bonding	.03	.07	.03		
Pro-Environmental Self-Identity	.61	.07	.58***		
General Pro-Environmental Behavioral Intentions	.23	.08	.19**		

Note. ***p* < .01. ****p* < .001.

Table 4-10. Descriptive statistics and intercorrelations among the variables of fourth hierarchical regression analysis

Variable	<i>M</i>	<i>SD</i>	1	2	3
Voluntary Carbon Offsetting Intentions	4.62	1.30	.27	.74	.62
1.Place Dependence	4.22	1.35	-		
2.Pro-Environmental Self-Identity	4.86	1.24	.24	-	
3.General Pro-Environmental Behavioral Intentions	5.36	1.06	.03	.70	-

Note. $N = 258$. Boldface indicates non-significant p -value, $p > .05$. Dependent variable is the voluntary carbon offsetting intentions.

Table 4-11. Results for fourth hierarchical regression analysis

Block and predictor variable	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Block 1:				.07***	
Place Dependence	.25	.06	.27***		
Block 2:				.56***	.49***
Place Dependence	.09	.04	.09*		
Pro-Environmental Self-Identity	.75	.05	.72***		
Block 3:				.59***	.03***
Place Dependence	.12	.04	.13**		
Pro-Environmental Self-Identity	.57	.06	.54***		
General Pro-Environmental Behavioral Intentions	.30	.07	.24***		

Note. **p* < .05. ***p* < .01. ****p* < .001.

Table 4-12. Summary for multiple regression and results only of the last blocks from the four hierarchical regression analyses

Independent variable	Dependent variable				
	PESI Multiple Regression	GPEBI First Hierarchical Regression	GPEBI Second Hierarchical Regression	VCO Third Hierarchical Regression	VCO Fourth Hierarchical Regression
	β (standardized beta coefficient)				
1.Social Place Identity	.08**	.24***	-	.03	-
2.Place Dependence	.01		-.15**	-	.13**
3.Nature Bonding	.48***	.06	-	.03	-
4.Pro-Environmental Self-Identity	-	.55***	.73***	.58***	.54***
5.General Pro-Environmental Behavioral Intentions	-	-	-	.19**	.24***
R^2	.38***	.54***	.51***	.57***	.59***

Note. $p < .01$ **, $p < .001$ ***. PESI = pro-environmental self-identity. GPEBI = general pro-environmental behavioral intentions. VCO = voluntary carbon offsetting intentions. The four hierarchical regression analyses results illustrate only the outcome occurred from the last Blocks.

Table 4-13. Summary of hypotheses tested

Hypothesis	Result
H2a	Supported
H2b	Rejected
H2c	Supported
H3a	Supported
H3b	Rejected
H3c	Rejected
H4	Supported
H5a	Rejected
H5b	Supported
H5c	Rejected
H6a	Supported
H6b	Supported
H7a	Supported
H7b	Supported

Note. Boldface indicate support of H₂ tested based on the multiple regression. H₃, H₄, H₅, H₆, and H₇ tested based on four hierarchical regression analyses results of their last Blocks only.

CHAPTER 5 DISCUSSION

The purpose of the study was to examine beach volleyball tournament players pro-environmental perceptions and behaviors according to sense of place. The first research objective was the focal point of the current study and investigated the formation of sense of place. Results revealed that sense of place is made up of three elements. The first element was found to be people's social place identity (SPI), the second was place dependence (PD) and the third was nature bonding (NB). With regards to pro-environmental behavioral intentions, two genres were investigated, general pro-environmental behavioral intentions and voluntary carbon footprint offsetting. Accordingly, the effects caused by sense of place elements and pro-environmental self-identity on pro-environmental behavioral intentions were explored in research objective three and research objective four.

The second research objective examined the effects of sense of place on pro-environmental self-identity and pro-environmental behavioral intentions. Findings displayed that SPI and NB played an important role in the development of participants' pro-environmental self-identity. However, PD did not present a crucial influence on respondents' pro-environmental self-identity. With regards to pro-environmental behavioral intentions, results revealed that only SPI has a significant positive effect on general pro-environmental behavioral intentions, while PD influences them significantly but negatively. Finally, voluntary carbon offsetting intentions were explained significantly and positively only by PD.

The third research objective aimed to explore the role of pro-environmental self-identity on pro-environmental behavioral intentions. Specifically, pro-environmental self-identity was found to be a catalyst for both genres of pro-environmental behavioral intentions. Findings support that individuals who viewed themselves as environmentalists have a high intention to

behave in a pro-environmental manner in both the place where a sport event is hosted and, in their household, -oriented environment.

The fourth research objective explored the positive spillover effect of general pro-environmental behavioral intentions on voluntary carbon offsetting intentions. Results indicated support for the integrative theoretical framework proposed by Truelove et al. (2014).

Specifically, findings demonstrated that one pro-environmental behavior increases people's likelihood to perform additional pro-environmental behaviors such as voluntary carbon offsetting.

Theoretical Contributions

Contribution One

This study hypothesized that a place is not simply a compendium of geographical coordinates combined with a person's cognitive and conative factors. Rather, a place represents a collection of living experiences and collective memories, to which people develop a special connection (Herrick, 2018; Williams & Vaske, 2003). Accordingly, sense of place is made up of three elements. The first element is the social place identity concept, which explains how people develop a sense of place. This study concludes that in small-scale sport events, active participants form a special bond with the event location because they position themselves within it and among the people that frame that place. On a basic level, a place is special to a person when she or he views it as identical to herself or himself. Therefore, when people associate themselves with a place, their sense of self and belonging to the place's features shape their consciousness regarding environmentalism.

The second element of sense of place which captures the place dependence element is people's embedded perception that a specific place is the only setting able to serve their behavioral aspirations. This connection to a place specifically reflects a person's need to join that

place. In terms of sport participation, place dependence is expressed as a dependency towards people's functional values. Basically, functional values relate to the behavioral benefits and self-enhancement that a place offers.

The last element in the formation of sense of place is nature bonding. When events occur in the biophysical environment, people appreciate a place more, causing that place to become essential to them. Accordingly, people's connectedness to natural resources can be illustrated as an element that enhances people's perceptions towards a place. Moreover, the environmental quality of a place strengthens the bond between a person and a place, making the place special. According to Kollmuss and Agyeman (2002), these findings offer theoretical implications that nature bonding arises from people's environmental values, experiences and interactions with the natural world from an early age.

Sense of Place Definition

The findings illustrated that the relationship between people and a place is built upon psychological factors as well as specifically through people's personal, environmental and communal connections to a place. Given this conclusion, what is sense of place, and what could be the most representative definition? In response, this dissertation proposes a new definition for sense of place based on the findings of hypothesis one (H₁) and with support from the existing literature. Considering that sense of place is built on people's personal position of self to the place, and their communal affinity and openness for social contact, sense of place is defined as one's special bond with a place that is remembered based upon aggregate happenings that that the person identifies with the self.

On that basis, fond memories in a special place are the shared past experiences among people with identical selves regarding the place. In addition, the bond between a person and a

place is enhanced by the place's pure nature. In addition, people view a place as a special area when the features of the place benefit others and deliver prosperity.

This new definition is representative of self-enhancement and self-transcendence values combined (Barbarossa et al., 2017; Schwartz, 1992). Essentially, sense of place can be viewed as a concept relative to people's fond memories, the self- and social identity within a place that fulfill self-expectations by the quality and availability of environmental resources. For example, a place is special for a person when she or he bonds with a group of people that establish a place. Thus, a place may become more special through the establishment of her or his social status in that place.

Furthermore, sense of place captures macro-systematic concepts such as cultural and environmental values. Cultural values, altruistic motivation and social relationship are captured by social bonding which is under the communal connection of people with a place. Results revealed that place identity is highly correlated with social bonding since these two variables share a common conceptual background on community value mapping where people view themselves as part of the community (Pretty et al., 2003). This can show potential bonding among sport participants perhaps due to their trusting each other, where sense of place is powered by self-identity and community relationships.

Contribution Two

With regards to people's pro-environmental self-identity, results revealed that only the elements of social place identity and nature bonding had a significant effect on pro-environmental self-identity. Compared to place dependence, which was not found to be relevant to beach volleyball participants' pro-environmental self-identity. As far as the general pro-environmental behavioral intentions are concerned, the finding that only social place identity had

an essential role provides information about the importance that sense of self and sense of community has on environmentalism formation. On the other hand, place dependence was found to significantly negatively affect general pro-environmental behavioral intentions. This finding illustrates that the participants who do not care for general environmental protection have a different perspective towards their special place. By contrast, place-dependent people are willing to take impact-oriented actions toward their favorite place. Therefore, these people hope for the protection of the place that satisfies their needs. However, in support with their egoism, these individuals are not concerned with the environmental welfare that is also associated with the well-being of other people. Additionally, social place identity and nature bonding did not play a role in the impact-oriented pro-environmental behaviors of people in their special place. Perhaps, certain special places did not need improvements or protection; these places may have been chosen for a reason related to people's self-identity and thus they may not be willing to act for change and potential self-improvement.

With regards to pro-environmental consciousness, nature bonding was the most effective antecedent of pro-environmental self-identity. This finding illustrates that environmentally conscious individuals are primarily connected with nature and have environmental values. This supports psychological frameworks in which bonding with the natural environment is built upon environmental aesthetic values and appreciation of nature and its habitats. Also, this discovery is supported by studies that highlight the essence of past experiences with natural environment settings (Kollmuss & Agyeman, 2002; Walton & Jones, 2017). Consequently, through the lens of sport participation there is space for people to develop their pro-environmental consciousness, which will determine their pro-environmental outcomes independently of sense of place.

Hypothesis three (H₃) displayed a positive link between social place identity and pro-environmental engagement in a person's private life, whereas nature bonding did not influence general environmental actions. Taken with the results revealed from hypothesis two (H₂), it can be suggested that a pro-environmental self-identity may define people's environmental intentions more than their bonding with the natural world.

Contribution Three

Pro-environmental self-identity significantly positively influenced both general and specific pro-environmental behavioral intentions. Thus, environmentally conscious people are those individuals who always participate in different types and genres of pro-environmental behaviors. Thus, a pro-environmental self-identity can be viewed as a pro-environmental consciousness (Moser & Kleinhüchelkotten, 2018). In addition, a pro-environmental self-identity is the ultimate psychological element; if a person views herself or himself as a person who is integrated with the natural world, this person will continue to be pro-environmental and perhaps increase her or his engagement with practices that relate with environmental actions. Specifically, an environmentally conscious person may present a paradigm of environmentalism and her or his pro-environmental behavior from the private and public sphere may include traits of environmental activism.

According to the literature, it is difficult for a person to engage in voluntary carbon offsetting schemes if she or he does not present crucial reasons or intrinsic motivations to protect the environment. Therefore, if a person is not willing to engage in positive action for the environment, there is evidence that one of the person's psychological factors such as environmental knowledge, awareness, concerns, personal norms or responsibility is not well developed. Consequently, without these internal psychological concepts, an individual would not

understand the beneficial outcomes of environmental quality and ecosystem preservation. However, the findings of this study supported the exact opposite.

Contribution Four

Results of hypothesis seven (H7) displayed that pro-environmental behaviors have positive implications regarding certain highly effective pro-environmental behaviors. Specifically, household-oriented behaviors make an essential contribution to people's intentions to behave environmentally friendly in specific occasions. For example, one occasion is at their special place or areas they identify with and their shared collective experiences. This finding found support in the literature where engagement with general environmental friendly practices has a spillover effect on other pro-environmental behaviors (Truelove et al., 2013). The current study supports sport participation defined as shared experience, and peoples' general pro-environmental approaches determine their intentions to offset their carbon footprint on the places where they engage in sport activities such as beach volleyball tournaments. Research in sense of place can determine which are the special places where people who are behaving pro-environmentally would voluntarily offset their carbon footprint. Building on this, hypothesis five (H5) posits that the role of the beach features as a platform that fulfills beach volleyball participants' goals and achievements and improves their performance on the tournaments may determine which place would be a good candidate for sport participation and platforms for voluntary carbon offsetting interventions.

It was demonstrated that psychological variables interact differently when different behaviors are explored. Despite the different effects, it has been highly recommended that factors that affect people's general pro-environmental behaviors are also factors that cause people to adopt actions related to technologies that contribute positively to environmental wealth, such as

voluntary carbon offsetting schemes, which can have a spillover effect on other behaviors (Mann et al., 2017). Following studies by Ramkissoon et al. (2012, 2013) this research used the spillover effect theorem to support the effect of general pro-environmental engagement in practices that generally have an impact on people's effective and relatively high impactful practices.

Practical Implications

Research between the relationship of humans with places has inspired this kind of research to be applied to sports. A sport is a social phenomenon that captures mostly emotions, beliefs, passion, perseverance and grit (Fliggins et al., 2016). A sport contributes to great moments which give people the opportunity to exceed their limitations, to break records, to benefit physically, to inspire and be inspired and to create fond memories through unforgettable experiences (Johansen, 2015). A sport setting which can be considered the mecca of people's memorable experiences is a sport event location, that is, a specific place used to host a sporting event in a determined space for a short period of time (Pringles, 2018). Bringing the sport events phenomenon together with sense of place and exploring people's psychological aspects could give rise to a new momentum that could inspire changes, provide solutions and determine the psychological energy that identify people—that is, their consciousness.

General pro-environmental behaviors can be approached easier in a sport event context. For example, the practices of recycling and beach clean-ups can be planned by the sport event directors and sport events' participants' community. On the other hand, voluntary carbon offsetting intentions require skills, capability and knowledge. However, sport events may have the power to motivate people to offset their carbon footprint, without knowing what they are doing other than participating in a sport event they are highly invested in. Therefore, sport involvement should be explored as a potential predictor of voluntary carbon offsetting intentions.

A theoretical framework based on values in sport involvement such as centrality and pleasure (Beaton et al., 2011) should capture behavioral involvement with regards to environmental protection through sport events.

Behaviors related to travel can play a critical role in voluntary carbon offsetting practices as well. It has been suggested that transportation contributes to the largest amount of CO₂ emissions in the atmosphere. General pro-environmental behavioral intentions capture pro-environmental transportation modes such as public transportation. Therefore, an interaction between traveling behaviors and people's decision-making process toward the transportation mode could be controlled and manipulated by strategies implemented by local governmental bodies. An example is the "zoning" practice where certain vehicles are not allowed to be in transit for specific period in areas that are considered high-density. As a result, if people get used to traveling with environmentally friendlier transportation modes, then this habit can affect their behaviors towards carbon offsetting behaviors. The current study supports the spillover effect regarding pro-environmental behaviors, demonstrating how pro-environmental behaviors in one place can occur by the same person in another place. For example, sport consumers interact with multiple places while attending a sport event of their favorite team. Similarly, sport participation in specific places that promote environmentally friendly practices can influence individuals to apply them in their household-oriented sphere. For example, if an active individual drives her or his car alone, she or he may be willing to offset her, or his carbon footprint generated from its transportation and consumption behaviors.

Sport Management

A sport is a powerful tool for advocating information and has changed people's minds in the short and long term. A critical aspect discussed in sport management literature is sport

involvement and the level to which individuals identify with their favorite sport. People may have a favorite sport that they watch or a sport that they actively participate in. Examples of individuals' sport involvement include following sport teams, being a sport player, going to recreational centers or facilities, utilizing outdoor recreational spaces, and participating in social interaction in sport settings (Kellison & Mondello, 2014). This identification relates to an intrinsic connection, where people believe that the sport has an impact on their lives, their choices and their future. The sport agenda includes a unique connection among all the different cultures across the world. Also, this billion-dollar industry has the power to choose leaders in other contexts, but also use the power of the media as a tool for their financial benefit.

Beach volleyball tournaments are a small-scale sport event that connects people with the place of the event and the people. Also, it is synonymous with healthy living, or a "beach" lifestyle (Brymer et al., 2009). Beach volleyball tournament players are willing to do whatever it takes to be part of the beach volleyball community (Giatsis et al., 2016). Evidence has shown that environmental responsibility and beach clean-ups are very popular among beach volleyball players (Ariza et al., 2008), not because players are aware of what they are doing for the benefit of the community and the natural environment, but because other beach volleyball players who are part of the community communicate these messages to each other. Involvement with beach volleyball illustrated some potential association with participants and their bonding with the beach and its physical environment. Therefore, beach volleyball players participate in tournaments because they take place on the beach, which is primarily a natural environment setting with aesthetic and functional values. Also, sport participants bonding with the beach and the cultural characteristics of the beach volleyball community affect their experiences (Du

Preez & Heath, 2016), and in turn connect them to that place and create memories that have symbolic meaning for them.

Certain types of sport events, such as beach volleyball tournaments, have the power to become platforms for interventions that enhance bonding of participants with the beach's natural resources and magnify connections among sport event participants as they share similar values, relate to meaningful outcomes of sport events and embrace symbolic meanings together with communal values (Triantafyllidis & Kaplanidou, 2018). Consequently, beach volleyball can become an effective platform for healthier lifestyles in local communities by encouraging people to engage in and learn more about the protection of environmental resources through interaction among the participants. Essentially, the community of beach volleyball events should aim to motivate beach volleyball participants to fully embrace the importance of environmental protection.

People often visit places that have been degraded by human activities. Essentially, the beach is natural environment that has been degraded by the tourism and sport industry through the construction of facilities and buildings. Also, the beach has started being affected by global warming, with rising sea levels and extreme weather conditions. Sometimes these very places host sport events, festivals and social entertainment events. Taken together, findings that illustrate people's fear and concern for the changes in natural environment, combined with the fact that sport events take place in natural settings that are sensitive on environmental changes, can become platforms for environmental stewardship. As the findings showed, sense of place and self-related pro-environmental variables influence people's intentions towards environmental protection. Therefore, environmental advocacy in such events and places could change people's pro-environmental mindsets.

Beach Volleyball

The growing environmental challenges require a demanding and effective management of natural resources (Lynam et al., 2007). The findings of this study illustrated that studying pro-environmental behavior within sport event consumers can be a very important and unique research design. For example, people's traveling habits and sport consumption are factors that increase the quantity of CO₂ emissions in the atmosphere. Therefore, exploring not only what psychological factors can change peoples' activities such as traveling or recycling, but also their intentions towards offsetting the CO₂ emissions generated from these and other practices, was very crucial for several reasons.

Moreover, self and place elements can influence people's decisions. People's decision-making process is a crucial factor regarding the formation of pro-environmental behavior. Places that host beach volleyball tournaments have communal elements due to this type of sport, and people are usually highly committed individuals with regards the sport. Beyond beach volleyball, other outdoor sport and recreation environments include mountains and parks where events such as running, and mountain biking take place. Usually, outdoor sport participants are individuals who spend most of their time in the outdoor environment to train and enjoy the benefits of physical activity together with the aesthetic meanings and values of the natural environment. There is evidence that amateur sport participants take care themselves, their body, weight and health (Triantafyllidis & Kaplanidou, 2018). Therefore, when people with similar habits attend in large numbers the place of the event, their concepts of self and place are bonded together and become more crucial through the communal and cultural values that they have in common with other participants. Also, people involved with the sport identify themselves with values associated with the sport, such as respect, pride and the symbolic meanings of outdoor spaces.

In addition, sport event participation in outdoor natural environments plays a crucial role for individuals involved with that sport. Consequently, beach volleyball is a sport that has the ability to increase sport involvement levels, and beach volleyball players who participate in tournaments are seeing the sport as a factor that improves their quality of life (Ma & Kaplanidou, 2017). In accordance with beach volleyball involvement and participation in beach volleyball tournaments, it was suggested that the more involved people are with beach volleyball, the more connected they are to the beach as a place, and the more they perceive themselves as environmentalists willing to take pro-environmental actions to benefit the beach. However, future research should focus on the fit of a place with the sport, such as beach volleyball and the beach.

Delimitations

The boundaries of this study were set by the author prior to starting the data collection of the final sample. Specifically, the sample included MTurk workers. This decision was made due to the small target population of the research subjects, namely the beach volleyball players in the state of Florida. The author utilized MTurk as a remedy of the first attempt to collect the data from the beach volleyball participants in tournaments that took place in Florida during the past twelve-months. During the first attempt, the link of the web-survey was sent to three-beach volleyball event directors, who forwarded it to the registered participants of the past twelve-months. The total sample size was $N = 96$, fully completed web-surveys with a 16% response rate. Consequently, the sample size did not satisfy the criteria of testing the hypotheses of the model with hierarchical regression (Tabachnick & Fidell, 2013). As a result, this study was conducted through MTurk.

Screening questions were provided in the web-survey due to the online environment and the potential response bias and lack of legitimate data. Only the responses of MTurk workers

who responded to all screening questions consistently in terms of the criteria the author set to identify as actual beach volleyball players were retained. These criteria were developed based on specific characteristics necessary to participate actively in a beach volleyball tournament on the beach. Therefore, questions were related to different types of beach volleyball courts and characteristics that play an important role to players who participate actively in beach volleyball tournaments on the beach. It was important to ensure that respondents had been exposed to the beach's natural environment since the main research objective of the study was to investigate respondents' pro-environmental perceptions towards pro-environmental behaviors. Also, one screening question inquired whether respondents were active beach volleyball tournament players or spectators. Therefore, the author was able to identify the people who had not played in beach volleyball tournaments the past twelve-months and screened them out of the data collection.

Finally, Qualtrics software was used to build the web-survey prior uploading it in MTurk. In Qualtrics, the author set as a requirement for respondents' answers to respond to each item of every question in order to proceed on the next one. MTurk participants who answered all questions received \$1 for their participation. Compensation is a required action when MTurk is utilized as a tool for a researcher to collect data. The financial payments were conducted after receiving the approval of the Institutional Review Board (IRB) of the University of Florida.

Limitations

Participants that completed the web-survey questionnaire were not directly from beach volleyball tournaments that take place on the beach. This may influence the implications and generalizability of the results due to the online environment of the data collection (Tabachnick & Fidell, 2013). The web-surveys were self-reported questionnaires, and sometimes self-reported instruments can be challenging for the researcher in the data analysis process, as respondents

may not read the question appropriately or choose an answer correctly. Consequently, a future study could take place on the beach of an actual beach volleyball tournament and collect data through on-site surveys in which the primary investigator asks players the questions, to avoid any response bias.

The item-scales that were used to calculate pro-environmental consciousness were adapted by studies in environmental psychology. However, the pro-environmental consciousness scale has been used with the term pro-environmental self-identity and has been used to measure participants' beliefs towards themselves and how environmentally friendly they believe they are. Accordingly, the author proposes that future research should develop a new measurement scale that will be defined on a pro-environmental consciousness scale. This scale would be a valuable instrument for research in several different research domains such as sport and tourism literature. The skewness of the responses tended to be left, and therefore respondents answered mainly in favor of each item. Specifically, responses were mainly found to be positive and participants were more favorable towards the items (e.g., 5 = somewhat agree or 6 = agree).

Findings showed the likelihood of respondents to engage in pro-environmental behavioral intentions and not the actual behaviors. Thus, a future study could replicate this research and take place in two phases. First, data would be collected prior to a beach volleyball tournament, including items that measure behavioral intentions. Second, data would be collected two weeks after the tournament with surveys sent to each of the participants that respond to the questionnaire in the first phase. The second survey will be online and will be sent to each specific individual respectively by the primary investigator. Items will capture behaviors of the participants in the past two weeks, including the time they were at the tournament after they

completed the survey. This would be an efficient method for collecting data, as it would illustrate if the psychological factors had an impact on actual behavior.

According to the literature, a person is difficult to engage in voluntary carbon offsetting schemes if she or he does not have crucial reasons or motivation, such as environmental knowledge, awareness, concerns, personal norms and responsibility. Therefore, without these internal psychological concepts, an individual would not understand the beneficial outcomes of environmental quality and ecosystem preservation. However, the findings of this study supported the exact opposite.

Future Research

The findings showed evidence for future studies with regards to beach volleyball participation and other outdoor recreation involvement. The data collection procedure could take place with on-field surveys so that the primary investigator could directly ask the questions to participants. Also, data from mountain bike races, surf contests and rock climbing could be collected. Additionally, the research design should focus more on the psychological implications of the data, rather than a large sample size. With respect to the findings, outdoor sport participation is a crucial platform for people to develop environmental identity. Specifically, motivation for physical activity in protected and preserved natural environments indicates evidence that people have an internal association with nature. Data from sport participants who value health benefits could be used to explore the connection between health and environmental identity. Future studies could discover important information with regards to health motivation and pro-environmental consciousness.

Item-scales were adapted from studies in environmental psychology. Future work should develop scales related to environmental consciousness and identity within sport participation and healthy lifestyles. In addition, sport management should pursue research in which the findings

are beneficial to practitioners. By enhancing the collaboration between academia and the sport industry, a relationship will form that benefits both people's health and environmental quality.

Conclusion

Notwithstanding the extent of research in environmentalism, there is no previous study that explores the formation of sense of place according to beach volleyball players' perceptions. As a result, the contribution of this study was to display a new concept of sense of place in sport management literature, as the sport events and management context have illustrated some unique traits in the psychology of the participants that are rarely found in other contexts, such as sport cultural values and identification with other people that have similar traits (i.e., homogeneity) as the sample (e.g., passion for the sport and the teams).

The conceptual model proposed in this study was a novel framework that aimed to contribute to attitude-behavior paradigm scholarship. In fact, a critical finding was the importance of pro-environmental self-identity as a concept that can narrow down the gap between environmental attitudes and pro-environmental behaviors. According to Kollmuss and Agyeman (2002), a construct that captures pro-environmental consciousness should be developed to have a better understanding of people's pro-environmental behavior. Results revealed that sport event participants' pro-environmental consciousness determined both genres of pro-environmental behavior in similar, significant and positive levels. As it was illustrated, one genre of pro-environmental behavior (i.e., general) affects another (i.e., voluntary carbon offsetting).

APPENDIX A
LETTER OF CONSENT FORM



**INFORMED CONSENT FORM FOR BEACH VOLLEYBALL TOURNAMENT
PLAYERS**

IRB study number: IRB201703209

Protocol Title: Sense of Place and Pro-Environmental Behavior in Beach Volleyball

Please read this consent document carefully before you decide to participate in this study.

My name is Stavros Triantafyllidis. I am a doctorate candidate from the department of tourism, recreation and sport management at the University of Florida. I am conducting a study for my Ph.D. dissertation about the impacts of natural environment place where beach volleyball tournaments are hosted on beach volleyball players' pro-environmental consciousness and their pro-environmental behavioral intentions to offset their carbon footprint. Carbon footprint refers to *'a measure of the exclusive total amount of carbon dioxide (CO₂) emissions that is directly and indirectly caused by an activity or is accumulated over the life stages of a product'* (Weidmann & Minx, 2008, p. 4). Offsetting carbon refers to the *'potential future willingness of an individual to financially contribute towards practices that reduce the quantity of CO₂ in the atmosphere.'*

Your participation is extremely important and will provide a greater understanding of the sport event participants pro-environmental perceptions, and specifically the beach volleyball players. The results of this study are expected to guide future beach volleyball tournaments and address public concerns regarding issues related to environmental degradation. Your participation on this questionnaire is really appreciated and should take about 10 to 15 minutes. Your participation is completely voluntary, and you may choose to discontinue participation at any time. There are not any physical or psychological risks associated with completing this web-survey. Choosing not to participate or discontinue participation will not result in any penalty. Your responses will remain completely anonymous and any provided personal information will be removed from the web-surveys for the data analysis. Once analysis of the data is complete, all answers will be destroyed. You can ask for contact information in regarding your rights as a participant and you can request a copy of that information when you have completed the questionnaire.

Your Amazon Mechanical Turk (**MTurk**) Worker ID will be used only for the purpose of awarding compensation and will not be shared with anyone outside the research team. It will not be linked to your survey responses and will be removed from the data set once compensation has been made. Note that your Worker ID can be linked to your Amazon user's public profile page, so you may wish to restrict what information you choose to share in your public profile. The fixed amount of compensation is \$1 (one dollar).

The data for the web-surveys will be obtained through a web-link that you will receive from the web-survey host, which will be the QUALTRICS. There is a minimal risk that security of any online data may be breached, but our survey host (QUALTRICS) uses strong encryption and other data security methods to protect your information. Only the researchers will have access to your information on the QUALTRICS server. No identifying information will be collected or connected with your responses, which will be anonymous. Your confidentiality will be protected to the extent provided by law and there are no risks due to your participation in this web-survey. You are highly encouraged to ask any questions you may have. Completing this questionnaire will suggest your agreement with this consent form. At the end of the web-survey, there will be compensation awarded for participating in the web-survey.

Your confidentiality will be protected to the extent provided by law and there are no financial benefits or risks due to your participation on this survey. You are highly encouraged to ask any questions you may have. Completing this questionnaire will suggest your agreement to this consent form. There will be no compensation awarded for participating in the survey.

If you have any questions concerning this study, please contact: Stavros Triantafyllidis, Ph.D. candidate, email: striantafyllidis@ufl.edu, phone: (352) 213-5557 or Kyriaki Kaplanidou, Ph.D., Associate Professor, Department of Tourism, Recreation and Sport Management, 190A Florida Gym, P.O. Box 118208, University of Florida, Gainesville, FL, 32611-8208, email: kkaplanidou@hhp.ufl.edu, Phone: (352) 294-0668. If you have any questions about your rights as a research participant in this study please contact: UF IRB Office, Box 112250, University of Florida, Gainesville, FL, 32611-2250, phone: (352) 392-0433.

Cordially,

Stavros Triantafyllidis, Ph.D. Candidate
Department of Tourism, Recreation and Sport Management
College of Health and Human Performance
University of Florida

A handwritten signature in black ink, appearing to read "S. Triantafyllidis". The signature is written in a cursive style with a large, stylized initial 'S'.

APPENDIX B QUESTIONNAIRE

Dissertation Web-Survey SENSE OF PLACE AND PRO-ENVIRONMENTAL BEHAVIOR IN BEACH VOLLEYBALL

Please take a few moments to complete this questionnaire. Your participation is voluntary and anonymous. Please answer the questions accordingly and with your best judgment. Thank you for your time and input.

1. How many times have you participated as a beach volleyball player in beach volleyball tournaments in the past 12 months?

¹ _____

2. Please write the name of the beach that you are participating in the beach volleyball tournament. For ALL the web-survey, please consider this beach in answering the questions.

¹ _____

3. Have you used this beach before for any of the following recreational activities? Please check all that apply:

- ¹ Beach volleyball
- ² Hiking and biking
- ³ Surfing
- ⁴ Running
- ⁵ Sightseeing
- ⁶ Photography
- ⁷ Wildlife-Watching

4. Please describe the top three reasons that come to your mind about why you participate in beach volleyball tournaments as a player?

¹ _____ ² _____ ³ _____

DEFINITIONS

Carbon footprint refers to “a measure of the exclusive total amount of carbon dioxide (CO₂) emissions that is directly and indirectly caused by an activity or is accumulated over the life stages of a product” (Wiedmann & Minx, 2008, p. 4).

Carbon Offsetting refers to the activity that aims to reduce the carbon dioxide made by an individual to compensate and therefore offset the amount of carbon emission elsewhere.

Beach is a natural ecosystem including many natural resources, such as native sand dune vegetation, wildlife, ocean, and loose particles (sand).

5. Have you ever paid to offset your ‘carbon footprint’? If yes, please write the number of times and the amount of money that you contributed:

¹ Yes (number of times). _____ (\$) _____ ² No _____ ³ Not sure _____

6.

How much do you agree or disagree with the following statements on a 7-point scale ranging from (1 = strongly Disagree) to (7 = strongly agree)?	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
¹ Playing beach volleyball is one of the most satisfying things I do.	1	2	3	4	5	6	7
² I really enjoy playing beach volleyball.	1	2	3	4	5	6	7
³ I find a lot of my life organized around playing beach volleyball.	1	2	3	4	5	6	7
⁴ Playing beach volleyball plays a central role in my life.	1	2	3	4	5	6	7
⁵ Playing beach volleyball says a lot of who I am.	1	2	3	4	5	6	7

⁶ Playing beach volleyball tells something about me.	1	2	3	4	5	6	7
7.							
¹ I feel that this beach is part of me.	1	2	3	4	5	6	7
² I feel that I can really be myself in this beach.	1	2	3	4	5	6	7
³ This beach reflects the type of person I am.	1	2	3	4	5	6	7
8.							
¹ This beach is the best place to play beach volleyball, that I enjoy the most.	1	2	3	4	5	6	7
² I can only play beach volleyball on this particular beach.	1	2	3	4	5	6	7
³ No other place can compare to this beach.	1	2	3	4	5	6	7
9.							
¹ I have a lot of fond memories about this beach.	1	2	3	4	5	6	7
² I have a special connection to this beach and the people who play beach volleyball on it.	1	2	3	4	5	6	7
³ The bonding between me and the other beach volleyball players is stronger when we play on this beach.	1	2	3	4	5	6	7
10.							
¹ When I spend time in the natural environment of this beach I feel a deep feeling of oneness with the natural environment.	1	2	3	4	5	6	7
² I would feel less attached to this beach if the native plants and animals that live here disappeared.	1	2	3	4	5	6	7
³ I learn a lot about myself when spending time in the natural environment of this beach.	1	2	3	4	5	6	7
⁴ I am attached to the natural environment that make up this beach (ocean, sand, wind, wildlife, etc.).	1	2	3	4	5	6	7
11.							
¹ The sand of this beach is suitable for playing beach volleyball.	1	2	3	4	5	6	7
² The natural resources of the beach (ocean, sand, width) fit my needs for playing beach volleyball.	1	2	3	4	5	6	7
³ The weather conditions (wind, sun, temperature) on this beach are suitable for playing beach volleyball.	1	2	3	4	5	6	7
⁴ This beach has too many buildings on the shore (coastal development).	1	2	3	4	5	6	7
⁵ The beach has been damaged by local land uses.	1	2	3	4	5	6	7
⁶ The beach has too many people using it (human activities).	1	2	3	4	5	6	7
⁷ The beach has changed a lot over the years (coastal erosion, pollution, sea level rise).	1	2	3	4	5	6	7
⁸ Travel with other people to go to the beach is a satisfying experience.	1	2	3	4	5	6	7
⁹ Walking or cycling helps to tackle climate change.	1	2	3	4	5	6	7
¹⁰ Using car is convenient.	1	2	3	4	5	6	7
¹¹ I support increased fuel charges to discourage car use to go to the beach.	1	2	3	4	5	6	7
12.							
¹ I am aware of and I care about my impact on the environment.	1	2	3	4	5	6	7
² I am strongly connected to nature and the environment.	1	2	3	4	5	6	7
³ I am a protector/nurturer of wildlife and their habitats.	1	2	3	4	5	6	7
⁴ Others view me as being an environmentalist.	1	2	3	4	5	6	7
⁵ I view myself as an environmentalist.	1	2	3	4	5	6	7

⁶ I am trying to be a better environmentalist.	1	2	3	4	5	6	7
⁷ I make significant changes in my lifestyle for environmental reasons.	1	2	3	4	5	6	7

13.

¹ Regardless what others do, I feel an obligation to offset my 'carbon footprint'.	1	2	3	4	5	6	7
² I would be a better person if I protect the natural environment.	1	2	3	4	5	6	7
³ Because of my own environmental values, I feel that I should act in an environmentally friendly way while attending a beach volleyball tournament.	1	2	3	4	5	6	7

14.

In a 7-point Likert scale, please indicate the level of your intentions the next 12 months (1 = very unlikely and 7 = very likely)	Very Unlikely	Unlikely	Somewhat Unlikely	Undecided	Somewhat Likely	Likely	Very Likely
¹ Recycle items instead of throwing them away.	1	2	3	4	5	6	7
² Reduce my overall purchases and use of products and materials.	1	2	3	4	5	6	7
³ Repair or properly maintaining the things I use or own.							
⁴ Take shorter showers (conserve water).	1	2	3	4	5	6	7
⁵ Turn-off lights and air conditioning (conserve electricity).	1	2	3	4	5	6	7
⁶ Purchase eco-friendly local products (need less energy and resources).	1	2	3	4	5	6	7
⁷ Sharing rides with other beach volleyball players when I go to the beach to play.	1	2	3	4	5	6	7
⁸ Travel more with other transport modes instead of the car when I go to the beach.	1	2	3	4	5	6	7
⁹ Walk, bike or take the public transportation for short distances journeys.	1	2	3	4	5	6	7
¹⁰ Use natural resources of the beach in a more responsible manner when I go for beach volleyball (do not throw my plastic water bottle on the sand).	1	2	3	4	5	6	7
¹¹ Engage in beach and coastal clean-up programs (clean garbage, plastics and litter from the sand).	1	2	3	4	5	6	7

15.

¹ Offset my 'carbon footprint' that I generate from my consumption of food and beverages (water, Gatorade) on the beach when I play beach volleyball.	1	2	3	4	5	6	7
² Offset my 'carbon footprint' that I generate from my transportation (i.e., travel) to the beach.	1	2	3	4	5	6	7
³ Offset my 'carbon footprint' if I choose to not use an environmentally responsible transportation mode (public transportation, carpooling, bike and walk).	1	2	3	4	5	6	7
⁴ Offset my 'carbon footprint' from my consumption of beach volleyball tournament promotional items.	1	2	3	4	5	6	7
⁵ Participate in this event again next time if it is offered on this beach.	1	2	3	4	5	6	7
⁶ Use an environmentally friendly transportation mode next time I travel to participate in a sport event.	1	2	3	4	5	6	7

16. What is your gender? ¹ Male ² Female
17. What is your age? ¹ _____
18. Which of the following best describes your **2017 annual household income? (From all sources before taxes):**
¹ \$20,000 or less ² \$20,001- \$40,000 ³ \$40,001 - \$60,000 ⁴ \$60,001-\$80,000 ⁵ \$80,001 or more
19. What is your current marital status?
¹ Single ² Partnered/Married ³ Other
20. What is the highest level of education you have completed?
¹ Less than High school ² High school ³ Some College ⁴ Bachelor's degree ⁵ Master's degree ⁶ Doctoral degree
21. What is your racial or ethnic background? ¹ White ² African American ³ Asian ⁴ Hispanic ⁵ Other ___
22. Please provide your zip code of your permanent address: ¹ _____
23. Do you play often in beach volleyball tournaments that take place at the beach? ¹ Yes ___ ² No ___
24. Which of the following transportation modes do you use most often to attend a beach volleyball tournament on the beach?
Click all that apply and write the number of miles traveled.
- ¹ Drove a car alone: _____ (miles).
² Bus service: _____ (miles).
³ Airplane flight: _____ (miles).
⁴ Shared a car with other people. If this is your option, please specify the number of people _____ and _____ (miles) traveled.
⁵ Drove a hybrid or electric car: _____ (miles) _____ (number of people).
⁶ Other transportation modes. Please specify _____ and _____ (miles).

<p>Thank you very much for your time and participation on the completion of this web-survey!</p>
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REFERENCE LIST

- Adaman, F., Karalı, N., Kumbaroğlu, G., Or, İ., Özkaynak, B., & Zenginobuz, Ü. (2011). What determines urban households' willingness to pay for CO2 emission reductions in Turkey: A contingent valuation survey. *Energy Policy*, 39(2), 689-698.
- Adelman, C. (1983). The major seventh: Standards as a leading tone in higher education. *New Directions for Higher Education*, 1983(43), 39-54.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. New York, NY: Routledge.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Albarracín, D., & Shavitt, S. (2018). Attitudes and attitude change. *Annual Review of Psychology*, 69, 299-327. DOI: 10.1146/annurev-psych-122216-011911
- Alexandris, K., Kouthouris, C., & Meligdis, A. (2006). Increasing customers' loyalty in a skiing resort: The contribution of place attachment and service quality. *International Journal of Contemporary Hospitality Management*, 18(5), 414-425.
- Alsmadi, S. (2007). Green marketing and the concern over the environment: measuring environmental consciousness of Jordanian consumers. *Journal of Promotion Management*, 13(3-4), 339-361.
- Altman, I., & Low, S. M. (1992). *Place attachment, human behavior, and environment: Advances in theory and research*. New York, NY: Springer.
- Anderson, A. B., Basilevsky, A., & Hum, D. P. (1983). Measurement: Theory and techniques. *Handbook of Survey Research*, Chapter 7, 231-287.
- Andreoni, J. (1990). Impure altruism and donations to public goods: A theory of warm-glow giving. *The Economic Journal*, 100(401), 464-477.
- Annoni, P., & Charron, N. (2017). Measurement Assessment in Cross-Country Comparative Analysis: Rasch Modelling on a Measure of Institutional Quality. *Social Indicators Research*, 1-30. Retrieved from <https://doi.org/10.1007/s11205-017-1821-z>
- Apostolakis, A. (2014). Individuals' perceptions for natural resources: the case of Cretan beaches. *Anatolia*, 25(1), 117-130.
- Ariza, E., Jiménez, J. A., & Sardá, R. (2008). Seasonal evolution of beach waste and litter during the bathing season on the Catalan coast. *Waste Management*, 28(12), 2604-2613.
- Babiak, K., & Wolfe, R. (2009). Determinants of corporate social responsibility in professional sport: Internal and external factors. *Journal of Sport Management*, 23(6), 717-742.

- Babiak, K., & Trendafilova, S. (2011). CSR and environmental responsibility: motives and pressures to adopt green management practices. *Corporate Social Responsibility and Environmental Management*, *18*(1), 11-24.
- Bagozzi, R. P., Yi, Y., & Phillips, L. W. (1991). Assessing construct validity in organizational research. *Administrative Science Quarterly*, *36*(3), 421-458.
- Ballantyne, R., Hughes, K., Lee, J., Packer, J., & Sneddon, J. (2018). Visitors' values and environmental learning outcomes at wildlife attractions: Implications for interpretive practice. *Tourism Management*, *64*, 190-201. Retrieved from <https://doi.org/10.1016/j.tourman.2017.07.015>
- Bamberg, S., Hunecke, M., & Blöbaum, A. (2007). Social context, personal norms and the use of public transportation: Two field studies. *Journal of Environmental Psychology*, *27*(3), 190-203.
- Barbarossa, C., De Pelsmacker, P., & Moons, I. (2017). Personal values, green self-identity and electric car adoption. *Ecological Economics*, *140*, 190-200.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173.
- Barry, M. J., Fowler, F. J., O’Leary, M. P., Bruskewitz, R. C., Holtgrewe, H. L., Mebust, W. K., & Cockett, A. T. (2017). The American Urological Association symptom index for benign prostatic hyperplasia. *The Journal of Urology*, *197*(2), S189-S197.
- Bailey, D. F. (2003). Preparing African-American males for postsecondary options. *Journal of Men’s Studies*, *12*(1), 15-24.
- Barušs, I., American Psychological Association, & Mossbridge, J. (2017). Transcendental mind: Rethinking the science of consciousness. *Journal of Scientific Exploration*, *31*(1), 15-24.
- Beland, J. (2004). NCAA board approves athletics reform. *Academe*, *90*(5), 13.
- Belk, R. (2014). You are what you can access: Sharing and collaborative consumption online. *Journal of Business Research*, *67*(8), 1595-1600.
- Belland, B. R., Walker, A. E., Kim, N. J., & Lefler, M. (2017). Synthesizing results from empirical research on computer-based scaffolding in STEM education: A meta-analysis. *Review of Educational Research*, *87*(2), 309-344.
- Bennett, W. (2003). Communicating global activism. *Information, Communication & Society*, *6*(2), 143-168.
- Bem, D. J. (1972). Self-perception theory. *Advances in Experimental Social Psychology*, *6*, 1-62. Retrieved from [https://doi.org/10.1016/S0065-2601\(08\)60024-6](https://doi.org/10.1016/S0065-2601(08)60024-6)

- Berry, W. D. (1993). *Understanding regression assumptions* (Vol. 92). New York, NY: Sage Publications.
- Benson, K. F. (2000). Constructing academic inadequacy: African American athletes' stories of schooling. *Journal of Higher Education, 71*(2), 223-246.
- Bilec, M., Ries, R., & Matthews, H. S. (2007). Sustainable development and green design—Who is leading the green initiative. *Journal of Professional Issues in Engineering Education and Practice, 133*(4), 265-269.
- Bradley, J. C., Waliczek, T. M., & Zajicek, J. M. (1999). Relationship between environmental knowledge and environmental attitude of high school students. *The Journal of Environmental Education, 30*(3), 17-21.
- Brewer D. J., Eide, E. R., & Ehrenberg, R. G. (1999). Does it pay to attend an elite private college? Cross-cohort evidence on the effects of college type on earnings. *The Journal of Human Resources, 34*(1), 104-123.
- Bodie, M. T. (2011). NASCAR green: The problem of sustainability in corporations and corporate law. *Wake Forest Law Review, 46*(4), 491-523.
- Brehm, J. M., Eisenhauer, B. W., & Stedman, R. C. (2013). Environmental concern: Examining the role of place meaning and place attachment. *Society & Natural Resources, 26*(5), 522-538.
- Brouwer, R., Brander, L., & Van Beukering, P. (2008). 'A convenient truth: air travel passengers' willingness to pay to offset their CO2 emissions. *Climatic Change, 90*(3), 299-313.
- Brügger, A., Kaiser, F. G., & Roczen, N. (2011). One for all? Connectedness to nature, inclusion of nature, environmental identity, and implicit association with nature. *European Psychologist, 16*(4), 324.
- Brundtland, G. H. (1987). *Report of the World Commission on environment and development: Our common future*. United Nations. Retrieved from <http://www.un-documents.net/our-common-future.pdf>
- Brymer, E., Downey, G., & Gray, T. (2009). Extreme sports as a precursor to environmental sustainability. *Journal of Sport & Tourism, 14*(2-3), 193-204.
- Budruk, M., Thomas, H., & Tyrrell, T. (2009). Urban green spaces: A study of place attachment and environmental attitudes in India. *Society and Natural Resources, 22*(9), 824-839.
- Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data. *Perspectives on Psychological Science, 6*(1), 3-5.

- Buta, N., Holland, S. M., & Kaplanidou, K. (2014). Local communities and protected areas: The mediating role of place attachment for pro-environmental civic engagement. *Journal of Outdoor Recreation and Tourism*, 5(6), 1-10.
- Carodine, K., Almond, K. F., & Gratto, K. K. (2001). College student athlete success both in and out of the classroom. *New Directions for Student Services*, 2001(93), 19-33.
- Carrus, G., Scopelliti, M., Fornara, F., Bonnes, M., & Bonaiuto, M. (2014). Place attachment, community identification, and pro-environmental engagement (Ed.). *Place attachment: Advances in Theory, Methods and Application*, (pp. 154-164). New York, NY: Routledge.
- Carson, R. T., Flores, N. E., & Meade, N. F. (2001). Contingent valuation: Controversies and evidence. *Environmental and Resource Economics*, 19(2), 173-210.
- Casper, J. M., Pfahl, M. E., & McCullough, B. (2014). Intercollegiate sport and the environment: Examining fan engagement based on athletics department sustainability efforts. *Journal of Issues in Intercollegiate Athletics*, 7(n/a), 65-91.
- Casper, J. M., & Pfahl, M. E. (Eds.). (2015). *Sport Management and the Natural Environment: Theory and Practice*. Champaign: IL: Routledge.
- Casper, J. M., Pfahl, M. E., & McCullough, B. P. (2017). Is Going Green Worth It? Assessing Fan Engagement and Perceptions of Athletic Department Environmental Efforts. *Journal of Applied Sport Management*, 9(1). doi: <https://doi.org/10.18666/JASM-2017-V9-I1-7690>
- Cerri, J., Testa, F., & Rizzi, F. (2018). The more I care, the less I will listen to you: How information, environmental concern and ethical production influence consumers' attitudes and the purchasing of sustainable products. *Journal of Cleaner Production*, 175, 343-353. <https://doi.org/10.1016/j.jclepro.2017.12.054>
- Chard, C., & Mallen, C. (2012). Examining the linkages between automobile use and carbon impacts of community-based ice hockey. *Sport Management Review*, 15(4), 476-484.
- Chatelain, G., Hille, S. L., Sander, D., Patel, M., Hahnel, U. J. J., & Brosch, T. (2018). Feel good, stay green: Positive affect promotes pro-environmental behaviors and mitigates compensatory “mental bookkeeping” effects. *Journal of Environmental Psychology*, 56, 3-11. <https://doi.org/10.1016/j.jenvp.2018.02.002>
- Chawla, L. (1998). Significant life experiences revisited: A review of research on sources of environmental sensitivity. *The Journal of Environmental Education*, 29(3), 11-21.
- Chen, R. B., & Sekar, A. (2018). Investigating the impact of Sense of Place on site visit frequency with non-motorized travel modes. *Journal of Transport Geography*, 66, 268-282. <https://doi.org/10.1016/j.jtrangeo.2017.12.008>

- Chernushenko, D. (1994). *Greening our games: Running sports events and facilities that won't cost the earth*. New York, NY: Centurion Publishing & Marketing. ISSN: 0969757158, 9780969757153
- Choi, A. S., Gössling, S., & Ritchie, B. W. (2018). Flying with climate liability? Economic valuation of voluntary carbon offsets using forced choices. *Transportation Research Part D: Transport and Environment*, 62, 225-235. <https://doi.org/10.1016/j.trd.2018.02.018>
- Chung, J. Y., Kyle, G. T., Petrick, J. F., & Absher, J. D. (2011). Fairness of prices, user fee policy and willingness to pay among visitors to a national forest. *Tourism Management*, 32(5), 1038-1046.
- Clayton, S., & Myers, G. (2015). *Conservation psychology: Understanding and promoting human care for nature*. Hoboken, NJ: John Wiley & Sons.
- Cleveland, M., Kalamas, M., & Laroche, M. (2005). Shades of green: Linking environmental locus of control and pro-environmental behaviors. *Journal of Consumer Marketing*, 22(4), 198-212.
- Clopton, A. W. (2008). From message to messenger? Assessing the impact of athletics on a college campus. *Journal for the Study of Sports and Athletes in Education*, 2(3), 299-320.
- Collins, A., Flynn, A., Munday, M., & Roberts, A. (2007). Assessing the environmental consequences of major sporting events: The 2003/04 FA Cup Final. *Urban Studies*, 44(3), 457-476.
- Collins, A., & Flynn, A. (2008). Measuring the environmental sustainability of a major sporting event: a case study of the FA Cup Final. *Tourism Economics*, 14(4), 751-768.
- Collins, A., Roberts, A., & Munday, M. (2012). *The environmental impacts of major cycling events: Reflections on the UK stages of the Tour de France*. Cardiff: Cardiff University [Online]. Retrieved May 2, 2016, from <http://orca.cf.ac.uk/53325/1/Tour-de-France.pdf>
- Collins, A., & Cooper, C. (2017). Measuring and managing the environmental impact of festivals: the contribution of the Ecological Footprint. *Journal of Sustainable Tourism*, 25(1), 148-162.
- Colwell, P. F., Dehring, C. A., & Turnbull, G. K. (2002). Recreation demand and residential location. *Journal of Urban Economics*, 51(3), 418-428.
- Comeaux, E., & Harrison, C. (2011). A conceptual model of academic success for student-athletes. *Educational Researcher*, 40(5), 235-245.
- Cooper, H. (2011). *Reporting research in psychology: How to meet journal article reporting standards*. New York, NY: American Psychological Association.
- Costanza, R., & Daly, H. E. (1992). Natural capital and sustainable development. *Conservation biology*, 6(1), 37-46.

- Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52(4), 281.
- Crowder, M. J. (2017). *Statistical analysis of reliability data*. New York, NY: Routledge.
- Cui, X. Y. (2015). Research on the Effectiveness of Nutrition Supply in Beach Volleyball Playing Based on R Weighted Mean Algorithm. *Open Cybernetics & Systemics Journal*, 9, 1911-1916. ISSN: 1874-110X/15
- Cuyjet, M. J. (1997). African American men on college campuses: Their needs and perceptions. *New Directions for Student Services*, 80, 5-16. <https://doi.org/10.1002/ss.8001>
- De Groot, J. I., & Steg, L. (2010). Relationships between value orientations, self-determined motivational types and pro-environmental behavioral intentions. *Journal of Environmental Psychology*, 30(4), 368-378.
- Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality*, 19(2), 109-134.
- Demarque, C., Charalambides, L., Hilton, D. J., & Waroquier, L. (2015). Nudging sustainable consumption: The use of descriptive norms to promote a minority behavior in a realistic online shopping environment. *Journal of Environmental Psychology*, 43, 166-174.
- Diamantopoulos, A., Schlegelmilch, B. B., Sinkovics, R. R., & Bohlen, G. M. (2003). Can socio-demographics still play a role in profiling green consumers? A review of the evidence and an empirical investigation. *Journal of Business Research*, 56(6), 465-480.
- Dietz, T., Stern, P. C., & Weber, E. U. (2013). Reducing carbon-based energy consumption through changes in household behavior. *Daedalus*, 142(1), 78-89.
- Dietz, T., Allen, S., & McCright, A. M. (2017). Integrating Concern for Animals into Personal Values. *Anthrozoös*, 30(1), 109-122.
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: the tailored design method*. John Wiley & Sons. Diprete, T. A., & Buchman, C. (2006). Gender-specific trends in the value of education and the emerging gender gap in college completion. *Demography*, 43(1), 1-24.
- Dolf, M., & Teehan, P. (2015). Reducing the carbon footprint of spectator and team travel at the University of British Columbia's varsity sports events. *Sport Management Review*, 18(2), 244-255.
- Dolnicar, S., Knezevic-Cvelbar, L., & Grün, B. (2017). Do pro-environmental appeals trigger pro-environmental behavior in hotel guests. *Journal of Travel Research*, 56(8), 988-997.
- Dosumu, A., Colbeck, I., & Bragg, R. (2017). Greenhouse gas emissions as a result of spectators travelling to football in England. *Scientific Reports*, 7(1), 6986. DOI: 10.1038/s41598-017-06141-y

- Duarte, R., Escario, J. J., & Sanagustín, M. V. (2017). The influence of the family, the school, and the group on the environmental attitudes of European students. *Environmental Education Research*, 23(1), 23-42.
- Dunlap, R., & Van Liere, K. (1978). The new environmental paradigm. *Journal of Environmental Education*, 9(4), 10-19.
- Dunlap, R. E., Van Liere, K. D., Mertig, A. G., & Jones, R. E. (2000). New trends in measuring environmental attitudes: measuring endorsement of the new ecological paradigm: a revised NEP scale. *Journal of Social Issues*, 56(3), 425-442.
- Dunlap, R. E., & Van Liere, K. D. (2008). The "new environmental paradigm". *The Journal of Environmental Education*, 40(1), 19-28.
- Dunlap, R. E. (2008). The new environmental paradigm scale: From marginality to worldwide use. *The Journal of Environmental Education*, 40(1), 3-18.
- Du Preez, E. A., & Heath, E. T. (2016). Determining the influence of the social versus physical context on environmentally responsible behavior among cycling spectators. *Journal of Sport & Tourism*, 20(2), 123-143.
- Durr, E., Bilecki, J., & Li, E. (2017). Are Beliefs in the Importance of Pro-Environmental Behaviors Correlated with Pro-Environmental Behaviors at a College Campus? *Sustainability: The Journal of Record*, 10(3), 204-210.
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. San Diego, CA: Harcourt Brace Jovanovich College Publishers.
- Edwards, H. (2000). Crisis in Black athletes on the eve of the 21st century. *Society* 37(3), 9.
- Eilam, E., & Trop, T. (2012). Environmental attitudes and environmental behavior—which is the horse, and which is the cart? *Sustainability*, 4(9), 2210-2246.
- Epstein, S. (1983). The unconscious, the preconscious, and the self-concept. In J. Suls and A. G. Greenwald (Eds.), *Psychological perspectives on the self* (Vol. 2, pp. 219-247). Hillsdale, NJ: Erlbaum.
- Eusébio, C., Vieira, A. L., & Lima, S. (2018). Place attachment, host–tourist interactions, and residents’ attitudes towards tourism development: the case of Boa Vista Island in Cape Verde. *Journal of Sustainable Tourism*, 1-20.
<https://doi.org/10.1080/09669582.2018.1425695>
- Fan, J., Li, Q., & Wang, Y. (2017). Estimation of high dimensional mean regression in the absence of symmetry and light tail assumptions. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, 79(1), 247-265.
- Federation International Volleyball (2018). *Beach Volleyball*. Assessed on 16 May 2018. Retrieved from <http://www.fivb.org/EN/BeachVolleyball/>

- Feinstein, N. W., & Kirchgasler, K. L. (2015). Sustainability in science education? How the Next Generation Science Standards approach sustainability, and why it matters. *Science Education*, 99(1), 121-144.
- Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.
- Figgins, S. G., Smith, M. J., Sellars, C. N., Greenlees, I. A., & Knight, C. J. (2016). "You really could be something quite special": A qualitative exploration of athletes' experiences of being inspired in sport. *Psychology of Sport and Exercise*, 24, 82-91.
- Fountain, J. J., & Finley, P. S. (2009). Academic majors of upperclassmen football players in the Atlantic Coast Conference: An analysis of academic clustering comparing White and minority players. *Journal of Issues in Intercollegiate Athletics*, 2, 1-13.
<https://doi.org/10.1080/19357397.2017.1286429>
- Fujii, S. (2006). Environmental concern, attitude toward frugality, and ease of behavior as determinants of pro-environmental behavior intentions. *Journal of Environmental Psychology*, 26(4), 262-268.
- Froehlich, J., Dillahunt, T., Klasnja, P., Mankoff, J., Consolvo, S., Harrison, B., & Landay, J. A. (2009, April). *UbiGreen: investigating a mobile tool for tracking and supporting green transportation habits*. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 1043-1052). ACM.
- Gallup, G. G. (1977). Self-recognition in primates: A comparative approach to the bidirectional properties of consciousness. *American Psychologist*, 32(5), 329.
- Ganzevoort, W., & Van den Born, R. J. (2018). Exploring place attachment and visions of nature of water-based recreationists: The case of the longitudinal dams. *Landscape Research*, 1-13. <https://doi.org/10.1080/01426397.2017.1415316>
- Garth, A. K., & Burke, L. M. (2013). What do athletes drink during competitive sporting activities. *Sports Medicine*, 43(7), 539-564.
- Garvey, A. M., & Bolton, L. E. (2017). Eco-Product Choice Cuts Both Ways: How Pro-environmental Licensing Versus Reinforcement Is Contingent on Environmental Consciousness. *Journal of Public Policy & Marketing*, 36(2), 284-298.
- Geeraert, A., & Gauthier, R. (2018). Out-of-control Olympics: why the IOC is unable to ensure an environmentally sustainable Olympic Games. *Journal of Environmental Policy & Planning*, 20(1), 16-30.
- Getz, D. (2008). Event tourism: Definition, evolution, and research. *Tourism management*, 29(3), 403-428.
- Getz, D., & Page, S. J. (2016). Progress and prospects for event tourism research. *Tourism Management*, 52, 593-631.

- Giatsis, G., Zetou, E., & Tzetzis, G. (2016). The effect of rule changes for the scoring system on the duration of the beach volleyball game. *Journal of Human Sport and Exercise, 11*(4).
- Gibson, H. J., Willming, C., & Holdnak, A. (2003). Small-scale event sport tourism: fans as tourists. *Tourism Management, 24*(2), 181-190.
- Gibson, H., Kaplanidou, K., & Kang, S.J., (2012). Small-Scale Event Sport Tourism: A Case Study in Sustainable Tourism. *Sport Management Review, 15*(2), 160-170.
- Gifford, R., & Nilsson, A. (2014). Personal and social factors that influence pro-environmental concern and behavior: A review. *International Journal of Psychology, 49*(3), 141-157.
- Gill, E., & Goff, A. (2008). The role of academic advisors in National Collegiate Athletic Association academic reform. [Monograph]. *National Academic Advising Association, 18*, 37-41. Retrieved from <http://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Advisor-Load.aspx>
- Gosling, E., & Williams, K. J. (2010). Connectedness to nature, place attachment and conservation behavior: Testing connectedness theory among farmers. *Journal of Environmental Psychology, 30*(3), 298-304.
- Goudie, A. S. (2013). *The human impact on the natural environment: past, present, and future*. New York, NY: John Wiley & Sons.
- Greer, J. L., and Robinson, J. D. (2006). *Understanding college student subpopulations: A guide for student affairs professionals* (L. A. Gohn & G. R. Albin (Eds.)). Washington, DC: National Association of Student Personnel Administrators.
- Groening, C., Sarkis, J., & Zhu, Q. (2018). Green marketing consumer-level theory review: A compendium of applied theories and further research directions. *Journal of Cleaner Production, 172*, 1848-1866. <https://doi.org/10.1016/j.jclepro.2017.12.002>
- Grubb, E., & Ellis, C. (2007). *Meeting the carbon challenge: The role of commercial real estate owners*. Chicago, IL: Users & Managers.
- Guagnano, G. A., Dietz, T., & Stern, P. C. (1994). Willingness to pay for public goods: A test of the contribution model. *Psychological Science, 5*(6), 411-415. <https://doi.org/10.1111/j.1467-9280.1994.tb00295.x>
- Hahm, J., Tasci, A. D., & Terry, D. B. (2018). Investigating the interplay among the Olympic Games image, destination image, and country image for four previous hosts. *Journal of Travel & Tourism Marketing, 1-17*. <https://doi.org/10.1080/10548408.2017.1421116>
- Hair, J. F., Black, W. C., & Babin, B. J. BJ & Anderson, RE (2010). *Multivariate data analysis*. New York, NY: Pearson.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*. New York, NY: Sage Publications.

- Hamby, T., & Taylor, W. (2016). Survey satisficing inflates reliability and validity measures: An experimental comparison of college and Amazon Mechanical Turk samples. *Educational and Psychological Measurement, 76*(6), 912-932.
- Halpenny, E. A. (2010). Pro-environmental behaviors and park visitors: The effect of place attachment. *Journal of Environmental Psychology, 30*(4), 409-421.
- Han, H., & Hyun, S. S. (2018). What influences water conservation and towel reuse practices of hotel guests. *Tourism Management, 64*, 87-97.
<https://doi.org/10.1016/j.tourman.2017.08.005>
- Hansen, T., Sørensen, M. I., & Eriksen, M. L. R. (2018). How the interplay between consumer motivations and values influences organic food identity and behavior? *Food Policy, 74*, 39-52. <https://doi.org/10.1016/j.foodpol.2017.11.003>
- Harrison, C. K. (2002). Scholar or baller in American higher education: A visual elicitation and qualitative assessment of the student-athletes' mindset. *NASPA Journal, 8*(1), 66-81.
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Publications.
- He, X., & Zhan, W. (2018). How to activate moral norm to adopt electric vehicles in China? An empirical study based on extended norm activation theory. *Journal of Cleaner Production, 172*, 3546-3556. <https://doi.org/10.1016/j.jclepro.2017.05.088>
- Health & Fitness Association (2018). Accessed on February 10, 2017. Retrieved from <http://www.ideafit.com/fitness-library/10-strategies-for-motivating-the-recreational-athlete>.
- Heck, R. H., & Takahashi, R. (2006). Examining the impact of Proposition 48 on graduation rates in Division 1A football and program recruiting behavior. *Educational Policy 20*(4), 587-614.
- Helm, S. V., Pollitt, A., Barnett, M. A., Curran, M. A., & Craig, Z. R. (2018). Differentiating environmental concern in the context of psychological adaption to climate change. *Global Environmental Change, 48*, 158-167.
<https://doi.org/10.1016/j.gloenvcha.2017.11.012>
- Henry, R. C., & Zivick, J. D. (1986). Principles of survey research. *Family Practice Research Journal, 5*(3), 145-157.
- Herrick, C. N. (2018). Self-identity and sense of place: Some thoughts regarding climate change adaptation policy formulation. *Environmental Values, 27*(1), 81-102.
- Higham, J., & Hinch, T. (2002). Tourism, sport and seasons: the challenges and potential of overcoming seasonality in the sport and tourism sectors. *Tourism Management, 23*(2), 175-185.

- Hinch, T., & Holt, N. L. (2017). Sustaining places and participatory sport tourism events. *Journal of Sustainable Tourism*, 25(8), 1084-1099. coming seasonality in the sport and tourism sectors. *Tourism Management*, 23(2), 175-185.
- Hiramatsu, A., Kurisu, K., & Hanaki, K. (2015). Environmental Consciousness in Daily Activities Measured by Negative Prompts. *Sustainability*, 8(1), 1-19. <https://doi.org/10.3390/su8010024>
- Hiratsuka, J., Perlaviciute, G., & Steg, L. (2018). Testing VBN theory in Japan: Relationships between values, beliefs, norms, and acceptability and expected effects of a car pricing policy. *Transportation Research Part F: Traffic Psychology and Behavior*, 53, 74-83. <https://doi.org/10.1016/j.trf.2017.12.015>
- Huang, Z., Footitt, S., Tang, A., & Finch-Savage, W. E. (2018). Predicted global warming scenarios impact on the mother plant to alter seed dormancy and germination behavior in *Arabidopsis*. *Plant, cell & environment*, 41(1), 187-197.
- Huck, S. W. (2008). *Reading statistics and research* (5th ed.). Boston, MA: Pearson Education, Inc.
- Inoue, Y., & Kent, A. (2012). Investigating the role of corporate credibility in corporate social marketing: A case study of environmental initiatives by professional sport organizations. *Sport Management Review*, 15(3), 330-344.
- Jagers, S. C., Harring, N., & Matti, S. (2018). Environmental management from left to right—on ideology, policy-specific beliefs and pro-environmental policy support. *Journal of Environmental Planning and Management*, 61(1), 86-104.
- Johansen, B. T. (2015). Reasons for officiating soccer: the role of passion-based motivations among Norwegian elite and non-elite referees. *Movement & Sport Sciences*, 1, 23-30. <http://dx.doi.org/10.1051/sm/2014012>
- Jameson, M., Diehl, R., & Danso, H. (2007). Stereotype threat impacts college athletes' academic performance. *Current Research in Social Psychology*, 12(5), 68-76.
- Jolley, A., Kennedy, B. M., Brogt, E., Hampton, S. J., & Fraser, L. (2018). Are we there yet? Sense of place and the student connected experience on roadside and situated geology field trips. *Geosphere*, 14(2). ISSN: 10.1130/GES01484.1
- Jørgensen, K. A. (2016). Bringing the jellyfish home: environmental consciousness and 'sense of wonder' in young children's encounters with natural landscapes and places. *Environmental Education Research*, 22(8), 1139-1157.
- Jorgensen, B. S., & Stedman, R. C. (2001). Sense of place as an attitude: Lakeshore owners' attitudes toward their properties. *Journal of Environmental Psychology*, 21(3), 233-248.

- Jorgensen, B. S., & Stedman, R. C. (2006). A comparative analysis of predictors of sense of place dimensions: Attachment to, dependence on, and identification with lakeshore properties. *Journal of Environmental Management*, 79(3), 316-327.
- Junot, A., Paquet, Y., & Martin-Krumm, C. (2017). Passion for outdoor activities and environmental behaviors: A look at emotions related to passionate activities. *Journal of Environmental Psychology*, 53, 177-184. <https://doi.org/10.1016/j.jenvp.2017.07.011>
- Kahneman, D., & Knetsch, J. L. (1992). Valuing public goods: The purchase of moral satisfaction. *Journal of Environmental Economics and Management*, 22, 57-70. [https://doi.org/10.1016/0095-0696\(92\)90019-S](https://doi.org/10.1016/0095-0696(92)90019-S)
- Kahneman, D., Ritov, I., Jacowitz, K. E., & Grant, P. (1993). Stated willingness to pay for public goods: A psychological perspective. *Psychological Science*, 4(5), 310-315.
- Kaiser, F. G., Byrka, K., & Hartig, T. (2010). Reviving Campbell's paradigm for attitude research. *Personality and Social Psychology Review*, 14(4), 351-367.
- Kaplanidou, K. (2006). Affective event and destination image: Their influence on Olympic travelers' behavioral intentions. *Event Management*, 10(2-3), 159-173.
- Kaplanidou, K., & Vogt, C. (2007). The interrelationship between sport event and destination image and sport tourists' behaviors. *Journal of Sport & Tourism*, 12(3-4), 183-206.
- Kaplanidou, K., & Karadakis, K. (2010). Understanding the legacies of a host Olympic city: The case of the 2010 Vancouver Olympic Games. *Sport Marketing Quarterly*, 19(2), 110.
- Kaplanidou, K., & Gibson, H. J. (2010). Predicting behavioral intentions of active event sport tourists: The case of a small-scale recurring sports event. *Journal of Sport & Tourism*, 15(2), 163-179.
- Kaplanidou, K., & Vogt, C. (2010). The meaning and measurement of a sport event experience among active sport tourists. *Journal of Sport Management*, 24(5), 544-566
- Kaplanidou, K., Jordan, J. S., Funk, D., & Ridinger, L. L. (2012). Recurring sport events and destination image perceptions: Impact on active sport tourist behavioral intentions and place attachment. *Journal of Sport Management*, 26(3), 237-248.
- Kaplanidou, K., Karadakis, K., Gibson, H., Thapa, B., Walker, M., Geldenhuys, S., & Coetzee, W. (2013). Quality of life, event impacts, and mega-event support among South African residents before and after the 2010 FIFA world cup. *Journal of Travel Research*, 52(5), 631-645.
- Karadakis, K., Kaplanidou, K., & Karlis, G. (2010). Event leveraging of mega sport events: a SWOT analysis approach. *International Journal of Event and Festival Management*, 1(3), 170-185.

- Kellison, T. B., & Mondello, M. J. (2012). Organizational perception management in sport: The use of corporate pro-environmental behavior for desired facility referenda outcomes. *Sport Management Review, 15*(4), 500-512.
- Kellison, T. B., & Mondello, M. J. (2014). Civic paternalism in political policymaking: The justification for no-vote stadium subsidies. *Journal of sport management, 28*(2), 162-175.
- Kellison, T. B., Trendafilova, S., & McCullough, B. P. (2015). Considering the social impact of sustainable stadium design. *International Journal of Event Management Research, 10*(1), 63-83.
- Kelly, D. M., & Fairley, S. (2018). What about the event? How do tourism leveraging strategies affect small-scale events. *Tourism Management, 64*, 335-345.
<https://doi.org/10.1016/j.tourman.2017.09.009>
- Kilbourne, W., & Pickett, G. (2008). How materialism affects environmental beliefs, concern, and environmentally responsible behavior. *Journal of Business Research, 61*(9), 885-893.
- Knez, I., Butler, A., Sang, Å. O., Ångman, E., Sarlöv-Herlin, I., & Åkerskog, A. (2018). Before and after a natural disaster: Disruption in emotion component of place-identity and wellbeing. *Journal of Environmental Psychology, 55*, 11-17.
<https://doi.org/10.1016/j.jenvp.2017.11.002>
- Knight Commission on Intercollegiate Athletics. (2010). *Restoring the balance: Dollars, values, and the future of college sports*. Miami, FL: John S. and James L. Knight.
- Ko, Y. J., & Pastore, D. L. (2005). A hierarchical model of service quality for the recreational sport industry. *Sport Marketing Quarterly, 14*(2), 84-97,
- Ko, Y. J., Park, H., & Claussen, C. L. (2008). Action sports participation: consumer motivation. *International Journal of Sports Marketing & Sponsorship, 9*(2), 111-125.
- Ko, Y.J., Zhang, J., Cattani, K., & Pastore, D. (2011). Assessment of event quality in major spectator sports. *Managing Service Quality: An International Journal, 21*(3), 304-322.
- Ko, Y. J., Kyoum Kim, Y., Kil Kim, M., & Hak Lee, J. (2010). The role of involvement and identification on event quality perceptions and satisfaction: A case of US Taekwondo Open. *Asia Pacific Journal of Marketing and Logistics, 22*(1), 25-39.
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research, 8*(3), 239-260.
- Kontoleon, A., & Swanson, T. (2003). The willingness to pay for property rights for the giant panda: can a charismatic species be an instrument for nature conservation? *Land Economics, 79*(4), 483-499.

- Korpela, K. M. (1989). Place-identity as a product of environmental self-regulation. *Journal of Environmental Psychology, 9*(3), 241-256.
- Kotchen, M. J., & Reiling, S. D. (2000). Environmental attitudes, motivations, and contingent valuation of nonuse values: a case study involving endangered species. *Ecological Economics, 32*(1), 93-107.
- Kroemer, M., Handy, S., & Chorus, C. (2017). Do attitudes cause behavior or vice versa? An alternative conceptualization of the attitude-behavior relationship in travel behavior modeling. *Transportation Research Part A: Policy and Practice, 101*, 190-202. <https://doi.org/10.1016/j.tra.2017.05.013>
- Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education, 79*(5), 540-563.
- Kyle, G., Graefe, A., Manning, R., & Bacon, J. (2003). An examination of the relationship between leisure activity involvement and place attachment among hikers along the Appalachian Trail. *Journal of Leisure Research, 35*(3), 249-273.
- Kyle, G., Graefe, A., Manning, R., & Bacon, J. (2004). Effects of place attachment on users' perceptions of social and environmental conditions in a natural setting. *Journal of Environmental Psychology, 24*(2), 213-225.
- Kyle, G., Graefe, A., & Manning, R. (2005). Testing the dimensionality of place attachment in recreational settings. *Environment and Behavior, 37*(2), 153-177.
- Kyle, G., & Chick, G. (2007). The social construction of a sense of place. *Leisure Sciences, 29*(3), 209-225.
- Lafuente, R., & Sánchez, M. J. (2010). Defining and measuring environmental consciousness. *Revista Internacional de Sociología (RIS), 68*(3), 731-755.
- Landon, A. C., Woosnam, K. M., & Boley, B. B. (2018). Modeling the psychological antecedents to tourists' pro-sustainable behaviors: an application of the value-belief-norm model. *Journal of Sustainable Tourism, 1-16*. <https://doi.org/10.1080/09669582.2017.1423320>
- Laroche, M., Bergeron, J., & Barbaro-Forleo, G. (2001). Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of Consumer Marketing, 18*(6), 503-520.
- Larson, S., De Freitas, D. M., & Hicks, C. C. (2013). Sense of place as a determinant of people's attitudes towards the environment: Implications for natural resources management and planning in the Great Barrier Reef, Australia. *Journal of Environmental Management, 117*, 226-234. <https://doi.org/10.1016/j.jenvman.2012.11.035>

- Larson, L. R., Cooper, C. B., Stedman, R. C., Decker, D. J., & Gagnon, R. J. (2018). Place-Based Pathways to Pro-Environmental Behavior: Empirical Evidence for a Conservation–Recreation Model. *Society & Natural Resources*, 31(8), 871-891.
- Lee, C. K., & Han, S. Y. (2002). Estimating the use and preservation values of national parks' tourism resources using a contingent valuation method. *Tourism Management*, 23(5), 531-540.
- Lee, J. H., Kim, H. D., Ko, Y. J., & Sagas, M. (2011). The influence of service quality on satisfaction and intention: A gender segmentation strategy. *Sport Management Review*, 14(1), 54-63.
- Lee, T. H. (2011). How recreation involvement, place attachment and conservation commitment affect environmentally responsible behavior. *Journal of Sustainable Tourism*, 19(7), 895-915.
- Lee, W. S., Graefe, A. R., & Hwang, D. (2013). Willingness to pay for an ecological park experience. *Asia Pacific Journal of Tourism Research*, 18(3), 288-302.
- Leggett, C. G., Scherer, N., Curry, M. S., Bailey, R., & Haab, T. C. (2014). *Assessing the economic benefits of reductions in marine debris: a pilot study of beach recreation in Orange County, California*. Cambridge, MA: Industrial Economics, Incorporated.
- Liebe, U., Preisendörfer, P., & Meyerhoff, J. (2011). To pay or not to pay: Competing theories to explain individuals' willingness to pay for public environmental goods. *Environment and Behavior*, 43(1), 106-130.
- Lin, Y. C., & Chang, C. C. A. (2012). Double standard: The role of environmental consciousness in green product usage. *Journal of Marketing*, 76(5), 125-134.
- Liu, Y., Hong, Z., Zhu, J., Yan, J., Qi, J., & Liu, P. (2018). Promoting green residential buildings: Residents' environmental attitude, subjective knowledge, and social trust matter. *Energy Policy*, 112, 152-161.
- Lotkowski, V. A., Robbins, S. B., & Noeth, R. J. (2004). *The role of academic and non-academic factors in improving college retention*. Iowa City, IA: ACT Policy Report.
- Locke, K. D. (2003). Status and solidarity in social comparison: Agentive and communal values and vertical and horizontal directions. *Journal of Personality and Social Psychology*, 84(3), 619.
- Lu, J. L., & Wang, C. Y. (2018). Investigating the impacts of air travelers' environmental knowledge on attitudes toward carbon offsetting and willingness to mitigate the environmental impacts of aviation. *Transportation Research Part D: Transport and Environment*, 59, 96-107. <https://doi.org/10.1016/j.trd.2017.12.024>
- Lynam, T., De Jong, W., Sheil, D., Kusumanto, T., & Evans, K. (2007). A review of tools for incorporating community knowledge, preferences, and values into decision making in

- natural resources management. *Ecology and Society*, 12(1). Retrieved from <http://www.ecologyandsociety.org/vol12/iss1/art5/>
- Ma, S. C., & Kaplanidou, K. (2017). Legacy perceptions among host Tour de Taiwan residents: the mediating effect of quality of life. *Leisure Studies*, 36(3), 423-437.
- MacGregor, L., & Scott, A. (1993). Coed Volleyball—A New Format for All School Levels. *Journal of Physical Education, Recreation & Dance*, 64(6), 26-28.
- Madrigal, R., & Dalakas, V. (2008). Consumer psychology of sport: More than just a game. *Handbook of Consumer Psychology*, 18(4), 857-876. <https://doi.org/10.1016/j.jcps.2008.09.008>
- Mair, J. (2011). Exploring air travelers' voluntary carbon-offsetting behavior. *Journal of Sustainable Tourism*, 19(2), 215-230.
- Mair, J., & Laing, J. H. (2013). Encouraging pro-environmental behavior: the role of sustainability-focused events. *Journal of Sustainable Tourism*, 21(8), 1113-1128.
- Major League Baseball (2017, October 1). MLB Greening Program. Retrieved from http://web.mlbcommunity.org/index.jsp?content=programs&program=team_greening_program
- Major League Soccer (2017, October 1). Greener Goals. Retrieved from <https://www.mlssoccer.com/mls-works/greener-goals>
- Mallen, C., Stevens, J., & Adams, L. J. (2011). A content analysis of environmental sustainability research in a sport-related journal sample. *Journal of Sport Management*, 25(3), 240-256.
- Mallen, C., Chard, C., Keogh C., & Mansurov, A. (2015). *Preparing environmentally friendly events*. In J.M. Casper & M.E. Pfahl (Eds.), *Sport Management and the Natural Environment* (205-217). London and New York: Routledge.
- Mann, M. E., & Kump, L. R. (2015). *Dire predictions: understanding global warming*. New York: NY: A Penguin Random House Company.
- Mann, M. E., Rahmstorf, S., Kornhuber, K., Steinman, B. A., Miller, S. K., & Coumou, D. (2017). Influence of anthropogenic climate change on planetary wave resonance and extreme weather events. *Scientific Reports*, 7, 45242. <https://doi.org/10.1038/srep45242>
- Manzo, L. C., & Devine-Wright, P. (2014). *Place Attachment: Advances in Theory, Methods and Applications*. New York, NY: Routledge.
- Martin, B. E. & Harris III, F. (2006). Examining productive conceptions of masculinities: Lessons learned from academically driven African American male student athletes. *Journal of Men's Studies*, 14(3), 359-378.

- Martin, N. T., Ross, S. R., & Irwin, R. L. (2015). Utilizing community-based social marketing in a recycling intervention with tailgaters. *Journal of Intercollegiate Sport*, 8(1), 57-81.
- Martin, C., & Czellar, S. (2016). The extended Inclusion of Nature in Self scale. *Journal of Environmental Psychology*, 47, 181-194.
- Martínez-Espiñeira, R., & Lyssenko, N. (2011). Correcting for the endogeneity of pro-environment behavioral choices in contingent valuation. *Ecological Economics*, 70(8), 1435-1439.
- Mastny, L. (Ed.). (2015). *State of the World 2015: Confronting Hidden Threats to Sustainability*. Washington, D.C.: The Worldwatch Institute.
- Mason, W., & Suri, S. (2012). Conducting behavioral research on Amazon's Mechanical Turk. *Behavior research methods*, 44(1), 1-23.
- Mayers, A. (2013). *Introduction to Statistics and SPSS in Psychology*. New York, NY: Pearson Higher Ed.
- McConnell, R., Berhane, K., Gilliland, F., London, S. J., Vora, H., Avol, E., Gauderman, W.J., Margolis, H.G., Lurman, F., Thomas, D.C., & Peters, J. M. (1999). Air pollution and bronchitic symptoms in Southern California children with asthma. *Environmental Health Perspectives*, 107(9), 757.
- McCullough, B. P. (2012). *The recycling intentions of sport spectators: A theory of planned behavior approach* (Doctoral dissertation). Texas A & M University, College Station, TX.
- McCullough, B. P. (2013). Identifying the influences on sport spectator recycling behaviors using the theory of planned behavior. *International Journal of Sport Management and Marketing*, 14(1-4), 146-168.
- McCullough, B., & Kellison, T. (2016). Go Green for the home team: Sense of place and environmental sustainability in sport. *Journal of Sustainable Education*, 11, ISSN: 2151-7452
- McCullough & Kellison (2018). *Routledge Handbook of Sport and the Environment*. New York, NY: Routledge.
- Mendez, J. P., Mendoza, P., & Archer, E. E. (2009). Student athlete retention and financial aid. Are athletic scholarships enough? *Journal for the Study of Sports and Athletics in Education*, 3(1), 59-84.
- Meyer, R., & Liebe, U. (2010). Are the affluent prepared to pay for the planet? Explaining willingness to pay for public and quasi-private environmental goods in Switzerland. *Population and Environment*, 32(1), 42-65.

- Moon, W., Florkowski, W. J., Brückner, B., & Schonhof, I. (2002). Willingness to pay for environmental practices: implications for eco-labeling. *Land Economics*, 78(1), 88-102.
- Moore, R. L., & Graefe, A. R. (1994). Attachments to recreation settings: The case of rail-trail users. *Leisure Sciences*, 16(1), 17-31.
- Morgan, W. J. (2007). *Ethics in Sport*. Champaign, IL: Human Kinetics.
- Moser, A. K. (2015). Thinking green, buying green? Drivers of pro-environmental purchasing behavior. *Journal of Consumer Marketing*, 32(3), 167-175.
- Moser, S., & Kleinhüchelkotten, S. (2017). Good Intentions, but Low Impacts: Diverging Importance of Motivational and Socioeconomic Determinants Explaining Pro-Environmental Behavior, Energy Use, and Carbon Footprint. *Environment and Behavior*, 1-31. <https://doi.org/10.1177/0013916517710685>
- National Association for Stock Car Auto Racing (2017, October 1). *NASCAR Green*. Retrieved from <https://green.nascar.com/>
- National Basketball Association (2017, October 1). *NBA Green*. Retrieved from <http://green.nba.com/>
- National Center for Educational Statistics. (1996). *See who can play? An examination of NCAA's Proposition 16*. Retrieved June 10, 2010 from <http://nces.ed.gov/pubs95/95763.pdf>
- National Collegiate Athletic Association. (2017, September 9) *History of Academic Reform*. Retrieved July 12, 2011 from <http://www.ncaa.org/wps/wcm/connect/public/NCAA/Academics/academics+history>
- National Hockey League (2017, October 1). *NHL Green*. Retrieved from <https://www.nhl.com/info/nhl-green>
- National Football League (2017, October 1). *NFL Green*. Retrieved from <http://www.nfl.com/news/story/09000d5d8205a0e7/article/nfl-green>
- Nelson, T. O. (1996). Consciousness and metacognition. *American psychologist*, 51(2), 102.
- Nicol, A. A., & Pexman, P. M. (2010). *Presenting your findings: A practical guide for creating tables*. New York, NY: American Psychological Association.
- Nicolosi, E., & Corbett, J. B. (2018). Engagement with climate change and the environment: a review of the role of relationships to place. *Local Environment*, 23(1), 77-99.
- Olya, H. G., & Akhshik, A. (2018). Tackling the complexity of the pro-environmental Behavior intentions of visitors to turtle sites. *Journal of Travel Research*, 1-20. <https://doi.org/10.1177/0047287517751676>

- O'Neill, B. C., Done, J. M., Gettelman, A., Lawrence, P., Lehner, F., Lamarque, J. F., Lin, L., Monaghan, A.J., Oleson, K., Ren, X., Sanderson, B.M., Sanderson, B. M., Tebaldi, C, Weitzel, M., Xu, Y., Anderson, B., Fi, J. & Levis, S. (2017). The Benefits of Reduced Anthropogenic Climate Change (BRACE): a synthesis. *Climatic Change*, 146(3-4), 1-15.
- Outdoor Foundation (2017, October 3). Number of participants in beach volleyball in the United States from 2006 to 2016 (in millions). In Statista-The Statista Portal. Retrieved February 12, from <https://www.statista.com/statistics/191708/participants-in-beach-volleyball-in-the-us-since-2006/>
- Park, J., & Ha, S. (2012). Understanding pro-environmental behavior: a comparison of sustainable consumers and apathetic consumers. *International Journal of Retail & Distribution Management*, 40(5), 388-403.
- Perkins, D. D., & Long, D. A. (2002). *Neighborhood sense of community and social capital: A multi-level analysis*. In A. Fisher, C. Sonn, & B. Bishop (Eds.), *Psychological sense of community: Research, applications, and implication* (pp. 291-318). New York, NY: Plenum.
- Perlaviciute, G., & Steg, L. (2012). Quality of life in residential environments. *Psychology*, 3(3), 325-340.
- Peterson, M. N., Bondell, H. D., Fratanduono, M. B. L., Bigsby, K., & McHale, M. (2013). Prediction indicators for voluntary carbon-offset purchases among trail runners. *Journal of Sport Behavior*, 36(3), 264.
- Pinel, E. C. (1999). Stigma consciousness: the psychological legacy of social stereotypes. *Journal of Personality and Social Psychology*, 76(1), 114.
- Ploum, L., Blok, V., Lans, T., & Omta, O. (2018). Exploring the relation between individual moral antecedents and entrepreneurial opportunity recognition for sustainable development. *Journal of Cleaner Production*, 172, 1582-1591. <https://doi.org/10.1016/j.jclepro.2017.10.296>
- Poortvliet, P. M., Sanders, L., Weijma, J., & De Vries, J. R. (2018). Acceptance of new sanitation: The role of end-user's pro-environmental personal norms and risk and benefit perceptions. *Water Research*, 131, 90-99. <https://doi.org/10.1016/j.watres.2017.12.032>
- Potter, E. (2011, August 9). *NCAA, school leaders talk reform*. Retrieved October 5, 2011 from <http://www.ncaa.com/news/ncaa/2011-08-09/ncaa-school-leaders-talk-reform>
- Pretty, G. H., Chipuer, H. M., & Bramston, P. (2003). Sense of place amongst adolescents and adults in two rural Australian towns: The discriminating features of place attachment, sense of community and place dependence in relation to place identity. *Journal of Environmental Psychology*, 23(3), 273-287.

- Pretty, J., Rogerson, M., & Barton, J. (2017). Green mind theory: how brain-body-behavior links into natural and social environments for healthy habits. *International Journal of Environmental Research and Public Health*, *14*(7), 706.
- Prévot, A. C., Clayton, S., & Mathevet, R. (2018). The relationship of childhood upbringing and university degree program to environmental identity: experience in nature matters. *Environmental Education Research*, *24*(2), 263-279.
- Pringle, R. (2018). On the Development of Sport and Masculinities Research: Feminism as a Discourse of Inspiration and Theoretical Legitimation. In *the Palgrave Handbook of Feminism and Sport, Leisure and Physical Education* (pp. 73-93). London, UK: Palgrave Macmillan.
- Proshansky, H. M. (1978). The city and self-identity. *Environment and behavior*, *10*(2), 147-169.
- Proshansky, H. M., Fabian, A. K., & Kaminoff, R. (1983). Place-identity: Physical world socialization of the self. *Journal of Environmental Psychology*, *3*(1), 57-83.
- Ramkissoon, H., Weiler, B., & Smith, L. D. G. (2012). Place attachment and pro-environmental behavior in national parks: The development of a conceptual framework. *Journal of Sustainable Tourism*, *20*(2), 257-276
- Ramkissoon, H., Smith, L. D. G., & Weiler, B. (2013). Relationships between place attachment, place satisfaction and pro-environmental behavior in an Australian national park. *Journal of Sustainable Tourism*, *21*(3), 434-457.
- Raymond, C. M., Brown, G., & Weber, D. (2010). The measurement of place attachment: Personal, community, and environmental connections. *Journal of Environmental Psychology*, *30*(4), 422-434.
- Raymond, C. M., Brown, G., & Robinson, G. M. (2011). The influence of place attachment, and moral and normative concerns on the conservation of native vegetation: A test of two behavioral models. *Journal of Environmental Psychology*, *31*(4), 323-335.
- Raymond, C. M., Kyttä, M., & Stedman, R. (2017). Sense of place, fast and slow: The potential contributions of affordance theory to sense of place. *Frontiers in Psychology*, *8*, 1674. <https://doi.org/10.3389/fpsyg.2017.01674>
- Rezvani, Z., Jansson, J., & Bengtsson, M. (2017). Cause I'll Feel Good! An Investigation into the Effects of Anticipated Emotions and Personal Moral Norms on Consumer Pro-Environmental Behavior. *Journal of Promotion Management*, *23*(1), 163-183.
- Ries, R., Bilec, M. M., Gokhan, N. M., & Needy, K. L. (2006). The economic benefits of green buildings: a comprehensive case study. *The Engineering Economist*, *51*(3), 259-295.
- Rishe, P. J. (2003). A reexamination of how athletic success impacts graduation rates: Comparing student-athletes to all other undergraduates. *American Journal of Economics and Sociology* *62*(2), 407-427.

- Romani, S., Grappi, S., & Bagozzi, R. P. (2013). Explaining consumer reactions to corporate social responsibility: The role of gratitude and altruistic values. *Journal of Business Ethics, 114*(2), 193-206.
- Rozin, P., Remick, A. K., & Fischler, C. (2011). Broad themes of difference between French and Americans in attitudes to food and other life domains: personal versus communal values, quantity versus quality, and comforts versus joys. *Frontiers in Psychology, 2*, 177.
- Ross, A., & Searle, M. (2018). A Conceptual Model of Leisure Time Physical Activity, Neighborhood Environment, and Sense of Community. *Environment and Behavior, 1*-33. ISSN: 0013916517751582. <https://doi.org/10.1177/0013916517751582>
- Running USA (2017). Assessed in May 30th and retrieved from <http://www.runningusa.org/>
- Sakurai, R., Ota, T., & Uehara, T. (2017). Sense of place and attitudes towards future generations for conservation of coastal areas in the Satoumi of Japan. *Biological Conservation, 209*, 332-340. <https://doi.org/10.1016/j.biocon.2017.02.041>
- Sato, S., Ko, Y. J., Kellison, T. B., Harada, M., & Bizen, Y. (2017). Do Snow-Based Sport Participants Intend to Purchase Products from Environmentally Friendly Companies? *Journal of Global Sport Management, 2*(3), 1-14.
- Schwartz, S. H. (2006). A theory of cultural value orientations: Explication and applications. *Comparative Sociology, 5*(2), 137-182.
- Schwartz, S. H. (2012). An overview of the Schwartz theory of basic values. *Online readings in Psychology and Culture, 2*(1), 11.
- Scannell, L., & Gifford, R. (2010). Defining place attachment: A tripartite organizing framework. *Journal of Environmental Psychology, 30*(1), 1-10.
- Schlegelmilch, B. B., Bohlen, G. M., & Diamantopoulos, A. (1996). The link between green purchasing decisions and measures of environmental consciousness. *European Journal of Marketing, 30*(5), 35-55.
- Sedlacek, W. E. (1999). Black students on White campuses: 20 years of research. *Journal of College Student Development, 40*(5), 538-549.
- Schmied, M., Hochfeld, C., Stahl, H., Roth, R., Arbruster, F., Turk, S., & Friedl, C. (2007). *Green Champion in sport and environment: Guide to environmentally-sound large sporting events*. Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and German Olympic Sports Confederation (DOSB), Division Development of Sports.
- Schlegelmilch, B. B., Bohlen, G. M., & Diamantopoulos, A. (1996). The link between green purchasing decisions and measures of environmental consciousness. *European journal of marketing, 30*(5), 35-55.

- Schmidt, C. W. (2006). Putting the earth in play: environmental awareness and sports. *Environmental Health Perspectives, 114*(5), A286-295.
- Schultz, P. W. (2002). Inclusion with nature: The psychology of human-nature relations. In *Psychology of sustainable development* (pp. 61-78). Boston, MA: Springer.
- Schwartz, S. H. (1977). Normative influences on altruism. *Advances in Experimental Social Psychology, 10*, 221-279. [https://doi.org/10.1016/S0065-2601\(08\)60358-5](https://doi.org/10.1016/S0065-2601(08)60358-5)
- Shao, S., & Yang, L. (2014). Natural resource dependence, human capital accumulation, and economic growth: A combined explanation for the resource curse and the resource blessing. *Energy Policy, 74*, 632-642. <https://doi.org/10.1016/j.enpol.2014.07.007>
- Sharma, K., & Bansal, M. (2013). Environmental consciousness, its antecedents and behavioral outcomes. *Journal of Indian Business Research, 5*(3), 198-214.
- Sierles, F. S. (2003). How to do research with self-administered surveys. *Academic Psychiatry, 27*(2), 104-113.
- Silverman, B. W. (2018). *Density estimation for statistics and data analysis*. Champaign, IL: Routledge.
- Simiyu, N. W. (2010). Individual and institutional challenges facing student athletes on U.S. college campuses. *Journal of Physical Education and Sports Management, 1*(2), 16-24.
- Sirgy, M. J., & Su, C. (2000). Destination image, self-congruity, and travel behavior: Toward an integrative model. *Journal of Travel Research, 38*(4), 340-352.
- Smart, B. (2018). Consuming Olympism: Consumer culture, sport star sponsorship and the commercialization of the Olympics. *Journal of Consumer Culture, 18*(2), 241-260.
- Sperry, R. W. (1969). A modified concept of consciousness. *Psychological Review, 76*(6), 532.
- Stapp, W. B. (1969). The concept of environmental education. *Environmental Education, 1*(1), 30-31.
- Stedman, R. C. (2002). Toward a social psychology of place: Predicting behavior from place-based cognitions, attitude, and identity. *Environment and Behavior, 34*(5), 561-581.
- Steg, L., Dreijerink, L., & Abrahamse, W. (2006). Why are energy policies acceptable and effective? *Environment and Behavior, 38*(1), 92-111.
- Steg, L., Dreijerink, L., & Abrahamse, W. (2006). Why are energy policies acceptable and effective? *Environment and Behavior, 38*(1), 92-111.
- Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behavior: An integrative review and research agenda. *Journal of Environmental Psychology, 29*(3), 309-317.

- Steg, L., Bolderdijk, J. W., Keizer, K., & Perlaviciute, G. (2014). An integrated framework for encouraging pro-environmental behavior: The role of values, situational factors and goals. *Journal of Environmental Psychology*, 38, 104-115. <https://doi.org/10.1016/j.jenvp.2014.01.002>
- Steg, L., Perlaviciute, G., Van der Werff, E., & Lurvink, J. (2014). The significance of hedonic values for environmentally relevant attitudes, preferences, and actions. *Environment and Behavior*, 46(2), 163-192.
- Stern, P. C., Kalof, L., Dietz, T., & Guagnano, G. A. (1995). Values, beliefs, and pro-environmental action: Attitude formation toward emergent attitude objects. *Journal of Applied Social Psychology*, 25(18), 1611-1636.
- Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review*, 6(2), 81-97.
- Stern, P. C. (2000). New environmental theories: toward a coherent theory of environmentally significant behavior. *Journal of Social Issues*, 56(3), 407-424.
- Stern, P. C. (2012). Psychology: Fear and hope in climate messages. *Nature Climate Change*, 2(8), 572. Retrieved from <https://www.nature.com/articles/nclimate1610>
- Stewart, N., Ungemach, C., Harris, A. J., Bartels, D. M., Newell, B. R., Paolacci, G., & Chandler, J. (2015). The average laboratory samples a population of 7,300 Amazon Mechanical Turk workers. *Judgment and Decision making*, 10(5), 479.
- Strayhorn, T. L. (2008). Fitting' in: Do diverse interactions with peers affect sense of belonging for Black man at Predominantly White institutions? *NASPA Journal*, 45(4), 501-527.
- Szolnoki, G., & Hoffmann, D. (2013). Online, face-to-face and telephone surveys—Comparing different sampling methods in wine consumer research. *Wine Economics and Policy*, 2(2), 57-66.
- Tam, K. P., & Chan, H. W. (2018). Generalized trust narrows the gap between environmental concern and pro-environmental behavior: Multilevel evidence. *Global Environmental Change*, 48, 182-194. <https://doi.org/10.1016/j.gloenvcha.2017.12.001>
- Tan, K., Arriaga, X. B., & Agnew, C. R. (2017). Running on empty: Measuring psychological dependence in close relationships lacking satisfaction. *Journal of Social and Personal Relationships*, 1-22. <https://doi.org/10.1177/0265407517702010>
- Thapa, B. (1999). Environmentalism: The relation of environmental attitudes and environmentally responsible behaviors among undergraduate students. *Bulletin of Science, Technology & Society*, 19(5), 426-438.
- Thapa, B., & Graefe, A. R. (2003). Forest recreationists and environmentalism. *Journal of Park & Recreation Administration*, 21(1), 75-103. ISSN: 0735-1968

- Thapa, B., Graefe, A. R., & Meyer, L. A. (2005). Moderator and mediator effects of scuba diving specialization on marine-based environmental knowledge-behavior contingency. *The Journal of Environmental Education, 37*(1), 53-67.
- Thapa, B. (2010). The mediation effect of outdoor recreation participation on environmental attitude-behavior correspondence. *The Journal of Environmental Education, 41*(3), 133-150.
- Tonge, J., Ryan, M. M., Moore, S. A., & Beckley, L. E. (2015). The effect of place attachment on pro-environment behavioral intentions of visitors to coastal natural area tourist destinations. *Journal of Travel Research, 54*(6), 730-743.
- Trapnell, P. D., & Paulhus, D. L. (2012). Agentic and communal values: Their scope and measurement. *Journal of Personality Assessment, 94*(1), 39-52.
- Trendafilova, S., Babiak, K., & Heinze, K. (2013). Corporate social responsibility and environmental sustainability: Why professional sport is greening the playing field. *Sport Management Review, 16*(3), 298-313.
- Trendafilova, S., McCullough, B., Pfahl, M., Nguyen, S. N., Casper, J., & Picariello, M. (2014). Environmental sustainability in sport: Current state and future trends. *Global Journal on Advances in Pure and Applied Sciences, 3*, 9-14. Retrieved from https://www.researchgate.net/profile/Brian_Mccullough5/publication/281207006_Environmental_sustainability_in_sport_Current_state_and_future_trends/links/55db334e08ae9d65949356d1.pdf
- Triantafyllidis, S., & Kaplanidou, K. (2017). *Health and self- motivation as predictors of marathon runners' pro-environmental behaviors*. Oral presentation session presented at the meeting of North American Society for Sport Management, Denver, CO.
- Triantafyllidis, S., & Kaplanidou, K. (2018). *Olympus mountain marathon participants and voluntary carbon offsetting intentions*. Poster session presented at the meeting of North American Society for Sport Management, Canada, Halifax.
- Triantafyllidis, S., Ries, R. J., & Kaplanidou, K. K. (2018). Carbon Dioxide Emissions of Spectators' Transportation in Collegiate Sporting Events: Comparing On-Campus and Off-Campus Stadium Locations. *Sustainability, 10*(1), 241. doi:10.3390/su10010241
- Truelove, H. B., Carrico, A. R., Weber, E. U., Raimi, K. T., & Vandenberg, M. P. (2014). Positive and negative spillover of pro-environmental behavior: An integrative review and theoretical framework. *Global Environmental Change, 29*, 127-138. <https://doi.org/10.1016/j.gloenvcha.2014.09.004>
- Truelove, H. B., & Gillis, A. J. (2018). Perception of pro-environmental behavior. *Global Environmental Change, 49*, 175-185. <https://doi.org/10.1016/j.gloenvcha.2018.02.009>
- Tuan, Y. F. (1974). *A Study of Environmental Perception. Attitudes, and Values*. Eaglewood Cliffs, NJ: Practice Hall Inc.

- Tuan, Y. F. (1980). Rootedness and sense of place. *Landscape*, 24(n/a), 3-8.
- Tucker, I. B. (2004). A reexamination of the effect of big-time football and basketball success on graduation rates and alumni giving rates. *Economics of Education Review*, 23(6), 655-661.
- Twigger-Ross, C. L., & Uzzell, D. L. (1996). Place and identity processes. *Journal of Environmental Psychology*, 16(3), 205-220.
- United Nation Environmental Program. (2017, October 2). *Sport and the environment*. Retrieved from http://www.unep.org/sport_env/
- United States Environmental Protection Agency. (2017, October 2). *U.S. Environmental Protection Agency*. Retrieved from <https://www.epa.gov/>.
- United States Open (2017, October 1). *Green Initiatives*. Retrieved from http://www.usopen.org/en_US/about/green_initiatives.html
- Urien, B., & Kilbourne, W. (2011). Generativity and self-enhancement values in eco-friendly behavioral intentions and environmentally responsible consumption behavior. *Psychology & Marketing*, 28(1), 69-90.
- Valentine, J. J., & Taub, D. J. (1999). Responding to the developmental needs of student athletes. *Journal of College Counseling*, 3, 164-178. <https://doi.org/10.1002/j.2161-1882.1999.tb00153.x>
- Van Birgelen, M., Semeijn, J., & Behrens, P. (2011). Explaining pro-environment consumer behavior in air travel. *Journal of Air Transport Management*, 17(2), 125-128.
- Vaske, J. J., & Kobrin, K. C. (2001). Place attachment and environmentally responsible behavior. *The Journal of Environmental Education*, 32(4), 16-21.
- Van der Werff, E., Steg, L., & Keizer, K. (2013). The value of environmental self-identity: The relationship between biospheric values, environmental self-identity and environmental preferences, intentions and behavior. *Journal of Environmental Psychology*, 34, 55-63. <https://doi.org/10.1016/j.jenvp.2012.12.006>
- Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer “attitude-behavioral intention” gap. *Journal of Agricultural and Environmental ethics*, 19(2), 169-194.
- Vicente-Molina, M. A., Fernández-Sáinz, A., & Izagirre-Olaizola, J. (2013). Environmental knowledge and other variables affecting pro-environmental behavior: comparison of university students from emerging and advanced countries. *Journal of Cleaner Production*, 61, 130-138. <https://doi.org/10.1016/j.jclepro.2013.05.015>

- Walker, M. (2013). Does green management matter for donation intentions? The influence of environmental consciousness and environmental importance. *Management Decision*, 51(8), 1716-1732.
- Waller, J. M. (2003). A necessary evil: Proposition 16 and its impact on academics and athletics in the NCAA. *DePaul Journal of Sports Law & Contemporary Problems*, 1(2), 189-207.
- Wang, Z., Yang, Y., & Wang, B. (2018). Carbon footprints and embodied CO₂ transfers among provinces in China. *Renewable and Sustainable Energy Reviews*, 82(Part 1), 1068-1078.
- Warzecha, C. A., & Lime, D. W. (2001). Place Attachment in Canyonlands National Park: Visitors' Assessment of Setting Attributes on the Colorado and Green Rivers. *Journal of Park & Recreation Administration*, 19(1), 59-78.
- Watt, S. K., & Moore, J. M. (2001). Who are student athletes? *New Directions for Student Services*, 2001(93), 7-18.
- Whitburn, J., Linklater, W. L., & Milfont, T. L. (2018). Exposure to Urban Nature and Tree Planting Are Related to Pro-Environmental Behavior via Connection to Nature, the Use of Nature for Psychological Restoration, and Environmental Attitudes. *Environment and Behavior*, 1-24. ISSN: 0013916517751009. <https://doi.org/10.1177/0013916517751009>
- White, P. C., Bennett, A. C., & Hayes, E. J. (2001). The use of willingness-to-pay approaches in mammal conservation. *Mammal Review*, 31(2), 151-167.
- Whitehead, J. C., & Wicker, P. (2018). Estimating willingness to pay for a cycling event using a willingness to travel approach. *Tourism Management*, 65, 160-169. <https://doi.org/10.1016/j.tourman.2017.09.023>
- Whitmarsh, L., & O'Neill, S. (2010). Green identity, green living? The role of pro-environmental self-identity in determining consistency across diverse pro-environmental behaviors. *Journal of Environmental Psychology*, 30(3), 305-314.
- Wicker, P. (2017). The carbon footprint of active sport tourists: an empirical analysis of skiers and boarders. *Journal of Sport & Tourism*, 22(2), 1-21.
- Wiedmann, T., & Minx, J. (2008). *A definition of 'carbon footprint'*. In C.C. Pertsova, Ecological Economics Research Trends: Chapter 1, pp. 1-11, Hauppauge, NY: Nova Science Publishers.
- Wilkins, E., de Urioste-Stone, S., Weiskittel, A., & Gabe, T. (2018). Weather sensitivity and climate change perceptions of tourists: a segmentation analysis. *Tourism Geographies*, 20(2), 273-28
- Williams, D. R., & Roggenbuck, J. W. (1989, October). Measuring place attachment: Some preliminary results. In *Abstracts: 1989 leisure research symposium* (Vol. 32). Arlington, VA: National Recreation and Park Association.

Williams, D. R., & Roggenbuck, J. W. (1989, October). Measuring place attachment: Some preliminary results. In NRPA Symposium on Leisure Research, San Antonio, TX (Vol. 9).

Williams, D. R., & Vaske, J. J. (2003). The measurement of place attachment: Validity and generalizability of a psychometric approach. *Forest Science*, 49(6), 830-840.

Wittenberg, I., Blöbaum, A., & Matthies, E. (2018). Environmental motivations for energy use in PV households: Proposal of a modified norm activation model for the specific context of PV households. *Journal of Environmental Psychology*, 55, 110-120.

Wong, K. K. K. (2013). Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS. *Marketing Bulletin*, 24(1), 1-32.

BIOGRAPHICAL SKETCH

Stavros Triantafyllidis earned his Doctor of Philosophy degree in Health and Human Performance (major: sport management) from the University of Florida in August 2018. He received his Master of Science degree in Education (major: sport administration) from the University of Miami in August 2014. He earned his Bachelor of Science degree in Environmental Science (major: environmental studies) in June 2012. His research interest focuses on environmental sustainability and aim to expand the scholarship of environmentalism, as well as contribute efficiently on global governmental strategies. As a researcher he is seeking to contribute on global environmental and sport related academic discourses. Lastly, by intergrading sport and environment he aims to develop theorems of environmentalism that will have a significant impact due to the values of sport and its powerful magnitude as a billion-dollar industry with tremendous media exposure.