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There’s No Place like a Favorite Place: The Role of Place on Donative Behavior

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There’s No Place like a Favorite Place:
The Role of Place on Donative Behavior

A thesis presented by
Micaela Nee
to the Department of Psychology
in partial fulfillment of the requirements
for the degree of Bachelor of Arts

Connecticut College
New London, CT
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Abstract

This research explored the role of place on emotions and behaviors through 2 studies. After establishing the significant role place has on emotions and behavior in Experiment 1, Experiment 2 was conducted to help understand the environmental influences on pro-environmental and pro-social intentions and on donative behavior. In the first experiment, donative behavior was explored following prompts that asked participants to reflect on a nostalgic place, nostalgic event, ordinary place, ordinary event, or favorite place. The first experiment also investigated how feelings of place attachment and nostalgia compare on established functions of nostalgia, including positive affect, self-regard, social-connectedness, and meaning in life. Participants included 253 individuals, 155 females and 97 males (1 not specified), recruited through Amazon Mechanical Turk. Participants who reflected on an ordinary event had significantly lower levels of the 4 functions of nostalgia than did participants who reflected on a favorite place (\(p < .001\)), nostalgic place (\(p = .008\)), or nostalgic event (\(p = .003\)). The effects favorite places have on nostalgic functions may suggest that place attachment provides functions similar to those afforded by nostalgia. It was hypothesized that the nostalgic groups would allocate the most money to charity, however this was not supported. Members of the group who recalled a favorite place gave the most to charity, and the amount donated was significantly different from the nostalgic event (\(p = .007\)) and ordinary event conditions (\(p = .009\)). Interestingly, the amount donated by the favorite place group was significantly different from the amounts given by members of both event groups, but not by members of the other two place groups, suggesting the significant role of place on donative behavior. The second experiment explored different environmental influences on pro-environmental behavioral intentions, pro-social behavioral intentions, and donative behavior. Participants were assigned to 1 of 5 environmental conditions: threatened nature, nature, urban, childhood home, or no environment. Participants included 252 individuals, 138 females and 114 males, recruited through Amazon Mechanical Turk. It was hypothesized that participants in the nature and threatened nature conditions would have the highest pro-environmental intentions and allocate the most money to charity, due to the effects nature has on pro-sociality, empathy, and giving. There were no significant differences between pro-social behavioral
intentions or money donated in each condition. However, participants immersed in threatened environments had the highest pro-environmental intentions, and their scores were significantly different from those immersed in urban settings ($p = .030$). Additional findings, limitations, and implications for future research are discussed.

*Keywords:* donative behavior, nostalgia, place, environment, pro-environmental behavior
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Role of Place on Donative Behavior

The current research explores the role nostalgia and place attachment have on charitable behavior. The introduction will first explore influences on charitable behavior, then move into the functions of place attachment, and finally conclude with the functions of nostalgia.

Influences on Charitable Behavior

In 2016, Americans donated $389.05 billion as well as $193 billion dollars’ worth of their time (National Philanthropic Trust, 2016). What motivates individuals to give to charity is a complex process that involves the interplay of personal experiences, level of incorporation within the organization (i.e., member of the Rotary Club) (Radley & Kennedy, 1995), and public versus private settings (Ariely, Bracha, & Meier, 2009). Charitable giving is largely motivated by people’s experience with need and concern to maintain an altruistic image around others. Personal experience with need leads to more charitable behavior than does little or no experience with need (Radley & Kennedy, 1995). The effect of personal connection on giving was seen in community members who were provided $100 to split between themselves and a charity either selected from a predetermined list or one chosen by themselves. Those who wrote in their own charity gave more money, $17 more on average, than did community members who chose a charity off the list and were three times more likely to donate their entire amount to charity (Carpenter, Connolly, & Myers, 2008).

People involved in groups are more likely to contribute to charitable giving, because giving is not only encouraged by the organization, but the people in the group also share a sense of interconnectedness in making a difference (Radley & Kennedy, 1995). Radley and Kennedy (1995) developed a framework to assess the motives behind people with differing levels of experience and incorporation. Individuals with low levels of experience and group incorporation...
have the least connection to charity, and are likely to be motivated by norms, give in a passive and reactive manner, and select a charity based on what is available at the time. On the other end, individuals with high levels of experience and incorporation within a group are most likely to donate their money and time, plan out their giving, and be highly selective in choosing charities. Individuals with little experience of need, but who are members of organizations, are largely motivated by the values and norms of their groups, whereas individuals who have direct experience, but are not members of organizations are largely motivated through pity (Radley & Kennedy, 1995). This framework addresses the ways in which people respond differently depending on their groups and experiences.

Aracha et al. (2009) emphasize three different motives for prosocial behavior: intrinsic motivation (giving based on concern for one’s well-being), extrinsic motivation (material rewards), and image motivation (motivation by social approval and the perceptions of others). Relating to Radley and Kennedy (1995), individuals with personal experience may be more intrinsically motivated, whereas individuals involved in groups and organizations may be motivated to maintain an image. However, these three motivations do not operate separately, but interact with each other. For example, individuals’ effort to raise money for charity wavered based on their perception of the charity, whether their effort was public or private, and whether they were offered extrinsic incentives. Individuals clicked more pairs in a game to raise money for charity (822 pairs) in the public condition, where their effort was known, than did individuals in the private condition (522 pairs), where their effort was concealed. Participants who had their effort exposed to the public were motivated by maintaining a positive image, hence monetary incentives did not affect their effort, however, offering monetary incentives significantly increased participants’ effort in the private condition. Following the same design, a bike for
charity event similarly found that providing extrinsic incentives did not affect the effort of participants who biked in public view, although it did increase the effort of those who biked in private. In conclusion, extrinsic incentives are not effective in visible, public prosocial behaviors, because these incentives undermine the image of being a generous individual (Aracha et al., 2009).

Moreover, charitable giving is affected by the characteristics of the people and the organizations. People are more likely to give based on perceived need. For instance, individuals were more likely to donate to an established charity than to an anonymous individual in a dictator game experiment. In this dictator game experiment participants received $10 to divide between themselves and either an anonymous respondent or the Red Cross (Eckel & Grossman, 1996). Furthermore, third party quality ratings of charities affect charity choice, as people are more likely to choose charities with positive ratings than charities with no ratings or negative ratings. Surprisingly, the geographic distance of charities to individuals does not seem to impact their choice of a charity. Participants from Texas, who were provided with equivalent charities on local and non-local levels, chose about half (48%) of the charities based in Texas and about half of the nationally-based charities. Therefore, location does not appear to play a significant role in their choice, but quality ratings certainly do (Brown, Meer, & Williams, 2017). On the other hand, physical proximity may affect empathy by impeding rational decision making. Empathy is biased and often leads to choosing to help one individual over many individuals. We are more inclined to help people we are invested in, even though this many come at the cost of many others (Bloom, 2017).

Further, demographics, such as age, race, and gender, also play a major role in charitable giving. For instance, students from Middlebury College were less likely to donate to charity than
were Vermont community members. When given $100 to divide between themselves and charity, community members donated $20 more on average and were also more likely to donate the entire amount than was the student sample. Younger people and males were also less likely to give than were older individuals and females (Carpenter et al., 2008). Age may be an impacting factor, due to a greater range of experiences, increased income, or reduced self-interest, whereas gender may be a factor due to the historical gender roles of women as caregivers (Radley & Kennedy, 1995). Among adults ages 55 to 84 years, minority groups and widowed or separated people were less likely to make donations, possibly because they often have lower wealth (Choi & Chou, 2010).

Taking all of this into account, it can be difficult to identify how to increase charitable giving. People all have individual differences and come from different backgrounds with a variety of experiences. Considering this natural variation in human beings, it may be a challenge to target broad audiences in donation campaigns. Nevertheless, most people share a proclivity for social interaction and the formation of memories and attachments. Most people have places that hold special meanings in their lives. Even people who have negative experiences in places, may still show attachment to those places (Manzo, 2003; Proshansky, Fabian, & Kaminoff, 1983). Moreover, as humans we function through the use of memory. Many of us hold cherished or sentimental memories, often referred to as nostalgic memories, which create a sense of longing for past times. Place attachment and nostalgia both foster emotional connections in people, which may in turn facilitate prosocial behaviors. When making donations, emotional arousal is often a “call to action” in which people respond with prosocial behavior (Huber, Van Boven, & McGraw, 2011, p. 179)
Relationships of nostalgia and place attachment to giving. Nostalgia and place attachment may trigger feelings that contribute to charitable behavior. The use of nostalgia, the yearning for the past, in advertising appeals or through personal reflection, has been shown to increase empathy (Cordaro, 2011; Sedikides & Wildschut, 2016) and charitable behavior (Ford & Merchant, 2010; Ford, Merchant, & Rose, 2011; Lasleta, Sedikides, & Vohs, 2014; Zhou, Wildschut, Sedikides, Shi, & Feng, 2012b). Relatedly, the use of place attachment has been found to increase pro-environmental behavior (Gosling & Williams, 2010; Halpenny, 2010; Najafi & Kamal, 2012; Tonge, Ryan, Moore, & Beckley, 2015; Walker & Chapman, 2003) and increase donations and other forms of prosocial behavior in natural settings (Arendt & Matthes, 2016). Increasing place attachment in local communities also affects inhabitants’ willingness to help and engage in their communities (Stefaniak, Bilewicz, & Lewicka, 2017).

The Concept of Place Attachment

We are often unaware of the major role places play in our lives. Although we realize that attachments to others are an important part of life, we may not realize the importance of attachments to places (Najafi & Kamal, 2012). Despite living in a society where people are constantly transitioning from one place to another (Lewicka, 2010), as on average Americans will move 11.4 times in their lifetime (Protect America, Inc., 2017), place attachment still prevails (Lewicka, 2011). Briefly, place attachment is a bond that people form when they develop emotional and intense connections to specific places (Firouzmakan & Daneshpour, 2015) based on memories related to these important places (Ratcliffe & Korpela, 2016). The literature emphasizes place attachments as dynamic and malleable, developing through many processes, across many places over time (Cross, 2015; Low & Altman, 1992; Manzo, 2003; Proshansky et al., 1983).
**Role of place in childhood.** Imagine a significant place from your childhood, maybe your home, old school, or a vacation destination, and think about how you were formed by that place. Attachments to places in childhood are important, specifically the role home plays in childhood. People see places/landmarks from where they grew up as markers of their youth, and these places help establish a continuity between the past and the present. Places from childhood are viewed as a piece of evidence that confirms their former childhood life (Twigger-Ross & Uzzell, 1996). These places can serve as reminders of childhood memories (Low & Altman, 1992); for example, a building recognized from childhood may symbolically link to one’s past (Twigger-Ross & Uzzell, 1996). These places in childhood form knowledge and preferences for spaces (Proshansky et al., 1983), such as whether people are urbanophilic or urbanophobic (prefer urban or rural communities) (Lewicka, 2011). The most important places in childhood are usually the home, neighborhood, and school. In these environments, children learn environmental skills to manipulate places to create the most enjoyable experiences. The development of environmental skills forms over time from interacting with spaces in childhood, in which children learn environmental understanding, competence, and control to change their environments to fit their needs and control their own as well as others’ behavior. People develop these environmental preferences through having built up their environmental pasts (Proshansky et al., 1983).

**Role of the home.** Home serves as a “spatial anchor” (Lewicka, 2011, p. 211) in our lives, in which space is thought of as being part of home or not home (Lewicka, 2011). Home is often viewed as a nostalgic and special place (Wilson, 2013) that provides comfort and security (Manzo, 2003; Wilson, 2013) and is the primary place of attachment (Porter & Rispoli, 2016). Home often provides solace for people from the stresses of daily life. However, home is not
always a source of comfort and happiness. People may form negative attachments to home, particularly in circumstances of loss or abuse. Yet, painful experiences are not necessary to form negative attachments; for instance, housewives may develop negative attachments to their home because they cannot escape working or feel bound to a routine (Manzo, 2003). Additionally, race and class can affect people’s abilities to develop connections with places. Racial discrimination and social class influence where people settle, because they are excluded from some places (Manzo, 2003).

Home should not be examined in an oversimplified sense. Interviews with residents of communes reveal that despite not owning a home in the legal sense, they still displayed feelings of rootedness and attachment to their living area (Windsong, 2009). In research, it is important to look beyond the prototypical home, because the emotional and structural components may or may not be encompassed by the typical home as a ‘haven’ (Manzo, 2003).

Home plays a large role in literature and the arts. Images of home are the focus of many children’s stories and films. For instance, *The Wizard of Oz* highlights Dorothy’s journey to return back home after being displaced by a tornado. Eventually, she returns home upon clicking her shoes and chanting, “There’s no place like home.” Similarly in *Finding Nemo*, Nemo gets swept away in a current and the movie features his attempt to return home. Home’s significance is also evident in popular songs, such as *Home on the Range*, *Home for the Holidays*, and *Sweet Home Alabama*. Additionally, popular games identify home’s central role, such as baseball’s home plate and home base in games, such as hide and go seek, in which homebase is the safety zone.

**Displacement.** The literature on displacement and relocation highlights the significance of home in people’s lives (Porter & Rispoli, 2016; Wilson, 2013). Imagine a scenario similar to
that in *The Wizard of Oz*, where your home is picked up and placed in an unfamiliar environment and all of a sudden you feel like an outsider. Each day, 65 million people are forcibly displaced from their homes (World Health Organization, 2018). When people move or are forced to relocate, they realize home is not just a background setting, but an essential piece of their identity and life (Porter & Rispoli, 2016; Proshansky et al., 1983). The integral part home plays in identity was illustrated in families living in a superfund site who were given buyout offers to move from the hazardous area. Several families rejected the offer and decided to remain living in the hazardous area despite warnings from experts. Their nostalgic feelings for home impacted their judgment and some even viewed the toxic waste as beautiful. Even the families who did accept the buyout offers only relocated within 10 miles of the area (Wilson, 2013), because when relocating people typically prefer similar places (Scannell & Gifford, 2010a).

Nostalgia fosters place attachment (Lewicka, 2014) and, therefore, it is hard for families to relocate and leave places where they have developed many nostalgic feelings and memories. Relocation fosters feelings of alienation for people, because they can no longer rely on habit and procedural memory around their homes (Lewicka, 2014). This reliance on procedural memory is evident from interviews with people who endured Hurricane Katrina, as they struggled to describe their connection to home, because it played such a habitual role in their lives. Relocating not only allowed then to recognize the importance of home in their lives, but also the interpersonal support in their neighborhoods. Similar to the residents in the superfund site, some people made the decision to return home despite the risks. People who did not move back experienced considerable feelings of stress and felt like “an outsider” in a new place (Porter & Rispoli, 2016).
The concept of insideness and outsideness emerges throughout the literature and refers to attached people experiencing a place in a deep and unconscious way, whereas unattached people exhibit feelings of alienation (Manzo, 2003). To counteract feelings of outsideness, especially when moving, people may be able to develop place attachments through an active interest in the new place’s past. By expressing interest in the history of the place, people can help themselves feel a part of the new place and therefore foster emotional connection to their new environment. Interest in the past predicts place attachment to the same degree as residence duration, revealing that newcomers may be able to develop attachments to new places without having to live there for a while (Lewicka, 2014).

**Functions of Place Attachments**

Place attachments are comprised of three major components: place dependence, place identity, and place affect (Halpenny, 2010). Place dependence involves the functions places provide people (Halpenny, 2010), including security and survival, goal support, temporal and personal continuity (Scannell & Gifford, 2010a), and restoration (Ratcliffe & Korpela, 2016). The second construct, place identity, addresses how places contribute to self-identity (Halpenny, 2010). Places not only promote a continued sense of self (Connell, 2015; Lewicka, 2014; Low & Altman, 1992; Manzo, 2003; Proshansky et al., 1983; Scannell & Gifford, 2010a; Twigger-Ross & Uzzell, 1996), but new places may also be consciously used to create discontinuity, particularly to signal a transition in life, such as marriage or divorce (Manzo, 2003; Twigger-Ross & Uzzell, 1996). People choose environments to support their goals and needs, and the parameters/characteristics of the environment helped define their roles as individuals (Anton & Lawrence, 2014; Scannell & Gifford, 2010a). Lastly, place affect refers to the emotions associated with places, which can be negative or positive (Halpenny, 2010).
Places also provide a variety of social functions (Lewicka, 2011; Low & Altman, 1992; Proshansky et al., 1983) that may contribute as much as or even more to attachment formation than the environments themselves (Low & Altman, 1992). The neighborhood is often a place that provides interpersonal support (Porter & Rispoli, 2016), and public community areas are very important in fostering place attachments through social opportunities (Manzo, 2003). People also use places to restore and relax themselves (Korpela, Hartig, Kaiser, & Fuhrer, 2001; Porter & Rispoli, 2016; Ratcliffe & Korpela, 2016) whether in nature, the comfort of their home, or their favorite vacation spot.

The role of place in self-continuity. Places provide a sense of self-continuity through bridging the past and the present (Connell, 2015; Lewicka, 2014; Low & Altman, 1992; Manzo, 2003; Proshansky et al., 1983; Scannell & Gifford, 2010a; Twigger-Ross & Uzzell, 1996). Place identity is a cognitive substructure of self-identity that consists of cognitions relating to the physical environments that encapsulate people’s lives (Proshansky et al., 1983). One function of place is to integrate self-identity. Proshansky et al. (1983) refers to the “recognition function” (p. 66) as the familiar parts of environments that establish the sense of continuity over time and, therefore, support self-identity.

Place identity involves how places play a part in self-identity (Halpenny, 2010) by providing spaces where people can express their identities (Najafi & Kamal, 2012). Place identity is at the core of the unique activity, groundhopping. Groundhoppers travel around to different small places to watch soccer games. They enjoy feeling nostalgic through the old values and less modernized aspects of the soccer grounds. Groundhoppers are attracted to these grounds because they derive a sense of heritage and place identity that facilitates a feeling of continuity with the past (Connell, 2015). Research on favorite places shows that favorite places have a
strong relation to the self, compared to unpleasant places. Compatibility, or how well the self fits into/belongs to the place, was a major characteristic in favorite places, whereas this characteristic was not strong in unpleasant places. The results suggest that favorite places relate to the self and emotional well-being (Korpela et al., 2001).

However, the literature also reveals that places may diminish self-identity (Manzo, 2003; Proshansky et al., 1983) Self-identity can be threatened through relocation or redevelopment (Porter & Rispoli, 2016; Proshansky et al., 1983; Wilson, 2013). For instance, residents of Kuala Lumpur are undergoing a break in continuity as modern shopping malls are taking over the trading spaces in the streets (Ujang & Zakariya, 2015). However, integrating aspects of the old environment into the new environment can help with feelings of place identity (Proshansky et al., 1983). Places are spaces where people can express and affirm their identities (Najafi & Kamal, 2012), therefore, places that do not offer people opportunities to express their identities may lead to place aversion and deindividualization. The deprivation of social and physical aspects of places may lead to deindividualization, particularly in prisons and mental institutions (Proshansky et al., 1983). Furthermore, such deprivation has traumatic implications concerning the current refugee crisis in the world. Data show that migrants are at a much higher risk for mental health disorders (World Health Organization, 2017).

**Restoration.** Places can provide feelings of restoration (Korpela et al., 2001; Ratcliffe & Korpela, 2016) by giving people the chance to relax from formal roles (Low & Altman, 1992). Self-regulation is a limited resource, but it can be achieved through restoration (Korpela et al., 2001; Scannell & Gifford, 2010a). Favorite places create safe and comfortable settings, where people can reflect, problem solve, regulate emotions, and relieve stress (Scannell & Gifford, 2010a). For instance, imagining a favorite place led to increased feelings of restoration following
exposure to a vignette where participants imagined they were feeling stressed out. The affective properties, autobiographical nature, and accuracy/rehearsal of the place memory predicted the level of restoration. The stronger the memories were relived, the greater the restorative effect (Ratcliffe & Korpela, 2016). Favorite places, often natural settings, provide feelings of restoration, whereas unpleasant places have been found to consist of stressful experiences (Korpela et al., 2001). Although the literature discusses how place is often a background setting or processed unconsciously in procedural memory (Lewicka, 2014), people also consciously use place to enhance well-being, particularly by choosing favorite places to relax (Manzo, 2003).

**Needs and Goals.** People choose places that fulfill their needs (Anton & Lawrence, 2014; Cross, 2010; Low & Altman, 1992; Proshansky et al., 1983) and develop attachments to places that directly or indirectly support their goals (Anton & Lawrence, 2014; Low & Altman, 1992; Proshansky et al., 1992; Scannell & Gifford, 2010a). If you think about the places in which you spend your time, they are most likely supporting your personal goals. Places provide security, stimulation, creativity, control, facilities, and social opportunities (Low & Altman, 1992). When choosing a location people look at material dependence and features, such as housing, landscape, and job market, as well as social aspects, such as family and friends (Cross, 2015). Farmers expressed a strong attachment to their property (Gosling & Williams, 2010), because their land supports their livelihood.

**Ways to Enhance or Promote Place attachment**

Places have several characteristics that foster attachment. The design of places is significant in the formation of attachment (Firouzmakan & Daneshpour, 2015; McClinchery, 2012). Some environments are generally preferred to others (Korpela et al., 2001), however even poor environments can facilitate attachments (Proshansky et al., 1983; Wilson, 2013). The social
and design elements of places facilitate attachment, but both are not essential components of attachments (Proshansky et al., 1983).

**Design characteristics.** People prefer places where they socially connect with others (Scannell & Gifford, 2010a). For instance, Manzo (2003) cites evidence that points to the value of public, everyday meeting spots, such as cafes and pubs, to people in communities. Social relationships may be as or even more integral to attachment than the place itself (Altman & Low, 1992). In addition to the social aspect, places contain important physical features that facilitate attachment. Research underlines the importance of design in spaces (Firouzmakan & Daneshpour, 2015; McClinchey, 2012) and particularly how the use of design can enhance place attachment by making spaces that are walkable, have flexibility, use natural elements, provide open and closed spaces, enough areas to sit, and are visually pleasing and engage the senses. In her interactional framework, Cross (2015) defines the sensory process as one of the interactive processes for creating attachment. Sensory experiences can either increase or decrease attachment (Cross, 2015). Natural settings were most often chosen as favorite places (48%), followed by residential settings (19%), whereas the most often chosen unpleasant places were geographic areas, including countries, cities, streets, ‘bad parts of town’ (26%); residential places, including homes, apartments, rooms (15%); health care settings (11%); and schools (10%) (Korpela et al., 2001, p. 581).

Physical features can also influence place attachment through urban reminders (Lewicka, 2008). Urban reminders are the monuments and architecture of a place that can directly or indirectly influence place attachment. Two cities in Poland that were close in location were examined. Residents of the city, Lviv, where more urban reminders (historical structures) were present, had stronger place attachment than did residents of Wroclaw, where more modern
architecture was present (Lewicka, 2008). Monuments and memorials play a role in collective memory. Beckstead, Twose, Levesque-Gottlieb, and Rizzo (2011), highlight how the Massachusetts Vietnam War Memorial is designed to elicit emotional responses of remembrance that result in catharsis. Within the memorial, The Place of Names consists of large stones with lists of names, and “Each name represents something more than itself, something that has been permanently altered, and visitors are forced to consider all the lives that were affected by each death” (Beckstead et al., 2011, p. 206). Another example of this impact of monuments on memory, is the way the powerful quality of the Lincoln Memorial is linked to Lincoln himself, therefore shaping Americans’ memories of Lincoln as a “god-like” figure (Hirst & Manier, 2008, p. 188).

**Social Contexts.** Poor social contexts can affect good physical environments, whereas poor environmental conditions can also affect social context. Properties of the environment, such as light and noise, and other needs may influence how people respond to their environment. However, even in poor physical environments, a good social context can create positive attachments (Proshansky et al., 1983). In a toxic waste site, residents described the hazardous piles of toxic dust (chat piles), unique to their home, as beautiful (Wilson, 2013).

Furthermore, the physical design can impact the roles of individuals and how they react to their environments. For instance, children learn sex roles based on how their room looks, and people in cities develop an urban-identity to deal with city life, such as crowds and privacy (Proshansky et al., 1983). Places of residence impact place attachments (Lewicka, 2008, 2011). For instance, people living in rural areas have greater place attachment than do people from urban areas (Anton & Lawrence, 2014), and people have been shown to have slightly more attachment in open rather than gated communities (Lewicka, 2011).
The strength of place dependence is affected by perceived threat in places. When places were under threat, people developed a heightened awareness for their dependence on these places. People living in urban areas that were threatened by bushfires had similar levels of place dependence to those of rural residents, despite rural residents typically having higher place dependence than is true of urban residents. However, rural residents maintained higher levels of place identity than did urban residents living in unthreatened or threatened areas. People in rural areas were more likely to participate in the community through clubs and organizations, which may contribute to strengthened place identification. Additionally, both urban and rural residents were more attached to their homes than to their local areas. This is most likely a result of people using their homes to reflect their self-identity and expression. To facilitate greater attachment, places should be aesthetically appealing with trees, open communal areas, and opportunities for residents to become part of local organizations (Anton & Lawrence, 2014).

**Place and Pro-Environmental Behavior**

Relationships between place attachment and pro-environmental behavior have been studied fairly extensively in national parks and nature settings. People with strong place attachments are more likely to engage in pro-environmental behavior (Halpenny, 2010; Tonge, Ryan, Moore, & Beckley, 2015; Walker & Chapman, 2003), because they are more likely to want to preserve that place (Namaji & Kamal, 2012). Pro-environmental behaviors that require the most effort and commitment require stronger attachments than do behaviors that require less effort (Tonge et al., 2015; Walker & Chapman, 2003).

The strength of attachment to a place determines how likely people are to protect that place. Positive attachments can increase people’s willingness to contribute to protection efforts. The more people know about a place, the more likely that they feel responsible for the place and
will be inclined to exhibit protective actions (Halpenny, 2010). The literature supports the reciprocal relationship between attachment and protection efforts. For example, a survey at Ningaloo Marine Park in Australia found that high commitment behavior, such as donating and volunteering, showed the highest increase in place identity, compared to low commitment tasks, such as picking up litter, and medium commitment tasks, such as instructing others to pick up litter (Tonge et al., 2015). Similarly, in Point Pelee National Park in Canada, place attachment was found to be predictive of visitors’ willingness to protect the park. Visitors may experience carry-over effects, where they attribute their attachment to the national park to the environment in general, which, in turn, could lead to overall environmentally conscious behavior. However, this directionality has not been demonstrated (Halpenny, 2010). Pro-environmental behavior can increase place attachment and place attachment can increase pro-environmental behavior.

In order to assess sense of place, perspective taking, and empathy on pro-environmental intentions, participants have even taken the perspective of a national park. Visitors to Elk Island National Park in Canada who adopted the park’s perspective had increased feelings of empathy and sense of place. Empathy and sense of place affected intentions to volunteer, helped reduce poaching, and contributed to other-focused behaviors (e.g., cleaning up other visitors’ litter). Sense of place was most important to behaviors that required the most effort. Therefore, emotional attachment is important in efforts to protect the environment (Walker & Chapman, 2003). Connectedness to nature also related to how farmers addressed native vegetation on their farms. The farmers were from a farming region where the cleared land had to be revegetated. Farmers’ connection to nature revealed a modest correlation with how they dealt with vegetation on their farm, for example, by preserving native bush. However, the results also suggested that although farmers may be more motivated to protect native bush on their farm, their attachment
did not relate to on-farm pro-environmental behavior, such as replanting native bush or leaving branches on the ground for wildlife habitats, which is inconsistent with the literature. This discrepancy may be a result of the difference between behavioral intentions and actual behavior (Gosling & Williams, 2010). Environmental values may mediate the connection between connectedness to nature and pro-environmental behavior. Research (Pereira, Foster, & Darwin, 2015) assessed how values mediated the relationship between connectedness to nature and pro-environmental behavior following Stern, Dietz, Abel, Guagnano, and Kalof’s (1999) Value Belief Norm Model, which suggests that egoistic, altruistic, and biospheric values form cognitions that lead to a “positive environmental personal norm” to perform pro-environmental behaviors (Pereira et al., 2015, para. 9). Connectedness to nature was positively correlated to pro-environmental behavior, and altruistic and biospheric values were related to pro-environmental behavior. However, egoistic values were not related to pro-environmental behavior, inconsistent with the Value Belief Norm Model. The authors argue that the more concerned people feel towards the environment, the more connected they will feel and the more pro-environmental behaviors they will perform (Pereira et al., 2015).

**Other settings and pro-environmental behavior.** The link between place attachment and protection efforts has been explored in other settings as well. Immersion in a natural setting or familiarity with a specific natural setting are not necessary to increase protection efforts. Viewing a nature documentary was sufficient in strengthening connectedness to nature. People who viewed a seven minute long nature documentary compared to people who viewed a seven minute video of Einstein’s theory of relativity had increased pro-environmental behavior. When asked to pick one of eight organizations to donate to, 30.7% of people who watched the nature documentary chose a nature-related organization, compared to only 13.8% of people who
watched the Einstein video. Viewing nature documentaries instead of being physically immersed in the environment was able to increase donations to animal and environmental protection organizations. Additionally, the results suggest that the content of the show should match the content of the advertised charity to maximize donations (Arendt & Matthes, 2016).

Place attachment also fosters engagement in non-natural settings, particularly in places of residence. Young residents in a Polish town with low levels of social engagement were given an intervention to teach residents the history of their community. In the month long intervention, the residents participated in workshops, conducted their own historical research, visited museums, and interviewed the oldest residents of their towns. The interventions increased residents’ levels of place attachment, which related to an increase in participating in their communities. They had increased levels of civic engagement and generalized social trust (Stefaniak, Bilewicz, & Lewicka, 2017).

People may be more likely to protect their places of residence if those places are restorative or natural places (Devine-Wright & Howes, 2010; Scannell & Gifford, 2010b). Residents from a town characterized by scenic beauty and natural features were more opposed to a proposed wind farm than were residents of a town characterized as being run down. The residents of the scenic town had slightly higher levels of place attachment, but also were more engaged in opposition, because the industrial wind farm did not fit the character of the place and would disrupt continuity with the past. The residents of the less naturally scenic town were more likely to view the wind farm as helping climate change, were less involved in the project overall, and were less likely to agree that the farm would damage tourism or property values. There was also a general lack of consensus on the wind farm between residents of the less scenic town, possibly a result of feeling less invested, due to lower levels of place attachment (Devine-Wright
Scannell and Gifford (2010b) point out that the type of attachment is important in determining the impact of place attachment on pro-environmental behavior. Natural place attachment is a type of attachment to a place’s natural aspects, whereas civic place attachment is a type of attachment to the qualities of place associated with a city. The different types of attachment may influence environmental behavior differently, and using a broad definition of place attachment may also cause variability in the literature. To assess these types of attachment, residents from two neighboring towns in Canada were assessed; the town, Trial, had very poor environmental conditions, whereas the town, Nelson, had excellent environmental conditions. Overall, residents who were more attached to their local area were more likely to report engaging in pro-environmental behaviors. Natural place attachment was related to more pro-environmental behaviors in both towns; however, civic place attachment was only related to pro-environmental behavior in Nelson. The stronger attachment in Nelson shows that place attachment is stronger in places with good environmental conditions; however, the results also suggest that place attachment is based on factors other than the physical quality of the environment (Proshansky et al., 1983), but is also related to environmental characteristics, such as social and economic factors (Scannell & Gifford, 2010b).

**The Concept of Nostalgia**

Next, the relationships among nostalgia, emotions, and behavior will be addressed. Many people are somewhat familiar with the concept of nostalgia, because it is a well-known concept, as it happens to appear in the top 1% of words searched in the Merriam-Webster Dictionary. The basic definition of nostalgia is “a wistful or excessively sentimental yearning for return to or of some past period or irrecoverable condition” (https://www.merriam-webster.com/). Although,
this definition may appear straightforward, there are many different components, triggers, and functions of this emotion, which also comes with a complicated and misunderstood past.

Nostalgia actually has its roots in place. A second definition of nostalgia is “the state of being homesick” (https://www.merriam-webster.com/). The concept of nostalgia actually began when severe homesickness was noted in Swiss soldiers during a war in the 17th century. In 1688, a Swiss medical student, Johannes Hofer, created the word nostalgia to name the soldiers’ condition. Nostalgia stems from the word nostos, which means to return to one’s native land and the word, algos, which means pain. The pain to return to one’s native land leads to several symptoms including rumination about home, anxiety, sadness, insomnia, and even irregular heartbeat. This ‘illness’ was even thought to be caused by demons. In the 19th and early 20th centuries, nostalgia was classified as a psychiatric disorder (Routledge, 2016). However, homesickness was found to be only a peripheral, rather than central, feature of nostalgia, which provides evidence for nostalgia being a separate construct (Hepper, Ritchie, Sedikides, & Wildschut, 2012). The roots of nostalgia are evidently based on place; however, it is now recognized that one can be nostalgic for people, places, and events (Sedikides, Wildschut, Arndt, & Routledge, 2008), and nostalgic descriptions typically feature family, friends, and social occasions (Holak & Havlena, 1998).

**Components of nostalgia.** There are some conflicting views in the literature about the valence of nostalgia, as some argue it is mainly positive whereas others argue for a more bittersweet or negative composition. It is difficult to pinpoint this emotion, because it has no defining characteristic; rather, it has a set of central and peripheral features (Hepper et al., 2012). Positive affect features were discovered to be central aspects of nostalgia, whereas negative affect features were only found to be peripheral features, which supports evidence for nostalgia's
mainly positive composition (Hepper et al., 2012). The majority of the literature agrees with the conclusion that nostalgia has mainly positive emotions with some negative emotions (Barrett et al., 2010; Davalos, Merchant, Rose, Lessley, & Teredesai, 2015; Hepper et al., 2012; Reid et al., 2015; Wildschut et al., 2006). For instance, narratives of nostalgic experiences revealed that although the experiences may not be solely positive, they are usually more positive than negative (Wildschut et al., 2006), and nostalgic scents (i.e., aromas) generate greater positive than negative emotions compared to non-nostalgic autobiographical scents or nostalgic non-autobiographical scents. Scented oils with the highest correlations to nostalgia included oceans, pumpkin pie spice, apple pie, and baby powder (Reid et al., 2015). Music-evoked nostalgia replicates the bittersweet composition found in narrative and scent-evoked nostalgia, as both positive and negative emotions were predictors of the intensity of nostalgia, but the number of positive emotions experienced was a greater predictor of nostalgic experience than was the number of negative or mixed emotions (Barrett et al., 2010). Holak and Havlena (1998) agree that nostalgia is primarily a positive emotion, however they also stress that it is a complex emotion that combines pleasure and loss. Nostalgic memories have a positive relationship to pleasure, but they also have a negative relationship to dominance, which suggests a loss of power to return to the past (Holak & Havlena, 1998). The bittersweetness of nostalgia is further confirmed through an analysis of thousands of nostalgic Facebook posts. The analysis revealed that nostalgic posts were most often both positive and negative (40% of the time), followed by being only positive 37% of the time, and, lastly, only negative 6% of the time (Davalos et al., 2015). To summarize, the literature mostly contends that nostalgia is a bittersweet emotion, containing considerably more positive than negative aspects.
Additionally, memories vary on a continuum from nostalgic to autobiographical (Hepper et al., 2012). Wildschut, Sedikides, Arndt, and Routledge (2006) investigated the content, triggers, and functions of nostalgia. They discovered that nostalgic narratives most often feature the self as the protagonist, and most narratives employ redemption sequences, where people may start off facing challenges but overcome these challenges by the end (Wildschut et al., 2006). Nostalgic memories are usually fond, personally meaningful, and idealized, and often feature childhood and relationships with others (Hepper et al., 2012). One explanation for this idealization of memories suggests that people misattribute the rewarding feeling from the act of simply remembering the past to the memory itself. As an example, in a word task, the mere exposure effect biased participants’ judgments of the pleasantness of the words (Leboe & Ansons, 2006). However, Barrett et al. (2010) refute this conclusion, because nostalgia does not solely lead to positive feelings, as is the case in Leboe and Ansons’ (2006) study.

**Triggers of nostalgia.** What triggers this yearning for the past? One common trigger is negative affect and loneliness (Abeyta, Routledge, & Juhl, 2015; Wildschut et al., 2006). For instance, participants who read a negative news story had greater nostalgia than did those who read either the positive or neutral stories. Moreover, the scores on the nostalgia measure did not significantly differ between the positive and neutral groups. Additionally, loneliness has been identified as a trigger for nostalgia. This link was illustrated in an experiment where researchers manipulated participants’ levels of loneliness. Participants in the high loneliness condition, who were told that they scored above average on a loneliness measure, scored higher on all nostalgia items than did participants who were in the low loneliness condition (Wildschut et al., 2006). In another example, participants were either told that their personality would cause them to be forever alone or have successful relationships. In the future alone condition, participants reported
greater nostalgic feelings than did those in the future belongingness condition (Abeyta et al., 2015).

Nostalgia can be evoked in different ways. In research, nostalgia is often evoked through narrative reflection; however, it has also been successfully induced through music (Barrett et al., 2010), scent (Reid, et al., 2015), and even the Internet through blogging websites (Cox, Kersten, Routledge, Brown, & Van Enkevort, 2015). In order to evoke nostalgia narratively, many researchers use the Event Reflection Task (Sedikides, Wildschut, Routledge, & Arndt, 2008). In this task, participants in a nostalgia condition will recall a nostalgic event and participants in a control condition will recall an ordinary life event. They are asked to provide a short description of their event and generate four relevant keywords. Another common way to evoke nostalgia is through music. Nostalgia has been successfully induced in participants by having them either read or listen to song lyrics they deem nostalgic (Barrett et al., 2010; Routledge et al., 2011). Inducing nostalgia through scent has also been shown to be as effective as evoking nostalgia through narratives or music. Nevertheless, further research should address whether these ways to evoke nostalgia provide the same functions (Reid et al., 2015).

Functions of Nostalgia

The majority of people (79%) admit to experiencing nostalgia at least once a week or more (Wildschut et al., 2006). Considering the prevalence of this emotion in people’s lives, there must be reasons for constantly yearning for the past. Despite nostalgia's rather bleak history of being identified as an illness and mental disorder, it may actually serve several positive functions.

The social function of nostalgia. Nostalgia fills a social function in people’s lives (Abeyta et al., 2015; Hepper et al., 2012; Wildschut, Sedikides, Routledge, Arndt, & Cordaro,
The social motivational function of nostalgia increases the desire to connect with others (Abeyta et al., 2015). Reflecting on a nostalgic memory increased the importance participants placed on social goals and increased their belief that they could achieve these social goals. Reflecting on a nostalgic memory also led to greater intentions to seek goals that involved connecting with friends versus reflecting on a simple positive memory or ordinary memory. Participants who read a passage about pessimism in a relationship reported greater feelings of nostalgia than did participants who read an identical passage about pessimism concerning technology. Nostalgia was a resource for participants in the relationship pessimism condition who used nostalgia to fulfill their social goals when they felt lonely (Abeyta et al., 2015).

Although the use of nostalgia as a viable resource has been highlighted in the literature, it is important to examine how individual differences may affect the use of this resource. People’s differences in the two main orientations toward goal pursuit can affect how they experience nostalgia (Pierro, Gennaro, Klein, Kruglanski, & Higgins, 2013). Assessment orientation toward goal pursuit looks at a goal as “a means toward an end” (p. 654) and involves critical evaluation of the result. Locomotion orientation toward pursuit “entails progress or movement toward a goal as an end in itself” (p. 654). People high in assessment orientation critically evaluate themselves, whereas people high in locomotion orientation are less likely to have regret and value their progress. High assessors are more likely to use nostalgia than are high locomotors, because the former use it as a coping mechanism to help them deal with negative emotions (Pierro et al., 2013). Furthermore, the use of nostalgia in people with maladaptive coping styles was predictive of negative affect. Therefore, nostalgia does not provide benefits to all people, and the influence of individual differences in research should not be overlooked (Garrido, 2016). That being said, the literature still largely regards nostalgia as a resource for self-enhancement.
Nostalgia contributes to self-enhancement largely by facilitating social connectedness mentally or in reality (Wildschut et al., 2010). Particularly, it enhances approach motivation through social connectedness (Abeyta et al., 2015; Stephan et al., 2014). Nostalgic memories often feature the self with family and friends, which may account for their ability to reinstate social connectedness (Hepper et al., 2012). Nostalgia is able to reinstate social connectedness through regulating approach and avoidance motivation, because nostalgia is activated from avoidance behaviors, which then enhance approach behaviors. Enhanced social facilitation via nostalgia was illustrated by participants’ choices of participation in research studies. Participants were given four future research opportunities to choose from; two of the studies involved interacting with and meeting new people, whereas the other two studies did not contain a social element. The more nostalgic people were, the greater their intent to want to participate in the studies with the social element. However, this was only true for elements of nostalgia that were socially oriented and not for elements that were less socially oriented, such as music, toys, and places (Abeyta et al., 2015). Similarly, this enhanced relationship striving was represented by the distance between two chairs. When asked to set up for an interview, nostalgic participants placed the two chairs closer together than did non-nostalgic participants. The significantly reduced distance between the conditions visually displayed nostalgic participants’ enhanced social connectedness and approach motivation (Stephan et al., 2014).

**Impact of individual differences.** Relating to the discussion of individual differences, the social connectedness afforded by nostalgia may waver based on attachment style. The social connectedness granted by nostalgia is particularly beneficial to people with low avoidant attachment styles, who rely on other people more than do people with high avoidant attachment styles. Low avoidance individuals may employ nostalgia to restore feelings of social
connectedness when feeling alone. Nostalgia can either indirectly foster feelings of social connectedness when others may be unavailable or it can directly foster feelings of social connectedness when others are available. Although this effect was not significant in high avoidance individuals, all participants regardless of their attachment styles benefited from increased self-esteem and positive affect (Wildschut et al., 2010). Depending on individuals’ self-concepts, they may be influenced by nostalgia in different ways. Individuals with more agentic self-concepts are self-centered, whereas individuals with more communal self-concepts are other-focused. Nostalgic advertisements increase agentic individuals’ preferences for products by increasing self-positivity, whereas nostalgic advertising increases feelings of social-connectedness in communal individuals. However, despite the different effects nostalgia has on agentic and communal individuals, both self-concepts had increased preferences for products (Nam, Lee, Youn, & Kwon, 2016).

**Repairing social ties.** Feeling sentimental for the past can even help mend social conflicts (Abeyta et al., 2015; van Dijke, Wildschut, Leunissen, & Sedikides, 2015). People who listened to and reflected on a nostalgic song felt more optimistic and motivated to resolve a conflict with a friend (Abeyta et al., 2015) than did those who were not exposed to the nostalgic song. Nostalgia can even resolve conflict in the workplace. Workplaces with low procedural justice often create uncooperative, hierarchical environments for employees. However, nostalgia was able to increase employees’ cooperation to authorities, despite being treated unfairly. In the low procedural justice group, the participants witnessed that the authority did not look through all their tests, whereas in the high procedural justice group participants knew that authority thoroughly assessed all of their tests. The unfair treatment in the low procedural justice group lowered cooperative intentions in participants who recalled an ordinary memory, however it did
not lower cooperation in participants who recalled a nostalgic memory. Nostalgia was able to counteract the negative effects of unfair treatment through enhancing feelings of social connectedness (van Dijke et al., 2015). Additionally, the use of nostalgia in the workplace, known as organizational nostalgia, reduced turnover intentions, particularly in high burnout employees (Sedikides & Wildschut, 2017).

**Restoring self-continuity.** The ability of nostalgia to restore self-continuity, or the sense of connection between the past and the present, is fairly evident in the literature (Sedikides et al., 2016; Sedikides, Wildschut, Routledge, & Arndt, 2015). For instance, reflecting on a nostalgic memory led to greater self-continuity than did reflecting on an ordinary autobiographical memory or a positive autobiographical memory (Sedikides et al., 2015), and participants who read nostalgic lyrics reported higher levels of self-continuity than did those who read control lyrics (Sedikides et al., 2016).

Nostalgia facilitates self-continuity through social connectedness (Sedikides & Wildschut, 2017). Social connectedness mediates nostalgia’s effects on self-continuity while controlling for positive affect. Participants who recalled a nostalgic event reported greater self-continuity than did participants who recalled a lucky event. Participants who were made to feel lonely exhibited greater levels of social connectedness and self-continuity than did participants who were made to feel more socially connected. Additionally, experimentally manipulating self-continuity in participants by having them compare their present self to their self three years ago led to higher eudaimonic well-being (the degree to which people believe they are functioning at a meaningful level) than was true for participants who only reflected on their past self without relating it to the present. The researchers found evidence for a chain that nostalgia leads to social connectedness, which leads to self-continuity, which then leads to eudaimonic well-being. Social
connectedness mediated nostalgia’s relationship to self-continuity through instilling a sense of belonging (Sedikides, Wildschut, Cheung, et al., 2016).

Threats to people's well-being or intrinsic self-expression can be removed by nostalgia (Juhl, Routledge, Arndt, Sedikides, & Wildschut, 2010; Sedikides et al., 2015). For instance, participants who were exposed to an intrinsic self-threat and reflected on a nostalgic event had similar reported levels of life satisfaction and happiness than did participants who were not exposed to a self-threat or did not reflect on a nostalgic event. Self-threat was induced in participants by asking them to write down situations that made it difficult for them to be their authentic selves. When people were exposed to intrinsic self-threat, nostalgia was triggered to instill their sense of identity. Additionally, nostalgia provided people with greater access to their intrinsic self-concepts and reduced extrinsic self-focus or worrying about meeting the standards of others. These effects resulted from nostalgia’s ability to link past and present selves, therefore instilling a sense of self-continuity (Baldwin, Biernat, & Landau, 2015).

Nostalgia regulates the self by counteracting self-discontinuity through elevating self-continuity. This restorative function was examined in first-year college students who are likely struggling with feelings of self-discontinuity. The researchers induced self-discontinuity by claiming that coming to college is cutting them off from family and friends and bringing overwhelming challenges. The feelings of discontinuity in these students triggered nostalgia, which in turn increased feelings of continuity (Sedikides et al., 2015). The buffering effect nostalgia has on threat was also seen when people were reminded about their own mortality. People high in nostalgia proneness did not have increased death anxiety while thinking about their own deaths, whereas people low in nostalgia proneness did experience increased anxiety (Juhl et al., 2010).
However, nostalgia may only be a resource under certain parameters. High levels of nostalgia benefited students transitioning to college if they felt high identity continuity. These students reported greater emotional well-being, greater interest in new opportunities (such as finding a job), and viewed the challenges with their new environment as more manageable than did high nostalgic students who felt low identity continuity. High levels of nostalgia and low identity continuity may impair students’ transitions to their new environments by causing them to ruminate about their past and not take advantage of the new opportunities in the present (Iyer & Jetten, 2011). However, Sedikides, Wildschut, Cheung, et al. (2016) disagreed with Iyer and Jetten’s (2011) finding that self-continuity moderates the effect of nostalgia on well-being. The researchers (Sedikides, Wildschut, Cheung, et al.) found that the role of nostalgia on self-continuity is mediated by social-connectedness (2016).

**Impact on well-being.** Nostalgia provides many positive benefits to well-being (Baldwin & Landau, 2014; Cox et al., 2015). Nostalgia increases belongingness, meaning in life, and positive self-regard (Sedikides & Wildschut, 2017). Positive emotions induced by nostalgia increase growth oriented self-perceptions as well as growth-oriented behavioral intentions. Harnessing the power of this resource can result in positive self-growth (Baldwin & Landau, 2014). Positive effects of nostalgia on well-being have also been shown after viewing websites with nostalgic content. The use of the Internet to enhance well-being reveals that others’ nostalgic memories are sufficient in evoking nostalgia. Participants who read and viewed content from the nostalgic blogging websites, “Dear Old Love” and “Dear Old Photograph” reported greater positive affect, life satisfaction, and relationship need satisfaction than did participants who simply viewed a website with messages about daily life or Flickr (photographs that are
neutral in nostalgic content). Considering the availability of the Internet, nostalgia could be easily used to enhance well-being (Cox et al., 2015).

The ability of nostalgia to provide comfort extends to a physiological level by providing perceived warmth in cold temperatures. Cold days trigger nostalgia more often than do warmer days. Additionally, music-evoked nostalgia caused participants to believe that a cold room was warmer. Relatedly, nostalgia induced by reflection had similar results. People who reflected on a nostalgic event had greater tolerance for cold in the cold pressor task than did participants who reflected on an ordinary memory (Zhou, Wildschut, Sedikides, Chen, & Vingerhoets, 2012a).

**Meaning in life.** Nostalgia can even provide greater meaning in life (Sedikides & Wildschut, 2017). The link between nostalgia and meaning in life is mediated by social connectedness (Routledge et al., 2011). Music-evoked nostalgia was associated with feelings of being loved and that life is worthwhile (Routledge et al., 2011). In addition, nostalgia has strengthened individuals’ motivations to achieve goals by increasing meaning in life. Thinking about a nostalgic event led to higher reported meaning in life than did reflecting on a future event. Moreover, nostalgia can act as a buffer in response to threat against meaning (Routledge et al., 2011; Routledge et al., 2012). Individuals who read an essay that threatened their meaning in life responded less defensively than did individuals who were not nostalgic (Routledge et al., 2011). This buffering effect of nostalgia on threat toward meaning was replicated using abstract and representational paintings. Participants viewed either a representational painting with a straightforward meaning or an “absurd” painting where the meaning was more elusive. The participants who reflected on a nostalgic event after viewing the absurd painting had higher meaning in life scores than did participants who reflected on a non-nostalgic event, revealing nostalgia’s ability to restore meaning in life (Routledge et al., 2012). Nostalgia can also restore
meaning deficits by replenishing vitality/energy in life, and reducing stress and boredom (Sedikides & Wildschut, 2017).

**Nostalgia and Empathy**

The literature suggests that nostalgia can increase empathetic feelings (Cheung, Sedikides, & Wildschut, 2017; Cordaro, 2011). For instance, participants who recalled a nostalgic experience prior to reading an essay of an individual enduring a painful experience reported higher levels of empathy than did participants who did not previously recall a nostalgic experience (Cordaro, 2011). People who recall a nostalgic compared to an ordinary event are also more helpful. Increased helpfulness was exhibited in response to an experimenter who spilled pencils in front of participants; those in the nostalgic group picked up more pencils than did participants in the ordinary event group (Sedikides & Wildschut, 2016). Individuals high in nostalgia proneness are also more motivated to reduce prejudice toward others. This reduction in prejudice was mediated by greater empathy in the nostalgia prone individuals (Cheung, Sedikides, & Wildschut, 2017).

Literature on nostalgia claims that it is a distinct and unique emotion (van Tilburg, Bruder, Wildschut, Sedikides, & Göritz, 2018) and its effects are independent of positive affect (Tilburg, Sedikides, & Wildschut, 2015). Several studies have controlled for positive affect to ascertain that the effects are attributable to nostalgia (Sedikides et al., 2016; Stephan et al., 2014; Tilburg et al., 2015). Van Tilburg et al. (2015) tested that “the unique effects of nostalgia go above and beyond positive affect” (p. 4), by having participants either reflect on a lucky event or a nostalgic event in their lives. Despite both groups reporting positive affect, the nostalgic group showed enhanced creativity, mediated by openness to experience, over the lucky event group.
Nostalgia and Charitable Giving

As a result of nostalgia’s ability to increase empathy, research has explored nostalgia's role in charitable behavior (Ford & Merchant, 2010; Merchant, Ford, & Rose, 2011; Zhou et al., 2012b). Empathy is often associated with prosocial feelings and behaviors (Cuff, Brown, Taylor, & Howat, 2014; Seppala, Rossmando, & Doty, 2013). Social connections create a sense of similarity with others that generates positive feelings and prosocial behavior (Seppala et al., 2013). Considering nostalgia's influence on social connectedness it is reasonable to infer that feeling nostalgic facilitates prosocial behavior.

Much of the current research on the relationship between nostalgia and giving focuses on advertising and consumer behavior. Employing nostalgia in donation appeals can increase donations to organizations while simultaneously helping people deal with feelings of discontinuity, grief, and loneliness (Merchant, Ford, & Rose, 2011). Relatedly, advertisements for PBS that employed a nostalgic appeal (“Remember growing up with Kermit the Frog!”) increased levels of emotions and donation intentions compared to advertisements that relied on a neutral appeal (“Donate generously to PBS and pledge allegiance to your nation today!”) (Ford & Merchant, 2010, p. 453). Zhou et al. (2012b) assessed the impact of nostalgia or “the gift that keeps on giving” (p. 39) on charitable intentions and behavior. Participants who recalled a nostalgic event reported that they would donate more time and money to charity than did participants who recalled an ordinary event. Increased charitable intentions in nostalgic participants were mediated by empathy. After solidifying the effect of nostalgia on charitable intentions, the authors assessed how nostalgia affects actual donative behavior. In this experiment, participants were all given money to complete a series of laboratory tasks, and as they were exiting the lab some participants were exposed to a poster for a children’s charity
(Half the Sky Foundation) employing nostalgic appeals, whereas some participants were exposed to a poster for the same charity employing future-oriented appeals. The participants who were exposed to the nostalgic poster placed more money in a collection box on the way out than did participants who were exposed to the non-nostalgic poster (Zhou et al., 2012b).

One explanation for nostalgia's ability to increase donations is that it may actually weaken the desire for money (Lasaleta, Sedikides, & Vohs, 2014). People who view nostalgic advertisements are willing to pay more for products than are people who view neutral advertisements. This weakened desire for money also played out in a dictator game, where participants decided how much money to split between themselves and another participant. Participants who recalled a nostalgic event gave away 40% more money than did participants who recalled an ordinary life event. The same effect was replicated in another experiment, where participants who wrote about a nostalgic event reported decreased importance for money and a lower desire for money than did participants who wrote about an ordinary event. Furthermore, nostalgic participants indicated that they would listen to unpleasant sounds for money for a shorter amount of time than did participants who recalled an ordinary event. Nostalgic participants also showed a lower implicit desire for money, as participants who recalled a nostalgic event drew coins that were smaller in size than did participants who recalled an ordinary event. Social connectedness was found to mediate this diminished desire for money in nostalgic participants (Lasaleta et al., 2014). Collective nostalgia can also show a decreased desire for money to help ingroup members (Wildschut, Bruder, Robertson, van Tilburg, & Sedikides, 2014). Participants who experienced collective nostalgia through reflecting on a group memory paid more tokens to help another ingroup member who was treated unfairly, than did participants who reflected on a non group-related memory. This effect was stronger when social
identification with the group was high. This weakened desire for money is shown outside the laboratory as well, in families living in hazardous waste areas who were offered money to move. Interviews with these families revealed that many families declined the money offer despite warnings from experts. The author (Wilson, 2013) proposes that nostalgia “overshadowed” money (p. 60).

**Overlap Between Nostalgia and Place Attachment**

The literature on nostalgia and the literature on place attachment discusses similar functions, among them self-continuity (Sedikides et al, 2015), social-connectedness (Altman & Low, 1992; Raymond et al., 2005; Sedikides et al, 2016), goal support (Abeyta et al., 2015), self-regulation, sense of belonging (May, 2017), and self-esteem (Low & Altman, 1992; Scannell & Gifford, 2010b; Twigger-Ross & Uzzell, 1996; Wildschut et al., 2006). Nostalgia and place both provide a sense of continuity by merging the past and the present (Lewicka, 2014). Places may act as a generator of memories and these place-based memories help provide a sense of continuity (Porter & Rispoli, 2016).

Some types of nostalgia address the interaction between place and nostalgia. Place nostalgia is a type of nostalgia in which temporal displacement or a place lost in the past brings back positive memories (May, 2017). The concept of “solastalgia” has also emerged in the literature as a reaction to the emotions that stem from living in threatened environments (Albrecht et al., 2007). Solastalgia is defined as the pain of knowing that one’s place is threatened and will soon be gone/ no longer be able to provide security and comfort. This construct was formed from the words solace and nostalgia and refers to an emotional state of pre-nostalgia, where there is a feeling of loss of place before the place is lost (Albrecht et al., 2017). Tourism nostalgia is another type of nostalgia that intertwines with place and concerns how
tourists seeks a simplified, idealized outlook of a place without experiencing actual daily life (McClinchery, 2012). Tourism nostalgia is an example of how nostalgia can influence perceptions of places.

Research on place attachment has looked at how attachment plays a role in protection and donation efforts, while research on nostalgia has explored the role it plays in increasing empathy and charitable intentions and behavior, although there has been no research to the researcher’s knowledge that looks at whether nostalgia or place attachment is more effective in increasing charitable behavior. This research assessed the role place has on donation behavior. Considering the overlapping functions provided by place attachments and nostalgic feelings, it is important to compare how reflecting on a place differs from reflecting on a nostalgic memory. Low and Altman (1992) assert that place is inseparable from life experiences, which then begs the question of how separable memory is from place. There are a number of key differences between nostalgia and place attachment. Namely, place attachment is specifically connected to place, whereas nostalgia is not specific to place. Additionally, nostalgia is often an emotion based in the past, whereas this is not necessarily true for place attachment. Looking at the differences and/or similarities in recalling a favorite place, nostalgic place, or nostalgic event will help further identify the distinctions and address this question.

Thus, tying together the work on nostalgia, place attachment, charitable giving, and pro-environmental behavior, this research was designed through two studies, to examine the role of place on behavior. The first study was designed to assess how experiences of nostalgia and place attachment compare in charity selection and donative behavior. Additionally, this study was designed to assess how experiences of nostalgia and place attachment compare in reported positive affect, self-regard, meaning in life, and social connectedness. The primary goal was to
address how reflecting on a place differs from reflecting on a nostalgic event. After collecting the results of the first study, a second study was designed to evaluate the role of environmental influences. Building on the results of the first study, the second study examined the effects of exposure to nature, threatened nature, home, and urban environments on pro-environmental behavioral intentions, pro-social behavioral intentions, charity selection, and donative behavior.

**Experiment 1**

Based on the literature that suggests that nostalgia increases empathy and charitable behavior, it was hypothesized that recalling a nostalgic event would lead to higher donations than would recalling an ordinary event. Given that place attachments share many functions of nostalgia and evoke place-based memories, it was hypothesized that recalling a favorite place would lead to higher donations than would recalling an ordinary place. There should be no difference, however, in donations among those who recalled an ordinary place and those who recalled an ordinary event. At the end of the study, participants had the option of choosing from among five charities, two of them being place-based, with one being a nature-based charity and the other being a structure/landmark-based charity. Based on the literature that suggests prior content influences donation decisions and the Arendt and Matthes (2016) study that shows that watching a nature documentary increased participants likelihood of choosing to donate to a nature-based charity, it was hypothesized that recalling a place would lead to choosing a place-based charity. Furthermore, given that the content of the media should match the advertised charity to gain the most donations (Arendt & Matthes, 2016), it was hypothesized that recalling a nature-based place would lead to choosing the nature-based charity more often, whereas recalling a more structure-based place would lead to choosing the structure/landmark based charity more often. Based on the literature documenting the functions places and nostalgia
provide, it was hypothesized that a prompt that asks participants to recall a nostalgic place would lead to the most donations among all groups, because of a potential increased effect of nostalgia combined with place.

To Summarize:

**Hypotheses:**

- **H1:** Recalling a nostalgic event would lead to higher donations than would recalling an ordinary event.
- **H2:** Recalling a favorite place would lead to higher donations than would recalling an ordinary event.
- **H3:** There would be no difference in donations between those who recalled an ordinary place vs. an ordinary event.
- **H4:** Recalling a place would lead to choosing a place-based charity.
- **H5:** Recalling a nostalgic place would lead to the highest donations among all groups.
- **H6:** Recalling a nature-based place would lead to choosing the nature-based charity more often.
- **H7:** Recalling a more structure-based place would lead to choosing the structure-based charity more often.
**Method**

**Participants**

There were 253 participants in total in the following conditions: nostalgic event \((n = 47)\), ordinary event \((n = 50)\), favorite place \((n = 48)\), ordinary place \((n = 49)\), nostalgic place \((n = 59)\). There were 155 females, 97 males, and 1 not specified. The participants were recruited through Amazon Mechanical Turk, which provided access to a large and diverse sample. Participants were compensated $.50 for their participation. All participants were from the United States and had a record of at least a 97% job acceptance rate on Amazon Mechanical Turk. Mean age was 39.04 (range = 18 - 82).

**Materials** (see Appendices for informed consent, debriefing, and all scales)

**Nostalgic Induction**

For the nostalgic event group, nostalgia was induced using the Event Reflection Task (ERT) developed by Sedikides, Routledge, Arndt, Hepper, and Zhou (2015). This task asked participants to reflect on a nostalgic event, then provide a brief description of the event and list four relevant keywords. In the ordinary event condition, participants completed the control condition version of the ERT where they reflected on an ordinary event instead. Afterwards, there was a three question manipulation check to assess how nostalgic they were currently feeling. A sample item is “Right now I am feeling quite nostalgic.”

**Place Attachment Induction**

The modified version of the ERT was used in the place related conditions. For the favorite place group, the ERT task was the same, however instead of asking participants to recall a nostalgic event, they were asked to recall a favorite place. Then, as in the original ERT, participants provided a brief description and four relevant keywords. For the ordinary place
group, the control condition of ERT was used, but it asked participants to recall an ordinary place rather than an ordinary event. Afterwards, the participants answered a modified manipulation check to assess how attached they were currently feeling to their chosen place. A sample item is “Right now I am feeling quite attached to this place.”

**Nostalgic Place Induction**

For the nostalgic place group, the ERT was modified to ask participants to reflect on a nostalgic place. They then provided the description and four relevant keywords in response to their nostalgic place. Afterwards, they completed both the three item nostalgia manipulation check and the three item place attachment manipulation check.

**State Functions of Nostalgia Scale**

The State Functions of Nostalgia Scale (Hepper, Ritchie, Sedikides, & Wildschut, 2012) is a 16-item measure containing four subscales to assess positive affect ($\alpha = .86$), self-regard ($\alpha = .92$), social connectedness ($\alpha = .88$), and meaning in life ($\alpha = .92$). The items are rated on a six-point scale ranging from “strongly disagree” to “strongly agree.” A sample item under positive affect is “Thinking about this event makes me feel happy,” a sample item for self-regard is “Thinking about this event makes me feel good about myself,” a sample item for social connectedness is “Thinking about this event makes me feel I can trust others,” and a sample item for meaning in life is “Thinking about this event makes me feel life has a purpose.” For the ordinary and favorite place groups, the same scale was used however it was slightly modified to say “Thinking about this place...” instead of event. In the nostalgic place group, the items all started with “Thinking about this nostalgic place...” In this study, the scale had very good reliability, $\alpha = .95$. The subscales also had good reliability: positive affect ($\alpha = .81$), self-regard ($\alpha = .87$), social connectedness ($\alpha = .87$), and meaning in life ($\alpha = .92$).
**Charity Selection**

Participants were provided with a choice of five different charities to assess charity selection. They were informed: “We are interested in your views on charitable giving. If you were to donate, which of the following would you choose? Please carefully look at all five options before making your selection.” The five different charities to choose from were displayed in a table containing the charity’s name, logo, and brief mission statement. The mission statements were retrieved from each charity’s website and were kept to around the same length to maintain consistency. Two of the charities were place-based, one nature-based and one structure/landmark-based, and the other three were chosen based on the top categories of charities from the National Philanthropic Trust website. However, religion was excluded, because of the variety of people’s faiths and beliefs. The charities chosen were, the Environmental Design and Research Association, HistoriCorps, Share Our Strength, Sponsors for Educational Opportunity, and the National Association of Free and Charitable Clinics. The charities were chosen based on relatively similar levels of familiarity, to avoid biased selection. A sample charity, which is place-based but also includes nature, is the Environmental Design and Research Association (EDRA) and the mission statement provided is “EDRA’s purpose is to advance and disseminate research, teaching, and practice toward improving an understanding of the relationships among people, their built environments, and natural eco-systems” (http://www.edra.org/).

**Donative Behavior**

Hypothetical donative behavior was assessed by informing participants that they had a hypothetical $1 to split between the charity they selected and themselves. They had the choice to give the $1 to the charity, keep the $1 for themselves, or divide the $1 between the charity and
themselves. There was a space to type in the amount they chose to give to the charity and another space for the amount they chose to give to themselves.

**Ethical Issues**

There were no known risks or discomforts related to participating in this research beyond those experienced in everyday life.

**Procedure**

Participants were recruited through Amazon MTurk and received $.50 for participation. The study was created on Qualtrics and participants were randomly assigned to conditions by the Qualtrics randomizer function. There were five conditions: 1) nostalgic event, 2) ordinary event 3) favorite place 4) ordinary place 5) nostalgic place. Participants first provided informed consent (see Appendix E-1). Then, depending on the group to which the participants were randomly assigned, they completed the ERT or PRT (Place Reflection Task) (see Appendix A-1) for their specific condition. Participants in the nostalgic event and ordinary event (control) groups completed the ERT. The Event Reflection Task has successfully induced nostalgia in other studies.

For the Place Reflection Task, participants were given the same prompt (not including the definition of nostalgia) and tasks, however; instead of recalling a nostalgic or an ordinary place, it asked participants to generate a favorite place or an ordinary place. For the fifth condition, nostalgic place, participants were asked to recall a nostalgic place and the definition of nostalgia was provided along with the same prompt and tasks (see Appendix A-1). Participants then completed the nostalgia manipulation check and/or the place attachment manipulation check, depending on their condition (see Appendix B-1).
Following the completion of the ERT/PRT, participants in all conditions completed the State Functions of Nostalgia Scale (see Appendix C-1). Upon completion of the measure, they selected a charity out of a list that they would most like to donate to if they could. The charity choices were displayed in a table format including the charity’s logo and mission statement. There were five choices covering a broad range of categories (see Appendix D-1). The order the choices appeared in the table was randomized. After they made their hypothetical selection, participants were informed that they were receiving a hypothetical $1 to allocate between the charity they previously selected and themselves. They filled in their designated amounts in the text boxes provided. Finally, participants filled out their demographic information (see Appendix F-1) and were debriefed (see Appendix G-1).

On the state functions of nostalgia scale there were 15 questions to assess positive affect, social connectedness, self-regard, and meaning in life. Participants were excluded from analyses on this scale if they left unanswered more than two questions (that is, more than 15% of the questions). Two participants were excluded from the analyses on this scale for missing more than two questions. The mean of each question was used to replace missing data for the five participants who missed one to two questions. Participants were eliminated from analyses on charity selection, if they did not choose a charity or selected more than one option. Thirty participants had to be excluded from analyses for this part of the study for selecting more than one charity or not selecting a charity. However, all participants answered how much they would allocate to themselves or charity, and all participants were included in analyses of financial allocation.
**Content Analysis Procedure**

Each condition contained a prompt that had participants reflect on and describe either a favorite place, a nostalgic event, a nostalgic place, ordinary event, or an ordinary place. To assess the differences between responses in each condition, a content analysis was conducted. After reading through all of the responses multiple times, the content was divided into five categories; where, what, mood, when, and who. Each response was placed in one sub-category out of the five categories, based on the overall content. A total of 244 responses were coded, nine responses were eliminated from the content analysis for providing responses that did not follow the prompt they were given.

In the “where” category, the places or activities described were placed in the following subcategories: home-related, work-related, outdoor nature experiences, formal entertainment, or common places to fulfill a purpose. The home-related category contained any response that discussed a current or past home. The work-related category contained responses that mentioned places or activities at work or school. The outdoor nature experience category contained all responses that talked about a place in nature or an activity in nature, including exercising outdoors, going to the beach, trails in the woods, etc. The formal entertainment category contained any place or activity for amusement, including concerts, amusement parks, restaurants, etc. The common places to fulfill a purpose included places or activities outside of the home that did not fall into the formal entertainment or outdoor nature experience categories, but were essential places such as the grocery store and the bank. A “not specified” category was added for the few responses that did not mention where their place or event occurred.

The “what” category identified the content of the described activities. There were five subcategories: outdoor/nature-related activity, home-related activity, activity outside of the
home, work or school-related activity, and not specified. The outdoor/nature-related activity category included responses that discussed engaging in outdoor activities, such as running, hiking, relaxing on the beach, gardening, boating etc. Work or school-related activities included listening to lectures and working in offices. Examples of home-related activities included eating, doing chores, reading, watching TV, cooking, celebrating holidays, etc. Activities outside of the home included activities or events that occurred outside the home, but were not specific to nature, such as working out at the gym or running errands.

Mood was sub-categorized into four valences: positive, negative, mixed, and none. Positive mood included descriptions of places or activities that were completely positive, including feeling peaceful, relaxed, joyful, or excited. Responses were placed in the negative category if the place or activity only produced negative emotions, such as sadness, pain, or boredom. Responses were coded as mixed if they contained both positive and negative emotions, including feeling happy and sad or feeling bittersweet. Responses were coded as having no emotion if participants either did not mention emotion or expressed feeling no emotions.

Responses in the “when” category were coded as either past, present, or unclear. Responses were coded as present if the place or activity was very recent (such as yesterday) or still ongoing (“when I go there”) or if it is a current place in their life (home or work). They were coded as past if the place or activity was from the past and was described as no longer in existence or a place/event that is from their younger days or childhood. The descriptions were also all in past tense. A select few were coded as “unclear” if it was not clear whether the place/event was from the past or present.

In the “who” category responses were coded as being alone, with family and/or friends, or with others who are not family or friends. Responses were coded as alone if they described
being alone, away from the outside world, did not mention anyone else, or only talked about the self. Responses were coded under family and friends if they contained at least one family member or friend in the description. The “others” category was added to categorize responses that did not mention family or friends but mentioned being around others, who are not family or friends, in a place or while doing an activity, including people around a space, workers, teammates, bosses, etc.

Several decision rules were determined to code responses. Responses were coded in the category into which the majority of the response fit. For example, if the response discussed a lake house, placement into the home or nature categories depended on which one fit the majority of the content; if the response mainly discussed being on the lake it was placed in the nature category, whereas if it mainly discussed activities in the home, it was placed in the home category. Regarding mood, responses were put in the category that fit the overall mood of the description. For example, responses were classified as mixed mood if the person was happy during the event but now feels sad reflecting on it in the present. Also, responses were placed under mixed mood if the descriptions mentioned both positive and negative feelings, an example being, “At the lake was the only time my mother wasn’t angry at me.” The negative category was reserved for responses that solely expressed negative feelings, including annoyance, pain, sadness, and boredom.

In the “who” category, responses were coded in the alone category if they only discussed the self and did not mention anyone else. Any description that mentioned being alone, but mentioned family and friends, was placed in the family/friends category. Responses were only put in the “others” category, if the description did not mention family or friends but still discussed being around/with other people in the space, an example being shoppers in the market.
In the “when” category, places from the past that are visited/around in the present were put in the past category if the significance of the place or event was from the past, an example being visiting college many years after graduating. Responses were placed in the present category if the place was from the past but has been continuously visited and still plays a significant role in the person’s life, for example a place that someone has been going since being a child.

A second coder, unaware of the hypotheses of the study, coded a sample of responses. Thirty-eight responses (15.6%) were chosen through a random online number generator (random.org). This site generated a randomized list of numbers 1-244 and the responses that corresponded to the first 38 numbers in the list were given to the second coder. The second coder was provided with verbal instructions and received a list of decision rules and operational definitions (see Appendix H). There was good inter-rater reliability between coders. Cohen’s kappa was calculated in each subcategory. The following was the agreement in the “where” category: outdoors (κ = .87), home (κ = .90), formal entertainment (κ = .5), and common places (κ = .5). Agreement in the “what” category is as follows: nature (κ = .74), home (κ = .62), outside home (κ = .74), and work-related activities had complete agreement. In the “who” category agreement is as follows: alone (κ = .93), family and/or friends (κ = .90) and others (κ = .82). In the “when” category there was good reliability, past (κ = .77) and present (κ = .94). In the “mood” category agreement in each was as follows: positive (κ = .63), mixed (κ = .68), negative (κ = .50), and absent (κ = .63). The sub-categories that produced lower reliability were sub-categories that only had a few responses. According to Landis and Koch (1977), values between .41 and .60 indicate moderate agreement, values between .61 and .80 indicate substantial agreement, and values between .81 and .99 indicate almost perfect agreement.
Results

State functions of nostalgia. To evaluate the hypothesis that reflecting on a nostalgic event, nostalgic place, or favorite place would lead to higher scores on the State Functions of Nostalgia scale than reflecting on an ordinary event or ordinary place, a univariate analysis of variance (ANOVA) was conducted. The ANOVA compared reported state functions of nostalgia across all five conditions (ordinary place, favorite place, nostalgic place, ordinary place, and nostalgic event) to evaluate the differences between place attachment and nostalgia. The results of the ANOVA revealed a significant univariate effect for condition on score totals, $F(4, 249) = 5.95, p < .001$. Participants who reflected on an ordinary event displayed lower scores on the state functions of nostalgia scale than did participants who reflected on a favorite place ($p < .001$), nostalgic place ($p = .008$), or nostalgic event ($p = .003$). However, reflecting on an ordinary place did not lead to significantly different total scores on the state functions of nostalgia scale from reflecting on a nostalgic place, favorite place, or nostalgic event. The ordinary place and ordinary event conditions were hypothesized to lead to similar results, and although these conditions were not significantly different ($p = .094$), ordinary place participants had slightly higher overall scores that were not significantly different from the scores of participants in the nostalgic event, favorite place, and nostalgic place groups, unlike the participants’ scores in the ordinary event group. The results show similar overall scores on the functions of nostalgia scale among participants who reflected on an ordinary place, favorite place, nostalgic place, or nostalgic event (see Table 1 for Means and Standard Deviations). The similar results across these four conditions suggest that reflecting on any of the three types of places or a nostalgic event leads to similar levels of reported state functions of nostalgia.
Table 1

*Means and Standard Deviations on the Measure of State Functions of Nostalgia in Recall of Places and Events*

<table>
<thead>
<tr>
<th>Recall Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary Event</td>
<td>41</td>
<td>61.86</td>
<td>18.35</td>
</tr>
<tr>
<td>Ordinary Place</td>
<td>49</td>
<td>69.36</td>
<td>16.64</td>
</tr>
<tr>
<td>Favorite Place</td>
<td>52</td>
<td>75.54</td>
<td>12.95</td>
</tr>
<tr>
<td>Nostalgic Place</td>
<td>59</td>
<td>71.47</td>
<td>13.78</td>
</tr>
<tr>
<td>Nostalgic Event</td>
<td>46</td>
<td>73.09</td>
<td>11.80</td>
</tr>
</tbody>
</table>

*Note.* The maximum score is 90.
State functions of nostalgia subscales. The state functions of nostalgia scale has four subscales (positive affect, social connectedness, self-regard, and meaning in life). A multivariate analysis of variance was conducted to evaluate differences among conditions on the four subscales. The MANOVA revealed a significant multivariate effect for condition, $F(16, 739.96) = 3.67, p < .001$; Wilk's $\Lambda = .792$, partial $\eta^2 = .057$. Univariate analyses revealed there was a significant effect across all subscales: positive affect ($F(4, 249) = 7.38, p < .001$), social connectedness ($F(4, 249) = 7.35, p < .001$), self-regard ($F(4, 249) = 2.65, p = .034$), and meaning in life ($F(4, 249) = 3.89, p = .034$).

Positive affect. Tukey post-hoc analyses revealed that participants who reflected on an ordinary event reported lower levels of positive affect than did participants who reflected on a favorite place ($p < .001$), nostalgic event ($p = .005$), or nostalgic place ($p = .060$), and the difference in positive affect between ordinary place and ordinary event was not significant, but trending ($p = .067$). People who reflected on a favorite place also reported significantly higher positive affect than did participants who reflected on a nostalgic place, ($p = .033$), and the levels of positive affect between favorite place and ordinary place were trending ($p = .057$) (see Table 2 for Means and Standard Deviations).
Table 2

*Means and Standard Deviations on Positive Affect in Recall of Places and Events*

<table>
<thead>
<tr>
<th>Recall Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary Event</td>
<td>50</td>
<td>17.02</td>
<td>5.18</td>
</tr>
<tr>
<td>Ordinary Place</td>
<td>49</td>
<td>19.15</td>
<td>4.49</td>
</tr>
<tr>
<td>Favorite Place</td>
<td>47</td>
<td>21.31</td>
<td>2.78</td>
</tr>
<tr>
<td>Nostalgic Place</td>
<td>59</td>
<td>19.08</td>
<td>3.75</td>
</tr>
<tr>
<td>Nostalgic Event</td>
<td>46</td>
<td>19.87</td>
<td>3.32</td>
</tr>
</tbody>
</table>

*Note.* The maximum score is 24.
**Social connectedness.** Regarding social connectedness, Tukey post-hoc analyses found a significant difference at the $p < .001$ level between participants who reflected on an ordinary event and participants who reflected a nostalgic place. There was also a significant difference found between participants who reflected on an ordinary event and either a favorite place ($p = .001$) or nostalgic event ($p = .001$). However, no significant difference was found in levels of social connectedness between participants who reflected on an ordinary event or ordinary place ($p = .197$). In addition, the difference between social connectedness among the nostalgic place and ordinary place groups was trending ($p = .095$), with nostalgic place participants reporting higher levels of social connectedness than the participants in the latter group (see Table 3 for Means and Standard Deviations).
Table 3

*Means and Standard Deviations on Social Connectedness in Recall of Places and Events*

<table>
<thead>
<tr>
<th>Recall Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary Event</td>
<td>50</td>
<td>11.54</td>
<td>4.63</td>
</tr>
<tr>
<td>Ordinary Place</td>
<td>49</td>
<td>13.20</td>
<td>4.43</td>
</tr>
<tr>
<td>Favorite Place</td>
<td>46</td>
<td>14.72</td>
<td>3.75</td>
</tr>
<tr>
<td>Nostalgic Place</td>
<td>59</td>
<td>15.05</td>
<td>3.08</td>
</tr>
<tr>
<td>Nostalgic Event</td>
<td>46</td>
<td>14.56</td>
<td>3.03</td>
</tr>
</tbody>
</table>

*Note.* The maximum score is 18.
**Self-regard.** Tukey post-hoc analyses revealed participants in the ordinary event group had significantly lower self-regard than did participants in the nostalgic event group ($p = .039$) and in the favorite place group the difference from the ordinary place was trending ($p = .051$) (see Table 4 for Means and Standard Deviations).
Table 4

Means and Standard Deviations on Self-Regard in Recall of Places and Events

<table>
<thead>
<tr>
<th>Recall Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary Event</td>
<td>50</td>
<td>17.00</td>
<td>4.66</td>
</tr>
<tr>
<td>Ordinary Place</td>
<td>49</td>
<td>18.58</td>
<td>4.65</td>
</tr>
<tr>
<td>Favorite Place</td>
<td>47</td>
<td>19.38</td>
<td>4.16</td>
</tr>
<tr>
<td>Nostalgic Place</td>
<td>59</td>
<td>18.78</td>
<td>4.46</td>
</tr>
<tr>
<td>Nostalgic Event</td>
<td>46</td>
<td>19.50</td>
<td>3.30</td>
</tr>
</tbody>
</table>

Note. The maximum score is 24.
Meaning in life. Tukey post-hoc analyses showed participants who reflected on an ordinary event reported significantly lower life meaning than did participants who reflected on either a favorite place ($p = .002$) or a nostalgic event ($p = .037$) (see Table 5 for Means and Standard Deviations).
Table 5

*Means and Standard Deviations on Meaning in Life in Recall of Places and Events*

<table>
<thead>
<tr>
<th>Recall Group</th>
<th>$n$</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary Event</td>
<td>50</td>
<td>16.30</td>
<td>5.79</td>
</tr>
<tr>
<td>Ordinary Place</td>
<td>49</td>
<td>18.43</td>
<td>5.12</td>
</tr>
<tr>
<td>Favorite Place</td>
<td>47</td>
<td>20.06</td>
<td>3.99</td>
</tr>
<tr>
<td>Nostalgic Place</td>
<td>59</td>
<td>18.56</td>
<td>5.09</td>
</tr>
<tr>
<td>Nostalgic Event</td>
<td>46</td>
<td>19.15</td>
<td>3.98</td>
</tr>
</tbody>
</table>

*Note.* The maximum score is 24.
**Donative behavior.** Regarding the donation part of the study, a univariate analysis of variance was conducted to evaluate the following hypotheses: recalling a nostalgic event would lead to higher donations than would recalling an ordinary event; recalling a favorite place would lead to increased donations to charity than recalling an ordinary place; recalling an ordinary place or an ordinary event would lead to similar donations; and recalling a nostalgic place would lead to the highest donations. The difference in donations among the five groups was significant, \(F(4, 252) = 3.85, p = .005\). Tukey post-hoc analyses revealed a significant difference in the amount of money donated between participants in the favorite place condition and participants in the nostalgic event \(p = .007\) and ordinary event conditions \(p = .009\). Participants in the favorite place condition allocated the most money to charity ($0.71) and the least to self ($0.28), whereas participants in the ordinary event and nostalgic event groups similarly gave the least to charity ($0.45; $0.44) and most to themselves ($0.56; $0.55) (see Table 6 for Means and Standard Deviations of amount given to charity and self).
Table 6

Means and Standard Deviations on the Amount of Money to Charity and Self in Recall of Places and Events

<table>
<thead>
<tr>
<th>Recall Group</th>
<th>n</th>
<th>Charity</th>
<th>Self</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary Event</td>
<td>50</td>
<td>.45</td>
<td>.55</td>
<td>.39</td>
</tr>
<tr>
<td>Ordinary Place</td>
<td>49</td>
<td>.54</td>
<td>.47</td>
<td>.43</td>
</tr>
<tr>
<td>Favorite Place</td>
<td>48</td>
<td>.71</td>
<td>.29</td>
<td>.38</td>
</tr>
<tr>
<td>Nostalgic Place</td>
<td>59</td>
<td>.56</td>
<td>.43</td>
<td>.41</td>
</tr>
<tr>
<td>Nostalgic Event</td>
<td>47</td>
<td>.44</td>
<td>.56</td>
<td>.37</td>
</tr>
</tbody>
</table>

Note. Participants had $1 to split between the charity they selected and themselves.
The hypothesis that reflecting on a nostalgic event would lead to higher donations than would reflecting on an ordinary event or ordinary place was not supported, and the nostalgic event group gave the second lowest amount to charity very closely following the ordinary event group. These results suggest that recalling any of the three types of places leads to higher donations than does recalling either type of event. However, there was only a significant difference between the favorite place group and both event groups.

**Charity selection.** To evaluate the hypothesis that reflecting on a place-based prompt would lead to participants choosing a place-based charity (HistoriCorps or EDRA), a chi-square was conducted. However, condition was found to have no significant role in which charity participants selected, $\chi^2 (16, N = 229) = 13.26, p = .654$. Across every condition, the charity, Share Our Strength, was the most popular (see Table 7 for Percentages).
Table 7

Percent of Participants Who Chose Each Charity by Condition

<table>
<thead>
<tr>
<th>Charity</th>
<th>Ordinary Event (n=49)</th>
<th>Ordinary Place (n=44)</th>
<th>Favorite Place (n=43)</th>
<th>Nostalgic Place (n=52)</th>
<th>Nostalgic Event (n=41)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC</td>
<td>8.2</td>
<td>6.8</td>
<td>9.3</td>
<td>5.8</td>
<td>7.3</td>
</tr>
<tr>
<td>EDRA</td>
<td>12.2</td>
<td>4.5</td>
<td>16.3</td>
<td>7.7</td>
<td>12.2</td>
</tr>
<tr>
<td>SOS</td>
<td>51.0</td>
<td>50.0</td>
<td>48.8</td>
<td>57.7</td>
<td>56.1</td>
</tr>
<tr>
<td>SEO</td>
<td>4.1</td>
<td>9.1</td>
<td>9.3</td>
<td>15.4</td>
<td>12.2</td>
</tr>
<tr>
<td>NAFC</td>
<td>24.5</td>
<td>29.5</td>
<td>16.3</td>
<td>13.5</td>
<td>12.2</td>
</tr>
</tbody>
</table>

Note. HC = HistoriCorps, EDRA = Environmental Design Research Association, SOS = Share Our Strength, SEO = Sponsors for Educational Opportunity, NAFC = National Association of Free and Charitable Clinics
To evaluate the hypothesis further, a chi-square was conducted where place (ordinary, favorite, and nostalgic places) and event (nostalgic and ordinary events) were grouped together and place-based charities (HistoriCorps and EDRA) and non place-based charities (SOS, SEO, and NAFC) were grouped together. Reflecting on a place prompt was not associated with then choosing a place-based organization, $\chi^2 (1, N = 229) = 0.44, p = .506$ (see Table 8 for Percentages).
Table 8

Percent of Place-based and Non Place-based Charities Chosen in Place-based and Non Place-based Conditions

<table>
<thead>
<tr>
<th>Charity Type</th>
<th>Place-based Prompt (n = 139)</th>
<th>Non place-based Prompt (n = 90)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place-based</td>
<td>16.5</td>
<td>20.0</td>
</tr>
<tr>
<td>Non Place-based</td>
<td>83.5</td>
<td>80.0</td>
</tr>
</tbody>
</table>

Note. Place-based prompt includes ordinary, favorite, and nostalgic place groups; Non place-based prompt includes nostalgic and ordinary event groups; Place-based charity type includes HC and EDRA; Non place-based charity type includes SOS, SEO, and NAFC.
**Manipulation check.** To evaluate the state functions of nostalgia scale scores among participants who passed the manipulation check, an ANOVA was conducted excluding participants who failed the manipulation check. In total, 176 participants passed the manipulation check (see Table 9 for number per condition). Each condition had a three question manipulation check to assess feelings of place attachment in the place groups and feelings of nostalgia in the event groups. The nostalgic place condition had six questions, because it included both the place and nostalgia manipulation checks. The manipulation checks had participants rate their current feelings of nostalgia and/or place attachment from 1-6, with 1 feeling the least nostalgic and 6 feeling the most nostalgic on the nostalgia manipulation check and 1 feeling the least attached to the place and 6 feeling the most attached to the place on the place manipulation check.

Participants in the nostalgic event, nostalgic place, and favorite place groups were included if they had a mean score of at least 4.0 and participants in the ordinary event and ordinary place groups were included if they had a mean score less than 4.0. The scores were significantly different, $F(4, 175) = 21.41, p < .001$. Follow up tests found that the difference between the scores of the ordinary event group and the scores of the nostalgic event, nostalgic place, and favorite place groups were all significantly different at $p < .001$ (see Table 9 for Means and Standard Deviations).
Table 9

*Means and Standard Deviations on the Measure of State Functions of Nostalgia in Recall of Places and Events (Excluding Participants Who Failed the Manipulation Check)*

<table>
<thead>
<tr>
<th>Recall Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary Event</td>
<td>25</td>
<td>50.80</td>
<td>16.38</td>
</tr>
<tr>
<td>Ordinary Place</td>
<td>7</td>
<td>44.14</td>
<td>22.57</td>
</tr>
<tr>
<td>Favorite Place</td>
<td>44</td>
<td>76.27</td>
<td>12.73</td>
</tr>
<tr>
<td>Nostalgic Place</td>
<td>57</td>
<td>71.82</td>
<td>13.75</td>
</tr>
<tr>
<td>Nostalgic Event</td>
<td>43</td>
<td>73.56</td>
<td>11.36</td>
</tr>
</tbody>
</table>

*Note.* The maximum score is 90.
However, unlike the full sample results showed, the scores of the ordinary place group were significantly different at the $p < .001$ level from every group’s scores except the scores of the ordinary event group.

An ANOVA was also conducted with this sample of participants to evaluate the amount donated to charity. The difference between donations was significantly different, $F (4, 178) = 4.37, p = .002$. Follow up tests revealed that those in the favorite place group donated significantly more than those in the ordinary place ($p = .034$), nostalgic event ($p = .013$), and ordinary event ($p = .024$) groups. It was significantly different from every group except nostalgic place ($p = .197$) (see Table 10 for Means and Standard Deviations).
Table 10

Means and Standard Deviations on the Amount of Money to Charity in Recall of Places and Events (Excluding Participants Who Failed the Manipulation Check)

<table>
<thead>
<tr>
<th>Recall Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary Event</td>
<td>25</td>
<td>.44</td>
<td>.38</td>
</tr>
<tr>
<td>Ordinary Place</td>
<td>7</td>
<td>.27</td>
<td>.37</td>
</tr>
<tr>
<td>Favorite Place</td>
<td>44</td>
<td>.72</td>
<td>.37</td>
</tr>
<tr>
<td>Nostalgic Place</td>
<td>57</td>
<td>.56</td>
<td>.41</td>
</tr>
<tr>
<td>Nostalgic Event</td>
<td>43</td>
<td>.46</td>
<td>.37</td>
</tr>
</tbody>
</table>

Note. Participants had $1 to split between the charity they selected and themselves.
**Gender differences.** Several independent samples t tests were conducted to assess gender on the functions of nostalgia and on the amount donated to charity. There was no significant difference in total scores of the state functions of nostalgia scale between males ($M = 69.08, SD = 16.65$) and females ($M = 70.81, SD = 14.78$), $t(247) = .857, p = .392$. There was also no significant difference between males and females on reported levels of positive affect, social connectedness, self-regard, and meaning in life. However, females allocated significantly more of their dollar to charity ($$0.61$$) than did males ($$0.43$$), $t(250) = 3.63, p < .001$.

**Content Analysis Results**

**Where.** Several chi-square analyses were conducted to evaluate the results of the content analysis. There was an association between type of prompt received and where the responses took place (see Table 11 for Percentages) in the home-related category, $\chi^2 (4, N = 244) = 11.28, p = .024$, nature-related category, $\chi^2 (4, N = 244) = 24.22, p < .001$, formal entertainment category, $\chi^2 (4, N = 244) = 10.97, p = .027$, and common place category, $\chi^2 (4, N = 244) = 21.80, p < .001$. There was not a significant difference in the work-related category, $\chi^2 (4, N = 244) = 7.23, p = .124$. Nostalgic places were at home significantly more than were favorite places ($p = .01$). Ordinary places were at home more than were nostalgic events ($p = .047$). Favorite places were mentioned in nature significantly more than were ordinary events ($p < .001$), nostalgic places ($p = .004$), nostalgic events ($p = .001$), and ordinary places ($p < .001$). Nostalgic events included formal entertainment more than did ordinary places ($p = .003$), and the difference was trending in ordinary events ($p = .057$) and nostalgic places ($p = .064$). Ordinary events featured common places more often than did nostalgic events ($p = .011$), nostalgic places ($p = .001$), and favorite places ($p = .003$).
Table 11

*Percentage of Location Responses Mentioned by Condition*

<table>
<thead>
<tr>
<th>Location</th>
<th>Ordinary Event ((n=50))</th>
<th>Ordinary Place ((n=47))</th>
<th>Favorite Place ((n=44))</th>
<th>Nostalgic Place ((n=57))</th>
<th>Nostalgic Event ((n=46))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Exp.</td>
<td>14.0</td>
<td>14.9</td>
<td>52.3</td>
<td>24.6</td>
<td>19.6</td>
</tr>
<tr>
<td>Home</td>
<td>38.0</td>
<td>55.3</td>
<td>27.3</td>
<td>52.6</td>
<td>34.8</td>
</tr>
<tr>
<td>Work</td>
<td>14.0</td>
<td>14.9</td>
<td>0</td>
<td>12.3</td>
<td>15.2</td>
</tr>
<tr>
<td>Common Place</td>
<td>18.0</td>
<td>8.5</td>
<td>0</td>
<td>0</td>
<td>0.4</td>
</tr>
<tr>
<td>Formal Ent.</td>
<td>8.0</td>
<td>2.1</td>
<td>15.9</td>
<td>8.8</td>
<td>21.7</td>
</tr>
<tr>
<td>Not Specified</td>
<td>8.0</td>
<td>4.3</td>
<td>4.5</td>
<td>3.5</td>
<td>8.7</td>
</tr>
</tbody>
</table>
**What.** There were also significant associations in what was discussed (see Table 12 for Percentages) in the home-related category, $\chi^2 (4, N = 244) = 9.51, p = .05$ and the nature-related category, $\chi^2 (4, N = 244) = 30.05, p < .001$. However, no significant associations were found in the outside of home category, $\chi^2 (4, N = 244) = 5.71, p = .22$ and the work/school-related category, $\chi^2 (4, N = 244) = 5.93, p = .20$. People in the favorite places condition mentioned significantly fewer home-related activities than did those in nostalgic places ($p = .05$) and ordinary places conditions ($p = .011$). Participants in the favorite places condition mentioned significantly more nature-related activities than did those in the ordinary places ($p < .001$), nostalgic events ($p = .001$), nostalgic places ($p = .001$), and ordinary events ($p < .001$) conditions.
Table 12

*Percentage of What Activity Responses Mentioned by Condition*

<table>
<thead>
<tr>
<th>Activity</th>
<th>Ordinary Event ($n=50$)</th>
<th>Ordinary Place ($n=47$)</th>
<th>Favorite Place ($n=44$)</th>
<th>Nostalgic Place ($n=57$)</th>
<th>Nostalgic Event ($n=46$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Activity</td>
<td>12.0</td>
<td>19.1</td>
<td>59.1</td>
<td>26.3</td>
<td>16.4</td>
</tr>
<tr>
<td>Home Activity</td>
<td>42.0</td>
<td>51.1</td>
<td>11.7</td>
<td>43.9</td>
<td>28.3</td>
</tr>
<tr>
<td>Work Activity</td>
<td>18.0</td>
<td>14.9</td>
<td>2.3</td>
<td>12.3</td>
<td>13.0</td>
</tr>
<tr>
<td>Outside Home</td>
<td>24.0</td>
<td>10.6</td>
<td>15.9</td>
<td>14.0</td>
<td>26.1</td>
</tr>
<tr>
<td>Not Specified</td>
<td>6.0</td>
<td>4.3</td>
<td>4.5</td>
<td>3.5</td>
<td>10.9</td>
</tr>
</tbody>
</table>
Period in Time. Whether the response took place in the present, $\chi^2 (4, N = 244) = 169.60$, $p < .001$, or the past, $\chi^2 (4, N = 244) = 169.69$, $p < .001$, was associated with condition (Table 13 for Percentages). Nostalgic events and nostalgic places were more often associated with the past, whereas ordinary events, ordinary places, and favorite places were more often associated with the present.
Table 13

*Percentage of Responses based in Present or Past by Condition*

<table>
<thead>
<tr>
<th>Time</th>
<th>Ordinary Event <em>(n=50)</em></th>
<th>Ordinary Place <em>(n=47)</em></th>
<th>Favorite Place <em>(n=44)</em></th>
<th>Nostalgic Place <em>(n=57)</em></th>
<th>Nostalgic Event <em>(n=46)</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>86.0</td>
<td>95.7</td>
<td>84.1</td>
<td>7.0</td>
<td>2.2</td>
</tr>
<tr>
<td>Past</td>
<td>8.0</td>
<td>4.3</td>
<td>9.1</td>
<td>87.7</td>
<td>93.5</td>
</tr>
<tr>
<td>Unclear</td>
<td>6.0</td>
<td>0.0</td>
<td>6.8</td>
<td>5.3</td>
<td>2.2</td>
</tr>
</tbody>
</table>
**Mood.** Valence of mood in the responses was associated with the prompt received in all categories of mood: positive mood, $\chi^2(4, N = 244) = 25.18, p < .001$, negative mood, $\chi^2(4, N = 244) = 16.58, p = .002$, mixed mood, $\chi^2(4, N = 244) = 16.77, p = .002$, and no mood, $\chi^2(4, N = 244) = 11.15, p = .025$ (see Table 14 for Percentages). Favorite places were more positive than were nostalgic events ($p = .013$), ordinary events ($p < .001$), ordinary places ($p < .001$), and nostalgic places ($p < .001$). Nostalgic places produced more mixed mood responses than did nostalgic events ($p = .035$), favorite places ($p < .001$), and ordinary events ($p = .022$); ordinary places was trending ($p = .067$). Ordinary event responses featured more negative mood than did nostalgic events ($p = .036$), nostalgic places ($p = .004$), and favorite places ($p = .003$).
Table 14

*Percentage of Mood Expressed in Responses by Condition*

<table>
<thead>
<tr>
<th>Mood</th>
<th>Ordinary Event (n=50)</th>
<th>Ordinary Place (n=47)</th>
<th>Favorite Place (n=44)</th>
<th>Nostalgic Place (n=57)</th>
<th>Nostalgic Event (n=46)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>60.0</td>
<td>74.5</td>
<td>100</td>
<td>73.7</td>
<td>87.0</td>
</tr>
<tr>
<td>Negative</td>
<td>18.0</td>
<td>8.5</td>
<td>0</td>
<td>1.8</td>
<td>4.3</td>
</tr>
<tr>
<td>Mixed</td>
<td>8.0</td>
<td>10.6</td>
<td>0</td>
<td>24.6</td>
<td>8.7</td>
</tr>
<tr>
<td>Absent</td>
<td>8.0</td>
<td>6.4</td>
<td>0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
**Who.** There were also significant associations based on the prompt reflected upon and who was mentioned in the response (see Table 15 for Percentages). There was a significant association in responses that mentioned being alone, $\chi^2 (4, N = 244) = 38.30, p < .001$ and responses that mentioned family and/or friends, $\chi^2 (4, N = 244) = 46.67, p < .001$. Those in the favorite places condition mentioned being alone or did not mention anyone else more often than did those in the nostalgic events ($p < .001$) and nostalgic places ($p < .001$) conditions. Those in the ordinary places condition mentioned being alone or did not mention others more often than did those in the nostalgic events ($p < .001$) and nostalgic places conditions ($p < .001$). Those in the nostalgic events condition mentioned family and/or friends more often than did those in the ordinary places ($p < .001$), favorite places ($p = .001$), and ordinary events ($p = .007$) conditions. Those in the nostalgic places condition mentioned family and/or friends more than did those in the ordinary places ($p < .001$), favorite places ($p < .001$), and ordinary events ($p < .001$). There was not a significant association between condition and responses that mentioned others, $\chi^2 (4, N = 244) = 2.69, p = .610$. 
Table 15

*Percentage of Who Responses Mentioned by Condition*

<table>
<thead>
<tr>
<th></th>
<th>Ordinary Event <em>(n=50)</em></th>
<th>Ordinary Place <em>(n=47)</em></th>
<th>Favorite Place <em>(n=44)</em></th>
<th>Nostalgic Place <em>(n=57)</em></th>
<th>Nostalgic Event <em>(n=46)</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Who</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alone</td>
<td>44.0</td>
<td>53.2</td>
<td>52.3</td>
<td>8.8</td>
<td>17.4</td>
</tr>
<tr>
<td>Fam/Friends</td>
<td>40.0</td>
<td>27.7</td>
<td>31.8</td>
<td>82.5</td>
<td>67.4</td>
</tr>
<tr>
<td>Others</td>
<td>12.0</td>
<td>19.1</td>
<td>15.9</td>
<td>8.8</td>
<td>13.0</td>
</tr>
</tbody>
</table>

*Note.* Others = people mentioned who are not friends and family.
Discussion

Influence on functions of nostalgia. One of the primary goals of this study was to compare the differences between feelings of place attachment and nostalgia. In order to assess how place attachment compares to established functions of nostalgia, all groups completed a measure of the four functions of nostalgia: positive affect, self-regard, social-connectedness, and meaning in life. Participants who recalled an ordinary event reported the lowest levels on all four functions. These findings concur with previous findings that reflecting on an ordinary event results in lower levels of the four state functions of nostalgia (positive affect, social connectedness, self-regard, and meaning in life) than does reflecting on a nostalgic event (Sedikides & Wildschut, 2017). Participants who reflected on an ordinary event had lower overall scores than did participants in the nostalgic place, nostalgic event, and favorite place groups. These three conditions had similar overall scale totals, with the favorite place group having the highest total, only slightly above the nostalgic place and nostalgic event groups. Reflecting on a favorite place led to similar (even slightly higher) score totals than did reflecting on both nostalgic prompts, showing that favorite places had the same effect as prompts that elicited nostalgia on the established four functions of nostalgia. The effects favorite places have on nostalgic functions, may suggest that place attachment provides functions similar to those afforded by nostalgia.

It was hypothesized that reflecting on an ordinary place or ordinary event would lead to similar totals. Ordinary place scores were not significantly higher than ordinary event scores, but slightly higher. Although not significant ($p = .094$) the higher totals in the ordinary place group and the lower totals in the ordinary event group may be explained by the role place has in these four functions.
**Positive affect.** Favorite place participants reported the most positive affect and meaning in life. Reflecting on a favorite place led to significantly higher positive affect than reflecting on a nostalgic place or an ordinary event. Favorite places may lead to the expression of more positive affect than is true for nostalgic places, because literature on displacement and relocation shows that it is hard to leave places where people have many memories (Lewicka, 2014). Reflecting on nostalgic places may remind people of places they have left, such as their childhood homes, and the family memories those places held.

**Meaning in life.** Favorite place and nostalgic place participants reported significantly more meaning in life than did those in the ordinary events condition. This may be a result of the significance places have in supporting individuals’ needs and goals (Anton & Lawrence, 2014; Low & Altman, 1992; Proshansky et al., 1983; Scannell & Gifford, 2010a). People develop attachments to places that support their pursuits (Cross, 2015; Gosling & Williams, 2010; Low & Altman, 1992). Moreover, people even perceive places that satisfy their needs as more beautiful (Weinstein, Legate, & Przybylski, 2013).

**Self-regard.** Participants who reflected on nostalgic events reported the highest self-regard. The difference in self-regard in the nostalgic event group was only significant when compared with the ordinary event group, however the difference between the ordinary event group and favorite place group was trending. Nostalgia has been shown to increase positive self-regard (Wildschut et al., 2006), and trending results between the ordinary event group and favorite place suggest that favorite places may also contribute to higher self-regard.

**Social-connectedness.** Nostalgic place participants reported the most social-connectedness, with no significant differences between the social connectedness reported by those in the nostalgic event, favorite place, or ordinary place groups. However, the ordinary
place group was approaching significance and was not significantly different from the ordinary event group, which reported significantly lower social-connectedness than did the other groups. The higher levels in the place-based and nostalgic groups, may be explained by the roles places and nostalgic reflections have in connecting to others. Places provide many social functions that contribute to feelings of attachment to a place (Lewicka, 2011; Low & Altman, 1992; Proshansky et al., 1983). Nostalgia also has a social connection function and many nostalgic narratives feature close others (Holak & Havlena, 1998).

**Donative behavior.** It was hypothesized that the nostalgic groups would allocate the most money to charity, however this was not supported. Group members who recalled a favorite place gave the most to charity. These group members gave significantly more than did participants in both the ordinary and nostalgic event groups. However, the amount was not significantly different from that of the other two place groups (ordinary and nostalgic). This result is inconsistent with the literature that suggests nostalgia leads to increased donative behavior (Ford & Merchant, 2010; Zhou et al., 2012b). Despite the literature that suggests nostalgia leads to increased empathy and charitable behavior, the ordinary and nostalgic event groups gave almost identical amounts to charity. Those in the nostalgic group gave the most to themselves, which does not support Lasaleta, Sedikides, and Vohs’ (2014) finding that nostalgia weakens the desire for money. Furthermore, these two conditions gave the most money to themselves out of all five conditions.

When examining the link between nostalgia and place attachment, this suggests that the role of place is more significant in giving behavior than the role of events, even nostalgic events. The favorite place group gave significantly more than did both event groups. Additionally, the amount donated in the favorite place group was not significantly different from that of the other
two place groups. Places can serve as reminders of memories (Low & Altman, 1992) and contribute to self-identity (Halpenny, 2010), and this could potentially have a stronger effect than reflecting on a single event.

When excluding participants who failed the manipulation check, all of the donation amounts remained relatively the same, with the exception of the ordinary place group. Only a small number of participants were included, because the majority indicated feelings of place attachment. Considering most people expressed feelings of attachment, this illustrates that people feel attached to the ordinary places in their lives. When only including the individuals who reported exhibiting no attachment, only $0.27 was given to charity, compared to the previous $0.54. This difference suggests that place attachment contributes to donative behavior.

Charity selection. It was hypothesized that reflecting on a place-based prompt would lead to choosing a place-based charity. This hypothesis was not supported, which contrasts with previous literature, which suggests that the content of information participants are exposed to before selecting a charity impacts their selection, leading to a choice that matches the prior content (Arendt & Matthes, 2016). However, the content of the prompts and the charity choices were more abstractly connected than in the Arendt and Matthes (2016) design. The connection between response content and charity choice, was examined more closely through content analysis. However, the responses that discussed nature still did not make participants more likely to choose the environmental place-based organization (EDRA).

Favorite places and increased donative behavior. There are a number of explanations for why the favorite place group had the highest donations. One reason may be a difference in the content expressed among the groups. The content analysis revealed that more participants in the favorite place condition discussed nature more than participants did in other conditions. The
The majority of favorite places being natural environments supports previous literature on favorite places (Korpela et al., 2001; Newell, 1997). Literature suggests that nature can make us more likely to engage in pro-social behaviors (Weinstein, Przybylski, & Ryan, 2009; Zhang, Piff, Iyer, Koleva, & Keltner, 2014). Nature also has a restorative effect (Korpela, Ylén, Tyrväinen, & Silvennoinen, 2009; Ratcliffe & Korpela, 2016) that may have contributed to the responses. In the literature, most favorite places people identify share several characteristics that contribute to its therapeutic effect including being quiet, secluded, natural, familiar, and providing affordances (Newell, 1997).

Another explanation may involve the emotional valence of the descriptions. In the favorite place group, all participants discussed feeling positively. Although the majority of participants in the other four conditions discussed feeling positive, this uniform positivity was unique to the favorite place condition. People are more likely to help when they are in a positive mood than in a neutral mood, whereas negative mood is dependent on the costs and benefits to the individual (Weyant, 1978). Additionally, participants who reflected on a favorite place reported higher positive affect than did participants who reflected on an ordinary event and a nostalgic place, and the difference between positive affect in participants who recalled a favorite place and participants who recalled an ordinary place was approaching significance. Still, reported levels of positive affect were similar between the nostalgic event and favorite place groups, despite the discrepancy in their donation amounts. Nostalgia is claimed to be primarily positive, with some negative emotions (Barrett et al., 2010; Davalos et al., 2015; Hepper et al., 2012; Reid et al., 2015; Wildschut et al., 2006). This facilitation of bittersweet emotions as a result of longing for the good times of the past, may contribute to negative affect. Negative affect has been shown to decrease donative behavior (Underwood et al., 1974).
**Discussion of content analysis.** The content analysis revealed that the majority of responses in all conditions were mostly positive to some degree. In the nostalgic place condition about a quarter of responses were either mixed or negative mood and in the nostalgic event condition some, but even fewer, responses were in these two categories. Ordinary events produced the highest percentage of negative responses and absent mood. Ordinary places had the second most mixed responses followed by nostalgic place, and the second most negative responses followed by ordinary events. Ordinary events and ordinary places both had some responses absent of mood, but no responses in the favorite place, nostalgic place, or nostalgic event groups failed to express mood, possibly due to the higher emotional content of those places/events.

The results of the content analysis provide some insight into the type of places and activities chosen in regard to prompt. Nostalgic events and places generally mentioned family and/or friends. When prompted to think of a nostalgic place, participants most often mentioned some type of home, such as childhood homes or family members’ homes. Those in the ordinary places condition also mentioned homes most frequently, however usually these were current homes. The highest percentage of ordinary events and nostalgic events took place at a home, with ordinary events typically featuring a current home and nostalgic events featuring a home from the past. Places from childhood, such as the home or school, are important in people’s lives because they serve as reminders of childhood memories and help establish self-continuity (Low & Altman, 1992; Twigger-Ross & Uzzell, 1996). Favorite places most often mentioned outdoor nature experiences (52.3%), which supports previous literature on favorite places (Korpela et al., 2001). The majority of favorite place responses also focused on an outdoor or nature-based activity.
Whether the places and events were from the past or the present depended on condition. Ordinary events, ordinary places, and favorite places were largely based in the present, whereas nostalgic places and nostalgic events were mainly from the past. Only 9.1% of favorite places were mentioned in the past, whereas 87.7% of nostalgic places were mentioned in the past, ruling out the possibility for overlap between nostalgic places and favorite places. The focus on the past in nostalgic responses supports previous research on the past being an integral part of nostalgia’s profile (van Tilburg et al., 2018).

The type of event or place affected who was mentioned in responses. A response was coded as ‘alone’ if the response mentioned being alone or did not mention others. The majority of responses in the ordinary places and favorite places conditions fit the condition alone criteria. The majority of responses in the nostalgic places and nostalgic events conditions included family and/or friends. Ordinary events were more split between being alone or with family and/or friends. People may choose favorite places where they can be alone, because favorite places help in self-regulation and restoration (Korpela et al., 2001; Scannell & Gifford, 2010a), and these settings create opportunities to reflect, relieve stress, and problem solve (Scannell & Gifford, 2010a). Featuring friends and/or family in nostalgic response supports Hepper et al. (2012). The increased inclusion of family and friends in the nostalgic responses, may be explained by nostalgia’s social connection function, which increases the drive to connect with others (Abeyta et al., 2015; Stephan et al., 2014).

**Future directions**

These results suggest that favorite places increase generosity. In order to increase donations, appeals to favorite places may help maximize donations. This may be relevant to more place-oriented charities. Future work should examine what led to the most charitable
behavior in the favorite place condition. Favorite places may have a specific quality, such as nature, that promotes donative behavior, or the increase in donative behavior may be a combination of different attributes, such as positive affect and nature. Further examining the aspects of favorite places that increase donative behavior could be beneficial to charitable campaigns. Future work could also address the effect favorite places may have on empathy and prosocial tendencies and behaviors. The role place has on donative behavior could further be examined, as all three place groups donated more money than did both event groups.

Assessing the influence of different environments on empathy and donative behavior would be helpful to understand the specific characteristics that led to increased donative behavior among favorite place reflections. The influence of environmental design and emotions evoked by favorite places could be assessed. It is first essential to identify what makes favorite places unique from nostalgic places, nostalgic events, ordinary places, and ordinary events. The role of different types of favorite places could be looked at by asking participants to reflect on a favorite natural place, a favorite urban place, etc. Learning how favorite places influence generosity could lead to a better understanding of how to promote donative behavior to support environmental preservation.
Experiment 2

Introduction

Experiment 1 revealed that reflecting on a favorite place led to the highest donative behavior, and the majority of favorite places people reported were natural settings. These results prompted further investigation into the role nature has on generosity, as well as pro-social and pro-environmental behaviors. As a result, a second experiment was undertaken to pursue these issues.

Nature has been shown to make people more caring, generous (Weinstein, Przybylski, & Ryan, 2009), and helpful (Zhang, Piff, Iyer, Koleva, & Keltner, 2014). Viewing images of nature leads to higher valuing of extrinsic aspirations, whereas viewing images of urban settings leads to higher valuing of intrinsic (selfish) aspirations. Additionally, simply placing plants in the lab where participants took the study increased the amount of money they decided to give to another participant. This simple incorporation of nature into the space significantly increased generosity (Weinstein et al., 2009). Karmanov and Hamel (2008), moving beyond the “urban versus nature dichotomy,” suggest that attractive built environments have the same restorative potential as natural environments.

Additional research by Weinstein and Przybylski, in addition to Legate (2013), suggests that the relationships and experiences people have in spaces make them perceive their physical environments as more beautiful. When participants imagined their childhood homes, the amount of need satisfaction (closeness to others, accomplishments, and expressiveness) experienced in the spaces of their homes related to perceptions of their home’s beauty. A second study included the role of nostalgia in perceptions of beauty, and showed that the effects of need satisfaction on beauty were mediated by nostalgia and happiness. The influence of need satisfaction on
perceptions of beauty was not only found in past spaces, but current spaces in participants’ lives as well. Furthermore, causal support was found between need satisfaction and perceptions of beauty, by manipulating levels of relatedness among participants. Participants in the high relatedness condition (high support from other participants) rated the laboratory environment as more beautiful than did the participants in the moderate relatedness condition. This research shows the importance of the role of significant spaces on judgments. Spaces have also been shown to affect the judgements of faces. Participants in aesthetically pleasing rooms rated faces as having more energy and well-being than did participants in average or ugly rooms (Maslow & Mintz, 1956). These studies both reflect the strength of environmental influences.

The following research was designed to explore the role childhood homes have on prosocial behavioral intentions and generosity to further move beyond the “urban versus nature dichotomy” (Karmanov & Hamel, 2008). Expanding on the literature that suggests nature contributes to prosocial behavior, whereas urban environments contribute to more selfishly motivated behaviors, this research examined the role of the childhood home on prosocial behavior intentions and charitable giving. This research expands on the literature that nature increases pro-social behaviors, by including a destroyed/threatened natural environment condition. Participants in this condition viewed images of destroyed natural scenes, such as scenes of deforestation. More beautiful natural scenes have led to more pro-social behaviors than have less aesthetically pleasing natural scenes (Zhang et al., 2014). The images in the natural environment condition are more aesthetically pleasing than the images of the destroyed condition, however, the destroyed natural environment images may make participants more concerned about the environment. Literature has shown that the more concerned people are for
the environment, the more connected to nature they feel, and the more likely they are to perform pro-environmental behaviors (Pereira & Forester, 2015).

Additionally, this research examined how the content of each condition impacts charity selection. Viewing a nature documentary led participants to choose to donate to a nature-based organization more often than was true for participants who watched an Einstein documentary (Arendt & Matthes, 2016). Building on this study, the current research examined whether nature not only influences pro-environmental behavior intentions and charity selection, but also how it influences participants’ generosity. Participants were given a choice of two charities: The Environmental Defense Fund (nature-based) and Habitat for Humanity (humanitarian-based as well as home-based). Instead of specifically giving participants a dollar to donate, as in Arendt and Matthes’ (2016) study, participants chose how much of the dollar they hypothetically wanted to allocate. Feeling connected to natural environments is related to pro-environmental behaviors (Rader, 2010) and general pro-social behaviors (Zhang et al., 2014). Therefore, it was hypothesized that viewing pictures of natural environments would increase not only pro-environmental behavioral intentions, but also pro-social behavioral intentions and amount allocated to charity.

Additionally, this research examined how immersion in an urban environment influences generosity, considering immersion in an urban environment leads to a higher valuing of extrinsic aspirations, such as wealth and fame (Weinstein et al., 2009). It was hypothesized that viewing images of urban environments would increase the amount allocated to self, based on the literature that suggests urban environments increase extrinsic aspirations.

Childhood homes elicit feelings of social connectedness and nostalgia (Weinstein et al., 2009), and these feelings increase prosocial tendencies and generosity (Ford & Merchant, 2010;
Merchant et al., 2011; Zhou et al., 2012). Increased feelings of social-connectedness, may cause participants to be more likely to select Habitat for Humanity than the Environmental Defense Fund, because this charity directly helps others. It was hypothesized that immersion in childhood homes should increase pro-social behavioral intentions, but it is unknown whether it will affect pro-environmental behavioral intentions.

It was hypothesized that the threatened environment condition would lead to selecting The Environmental Defense Fund charity more often and lead to higher intentions to engage in pro-environmental behaviors than would the urban condition, control condition, and the childhood homes condition.
Method

Participants

There were 252 participants in total in the following conditions: natural environment ($n = 52$), urban environment ($n = 51$), home environment ($n = 41$), threatened natural environment ($n = 53$) and control (no pictures) condition ($n = 55$). The participants were recruited through Amazon MTurk and compensated $.50 for their participation. There were 138 females and 114 males from the United States; participants had a record of at least a 97% job acceptance rate. Mean age was 38.24 (range = 20-76 years).

Materials (see Appendices for informed consent, debriefing, and all scales)

Pictures/ Environmental Manipulation

In the natural environment condition, participants viewed 50 images of nature scenes. In the urban environment condition, participants viewed 50 images of urban scenes. The images for the natural and urban environments were taken from Berman, Jonides, and Kaplan (2009). In the natural environment condition, six images from Berman et al. (2009) were removed for suggesting any threat in a natural setting, such as fallen trees, and were replaced with similar photos found online. In the threatened environment condition, there was 50 images of threatened natural environments that were found online. In order to select a sample of 50 photos that represented the most threatened environments, 10 adults, ages 19-53, were asked to rate 70 images on a 1-5 scale based on how much they perceived the environment to be threatened. The 50 images that received the highest averaged ratings were selected to be used in the study. In all three image conditions, each image was shown with a 1-5 scale of how much participants liked each image, based on the procedure of Berman et al. (2009) who used a 1-3 rating scale. A 5-point scale was used to provide the opportunity for more variability in the responses.
The Player Experience of Need Satisfaction Physical Presence Scale (Adapted Version) (Weinstein, Przybylski, & Ryan, 2009) is a 3-item scale to assess level of immersion in the environments ($\alpha = .84$). It is measured using a 5-point scale ranging from “A great deal” to “Not at all” A sample item from this scale is: “How much did the visual aspects of the environments involve you?”

Pro-environment Behavioral Intentions Scale

The Pro-environment Behavior Intentions Scale (Halpenny, 2010) is an 11-item measure assessing intentions to engage in pro-environmental behavior ($\alpha = .85$). It is measured using a 5-point scale ranging from “Not probable” to “Highly probable.” A sample item from this measure is: “Learn more about the state of the environment and how to help solve environmental problems.” In this study, the scale had very good reliability, $\alpha = .91$.

Prosocial Intentions Measure

The Pro-social Intentions Measure (Pavey, Greitemeyer, & Sparks, 2012) is a 6-item measure that assesses intentions to engage in general pro-social behaviors ($\alpha = .70$). The scale is measured using a 5-point scale ranging from “Definitely will not” to “Definitely will.” A sample item from this measure is: “go out of my way to help a friend in need.” In this study, the scale had good reliability, $\alpha = .83$.

Charity Selection

Participants were provided with a choice of two different charities to assess charity selection. There was an environment focused charity (Environmental Defense Fund) and a humanitarian focused charity (Habitat for Humanity). Each charity was accompanied with a mission statement. The Environmental Defense Fund was presented with, “Environmental
Defense Fund’s mission is to preserve the natural systems on which all life depends” (https://www.edf.org/our-mission-and-values) and Habitat for Humanity was presented with, “Habitat for Humanity brings people together to build homes, communities and hope” (https://www.habitat.org/about/mission-and-vision). This option of charities helps reveal whether natural environments lead to choosing the Environmental Defense Fund more often and whether childhood home environments lead to choosing Habitat for Humanity more often.

**Donative Behavior**

Hypothetical donative behavior was assessed by informing participants that they have a hypothetical dollar to split between the charity they selected and themselves. They have the choice to give the $1 to the charity, keep the $1 for themselves, or divide the $1 between the charity and themselves. There was a space to type in the amount they chose to give to the charity and another space for the amount they chose to give to themselves.

**Ethical Issues**

There were no known risks or discomforts related to participating in this research beyond those experienced in everyday life.

**Procedure**

Participants were recruited through Amazon MTurk and received $.50 for participation. The study was created on Qualtrics and participants were randomly be assigned to conditions by the Qualtrics randomizer function. There were five conditions: 1) natural environment, 2) urban environment 3) childhood home environment 4) threatened natural environment 5) control (no images) condition. Participants first provided informed consent (see Appendix F-2). Then, depending on the group to which the participants were randomly assigned, they were exposed to pictures of a natural environment, urban environment, threatened natural environment, no
pictures, or asked to immerse themselves in their childhood home through a prompt (see Appendix A-2). Then, participants, except those in the control group, completed the Player Experience of Need Satisfaction Physical Presence Scale Adapted Version to assess their level of immersion in the environments following the images (see Appendix B-2). Participants in the nature, urban, and threatened nature conditions completed a manipulation check to assess how much the images represented urban to nature-based scenes (see Appendix C-2). All participants then completed the Pro-social Intentions Measure (see Appendix D-2) and the Pro-environmental Behavioral Intentions Scale (see Appendix E-2).

Following the completion of these two measures, they selected a charity that they would most like to donate to if they could. There were two choices based on either humanitarian issues or environmental issues. The order in which the choices appeared was randomized. After they made their selection, participants were informed that they were receiving a hypothetical $1 to allocate between the charity they previously selected and themselves. They filled in their designated amounts in the text boxes provided. The study took around 20 minutes to complete. Finally, participants filled out their demographic information (see Appendix G-2) and were debriefed (see Appendix H-2).

Participants were excluded from the corresponding scale analyses if they left unanswered more than 15% of questions on a scale. On the Pro-environment behavior measure there were 11 questions and four participants each left unanswered one question. The unanswered questions for these participants were replaced by the overall mean of each question. Two participants were excluded from the pro-social behavioral measure for leaving unanswered one question out of the five total questions.
Results

Participants reported liking nature pictures more than the urban and threatened environment pictures. Participants in each group rated all 50 images in their condition on a 1-5 scale (1 = like very much and 5 = dislike very much). In the nature group, participants indicated an average rating of 1.85. Participants in the threatened nature \((M = 3.96)\) and urban \((M = 3.12)\) environments groups reported similar levels of preference. All participants reported high levels of immersion in their environments. The Player Experience of Need Satisfaction Physical Presence Scale Adapted Version (Weinstein et al., 2009) had three questions that were rated 1-5. The lower scores indicated more immersion in the environment. The average of the three questions in each condition is as follows: threatened environment \((M = 2.04)\), natural environment \((M = 1.74)\), urban environment \((M = 2.35)\), and home environment \((M = 1.82)\).

There were significant differences in reported levels of environmental immersion, \(F(3, 196) = 4.96, p = .002\). Participants in the nature \((p = .003)\) and childhood home \((p = .020)\) conditions reported higher levels of immersion than did participants in the urban condition. A manipulation check that asked participants to rate 1-7 how much their images were urban (1) to nature-based (7), confirmed that participants attended to the images. The average rating was 2.20 in the urban condition, 6.85 in the nature condition, and 6.53 in the threatened nature condition. An ANOVA was conducted to evaluate the manipulation check and confirmed significant differences, \(F(2, 155) = 435.47, p < .001\). The participants in the urban condition rated the images as significantly more urban-based than did participants in the nature group \((p < .001)\) and participants in the threatened nature group \((p < .001)\).

Pro-environmental behavioral intentions. An ANOVA was conducted to evaluate the different environmental conditions on pro-environmental intentions, and there was a significant
effect, $F(4, 251) = 2.57, p = .039$. It was hypothesized that the nature and threatened environment conditions would increase pro-environmental behavioral intentions. A Tukey post-hoc analysis revealed that immersion in threatened natural environments led to increased intentions to engage in pro-environmental behavior than did immersion in urban environments, $(p = .030)$ (see Table 16 for Means and Standard Deviations). However, contrary to the hypothesis, viewing images of nature did not have a significant effect on pro-environmental intentions.
Table 16

*Means and Standard Deviations of Pro-Environmental Behavioral Intentions Scores*

<table>
<thead>
<tr>
<th>Environment</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threatened Nature</td>
<td>53</td>
<td>38.09</td>
<td>8.67</td>
</tr>
<tr>
<td>Nature</td>
<td>52</td>
<td>35.10</td>
<td>9.27</td>
</tr>
<tr>
<td>Urban</td>
<td>51</td>
<td>32.39</td>
<td>10.79</td>
</tr>
<tr>
<td>Control</td>
<td>55</td>
<td>33.91</td>
<td>10.18</td>
</tr>
<tr>
<td>Home</td>
<td>41</td>
<td>33.24</td>
<td>10.75</td>
</tr>
</tbody>
</table>

*Note.* The maximum score is 55.
**Pro-social behavioral intentions.** To evaluate environmental influence on general pro-social behavioral intentions, an ANOVA was conducted. Environmental condition did not have a significant effect on the scores of the pro-social behavioral intentions measure, $F(4, 249) = .619, p = .649$ (see Table 17 for Means and Standard Deviations).
Table 17

*Means and Standard Deviations of Pro-Social Behavioral Intentions Scores*

<table>
<thead>
<tr>
<th>Environment</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threatened Nature</td>
<td>53</td>
<td>18.53</td>
<td>4.01</td>
</tr>
<tr>
<td>Nature</td>
<td>51</td>
<td>18.10</td>
<td>4.30</td>
</tr>
<tr>
<td>Urban</td>
<td>50</td>
<td>17.34</td>
<td>4.50</td>
</tr>
<tr>
<td>Control</td>
<td>55</td>
<td>17.64</td>
<td>4.55</td>
</tr>
<tr>
<td>Home</td>
<td>41</td>
<td>17.51</td>
<td>4.50</td>
</tr>
</tbody>
</table>

*Note.* The maximum score is 25.
**Donative behavior.** An ANOVA was conducted to evaluate the environmental influences on giving behavior. There was not a significant effect of environment on donation amounts, $F(4, 251) = .091, p = .985$ (see Table 18 for Means and Standard Deviations).
Table 18

Means and Standard Deviations of Amounts to Charity and Self in each Environment

<table>
<thead>
<tr>
<th>Environment</th>
<th>n</th>
<th>Charity</th>
<th>Self</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threatened Nature</td>
<td>53</td>
<td>0.55</td>
<td>0.45</td>
<td>.39</td>
</tr>
<tr>
<td>Nature</td>
<td>51</td>
<td>0.58</td>
<td>0.42</td>
<td>.40</td>
</tr>
<tr>
<td>Urban</td>
<td>50</td>
<td>0.55</td>
<td>0.45</td>
<td>.42</td>
</tr>
<tr>
<td>Control</td>
<td>55</td>
<td>0.56</td>
<td>0.36</td>
<td>.36</td>
</tr>
<tr>
<td>Home</td>
<td>41</td>
<td>0.53</td>
<td>0.39</td>
<td>.39</td>
</tr>
</tbody>
</table>

Note. Participants were given a hypothetical $1 to allocate between the charity they selected and themselves.
Charity selection. To evaluate the role of the environment on charity choice, a chi-square analysis was conducted. Environment did not influence charity choice, $\chi^2 (4, N = 251) = 5.00, p = .288$. Most participants selected Habitat for Humanity (60.6%) over the Environmental Defense Fund (39.4%). However, the natural environment condition was the only group that had a higher number of participants choose the Environmental Defense Fund than Habitat for Humanity (see Table 19 for Percentages). To evaluate the influence of nature and home-based environments on choosing a charity that was either nature or home-based, a chi-square analysis was conducted between the nature and home environmental conditions. The influence of these two environments on charity choice was approaching significance, $\chi^2 (1, N = 93) = 3.82, p = .051$. The influence of images of natural environments, compared to the control condition (no environmental manipulation), was trending, $\chi^2 (1, N = 107) = 3.29, p = .070$. Participants in the natural environment condition chose the environmental charity more often than did participants who did not receive an environmental manipulation.
Table 19

Percent of Participants Who Chose Each Charity by Condition

<table>
<thead>
<tr>
<th>Charity</th>
<th>Threatened (n=49)</th>
<th>Nature (n=44)</th>
<th>Urban (n=43)</th>
<th>Control (n=52)</th>
<th>Home (n=41)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF</td>
<td>38.5</td>
<td>51.9</td>
<td>39.2</td>
<td>34.5</td>
<td>31.7</td>
</tr>
<tr>
<td>HH</td>
<td>61.5</td>
<td>48.1</td>
<td>60.8</td>
<td>65.5</td>
<td>68.3</td>
</tr>
</tbody>
</table>

Note. EDF = Environmental Defense Fund; HH = Habitat for Humanity
Gender differences. To evaluate the differences of pro-social intentions, pro-environmental intentions, and giving behavior across gender, several independent $t$ tests were conducted. Females reported significantly higher intentions to engage in pro-social behaviors than did males, $t(250) = 5.05, p < .001$. Females reported a mean score of 19.05, whereas males reported a lower mean score of 16.37. The difference between gender and reported intentions to engage in pro-environmental behaviors was trending, $t(250) = 1.75, p = .081$. Females reported higher intentions (35.62) to contribute to the environment than did males (33.40). Females donated significantly more than did males, $t(250) = 2.48, p = .014$. Females donated $0.61$ on average, whereas males donated $0.49$ on average.
**Discussion**

Participants’ ratings of the different environments indicated that participants had a much higher preference for images of natural environments than they did of urban environments or threatened natural environments.

**Pro-environmental behavioral intentions.** Exposing participants to threatened natural environments resulted in higher intentions to perform pro-environmental behaviors, such as talking to others about environmental issues, than did exposure to urban environments. This is significant, because it expands on literature that compares the effects of natural versus urban environments. Viewing threatened natural environments led to the highest intentions to participate in pro-environmental behaviors. Although not statistically significant, the natural environment group reported the second highest intentions. The control and home groups reported similar pro-environmental intentions, closer to the mean of the urban group. This may indicate that viewing threatened natural and natural environments leads to increased intentions to participate in environmental behaviors. The higher mean in the nature condition, compared to the urban, home, and control conditions, may lend support to the connection between nature exposure and environmental attitudes and behaviors (Halpenny, 2010; Tonge et al., 2015; Walker & Chapman, 2003; Zelenski, Dopko, & Capaldi, 2015); furthermore, the influence of threatened natural environments, expands on this connection between natural environments and pro-environmental behavior.

**Pro-social behavioral intentions.** The hypothesis that natural and childhood home environments would lead to higher intentions to engage in pro-social behaviors was not supported. Although the nature and threatened nature conditions had slightly higher means than the urban, control, and home groups, these differences were not statistically significant. This
does not support the existing literature that suggests exposure to nature increases pro-social
tendencies and donative behavior (Weinstein et al., 2009; Zhang et al., 2014). Childhood home
spaces were hypothesized to increase pro-social intentions due to their social connection function
as well as their ability to elicit nostalgia (Weinstein et al., 2013). However, imagining childhood
home environments did not heighten pro-social behavior. Urban environments were
hypothesized to lead to lower pro-social intentions as well as lower donations, however, viewing
urban settings did not lead to lower pro-social behavioral intentions or donative behavior
compared to any other group. This does not support the literature that suggests viewing urban
settings increases selfishly motivated aspirations (Weinstein et al., 2009).

**Charity selection.** The hypothesis that the type of environmental manipulation received
would impact the type of charity selected was not supported. Viewing images of nature or
threatened nature did not increase preference for the environmental charity, which does not
support Arendt and Matthes (2016) who found that people who viewed a nature documentary
were much more likely to donate to a nature based organization than were other participants.
However, when individual conditions were tested against each other, there were trending results
between the nature and home groups and the nature and control groups, indicating that exposure
to nature may increase preference for an environmental charity over the home and control
groups. The home group also had the highest percentage of participants choose Habitat for
Humanity, which was expected because this charity matched the content of their environment.
The trending results of the influence of natural environments lend some support to Arendt and
Matthes’ (2016) finding that immersion in a natural environment leads to choosing to donate to
an environmental charity more than another type of charity. This research built on Arendt and
Matthes (2016) by not only looking at how immersion in natural environments influences charity
selection, but also whether it contributes to donation amount. This research suggests that viewing images of natural environments does not influence the amount participants decide to donate. Looking not only at the influence of selection, but also much donation generosity is influenced is important, because although participants may be more likely to donate to an environmental cause over another type of cause after viewing a natural environment, in order to increase donations people must first be motivated to donate. Contrary to the hypothesis, viewing threatened environments did not lead to increased selection of the environmental charity. In the threatened environment group, the percentage of participants who selected each charity was very similar to the pattern in the urban, control, and home groups. This finding does not concur with Pereira and Forester (2015) who suggest that concern for the environment makes people more likely to want to help the environment.

**Role of gender.** This research agrees with previous literature on effects of gender and pro-social and charitable behaviors. Literature suggests that females are more likely to give than are males (Carpenter et al., 2008; Radley & Kennedy, 1995). Females not only contributed more to charity, but also indicated higher intentions to engage in pro-social behaviors, such as volunteering to work for a charity or helping a friend in need, than did males.

**Conclusion.** This research suggests that viewing threatened natural environments may make people more likely to engage in pro-environmental behaviors, particularly more than is the case when viewing urban environments. These results contribute to the “urban and nature dichotomy” (Karmanov & Hamel, 2008) and suggest that viewing threatened natural environments may be more effective than natural environments in increasing pro-environmental behavior.
Although threatened environments may contribute to intentions to engage in pro-environmental behaviors, this did not seem to carry over to donative behavior. Those in the threatened environment condition donated around the same amount as those in the other four conditions. This discrepancy may be a result of the level of commitment and effort of tasks (Tonge et al., 2015; Walker & Chapman, 2003). Donations may demand stronger place attachments, compared to lower commitment tasks, such as simply talking to others about environmental issues. Future research may address this discrepancy between the willingness to help and donate.

Limitations and Future Directions

One limitation of this study is that it may have been underpowered. Including more participants may have led to a wider range of scores. In regard to charity selection, the degree of familiarity among the two charities could have confounded the environmental manipulations. Habitat for Humanity may be more well-known and, therefore, may have influenced participants’ choices. Another limitation of this study may have been the strength of the environmental manipulation. Although images have successfully been used to manipulate environments in other studies (Berman et al., 2001; Karmanov & Hamel, 2008), the images may have been needed to be viewed for a longer period of time. An alternative could also be exposure to environments through video as in Arendt and Matthes’ (2016) design, which may be more immersive than the use of static images.

The use of environmental mental imagery is also a fruitful direction for environmental manipulation. Boomsma, Pahl, and Andrade (2016) suggest that the incorporation of multisensory imagery may motivate pro-environmental behavior. Visual environmental imagery may lead to a distant view of climate change in which people do not see the environment as an
immediate issue. From a cognitive psychology standpoint, Boomsma et al. (2016) suggest that viewing images may result in relating the environment to more long-term goals, whereas the internalization of mental images can switch to more immediate, short-term goals, which are more effective in motivating behavior. An association was found between vividness of mental imagery and the number of pro-environmental thoughts reported (Boomsma et al., 2016). Therefore, the use of mental imagery, such as having participants recall visual and verbal content from a video, may be more effective in increasing pro-environmental behavior.

Future research may focus on the potential for threatened environments to increase pro-environmental behavioral intentions. Research has explored how connectedness to nature contributes to pro-environmental behavior, however the potential for threatened natural environments on pro-environmental behavior could be further examined, particularly, the role of place on behavior through mental imagery.
General Discussion

Experiments 1 and 2 were conducted to help understand the role of place on donative behavior. Experiment 1 was conducted to understand the role of different types of places and events on established functions of nostalgia (positive affect, self-regard, social-connectedness, and meaning in life) and donative behavior. Participants who expressed place attachment had similar reported scores on the functions of nostalgia scale as participants who expressed feeling nostalgic. Experiment 1 focused on the role of nostalgic and favorite places on donative behavior. After discovering that favorite places increased donative behavior, a second experiment was conducted to help understand the types of places that may contribute to donative behavior. In the first experiment, the content analysis revealed that most favorite places were natural settings and the role of nature on pro-sociality has been well-examined in the literature. Nature and urban settings are often used to explore positive and negative effects on behavior. However, simply looking at nature versus urban settings may be limiting. After establishing the significant role place has on emotions and behavior in Experiment 1, Experiment 2 was conducted to help understand the environmental influences on behavior.

Experiment 2 focused on the role of natural and home environments on donative behavior. Looking at the results from both experiments, spaces that induce nostalgia did not contribute to donative behavior. In Experiment 1, nostalgic places did not lead to increased donations over ordinary places or ordinary or nostalgic events. In Experiment 2, immersion in childhood homes via imagination did not increase donations over the control group (no environmental manipulation). Spaces in childhood homes have previously been shown to elicit nostalgia (Weinstein et al., 2013). Assuming that reflecting on spaces in childhood homes elicited nostalgia, and considering that nostalgic places did not increase donations in the first
experiment, it seems that nostalgic settings do not necessarily contribute to donative behavior. This contrasts with literature that suggests feeling nostalgic increases donative behavior (Ford & Merchant, 2010; Lasleta et al., 2014; Zhou et al., 2012b).

Favorite places led to the highest donations and threatened environments led to the highest pro-environmental behavioral intentions scores. Future research may look at threatened favorite places. Favorite places that are under threat may foster motivation, because the threat is more immediate and personal. Looking at the role of threatened favorite places connects to the literature on displacement and loss of identity (Manzo, 2003; Porter & Rispoli, 2016; Proshansky et al., 1983). Imagining favorite places being threatened, may also foster “solastalgia,” or the pain of knowing that a threatened place will soon be gone (Albrecht et al., 2017).

In order to increase charitable behavior and pro-environmental behavior, it may be helpful to appeal to people in a way that prompts people to think about their favorite natural place under threat. An appeal could prompt people to think of their favorite outdoor spot and imagine it being destroyed, such as “Think about what it would be like to lose your favorite place.” This type of appeal may also draw on mental imagery techniques, by having participants imagine themselves in a favorite place that is being destroyed. Using this kind of appeal may help participants recognize the immediacy of environmental issues, and help them directly connect to the environments, which may help counteract the removed/distant quality of images that are widely dispersed throughout the media (Boomsma et al., 2016). Future research may employ mental imagery techniques with favorite natural places under threat to motivate pro-environmental behavior.

However, Reser and Bradley (2017) argue that fear appeals regarding climate change may not be the most effective way to change behavior. They cite a number of considerations
when using fear appeals for climate change, such as balancing “how scary” the appeal is, as “too little fear may not engage or energize, too much may overwhelm” (box 2, para. 2). Fear appeals should also be accompanied by ways to take action. They list several arguments that support the use of fear appeals, including, “the motivational force of fear” and the “elaborate processing of risk information” (para. 17). However, they cite several arguments against fear appeals, such as exacerbating underlying levels of fear and the “boomerang effect” (para. 18). Due to the inconclusive nature of climate change threat communication, they suggest alternatives to promoting action, such as a focus on goal achievement and instilling a sense of personal control. The results of Experiment 2 showed that the threatened nature group had the highest mean score on the pro-environmental intentions measure and showed significantly enhanced willingness to engage in pro-environmental behaviors versus the urban group. However, the threatened nature group did not have increased donations, which may be partially caused by the issues inherent in climate change fear appeals. The images used in this research were relatively mild in threatening content, and were most likely not fear inducing to the extent of other climate change messages or imagery. Future research should further explore the role of threatening environmental appeals on willingness to take action.

Future research may also explore more specific connections between the content of the manipulation and charity. Reflecting on a past memory that directly relates to the content of the charity may be more influential in selection. For instance, those who reflect on a time when they are at the beach, swimming in the ocean, may be more likely to donate a charity to save the oceans. Nostalgia generates self-oriented feelings and empathy, and therefore donative behavior may be increased when there is enhanced identification with the target of the donative behavior. Another example of this enhanced identification, may be adults thinking back to a playground
they used to play on in childhood, and then asking the adults to contribute to building a new playground. Reflecting on nostalgic places or events, as well as imagining childhood homes, may not have increased donative behavior, because the target of the charities did not match the content of their nostalgic reflections.

Using a sample from Amazon Mechanical Turk, provided a more diverse sample in regard to race and age, however, there may also be some limitations to this sample. Although all participants had a high rating on MTurk, they may have not spent adequate time immersing themselves in their respective environments. There may also be a difference between hypothetical and actual donations, specifically in regard to this population, who are completing studies for payment. Literature suggests a discrepancy between hypothetical and real donations (Murphy, Stevens, & Weatherhead, 2004). Hypothetical bias is an issue in research, because intentions may not transfer to actual behaviors.

Conclusion

This research suggests that feelings of place attachment and nostalgia afford similar functions, and enhance positive affect, social-connectedness, self-regard, and meaning in life. Reflecting on a favorite place contributed to donative behavior, which has valuable implications for the design of charitable appeals. This research also expanded on “the urban nature dichotomy” (Karmanov & Hamel, 2008) and suggests that exposure to threatened environments (i.e., images of deforestation) increases intentions to engage in pro-environmental behaviors versus exposure to urban environments. Learning how environmental influences motivate pro-environmental behavior is essential in efforts to combat the detrimental effects of climate change.
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Nostalgia Condition
“According to the Oxford Dictionary, “nostalgia” is defined as a “sentimental longing for the past.” Please think of a nostalgic event in your life. Specifically, try to think of a past event that makes you feel most nostalgic. Bring this nostalgic experience to mind. Immerse yourself in the nostalgic experience. How does it make you feel? Please spend a couple of minutes thinking about how it makes you feel. Please write down four keywords relevant to this nostalgic event (i.e., words that describe the experience).

Using the space provided below, for the next few minutes, we would like you to write about the nostalgic event. Immerse yourself into this nostalgic experience. Describe the experience and how it makes you feel.”

Ordinary Event Condition
“Please bring to mind an ordinary event in your life. Specifically, try to think of a past event that is ordinary. Bring this ordinary experience to mind. Immerse yourself in the ordinary experience. How does it make you feel? Please spend a couple of minutes thinking about how it makes you feel. Please write down four keywords relevant to this ordinary event (i.e., words that describe the experience).

Using the space provided below, for the next few minutes, we would like you to write about the ordinary event. Immerse yourself into this experience. Describe the experience and how it makes you feel.”

Place Condition
Please think of a favorite place in your life. Bring this favorite place to mind. Immerse yourself in the favorite place. How does it make you feel? Please spend a couple of minutes thinking about how it makes you feel. Please write down four keywords relevant to this favorite place (i.e., words that describe the place).

Using the space provided below, for the next few minutes, we would like you to write about the favorite place. Immerse yourself into this favorite place. Describe the place and how it makes you feel.”

Ordinary Place Condition
“Please bring to mind an ordinary place in your life. Specifically, try to think of a place that is ordinary. Bring this ordinary place to mind. Immerse yourself in the ordinary place. How does it make you feel? Please spend a couple of minutes thinking about how it makes you feel. Please write down four keywords relevant to this ordinary place (i.e., words that describe the place).
Using the space provided below, for the next few minutes, we would like you to write about the ordinary place. Immerse yourself into this place. Describe the place and how it makes you feel.”

**Place and Nostalgia Condition**

“According to the Oxford Dictionary, “nostalgia” is defined as a “sentimental longing for the past.” Please think of a nostalgic place in your life. Specifically, try to think of a past place that makes you feel most nostalgic. Bring this nostalgic place to mind. Immerse yourself in the nostalgic place. How does it make you feel? Please spend a couple of minutes thinking about how it makes you feel. Please write down four keywords relevant to this nostalgic place (i.e., words that describe the place).

Using the space provided below, for the next few minutes, we would like you to write about the nostalgic place. Immerse yourself into this nostalgic place. Describe the place and how it makes you feel.”
Appendix B-1

**Nostalgia Manipulation Check**

The following statements refer to how you feel right now. Please indicate your agreement or disagreement by placing a number in the blank space preceding each statement. The number should be anywhere from 1 to 6, according to the following scale:

1  2  3  4  5  6

Strongly disagree  Moderately disagree  Slightly disagree  Slightly agree  Moderately agree  Strongly agree

___ Right now, I am feeling quite nostalgic
___ Right now, I am having nostalgic feelings
___ I feel nostalgic at the moment

**Place Manipulation Check**

The following statements refer to how you feel right now. Please indicate your agreement or disagreement by placing a number in the blank space preceding each statement. The number should be anywhere from 1 to 6, according to the following scale:

1  2  3  4  5  6

Strongly disagree  Moderately disagree  Slightly disagree  Slightly agree  Moderately agree  Strongly agree

___ Right now, I am feeling quite attached to this place
___ Right now, I am having feelings of attachment to this place
___ I feel attached to this place at the moment
Appendix C-1

State Functions of Nostalgia Scale

Thinking about this event . . . /Thinking about this place . . .
1. makes me feel happy*
2. puts me in a good mood*
3. makes me feel active
4. makes me feel calm
5. makes me value myself more*
6. makes me feel like I have many positive qualities*
7. makes me feel good about myself
8. makes me like myself better
9. makes me feel loved*
10. makes me feel connected to loved ones*
11. makes me feel protected
12. makes me feel I can trust others
13. makes me feel that life is worth living*
14. makes me feel life is meaningful
15. makes me feel life has a purpose
16. makes me feel there is a greater purpose to life

Items are rated from 1 (strongly disagree) to 6 (strongly agree).
positive affect (alpha = .86), self-regard (alpha = .92), social connectedness (alpha = .88), and meaning in life (alpha = .92)
Subscales: positive affect (items 1–4), self-regard (5–8), and social connectedness (9–12), and meaning in life (13–16)
(The * indicates that the questions have been used in previous measures)
1. HistoriCorps

“Our nation’s historic and cultural resources are at risk. HistoriCorps is working everyday to engage volunteers, students, youth and veterans to preserve America’s last great places, but to continue our vital work, we need your help.”

2. Environmental Design Research Association

“EDRA’s purpose is to advance and disseminate research, teaching, and practice toward improving an understanding of the relationships among people, their built environments, and natural eco-systems.”

3. Share our Strength

“No child should grow up hungry in America. But 1 in 6 children struggles with hunger. Share Our Strength’s No Kid Hungry campaign is ending childhood hunger in America by connecting kids in need with nutritious food and teaching families how to cook healthy, affordable meals.”
4. Sponsors for Educational Opportunity

“Sponsors for Educational Opportunity (SEO) provides superior educational and career programs to young people from underserved and underrepresented communities to maximize their opportunities for college and career success.”

5. National Association of Free and Charitable Clinics

“The mission of the National Association of Free and Charitable Clinics is to ensure that the medically underserved have access to affordable quality health care.”
Appendix E-1

Informed Consent

Study Title: The Effects of Emotions and Behavior

Principal Investigator: Micaela Nee
Connecticut College
270 Mohegan Avenue
New London, CT 06320
mnee@conncoll.edu

• You are being invited to participate in Micaela Nee’s research about emotions and behavior.

• This research will involve completing a short reflection and writing task followed by a series of questionnaires.

• While the direct benefits of this research to society are not known, you may learn more about how emotions contribute to behavior.

• This research will take about 30 minutes.

• There are no known risks or discomforts related to participating in this research.

• Micaela Nee can be contacted at mnee@conncoll.edu.

• Your participation is voluntary, and you may decline to answer any questions as you see fit.

• You may withdraw from the study without penalty at any time.

• Compensation for participation in this study will be $.50.

• Information you provide will be identified with a code number and NOT your name.

• You may contact the researcher who will answer any questions that you may have about the purposes and procedures of this study.

• This study is not meant to gather information about specific individuals and your responses will be combined with other participants’ data for the purpose of statistical analyses.
• You are being asked to consent to publication of the study results as long as the identity of all participants is protected.

• This research has been approved by the Connecticut College Human Subjects Institutional Review Board (IRB). Concerns about any aspect of this study may be addressed to Audrey Zakris at alzak@conncoll.edu.

By advancing this page, I confirm that I am at least 18 years of age, have read these explanations and assurances, and voluntarily consent to participate in this research on emotions and behavior.
Appendix F-1

Demographics Questionnaire

Instructions: Please complete the following demographic information.

Please indicate your gender: ________

Please indicate your age: ________

Please indicate your race: ________

Please indicate your estimated annual income: ________

Please indicate the highest degree or level of education you have completed: ________

Please indicate how often you donate per year: ________

If you donate, which charities do you donate to?: ________
Debriefing Statement

First of all, thank you for participating in this research dealing with emotions and behavior. In this research, I am comparing the donative behavior of people who exhibit feelings of nostalgia and place attachment. In addition, I am comparing how reflecting on personal places and events contributes to positive feelings. Participants for this study were all recruited through Amazon MTurk. The literature addresses the role nostalgia can have on feelings and donative behavior, however, to my knowledge, the literature does not compare donative behavior between nostalgia and place attachment, and that is the purpose of the research. By comparing the role of place, organizations can find innovative ways to increase positive feelings and donations in their campaigns.

If you have any questions or concerns about the manner in which this study was conducted, please contact the IRB Chairperson Audrey Zakriski at alzak@conncoll.edu.

If you are interested in this topic and want to read the literature in this area, you might enjoy the following articles:


You may also contact me Micaela Nee at mnee@conncoll.edu for additional resources.
Appendix H-1

Instructions for Coder

Where- the main place that is discussed or the place where the main activity that is discussed takes place.
Home-related- If the place is any type of home (childhood, current, someone else, any room)
Work-related- Includes places of work or school (offices, school, college, coaching)
Common Places- Any place used to fulfill a purpose that is not at home or in nature (gym, church, grocery store, bank)
Formal entertainment- A place outside of the home that is for entertaining purposes or for fun (concerts, amusement parks, malls, restaurants)
Outdoor Nature Experiences- Place that is in nature or outdoors (bodies of water, beaches, mountains, woods, yards, farms, gardens)

What- The main event/activity that is in the description.
Home-related activity- an activity or event that takes place at the home (cooking, eating, chores, playing games, celebrating holidays)
Work-related activity- an activity or event that takes place at work or school (school related activities, working)
Nature-related activity- an activity or event that takes place outdoors/ in nature (walking, running, hiking, boating, playing outside, relaxing on the beach, gardening)
Activity outside the Home- an activity or event that takes place outside the home, but is not specific to nature. Includes shopping, vacation spots that do not mention nature or mention other activities like shopping and eating, anywhere related to entertainment, such as amusement parks, concerts, exploring cities/monuments)

Mood
Positive- The description of the place or activity is all positive (feels peaceful, relaxed, joyful, excited)
Negative- The place or activity only produces negative emotions (sadness, pain, boredom)
Mixed Emotions- The place or activity contains both positive and negative emotions (describes feeling both happy and sad/bittersweet, describes an event as being both happy and sad)
No emotion- Person does not talk about feeling any emotions or expresses feeling no emotion.

When
Present- The place or activity is very recent (such as yesterday) or is still ongoing (when I go there) or a current place in their life (home or work). Description in present tense.
Past- A place or activity from the past. It is described as something that they cannot return to or a place/event from younger days/childhood. Description in past tense.
Unclear- Not clear whether it is a place/event from the past or present.

Who
Alone- If description describes being alone, away from the outside world or if the description does not mention anyone else, any description that only talks about the self.
Family/friends- If description contains at least one family member or friend in description, family or friends are with them in a place or doing an activity with them.
Others- Talks about others who are not family or friends in a place/ while doing an activity. Includes people around that are in the same place, workers, teammates, bosses, etc.

Decision rules:

1. Put in category that the majority of the response fits. For example, if talking about a lake house, to determine if home or nature category go with the one the fits the majority of the content, if it is discussing activities on the lake put in nature category, if discussing activities in the home, put in home category.

2. For mood put in the category that fits overall mood of the description. For example, put in mixed mood if the person was happy during event but now feels sad that it is in the past. Also, put in mixed mood if description contains both positive and negative feelings (ex. At the lake only time my mother wasn’t angry at me). The negative category should contain feelings of annoyance, pain, sadness, and boredom. The absent mood category should contain responses that do not express mood or express not feeling emotions.

3. For the who category, put in alone category if only discusses self and does not mention anyone else. If description mentions being alone but talks about family and friends being with family and friends in that event or place then put in family/friends category. Only put in others category if the description does not mention family or friends but still mentions being around/with other people in the space (ex. Shoppers in market).

4. For places that are from one’s past but still visited/around in present put in past category if the significance of the place or event was from the past (ex. Visiting college many years after graduating). Put in present category if the place mentions the past but has been continuously visited and still play a significant role in person’s life (ex. Have been going there since I was a child).
Appendix A-2

The full set of pictures for the urban and natural environment conditions can be found here:

http://www-personal.umich.edu/~bermann/RestorationPictures/

Sample images from the urban environment condition:
Sample images from the natural environment condition:
Sample images from the threatened natural environment condition:
Childhood Home Prompt:

“Think back to your childhood home - where you spent the longest period growing up. When you close your eyes, imagine being fully immersed in the environment…”

Describe each room in detail:

Living room

Bedroom

Kitchen

Dining Room
Appendix B-2

Player Experience of Need Satisfaction Physical Presence Scale - Adapted Version

How completely were all your senses engaged?

How much did you feel that you were in the places you saw?

How much did the visual aspects of the environments involve you?

*Note.* Items were rated using a 5-point scale ranging from 1 (*a great deal*) to 5 (*not at all*).
Appendix C-2

Rate the degree to which the pictures were urban to nature-based.

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Appendix D-2

Prosocial Intentions Measure

During the next 12 months (12 months was changed from prompt in the original measure which said 2 weeks, in order to match the time frame of the pro-environmental behavior scale), to what extent do you intend to:

Offer money to charity
Donate clothes or goods to a charity
Do volunteer work for a charity
Go out of my way to help a friend in need
Give up my time to do something for the community go out of my way to help a stranger in need.

Note. 1 = definitely will not; 5 = definitely will.
Appendix E-2

Pro-environment Behavioural Intentions Scale

During the next 12 months, how likely are you to participate in the following environmental behaviors:

Learn more about the state of the environment and how to help solve environmental problems.

Avoid buying products from companies with poor environmental records.

Talk to others about environmental issues.

Invest in companies that utilize green technologies.

Talk to policy makers about environmental issues.

Contribute money to environmental organizations.

Participate in organized, peaceful environmental protests.

Buy fruits and vegetables grown without pesticides or chemicals (i.e., organic food).

Join in community clean up efforts.

Pay extra for transportation if it is environmentally-friendly (e.g., a fuel efficient car).

Reduce energy and water consumption.

Note. Items are rated 1 (Not probable) to 5 (Highly probable).
Appendix F-2

Informed Consent

Study Title: Types of Environments on Behavioral Intentions

Principal Investigator: Micaela Nee
Connecticut College
270 Mohegan Avenue
New London, CT 06320
mnee@conncoll.edu

• You are being invited to participate in Micaela Nee’s research about environments and behavior.

• This research is being conducted for my honors thesis at Connecticut College under the direction of Ann Devlin, Professor of Psychology.

• This research will involve exposure to different environments via imagination or photos followed by a series of questionnaires.

• While the direct benefits of this research to society are not known, you may learn more about how types of environments contribute to behavior.

• This research will take about 20 minutes.

• There are no known risks or discomforts related to participating in this research beyond those experienced in everyday life.

• Micaela Nee can be contacted at mnee@conncoll.edu.

• Your participation is voluntary, and you may decline to answer any questions as you see fit.

• You may withdraw from the study without penalty at any time.

• Compensation for participation in this study will be $.50.

• A sample item you will see in this study is, “How likely are you to talk to others about environmental issues?”
• Information you provide will be identified with a code number and NOT your name. Responses will also be stored in a password protected server.

• You may contact the researcher who will answer any questions that you may have about the purposes and procedures of this study.

• This study is not meant to gather information about specific individuals and your responses will be combined with other participants’ data for the purpose of statistical analyses.

• You are being asked to consent to publication of the study results as long as the identity of all participants is protected.

• This research has been approved by the Connecticut College Human Subjects Institutional Review Board (IRB). Concerns about any aspect of this study may be addressed to Audrey Zakriski at alzak@conncoll.edu.

By advancing this page, I confirm that I am at least 18 years of age, have read these explanations and assurances, and voluntarily consent to participate in this research on perceptions of environments.
Appendix G-2

Demographics Questionnaire

Instructions: Please complete the following demographic information.

Please indicate your gender: ________

Please indicate your age: ________

Please indicate your race: ________

Please indicate your estimated annual income: ________

Please indicate how often you donate per year: ________

If you donate, which charities do you donate to: ________
Appendix H-2

Debriefing Statement

First of all, thank you for participating in this research dealing with environmental influences on behavior. In this research, I am comparing the donations of people immersed in natural environments, threatened natural environments, urban environments, and home environments. In addition, I am comparing how these different types of environments contribute to pro-social and pro-environmental behavioral intentions. Participants for this study were all recruited through Amazon MTurk. The literature addresses the role nature can have on increasing pro-social behaviors and donations, however, to my knowledge, the literature does not compare the role of childhood home environments or threatened natural environments on pro-social behaviors and donations, and that is the purpose of the research. To assess this, people were randomly placed in one of five different groups: natural environment, urban environment, threatened natural environment, childhood home environment, and control/no environmental manipulation. Each group, with the exception of the control group, completed an environment task, however, the task varied upon the group. In the natural environment condition, participants were exposed to images of nature; in the urban environment condition, participants were exposed to urban images; in the threatened environment condition participants were exposed to images of destroyed natural environments. In the childhood home environment condition, participants responded to a prompt that asked them to immerse themselves in different spaces of their childhood home. I asked participants to choose a charity prior to the donation section, to see if the type of environment participants were exposed to influenced their selection of either the nature-based or humanitarian-based charity. Then, participants were given a $1 to hypothetically allocate between themselves and the charity they chose to see if participants who viewed images of nature donated more money compared to participants who viewed urban scenes, because nature has been shown to increase prosocial behavior and generosity, whereas urban settings have been shown to increase personal motivations. Additionally, I wanted to see if the childhood home condition increased pro-social behaviors and donative behavior because previous literature suggests childhood homes increase connectedness with others. The items on the questionnaires assessed intentions to perform behaviors to help others and intentions to perform behaviors that benefit the environment. This research will see how different environments influence behavioral intentions to help others and the natural environment, as well as giving behavior.

If you have any questions or concerns about the manner in which this study was conducted, please contact the Connecticut College Human Subjects Institutional Review Board (IRB), Audrey Zakriski at alzak@conncoll.edu.

If you are interested in this topic and want to read the literature in this area, you might enjoy the following articles:


You may also contact me Micaela Nee at mnee@conncoll.edu for additional resources.