A dose of nature and shopping:
The restorative potential of biophilic lifestyle center designs

Abstract

This study contributes to the biophilia design paradigm in marketing by empirically demonstrating the restorative potential of lifestyle centers. Lifestyle centers, such as manicured gardens, plants, fountains, and walkways typified by trendy retail, dining, and entertainment spots, represent an expanding global retail design concept. By drawing from attention restoration theory, this research links biophilia design to human health; namely, restoration from mental fatigue and suggests a transformative benefit to lifestyle visitors. Furthermore, a series of experiments demonstrate the steadfastness of biophilia design by exploring consumers' responses to natural elements depending on the purpose of their shopping trip (browsing vs. purposeful consumption) and whether they are paying full or discounted prices. Given the restorative potential of lifestyle centers, this study shows not only the importance of their expansion but also their transformative role in enhancing both individual and societal well-being.

Keywords: Biophilia; Retail environment; Attention restoration theory; Servicescape; Transformative service research; Lifestyle centers

1. Introduction

More than a quarter century ago, Goss (1993, p. 23) noted that the harsh, concrete-laden architectural design features of regional shopping malls, with their "automobile-focused landscaping" and lack of natural and rustic elements, yielded passionless landscapes (Relph, 1976). These monolithic consumption landscapes seemingly deny shoppers meaningful experiences, encourage retail boredom (Lotz et al., 2010), and inhibit the ability to develop close bonds, or place attachments (Brocato et al., 2015), to mall locales. Indeed, contemporary retailing commentators argue that shopping malls suffer from a customer "discovery deficit" (Verde & Wharton, 2015), with shopper boredom emulating from a lack of newness and unique experiences in the mundane and expansive built environments. Many huge, enclosed shopping centers, with their lack of green spaces, tend to appeal to shoppers' casual attention (Relph, 1976); the mall itself is of little or no interest to consumers but is merely a context to serve more immediate concerns with fulfilling consumption needs. Indeed, although mall designers likely desire shopping malls to become part of local communities, the enclosed, nearly windowless designs are inadequate substitutes for the seeming loss of community characteristic of post-war American suburbs (Steward and Dickinson, 2008).

Many retailing scholars suggest that retailers (Brengman et al., 2012; Mower et al., 2012) and mall developers (Rosenbaum et al., 2016) can increase shopper interest by engaging in "demalling" (Reynold et al., 2002), a process of converting enclosed malls into open-air shopping areas and "entertailing" (i.e., the addition of entertainment-oriented services in a retail context). A key architectural design feature in open-air shopping areas is the integration of natural elements, such as greenery, water displays (fountains), and animals (e.g., birds, butterflies, squirrels), into shopping contexts that feature trendy retail and entertainment options.

Pioneering marketing researchers on this contemporary retail phenomenon have coined the term "biophilic store design" to denote a managerial strategy that "incorporates natural forms, elements, and conditions into the built [retail] environment" (Joye et al., 2010, p. 58). Along these lines, Kellert (2008, p. 5) refers to open-air malls as possessing a "restorative environmental design," or "[a] biophilic design approach that fosters beneficial contact between people and nature in modern buildings and landscapes." While Tifferet and Vilnai-Yavetz (2017) consider phytophilic design as a subcomponent of biophilic design, which refers to the use of plants in built environments.

Bitner's (1992) classic servicescape framework accounts for biophilic design. The framework posits that natural elements housed within built environments elicit evocative emotional responses within service employees and consumers that, in turn, nurture positive approach behaviors and social interaction between and among these groups within consumption settings. Bitner's contention about the suggestive allure of natural elements in consumption is linked to research in natural psychology, most notably Kaplan's (1987) perspective on the restorative health benefits of natural elements.

According to Kaplan (1987), natural elements inherently contain three dimensions that inhibit boredom: complexity (e.g., visual richness), mystery (e.g., encourages exploration of a setting), and coherence (e.g., an immediate understanding; Tang et al., 2015). Although Kaplan is referring to a person's boredom in general, Bitner (1992) extends these thoughts to consumer marketplace behavior, linking the nuances of consumption with natural settings. Thus, the presence of natural elements in shopping contexts might help inhibit consumer boredom and encourage positive shopper responses, such as spending more time and money, as a result of the restorative elements in malls' physical environment or servicescape.

Biophilic store design may offer an explanation for the increasingly popularity of lifestyle centers, despite the decline of traditional malls, including regional and super-regional centers (Nielsen, 2014; Reynolds et al., 2002). A lifestyle center refers to an open-air retail setting comprised of at least 50,000 square feet of retail space that caters to an affluent clientele. The retail space embodies the entertailing retail concept, with lifestyle centers offering diverse amenities such as dining, recreation, and entertainment, all in a setting of landscaped gardens, water elements, and gathering places (Joye et al., 2010; Nielsen, 2014; Yan and Eckman, 2009). Many lifestyle centers also feature mixed-use space, such as hotels, residential suites, and offices, albeit in the context of trendy retailing options.

Prior studies have tended to explore the impact of greenery in actual stores, window displays, shopping districts, and enclosed malls on shopper emotions, attitudes (Brengman et al., 2012), feelings of arousal and pleasure (Tifferet and Vilni-Yavetz, 2017), and well-being (Rosenbaum et al., 2016). Yet the influence of biophilia design, in the context of an open-air lifestyle center, on consumer responses or health remains relatively unexplored, despite the increasingly global popularity of this retail format (Nielsen, 2014; Yan and Eckman, 2009). Indeed, detailed understanding of biophilia design within consumption settings in general is meager (Kellert, 2008); even though green elements have long served as a source of food, medicine, shelter, and decoration for humankind (Tifferent and Vilni-Yavetz, 2017).

Thus, the goals of this article are threefold. First, the article explores a new area in retail research—namely, the restorative potential of biophilia design in the context of a lifestyle mall. The findings imply that consumers who spend time in lifestyle centers may experience some healthy benefit; namely, relief from mental fatigue. Second, by drawing from Kaplan's (1995, 2001) attention restoration theory (ART), this research bridges biophilia design and the

transformative service research paradigm (Rosenbaum et al., 2016) to show that lifestyle centers may transform consumer and even societal well-being. Specifically, the paradigm demonstrates how services, such as retailing, can improve individual and societal well-being (Anderson et al., 2013). Third, the article explores the steadfastness of biophilia design by exploring the restorative potential of natural elements when lifestyle center shoppers face three typical situations: everyday shopping, browsing versus purposeful shopping (Reynolds et al., 2012), and paying full versus discounted prices (Alford and Biswas, 2002).

The plan for the article is as follows: first, we review the biophilia literature in conjunction with ART (Kaplan, 1995; Rosenbaum et al., 2016) and the servicescape framework (Bitner, 1992; Brengman et al., 2012) to develop hypotheses for empirical testing within an experimental design. Second, we examine the impact of biophilic store design when shoppers are in two conditions: browsing versus purposeful shopping and paying full versus discounted prices. We explore these two conditions through an experimental design. We conclude the article with theoretical and managerial implications and research limitations

2. Literature review

2.1. Biophilic designs in retail settings

Biophilic store design is a relatively new concept and research paradigm in the services marketing and retailing disciplines. As previously mentioned, Joye et al. (2010) conceptualize the term “biophilic store design” to denote the integration of greenery or natural elements into retail environments and the consequential benefits of doing so. Despite the widespread use of “in-store foliage” (Brengman et al., 2012, p. 808) in retail stores, window displays (Mower et al., 2012), enclosed malls (Rosenbaum et al., 2016), and lifestyle centers (Yan and Eckman, 2009),

surprisingly few empirical studies have evaluated consumer responses to biophilic store design within commercial retail settings.

Biophilia refers to "the innately emotional affiliation of human beings to other living [natural] organisms" (Wilson, 1993, p. 31). The biophilia hypothesis posits that though people reside in urban settings and have lived experiences that are far removed from natural processes and elements, they retain an innate urge to affiliate with nature as part of their genetic narrative and biological composition (Kellert, 2008; Wilson and Kellert, 2013).

Given that human exposure to natural stimuli tends to elicit beneficial psychological and physiological responses, including reduced blood pressure, heart rate, muscular tension, and levels of stress hormones, as well as improvements in mental focus and creative problem-solving abilities (Browning, 2016), the inborn drive for people to seek out and spend time in natural settings appears to be intuitive or simply "pure evolutionary logic" (Wilson, 1993, p. 32). Yet intuitive logic may partly be explainable by research that links forestry to well-being (Li, 2010). That is, research shows that exposure to trees and forestry improves the human immune system because people breath in phytoncides, or airborne chemicals that plants and trees exude as protection from insects and disease. Studies also reveal that people who walk in natural settings (e.g., grasslands, woodlands, parks) report less depression, tension, confusion, and fatigue than those who opt to walk in indoor shopping centers (Ichoku, 2015).

Phytoncides possess anti-bacterial and anti-fungal qualities that help plants fight disease. In addition, when people breathe in phytoncides, the number and activity of their white blood cells increase, which neutralizes tumors and virus-infected cells in human bodies (Li, 2010; New York State Department of Environmental Conversation, 2016). For example, research shows that when communities experienced tree loss from the emerald ash borer, human mortality due to

cardiovascular disease and lower respiratory disease increased, suggesting a link between trees and human health (U.S. Department of Agriculture Forest Service, 2014). Phytoncides may even play a role in explaining the health benefits that patients, staff, and visitors report receiving from spending time in so-called healing gardens, which are natural settings housed in the contexts of built, health-oriented environments such as hospitals, senior facilities, cancer facilities, and memory care units (Cooper, 2016).

2.2. Biophilic designs and ART

Social scientists are beginning to explore the impact of natural elements within commercial built environments, or servicescapes (Rosenbaum and Massiah, 2011), on consumption behaviors and health-related outcomes. For example, consumers may be innately driven to patronize consumption settings that feature natural elements, such as aquariums in shopping malls (Windhager et al., 2011), wilderness excursions in recreational parks (Arnould et al., 1998), grassy areas in an enclosed, urban mall (Rosenbaum et al., 2016), or even combinations of trees and ersatz natural elements (Reisberg and Han, 2009), to achieve well-being. Indeed, research findings suggest the retailers may realize economic benefits from biophilic design; which stem from enhanced employee productivity, positive shopper responses, increased retail potential, and decreased crime and violence (Söderlund and Newman, 2015).

Marketing research efforts in exploring the healing or restorative potential of commercial environments primarily draw from ART (Berto, 2005; Joye et al., 2010; Kaplan, 1995, 2001), which also supports the primary axiom of the biophilia hypothesis. ART posits that a person's ability to direct attention in thought and perception to challenging or unpleasant, but nonetheless important, environmental stimuli is a biological mechanism that becomes fatigued with use; in turn, this fatigue leads the person to experience negative symptoms, such as attention deficit

hyperactivity disorder, an inability to focus, depression, stress, neuroticism, and violence (Kaplan, 1995; Newman and Brucks, 2016; Rosenbaum and Massiah, 2011).

ART prescribes that people may be able to recover from mental fatigue and assuage its symptoms by spending time in environments that possess four properties: being away, extent, fascination, and compatibility (Felsten, 2009; Kaplan, 1995; Rosenbaum and Massiah, 2011). Being away involves distancing oneself from usual activities (e.g., work, school, caring for a loved one) that often lead to mental fatigue and burnout. Being away can be physical, such as taking a walk in a park, shopping in a mall, or spending time at a vacation destination (Kaplan, 1995), or even entail a change in mental content from that which led to fatigue to something quite different (Felsten, 2009). Extent refers to an environment that has a sufficiently rich content and coherent structure to be perceived as a "whole other world" (Kaplan, 1995, p. 173). Fascination refers to a setting's ability to hold a person's attention effortlessly; the person wants to be in the setting because its décor or people, for example, easily capture his or her attention (Kaplan, 1995). A fascinating servicescape is an engaging built environment in which people can escape from the noise and banter of others or can join others when they opt to do so. Finally, compatibility suggests that a person can carry out his or her planned activities smoothly and without struggle (Kaplan, 1995). Thus, a person's goals must be consistent with demands made by the setting, and the environment must provide the information needed by the person to achieve those goals. A person–place congruency facilitates feelings of compatibility (Morrin and Chebat, 2005), so that a person easily feels comfort in a specific locale and acts naturally in a manner that corresponds to what is appropriate in the setting (Kaplan, 1995).

Natural environments, such as parks, beaches, and national forests, represent archetypical restorative settings because they typically contain the four environmental properties that promote

human healing and relief from mental fatigue (Stack and Shultis, 2013). Within the marketing discipline, biophilia design researchers (Joye et al., 2010) and service researchers (Rosenbaum and Wong, 2015) provide empirical evidence that built environments, both commercial and non-commercial, that integrate natural elements into their contexts can help transform human health by promoting restoration and, thus, relief from mental fatigue (see Söderlund and Newman, 2015). For example, Rosenbaum and Smallwood (2013) report that cancer patients experience lower levels of cancer-related fatigue after spending time in cancer resource centers that contain restorative properties. Joye et al. (2010) conclude that consumers show preferences for shopping on tree-lined streets and that in-store greenery promotes stress relief (see also Brengman et al., 2012). While other researchers have shown that shoppers judge businesses surrounded by greenery as being worthy of charging prices up to 25% higher than businesses with no access to nature (Terapin, 2012).

2.3. Biophilic design and lifestyle centers

Previous biophilia research does not specifically explore the use of natural elements, such as greenery, birds, and fountains, in the context of lifestyle centers. However, the lifestyle mall format, one that features restaurants, entertainment, and design ambiance and amenities (e.g., landscaped gardens, natural sounds, fountains), is growing in popularity not only in the United States but also globally (Hardwick, 2015; Yan and Eckman, 2009). Lifestyle centers, which tend to facilitate browsing and exploration by integrating greenery into consumption settings, can result in a mall becoming a “playspace” for consumers (Maclaran and Brown, 2005, p. 315), one that denotes the ludic, and somewhat hedonic, character of a retail environment. These retail playspaces, in turn, may encourage feelings associated with being away, extent, fascination, and compatibility, thus promoting restoration.

This discussion suggests that in the context of a lifestyle shopping center, the integration of natural elements can provide shoppers with some relief from fatigue and thus promote a desire to approach and spend time in the center. Although retailing researchers investigate the restorative potential of grassy areas in enclosed malls (Rosenbaum et al., 2016), exploration of biophilia designs in the context of lifestyle centers is missing. We address this research void by putting forth the following research hypothesis:

> **H1.** Consumers are more likely to sense the restorative potential of a lifestyle (retail) center that features natural elements (greenery and fountains) by reporting higher perceptions of (a) being away, (b) extent, (c) fascination, and (d) compatibility than consumers shopping in the same lifestyle center without natural elements.

3. Study 1

3.1. Responses to greenery versus no greenery

3.1.1. Participants

Sixty-eight participants (Mage = 23.91, SDage = 5.85, age range: 17–41 years) took part in this study. Participants were recruited from the subject pool of a large private university located in a cosmopolitan South American city. The participants received partial course credit for their efforts in the study. The sample was 56% male (n = 38) and 44% female (n = 30). Given a medium to large effect size, 30 participants per cell should lead to approximately 80% power, the minimum suggested power for an ordinary study (Cohen, 1988; VanVoorhis and Morgan, 2007).

3.1.2. Scenarios and procedure

Each participant was randomly selected to view a 1.20-minute video that depicted a guided tour of a proposed lifestyle center in a major South American city. Each participant viewed a video in a soundproof, climate controlled room that contained no other stimuli than a computer and basic furniture. One of the authors explained to the participants that a retail center developer wanted opinions on a proposed lifestyle center in the city and that they would answer a

questionnaire (anonymously) after watching the video. The green version showed natural greenery throughout the lifestyle mall, birds flying overhead, and a dramatic waterfall in the retail area, while the non-green version showed the same lifestyle mall without any natural landscaping features. Fig. 1 shows pictures from the two videos.

3.2. Measures

Participants rated the perceived restorativeness of each lifestyle center using one item for each of ART's four sub-dimensions on a 7-point Likert-type scale (1 = "not at all," 7 = "very much"). This method mirrors that in environmental psychological research by Felsten (2009) and Berto (2005). The item for being away was "Some settings allow you to feel like you are far away from everyday thoughts and concerns. How much does this lifestyle center allow you to get away from it all, relax, and think about what interests you?" The item for extent was "Some settings, large or small, can feel like a whole world of their own, where you can get completely involved in the setting and not think about anything else. How much does this lifestyle center feel like a world of its own?" The item for fascination was "How much does this lifestyle center draw your attention without effort and easily engage your interest?" Last, the item for compatibility was "How much does this lifestyle make you feel comfortable and at ease?"

One of the authors engaged in the collaborative and iterative questionnaire translation approach (Douglas and Craig, 2007) by translating the English questionnaire into Spanish and then holding three sets of focus groups, with 12 university faculty, graduate business students, and undergraduate students, respectively, to ensure that the questions were plausible and understandable in Spanish. The instrument was then pretested in an experiment with 12 participants from an undergraduate student pool, and after debriefing among the authors, the questions were employed in the Spanish-version questionnaire.

3.3. Results

We conducted a one-way multivariate analysis of variance (MANOVA) to evaluate the relationship between the two types of retail greenery (green and not green) on the four dependent restorative variables. We found significant differences between the two types of greenery on the dependent measures (Wilks's $\Lambda = .76$, $F(4, 63) = 5.08$, $p < .01$). The multivariate η^2 based on Wilks's lambda was quite strong at .24. Table 1 contains the means and standard deviations of the dependent measures for the two retail greenery groups.

Analyses of variance (ANOVAs) on the dependent variables served as follow-up tests to the MANOVA. Using the Bonferroni method, we tested each ANOVA at the .0125 level to reduce the chances of obtaining false-positive results (type I errors; Green and Salkind, 2014; McDonald, 2014). The ANOVA results for being away ($F(1, 66) = 31.18$, $p < .001$, $\eta^2 = .22$), fascination ($F(1, 66) = 19.06$, $p < .01$, $\eta^2 = .15$), and compatibility ($F(1, 66) = 20.13$, $p < .01$, $\eta^2 = .16$) were significant. The ANOVA result for extent ($F(1, 66) = 7.78$, $p < .05$, $\eta^2 = .07$) was not significant, as it exceeded the .0125 cutoff point. Overall, the findings reveal that consumers who view green lifestyle centers are more likely than consumers who did not view greenery to perceive three of the four environmental properties that embody a restorative setting. Thus, the data results provide support for H1. As such, green lifestyle centers emerge as restorative servicescapes that promote human health and well-being (Joye et al., 2010; Kellert, 2008).

3.4. Discussion

The findings corroborate and extend the biophilia design paradigm by showing that consumers perceive the restorative qualities of lifestyle centers that feature natural elements. Furthermore, by linking a biophilic lifestyle design to ART, this study provides a novel perspective on the popularity of lifestyle centers—that is, spending time in lifestyle centers (e.g.,

dining, shopping, browsing) may transform well-being. This study firmly emplaces a biophilic lifestyle center design into the transformative service research paradigm (Anderson et al., 2013) and public health discipline (Frumkin, 2003) by empirically demonstrating the restorative potential of natural elements in retail contexts to a person's mental well-being (Joye et al., 2010).

Given that lifestyle centers tend to encourage people to browse (Nielsen, 2014), are browsers more likely than purposeful shoppers to perceive the restorative potential of lifestyle centers? How resilient are consumers' attitudes toward a biophilic lifestyle center design when they are focused on purchasing an item rather than browsing? Prior biophilia research focuses exclusively on the presence of greenery, or lack thereof, in a setting rather than exploring situations that may alter its influence on shopper responses. We address this void by exploring whether consumers' desire to purposefully shop or browse influences their attitudes toward a biophilic lifestyle center design.

4. Study 2

4.1. Responses to greenery/no greenery given purposeful shopping or browsing

Tauber (1972) goes beyond the idea of utilitarian consumption to fulfill basic needs and suggests the idea of shopping for diversion. According to Tauber, shopping offers people diversion from the quotidian routines of daily life and opportunities to partake in recreation and free family entertainment (browsing). Browsing refers to an in-store examination of a retailer's merchandise for informational, recreational, or pleasurable (hedonic) purposes without the intent to buy (Nsairi, 2012; Reynolds et al., 2012). With their ample parking, artistic landscaping, fountains, benches, and various high-end and trendy shops, lifestyle centers tend to encourage browsing (Nooney, 2003). Given the restorative benefits associated with nature in general

(Kaplan, 2001), well-landscaped lifestyle centers may be popular because shoppers may feel mentally rejuvenated after browsing in them.

Nsairi's (2012) research on browsers reports a putative spiritual effect, during and immediately after a browsing trip in a cosmetics store. This spiritual effect helped the browsers clear their minds of pressing issues, understand things and themselves better, and focus again on important issues. Although Nsairi does not empirically explore the perceived restorativeness of the cosmetics store, the store, with its array of products, sights, smells, and sounds, likely facilitates restoration because it contains properties that cause shoppers to sense feelings associated with being away, extent, fascination, and compatibility.

Along these lines, a notable question is whether responses to a biophilic lifestyle center design differ between shoppers who plan to browse and those who go to the center specifically to make a purchase. Although extant research suggests that consumers who browse should be more favorable to a center that features natural elements than one that does not, researchers know surprisingly little about whether lifestyle shoppers respond to greenery when they are engaged in purposeful shopping endeavors. Shoppers who intend to make a purchase may not notice the center's greenery and therefore may be less likely than browsers to perceive its restorative potential. This discussion leads to the following hypothesis:

> **H2.** Consumers engaged in browsing are more likely to sense the restorative potential of a lifestyle center that features natural elements (greenery and fountains) versus one that does not by reporting higher perceptions of (a) being away, (b) extent, (c) fascination, and (d) compatibility than consumers engaged in purposeful shopping.

4.2. Methodology

One hundred twenty participants (M_{age} = 18.76, SD_{age} = 2.24, age range: 18–26 years) took part in this study. Participants were recruited from the subject pool of a large private university located in a cosmopolitan South American city. The participants received partial

course credit for their efforts in the study. The sample was 55% male (n = 65) and 45% female (n = 55).

Study 2, which is based on a 2 × 2 experimental design, tests reported restorative and likelihood to approach means against two levels of lifestyle greenery (green vs. not green) and two levels of shopping intent (browsing vs. purposeful shopping). Thirty informants appeared in each experimental condition, respectively (N = 120).

Similar to the scenarios employed in Study 1, participants were randomly selected to view a 1.20-minute video that depicted a guided tour of a proposed lifestyle center in a major South American city. Each participant viewed the video in a soundproof, stimulus-free laboratory. The green version showed natural elements in the retail area, and the non-green version featured the same retail area without natural elements. One group of participants was asked before viewing the video to imagine that they were going to the center just to browse, while the second group was asked to imagine that they were going to the center to purchase a specific item. Study 2 employed the same measures as in Study 1. That is, participants rated the restorativeness of each lifestyle center using one item for each of ART's four sub-dimensions following procedures employed in environmental psychology (Berto, 2005)

4.3. Results

We conducted a MANOVA to determine the effects of the two lifestyle greenery conditions and consumers' shopping purpose on the four environmental conditions, or dependent variables, that promote mental restoration (being away, extent, fascination, and compatibility). We found significant differences among the greenery conditions on the dependent measures (Wilks's $\Lambda = .82$, $F(4, 113) = 6.39$, $p < .001$). The multivariate η^2 based on Wilks's lambda was strong at .18. We found no significant differences between shopping purpose and the four

dependent variables (Wilks's $\Lambda = .95$, $F(4, 113) = 1.50$, *ns*). The interaction between greenery conditions and shopping purpose was not significant. Table 2 presents the means and standard deviations of the four restorative variables, given greenery and shopping purpose.

We conducted ANOVAs on the dependent variables as follow-up tests to the MANOVA. Using the Bonferroni technique, we tested each ANOVA at the .0125 level. The ANOVA results for being away ($F(1, 116) = 17.80$, $p < .001$, $\eta^2 = .22$), extent ($F(1, 116) = 8.72$, $p < .01$, $\eta^2 = .07$), fascination ($F(1, 116) = 19.54$, $p < .001$, $\eta^2 = .14$), and compatibility ($F(1, 116) = 18.48$, $p < .001$, $\eta^2 = .14$) were all significant.

Thus, the results show partial support for H2. More specifically, shoppers are more likely to sense the restorative potential of a lifestyle mall that employs biophilic design elements, including greenery, birds, and fountains, than lifestyle malls that lack natural elements. Furthermore, this finding is robust regardless of whether shoppers patronize the lifestyle center to browse or to purchase a specific item. Note that Guidry and Montero (2005) report that more than 70% of shoppers visited a lifestyle center to patronize a particular store than to browse. This finding suggests that lifestyle centers offer both browsers and non-browsers transformative opportunities to recover from mental fatigue and thus may also promote societal well-being.

5. Study 3

5.1. Responses to greenery/no greenery given paying full or discount prices

In addition to browsing, we examine the effect of a biophilic store design on consumers' price consciousness, which is "exclusively concerned with consumers' focus on paying a low price" (Alford and Biswas, 2002, p. 781). Most lifestyle centers cater to higher-income consumers, as these centers primarily attract trendy retailers and upscale restaurants (Nielsen, 2014). Indeed, research suggests that consumers are willing to pay more for products that are

sold in retailer outlets that employ biophilia design aesthetics, compared to retailers that do not do so (Terrapin, 2012' Wolf, 2005). However, how steadfast this commitment to paying higher prices remains unknown. Perhaps lifestyle shoppers who are inclined to sale proneness fail to perceive the restorative potential of a landscaped lifestyle center because of their intent to purchase a discounted item rather than enjoying the gardens and plaza that often adorn contemporary lifestyle centers. This discussion leads to the following hypothesis:

> **H3.** Consumers who intend to pay full price for an item are more likely to sense the restorative potential of a lifestyle center that features natural elements (greenery and fountains) versus one that does not by reporting higher perceptions of (a) being away, (b) extent, (c) fascination, and (d) compatibility than consumers who are price conscious.

5.2. Methodology

One hundred twenty participants (M_{age} = 23.39, SD_{age} = 27.83, age range: 19–53 years) took part in this study. Participants were recruited from the subject pool of a large private university located in a cosmopolitan South American city. The participants received partial course credit for their efforts in the study. The sample was 44% male (n = 53) and 53% female (n = 67).

All of the scenarios for this experiment are the same as Study 2. One group of participants was asked before viewing the video to imagine that they were going to the center to pay full price for an item at one of the center's retail stores, while the second group was asked to imagine that they were going to the mall to purchase a discounted item. With regard to perceived restoration, Study 3 employed the same measures as in Studies 1 and 2.

5.3. Results

We conducted a MANOVA to determine the effects of the two biophilic lifestyle conditions and consumers' payment options for an intended purchase (full price vs. discounted price) on the four environmental conditions, or dependent variables, that promote mental

restoration (being away, extent, fascination, and compatibility). We found significant differences in the greenery conditions on the dependent payment measures (Wilks's $\Lambda = .82$, $F(4, 113) = 3.79$, $p < .01$). The multivariate η^2 based on Wilks's lambda was medium at .12. We found no significant differences between payment measures and the four dependent variables (Wilks's $\Lambda = .95$, $F(4, 113) = .99$, *ns*). The interaction between greenery conditions and shopping purpose was not significant. Table 3 presents the means and standard deviations of the four restorative variables, given greenery and shopping purpose.

We conducted ANOVAs on the dependent variables as follow-up tests to the MANOVA. Using the Bonferroni technique, we tested each ANOVA at the .0125 level. The ANOVA results for being away ($F(1, 116) = 6.40$, $p = .01$, $\eta^2 = .05$), extent ($F(1, 116) = 19.20$, $p < .01$, $\eta^2 = .07$), fascination ($F(1, 116) = 13.16$, $p < .001$, $\eta^2 = .10$), and compatibility ($F(1, 116) = 18.48$, $p < .01$, $\eta^2 = .10$) were all significant.

Overall, the results show partial support for H3. Similar to the findings in Study 2, lifestyle center shoppers are more likely to sense the restorative potential of a center that employs biophilic elements, including trees, green spaces, and water fountains, than shoppers who patronize a lifestyle mall that lacks greenery. However, this finding is steadfast regardless of whether lifestyle shoppers are patronizing a lifestyle center to purchase an item for full price or one that is discounted; that is, both browsers and non-browsers perceive the restorative potential of lifestyle centers.

6. Conclusion

Marketing researchers have shown that consumers respond favorably to design planners' integration of natural elements, or biophilia design (Kellert, 2008; Söderlund and Newman, 2015), into commercial (Brengman et al., 2012; Joye et al., 2010; Mower et al., 2012; Tifferet

and Vilnai-Yavetz, 2017) and non-commercial (Rosenbaum and Smallwood, 2012) retailing and service contexts. This research extends the marketing discipline's understanding of biophilic design elements in contemporary retailing by exploring the restorative potential in the context of lifestyle centers, suggesting that lifestyle centers may play a transformative role in individual and perhaps even communal and societal well-being (Anderson et al., 2013).

Within the context of three experiments, this research shows that consumers perceive the restorative potential of biophilia design in the context of a lifestyle center that employs natural elements such as greenery, fountains, and wildlife (e.g., birds, butterflies). Study 1 demonstrates that consumers who view green lifestyle centers are more likely than consumers who do not view greenery in the retail context to perceive three of the four environmental properties that embody a restorative setting (i.e., being away, fascination, and compatibility). Study 2 builds on Study 1 by showing that consumer preference for biophilic design elements is robust regardless of whether shoppers patronize a lifestyle center to browse or to purchase a specific item. Finally, Study 3 buttresses these findings by revealing that consumer preference for biophilic design remains steadfast regardless of whether shoppers patronize lifestyle centers to purchase a full-priced or discounted item.

On the one hand, retail pundits may argue that these findings simply suggest that consumers prefer shopping in green than non-green consumption contexts (see Terrapin, 2012). On the other hand, the results offer both retailing academics and practitioners a theoretical understanding as to why shoppers display preferences for biophilic design elements in retail contexts. That is, when biophilic elements are incorporated into lifestyle center design, shoppers can sense the restorative potential of these centers. Resultantly, those who spend time in restorative lifestyle centers may experience catharsis from negative symptoms associated with

mental burnout and fatigue. Perhaps the current popularity of lifestyle centers (Nielsen, 2014) stems not only from the centers' mix of trendy retailers and upscale restaurants but also from the manicured gardens, fountains, walkways, and greenery that characterize them (Yan and Eckman, 2009), which may promote human mental well-being.

6.1. Theoretical implications

The notion that spending time in lifestyle centers that feature manicured greenery, plantings, fountains, and walkways may be cathartic to a person's well-being is also supported by biophilia research that encourages people to spend time in forests to improve their immune system (Li, 2011; Söderlund and Newman, 2015). That is, natural researchers are discovering that the effect of exposure to phytoncides helps people reduce feelings of anxiety, depression, and anger. Thus, greenery in built consumption settings or non-profit settings, such as hospitals and senior centers, may provide people with a natural aromatherapy to positively affect their well-being. We encourage researchers to further explore the transformative potential regarding biophilia design in enclosed malls and other service settings, including health care, education, rehabilitation, and correctional service contexts (Terrapin, 2012).

6.2. Managerial implications

Although health researchers espouse the benefits associated with walking in malls (Belza et al., 2015), lifestyle centers are built so that retail developers realize monetary profits from their investments. In other words, despite the transformative potential of lifestyle centers on consumer mental health, the natural design elements are selected to encourage consumption and spending. Indeed, given that lifestyle centers are designed to attract high-income consumers, whether center developers can be incentivized to invite people to simply experience a center's restorative potential is doubtful. Thus, we encourage transformative service researchers to explore how non-

profit settings, especially those patronized by bottom-of-the-pyramid consumers, can incorporate biophilic design elements into their contexts. Specifically, research could investigate the extent to which biophilia design in areas such as penitentiaries, urban youth centers, drug rehabilitation centers, and veteran mental health rehabilitation centers can promote restoration and thus enhance individual, communal, and even global well-being.

6.2. Limitations

With regard to research limitations, biophilia design in retail settings remains in its infancy; both landscape architects and marketing researchers remain focused on exploring the broad impact of the presence of natural elements, or lack thereof, within retail settings, such as business district "streetscapes" (Wolf, 2005) or revitalized "Main Street" programs (Wolf, 2004). Similarly, we focused exclusively on exploring consumer responses to green or non-green consumption contexts. Thus, we still lack an understanding of the specific types of natural elements that evoke positive consumer responses. That is, certain types of trees and plants, forms of water displays, or the presence of small animal life (e.g., birds, butterflies) may encourage more favorable consumer responses than others. Thus, we recommend that landscape architects and service design researchers address this theoretical chasm.

From a methodological perspective, we conducted the three empirical studies using students at a large private university in an urban, cosmopolitan South American city. However, the findings regarding biophilic store design were consistent in all three studies and buttress extant literature on positive consumer responses to biophilia design (Joye et al., 2010). In addition, our manipulations of shopping purpose and payment options, within the context of a soundproof, stimulus-free laboratory, may not have been strong enough to generate a significant response. However, given that humans "need a daily dose of nature" (Söderlund and Newman,

2015, p. 952), lifestyle center shoppers may simply overlook other stimuli, such as discounts and shopping intentions, in order to obtain a connection to nature by spending time in these centers.

Despite these limitations, this work contributes to the biophilic store design paradigm (Joy et al., 2010; Tifferet and Vilnai-Yavetz, 2015), to the transformative service research paradigm, and to restorative servicescape research by highlighting the restorative potential of biophilic lifestyle center design. Thus, biophilic design supports the existence of "healthy places" within built, public environments (Frumkin, 2003). Indeed, the popularity of lifestyle centers may stem more from their impact on human mental well-being; namely, relief from mental burnout and fatigue, which ensues from a center's natural elements, than from their mix of trendy retailers, entertainment options, and upscale eateries.

Table 1
Means and standard deviations of the dependent variables for the lifestyle center.

	Natural elements		No natural elements	
Perceived restorative scale (1 = "not at all"; 7 = "very much")	*M*	*SD*	*M*	*SD*
Being away	5.41**	1.23	4.06	1.37
Extent	4.59*	1.16	3.91	1.31
Fascination	5.59**	1.23	4.53	1.33
Compatibility	5.62**	1.02	4.53	1.48

** $p < .01$; * $p < .05$.

Table 2

Means and standard deviations for browsing versus purposeful shopping.

Dependent measures	Biophilic elements *M* (*SD*)		No natural elements *M* (*SD*)	
Perceived restorative scale (1 = "not at all"; 7 = "very much")	Browse	Purposeful Shopping	Browse	Purposeful Shopping
Being away	5.77 (.94)	5.13 (1.31)	4.70 (1.12)	4.40 (1.23)
Extent	5.03 (1.30)	4.63 (1.54)	4.00 (1.34)	4.20 (1.24)
Fascination	6.03 (1.03)	5.37 (1.43)	4.47 (1.83)	4.47 (1.70)
Compatibility	5.93 (.91)	5.40 (1.33)	4.70 (1.29)	4.63 (1.50)

Table 3

Means and standard deviations for paying full price versus discounted price.

Dependent measures	Biophilic elements *M*(*SD*)		No natural elements *M*(*SD*)	
Perceived restorative scale (1 = "not at all"; 7 = "very much")	Full price	Discounted price	Full price	Discounted price
Being away	4.90 (1.06)	5.70 (1.31)	4.73 (1.23)	4.73 (1.08)
Extent	4.50 (1.68)	4.87 (1.41)	3.67 (1.63)	4.10 (1.45)
Fascination	5.53 (1.36)	5.27 (1.23)	4.33 (1.77)	4.43 (1.72)
Compatibility	5.23 (1.14)	5.50 (1.26)	4.30 (1.49)	4.67 (1.52)

Fig. 1. Green versus non-green areas within a lifestyle center used in experimental analysis.

Green retail areas

Non-green retail areas

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