Attraction factors of shopping centers

Effects of design and eco-natural environment on intention to visit

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Abstract

Purpose – People visit malls not only to buy a product they need but also to enjoy the atmosphere or environment of the shopping center. Based on design and eco-natural environment, the purpose of this paper is to analyze the attraction factors of shopping centers.

Design/methodology/approach – The sample comprised 449 consumers from 25 different shopping centers in Bogota. The structural equation model (AMOS) enables the authors to discuss the influence of the design of green and natural spaces in the commercial management of shopping centers, given its positive and significant effect on the intention to visit.

Findings – Shopping centers are, by definition, spaces with a high level of design of the commercial environment. In this case, as evidenced in the results of this research, the design of ecological spaces and environments has the potential of becoming a field of interest for the commercial management of shopping centers, given its potential effect on visiting and shopping intentions.

Originality/value – The main originality of this study was to empirically include and demonstrate the influence of design and natural eco-environment on the intention to visit, along with other elements considered in previous investigations. Therefore, identification of specific empirical findings related to the way attraction factors work allows marketing directors and managers to improve their management decisions concerning design and implementation of marketing strategies, tactical decision guidance, decision-making assessment or control, and the proposal of alternative positioning attributes, such as the design, management, and arrangement of eco-natural environments that allow to increase the number of visits and purchases within these establishments.

Keywords Structural equation modelling, Attraction factors, Shopping centre,
Design and eco-natural environment, Intention to visit

Paper type Research paper

Introduction

Shopping centers have significantly advanced in the application of joint management methods (Howard, 1992, 1997; De Juan and Rivera, 1999). However, several authors such as McGoldrick and Thompson (1992), Finn and Louviere (1996), Dennis *et al.* (2002), and Chebat *et al.* (2010) considered that in addition to the integrated management, shopping centers should improve the offer conditions, their attractiveness, and their image by

considering other alternative or complementary factors. Different studies have supported the interest of investigating the establishments that have introduced and developed a type of management facilitating the exploitation of the trade market. Some studies have focused on increasing their attractiveness and the fidelity of their client through their image (Ortegon and Royo, 2015; Chebat *et al.*, 2010; Vigaray and Camino, 1999), becoming a space for meetings, entertainment, leisure, relaxation, and interchange (Porral and Dopico, 2013). Other studies have focused on providing memorable experiences of diverse sensorial, emotional, and behavioral (Ortegon and Gomez, 2017; Kim *et al.*, 2015; Kim, 2001). Such issues described in further detail by Srinivasan and Srivastava (2010) and Tandon *et al.* (2016) are not developed here for the purpose of this study.

The literature on the attraction factors of shopping centers has focused on the possibility of model creation to determine the demand for attraction and the intention to visit (El-Adly and Eid, 2016; McGoldrick and Thompson, 1992; Finn and Louviere, 1996; Chebat *et al.*, 2010). These approaches have contributed to the development of new integrated management models based on the permanent assessment of consumers on the primary attributes and factors that comprise this attraction (Finn and Louviere, 1996; Alemán and Díaz, 2006; Driesener and Romaniuk, 2006).

Based on the foregoing arguments, this study measures the attraction factors integrating a factor denominated herein as design perception and the eco-natural environment. Therefore, the originality of this study lies in two aspects:

(1) the design and eco-natural environment proposal as an attraction factor of shopping centers; and

(2) the consideration of statistical relations between the attraction factors (including the design and the eco-natural environment) and the intention to visit as a dependent variable in a complete structural equation model.

This effect has proved to be of particular importance for commercial management and the attainment of competitive advantage when applied to other fields such as hotels and big stores (Brengman *et al.*, 2012; Rogerson and Sims, 2012; Lee *et al.*, 2010; Kim and Han, 2010).

This study is structured as follows. First, the conceptual framework of these variables and its relations are presented, with the objective of supporting the suggested hypothesis. Thereafter, the used methodology and the results obtained from the structural equation model are described. Finally, the business implication and the future lines of investigation are exposed.

Theoretical review

Several dimensional typologies can be used to create a model of attraction factors of a shopping center (North and Kotze, 2004). Among these factors, the offer, accessibility, service, and environment variables are always present.

Attraction factors of the shopping centers

According to Munuera and Cuestas (2006), most international studies have focused on commercial establishments and their individual features; however, these studies have not considered the shopping center as a unit of analysis. Micu (2013) found that various attraction factors of the shopping center are mainly oriented toward the geographical and cultural features of the study. Accordingly, a plurality of attraction factors in the reviewed literature is observed (see Table I).

Ultimately, there is no consensus regarding numerous attraction factors because the variables that constitute them are multiple and may refer to tangible and intangible aspects, which also depend on the subjective assessment of each (North and Kotze, 2004).

Study	Number of factors	Factors
Singh and Prashar (2013)	5	Environment, access, physical environment, offer management, and security
Banerjee (2012)	9	Establishment image, entertainment, access and convenience, physical environment, security, visitors' lifestyle, time-saving, architecture, and commercial rewards
Sujo and Bharati (2012)	5	Attractiveness, environment comfort, service staff, shopping easiness, and convenience
Hira and Mehvish (2012)	3	Inner environment, establishment image, and access easiness
Rajagopal (2009)	7	The shopping center offer, excitement level, promotions, purchase volume, distance traveled inside the establishment, time employed in the establishment, and preference for traditional stores.
Teller and Reutterer (2008)	4	Access, location, visitors, and environment perception
Ahmad (2012)	6	Environment aesthetics, access, and comfort, offer variety, entertainment, and service quality
El-Adly (2007)	6	Comfort, entertainment, offer variety, shopping center features (range, services, and prices), convenience and access, and luxury perception
Khei *et al.* (2001)	5	Access easiness, offer quality and variety, offer popularity and luxury, shopping center facilities and environment, and the presence of diverse commercial incentives
Ruiz (1999)	3	Commercial environment and variety, parking and shopping scene, and staff professionalism
Bodkin and Lord (1997)	4	Convenience, existence of a particular store in the shopping center, services provided, and prices

Source: Own development

Table I.
Attraction factors of
shopping centers

However, the attraction factor analysis of shopping centers and establishments is conceived as a strategy of competitive distribution to draw more clients to the shopping facilities and improve their experience (Bigné and Andreu, 2004). From this perspective, assessing the attractiveness of the shopping centers is important for the following reasons: to improve its own management due to its relation with the intention to visit (Michon *et al.*, 2005), and to provide information about the relation between attraction factors and consumer profiles, i.e., to give knowledge on the segmentation and specialization of shopping centers based on the understanding of the style of clients' purchasing decisions (Alavi *et al.*, 2016).

Identification of attraction factors and establishment of the hypothesis
Based on the reviewed literature, six attraction factors are prominent: five traditional dimensions and the sixth one regarding the design and eco-natural environment perceived by visitors. A brief description of each variable with its particular hypothesis is presented, with specific focus on the design and eco-natural environment variable.

Physical environment, cleanliness, and security. Several authors described the importance of physical environment for the visitors behavior within shopping centers (Mehrabian and Russell, 1974; Wakefield and Baker, 1998; Turley and Milliman, 2000; Khei *et al.*, 2001; Bigne *et al.*, 2006; El-Adly, 2007; Ahmad, 2012; Hira and Mehvish, 2012; Sujo and Bharati, 2012; Singh and Prashar, 2013). In sum, physical environment, cleanliness (Ahmad, 2012; Dennis *et al.*, 2002), and security (Hoffman and Turley, 2002) are important factors influencing visitor behavior in shopping centers. Consequently, considering the importance of this feature, the following hypothesis is proposed:

H1. Physical environment, cleanliness, and security positively impact the users' intention to visit the shopping center.

According to the previous consideration, the effects of physical environment can transcend when oriented toward design and the use of green or natural spaces as shown in recent studies.

Design and eco-natural environment. The design and eco-natural environment perception of the shopping center is of particular concern in the literature related to environmental and atmospheric features of shopping settings. Do Paço and Raposo (2009) highlighted the importance and influence of the use of ecological elements in commercial settings on the attitudes and intention to visit and buy. In the tourism field, some empirical results exist on the effects of ecological design used in hotels for the attainment of competitive advantage (Lee *et al.*, 2010) and the client's preference for hotels with ecological resources (Rogerson and Sims, 2012; Kim and Han, 2010; Weinmaster, 2009; Ayala, 1995).

In the commercial field, Brengman *et al.* (2012) proved that the incorporation of spaces with vegetation impacts shopping behavior and emotions. Furthermore, the environmental design of commercial settings oriented toward the consumption and lifestyle in natural spaces favors the relation between the environment and their well-being (Amérigo *et al.*, 2013; Herzog and Strevey, 2008). According to Bigne *et al.* (2006), the creation of an enjoyable environment becomes the objective in the distribution to improve the consumers' shopping experience. Additionally, Amérigo *et al.* (2013) highlighted the increasing interest in researching this area regarding the proenvironmental conduct and the analysis of the individual's attitudes toward the environment (Amérigo *et al.*, 2007; Chebat and Michon, 2003). Therefore, the following hypothesis is proposed:

H2. Design and eco-natural environment perception of the shopping center positively impacts the users' intention to visit the shopping center.

Mobility and accessibility. Some authors considered mobility and accessibility of the shopping center to be more important than attractiveness (Khei *et al.*, 2001; De Juan, 2004; El-Adly, 2007; Teller and Reutterer, 2008; Rajagopal, 2009; Ahmad, 2012; Banerjee, 2012; Hira and Mehvish, 2012). Thus, people look for comfortable, cozy, and convenient commercial establishments or shopping centers. Therefore, the following hypothesis is proposed:

H3. Mobility and accessibility of the shopping center positively impact the users' intention to visit the shopping center.

Additionally, mobility and accessibility features as attraction factors can be favored by different services offered in the field of amusement and entertainment. These features comprise the following variable.

Additional services and entertainment. Studies have indicated that shopping centers have improved their own image and attractiveness due to the inclusion of other services such as food, relaxation, and entertainment services (Bellenger *et al.*, 1977; Haynes and Talpade, 1996; De Nisco and Rosaria Napolitano, 2006; El-Adly, 2007; Ahmad, 2012; Sit and Birch, 2014). This can be considered to be a favorable offer for leisure, constituted by diverse factors influencing attendance motivations (Sit *et al.*, 2003). Therefore, this ensemble of features allows us to propose the following hypothesis:

H4. Additional services and entertainment positively impact the users' intention to visit the shopping center.

Offer variety, quality, and status. Offer variety, quality, and status have been a traditional attraction issue of the shopping centers (Frasquet, 2000; Khei *et al.*, 2001; Singh and Prashar, 2013). Boatwright and Nunes (2001) suggested that consumer preferences are influenced by the perception of variety within an ensemble of selection choices. Different authors highlighted the importance for clients to count on a wide supply of products (Más Ruiz, 1999;

Khei *et al.*, 2001; Suárez *et al.*, 2007), especially when comparing prices and quality (El-Adly, 2007) to optimize the visit experience (Singh and Prashar, 2013). In this respect, Khei *et al.* (2001) considered that the quality and variety variables are the most critical attributes to the measure of attraction factors of shopping centers. On the other hand, the status attribute is also connected to the offer variety and quality (Hollander, 1960; Gould *et al.*, 2005), which also influences the visit experience (Kim, 2001). Consequently, this ensemble of features allows to establish the following hypothesis:

  H5. The offer variety, quality, and status of the shopping center positively impact the users' intention to visit the shopping center.

Methodology
The empirical study adopts a quantitative, descriptive, and casual approach, and its geographical scope is framed in Bogota, Colombia.

Survey and sample
The study of the relationships raised and the empirical contrast of the hypothesis was performed using a sample of visitors aged above 18 years. Personal interviews with a structured questionnaire were conducted at the shopping center, where surveyed individuals were located, at different hours and days of the week. The gender, age, educational level, and shopping center variables were considered. The selection procedure of the sample was not probabilistic. Specifically, surveys were conducted for convenience.

  The personal surveys were conducted by a group of surveyors who were specially trained for the task; furthermore, 449 valid questionnaires were obtained in the 25 studied shopping centers that were classified as follows according to the International Council of Shopping Centers: 58 interviews correspond to the urban commercial gallery format, 63 to the small shopping center, 58 to the medium shopping center, 161 to the big shopping center, 50 to the specialized center (also called manufacturer thematic center), and finally 59 to hypermarket-based center. All shopping centers belong to the Shopping Center Association in Colombia: Acecolombia (www.acecolombia.org), with the geographical scope being Bogota, guaranteeing that the shopping centers were establishments with commercial locations, that these were recognized and longstanding in the market, and that these were adequately distanced geographically one from another.

  The sample profile can be observed in Table II.

Measurement instrument
For the creation of the questionnaire, the traditional dimensions used and described previously in the theoretical body were analyzed. As a pretest, different propositions were formulated and measured in a Likert scale with five answer levels, with 1 being totally in disagreement and 5 being totally in agreement. In the pilot phase, 60 interviews to clients were conducted and, as a result, propositions with less contribution levels were eliminated. The initial 51 schemes were reduced to 27. Table II presents the indicators posed in the questionnaire.

  Subsequently, as a data processing technique and based on the research objectives, the conductive analysis to prove the model was performed.

Independent and dependent factors and their measure
The independent model factors, as described in the establishment of hypothesis, are offer variety, quality, and status; mobility and accessibility; additional services and entertainment;

Classification data	%
Gender	
Male	47.7
Female	52.3
Age (years)	
18-24	39.2
25-32	20.7
33-40	12.2
41-50	13.3
More than 50	14.3
Educational level	
Elementary school	2.9
Middle school	17.8
Technician	14.3
Professional	55
Postgraduate	10
Source: Own development	

physical environment, cleanliness, security, and information; and design and eco-natural environment. Their composition is described as follows.

Offer variety, quality, and status. This factor includes measures related to products and brands available in the shopping center and comprises six items. The items used include offer and store variety as well as the presence of well-known brands, a variety of store products and brands, quality of the products, and presence of exclusive and prestigious clothing brands.

Mobility and accessibility. This factor includes measures related to accessibility and mobility for people inside the shopping center and comprises five items. The questions used focused on measuring the freedom of movement and orientation in the shopping center, the perception of available space for walking, and the ease of access and comfort while shopping in the stores and the shopping center.

Additional services and entertainment. This factor includes measures related to food services, movies, relaxation, and the price-quality relation of such services. It comprises five items.

Physical environment, cleanliness, security, and information. This factor includes measures related to the perception of the physical environment and cleanliness inside the shopping center, including the perception of safety, data points, and air quality. It comprises five items.

Design and eco-natural environment. This factor includes measures related to space disposition and natural settings with vegetation, and it comprises four items. The questions used focused on measuring the perception of natural scenarios, the presence of settings with vegetation, the eco-environmental design of the shopping center, and the perception of using an architecture that includes natural materials.

The dependent model factor, which expresses the attractiveness to visit, has been denominated as the intention to visit. Such concept belongs to the area of future behavioral intentions (Dwyer *et al.*, 1987; Robert and John, 1982; Wakefield and Baker, 1998; Bigné and Andreu, 2004) and describes the peoples' desire to visit the shopping center (Iturriagagoitia and de Madariaga, 2010; Anselmsson, 2006). This factor, intention to visit, includes measures related to the probability of visiting a shopping center. It comprises two items oriented to measure the preference to visit and the enjoyment of and motivation for visiting the shopping center. The content of the questions expresses the will of the users to visit and frequent the shopping center, modulating the purpose of the assessed dimension.

Results
The dependent factor or intention to visit and the independent factors with a potential relation with it were identified. Subsequently, the convergent validity and the discriminant validity of the scales were analyzed by calculating the corresponding composite reliability (CR), the average variance extracted (AVE), and the discriminant matrix through partial least squares (PLS) (Hair *et al.*, 2006). Finally, the relations between the endogenous and exogenous latent variables were analyzed to validate the structural equation model defined previously, using the statistical package AMOS 23.0 from IBM.

Preliminary analysis
To find the underlying structure of the factors and examine the multidimensionality of the measurement instrument, an exploratory study was conducted on SPSS v22. To detect if the items would precisely measure each factor, all dependent and independent variables were included in the factorial analysis. Bartlett's sphericity test was significant ($\chi^2 = 6,580,318$, gl $= 351$, $p < 0.001$). The Kaiser-Meyer-Olkin's sampling adequacy measure of 0.903 exceeds the minimum limit of 0.50 proposed by Kaiser (1974). During the factorial analysis, six factors with individual values higher than 1.0 were identified, which explains 65.8 percent of the variance and which exceeds the limit of 45 percent recommended by Netemeyer *et al.* (2003). The out coming solution was interpreted to apply a varimax rotation (see Table III).

| | Components | | | | | |
	1	2	3	4	5	6
Presence of well-known brands stores	0.797					
The offer of exclusive and prestigious clothing brands	0.787					
Variety in available stores	0.750					
Variety in offer and merchandise	0.726					
Quality of displayed products	0.655					
Feeling of status	0.625					
Natural spaces or scenarios		0.898				
Presence of settings with vegetation		0.894				
Design and eco-natural environment of the shopping center		0.885				
Use of natural materials in the architecture		0.847				
Freedom of movement inside the shopping center			0.797			
Available space for walking			0.711			
Easy access to the shopping center			0.693			
Easy orientation when walking in the shopping center			0.542			
Comfortable commercial establishment to shop			0.311			
Restaurants and cafeterias availability				0.840		
Food court availability				0.807		
Movie theater availability				0.543		
Good relationship between price and quality of product and services				0.472		
Relaxation areas availability (chairs, sofas)				0.313		
Air quality inside the shopping center					0.392	
Look and cleanliness of the bathrooms					0.782	
Security level perceived in the shopping center					0.642	
Cleanliness and order inside the shopping center					0.632	
Point of information availability					0.387	
Frequency attendance						0.539
Enjoyment when frequenting the shopping center						0.538

Notes: Extraction method: main component analysis; rotation method: Varimax with Kaiser normalization; rotation convergence in 8 iterations. Total of explained variance: 65.849 percent; KMO = 0.903. Bartlett's sphericity test: 6,580,318; 351 df. $p < 0.001$

Table III.
Exploratory factorial
analysis

The intention to visit factor (4.6 percent) comprises two items with acceptable loads. The offer, quality, and status variety factor (17.4 percent) comprises six items with higher loads. The design and eco-natural atmosphere factor (14.6 percent) comprises four variables with high factorial loads in the matrix of rotated components. The mobility and accessibility factor (11.6 percent) comprises five variables. Among these, the variable of comfort while shopping, which should be included in the offer variety factor was included in the mobility factor due to its comfort definition. The additional services and entertainment factor (8.9 percent) comprises five items related to food, movies, the quality-price relation of these services, and relaxation areas. This last variable was associated with this dimension due to its definition. Apparently, the load was not high (0.3). However, considering the sample size, it was considered to be enough. Finally, physical atmosphere, cleanliness, security, and information factor (8.7 percent) comprises five items related to such variables along with the air quality.

Model and data adequacy

For the model adequacy, a traditional structural equation approach was adopted for a reflective measurement model (Valdivieso, 2013; Henseler *et al.*, 2009; Bollen, 1989) by following the steps suggested in the literature (Hair *et al.*, 2011; Díaz *et al.*, 2010; Kline, 2005).

The primary concern for data processing relates to the size of the sample depending on the number of relations to be assessed. Chin's widely used golden rule states that the sample size must be 10 times greater than any of these two alternatives latent variable or factor with the largest number of indicators or dependent variable with the most significant number of independent variables influencing it.

In our model, the first possibility equals six (product variety, quality, and status), while the second one equals five (the number of arrows closer to the intention to visit). Therefore, the minimum sample size is $6 \times 10 = 60$, and our sample contains 449 cases. Additionally, the power test for the dependent variable (R2) for the case with five predictors, $\alpha = 0.005$, and a moderate effect size of 0.15 were calculated. The minimum level for social sciences is 0.8 (Cohen, 1988). Results revealed a statistical power $(1-\beta)$ above 0.95.

Reflective model assessment: PLS measurement instrument validity and reliability

Regarding convergent validity, bootstrapping technique with no sign change was used for more than 5,000 samples. Then, results with a sign change and individual changes were compared to the constructs. Significance testing at a 0.05 level was used. Results were consistent across the three methods; with the exception of two indicators (see below), no similar charges or charges below 0.06 were obtained.

This is the usual criteria when assessing the existence of convergent validity of indicators of the reflective constructs. Our case included the following: variety, quality, supply, and status (C1); eco-natural environment and design (C2); mobility and accessibility (C3); additional services and entertainment (C4); and physical environment, maintenance, security, and information (C5). Indicators with a load of above 0.7 were acceptable (Carmines and Zeller, 1979) though some authors suggested a lower limit (around 0.6) (Bagozzi and Yi, 1988). Regarding formative constructs – the intention to visit (C6) – validity was assessed from the weights, with statistical significance criteria, instead of size and absence of multicollinearity (Chin, 1998).

As shown in Table IV, all indicators load above 0.7 within their respective reflective constructs, except for two indicators that load below 0.6. They are rest area availability (0.557) and information point availability (0.600). Both signs were removed from the analysis. Furthermore, an analysis on the cross-loadings of indicators with all latent variables did not show any sign that needed a change in its construct.

Construct reliability was evaluated through two indicators: Cronbach's α (CA) and the common criteria, equal to or above 0.7, by Nunnally and Bernstein (1994) and CR

Indicator	C1	C2	Loading C3	C4	C5	Weight (FIV) C6	t-value (bootstrapping)
Well-known stores	0.799						38.429*
Exclusive clothing	0.793						37.761*
Variety of stores	0.778						34.871*
Variety of the offer and merchandise	0.746						27.695*
Quality of exhibited products	0.791						39.861*
Sensation of status	0.764						32.813*
Natural spaces or scenarios		0.909					76.774*
Environments with vegetation		0.911					87.584*
Eco-environmental design		0.923					113.02*
Architecture integrating natural elements		0.897					76.400*
Easy access and movement within the shopping center			0.766				25.836*
Space for walking			0.647				14.968*
Easy access to the Shopping Center			0.686				17.786*
Suitable orientations			0.712				22.915*
Comfortable stores			0.730				24.040*
Availability of restaurants and cafes				0.832			36.941*
Availability of food areas				0.836			40.929*
Availability of movies				0.669			16.376*
Good quality/price relationship of products and services				0.734			22.245*
Air quality					0.702		21.666*
Bathroom maintenance					0.684		18.043*
Perceived level of security					0.776		33.270*
Cleanliness and maintenance					0.772		25.586*
Frequent visitor**						0.298 (2.394)	3.576*
Likeness to visit the shopping center						0.754 (2.394)	10.156*

Notes: *t significant value for $p < 0.001$; **the correlation between the two items that make up component 6 is significant at 0.01 level, which is why this item has been kept in the formation of the factor in coherence to the sense of the construct

(Werts et al., 1974; Fornell and Larcker, 1981) for reflective constructs (Chin, 1998). For CR, results around 0.6 were acceptable (Bagozzi and Yi, 1988). Hair et al. (2012) suggested that assessing both criteria, CA and CR are good alternatives. As shown in Table IV, all constructs were above the minimum limits for CA = 0.7 and CR = 0.60. These authors also suggested a minimum AVE limit of 0.5 as a measure of convergent validity between reflective constructs, which was achieved by all constructs. Fornell and Larcker (1981) recommended an additional verification on the subject of discriminant validity: the square root of AVE must be bigger than the correlations between latent variables; this is accomplished by the results (see Table V). Moreover, a hetero trait-mono trait (HTMT) study (Henseler et al., 2015) was conducted to assess discriminant validity. All HTMT ratios in absolute value were below the 0.90 limit, indicating that discriminant validity is present between all the pairs of reflective constructs.

Relation between factors of attraction and the intention to visit shopping centers
The assessment and construction of the structural model were conducted using the AMOS software by using ordinal variables, as exposed before, without the need to fulfill the multivariate normality assumption. Bollen (1989) and Jöreskog and Sörbom (1996) recommended using polychoric correlations together with the weighted estimates and generalized least squares estimates. To evaluate the fit of the model, the χ^2 ratio to the

degrees of freedom (CMIN/DF), the corresponding adjustment index, the goodness of fit index (GFI), and the adjusted goodness of fit index (AGFI) were suggested. About residuals, the RMSEA mean squared error was proposed, as described below.

Initial model adjustment
First, the maximum likelihood estimation technique was used. Specific indicators showed adjustment difficulties (CMIN/DF = 6.203, GFI = 0.740, AGFI = 0.687, RMSEA = 0.108). With these model fit indicators and given that the multivariate normality assumption is not satisfied, the generalized least squares method was used instead. The following values were obtained for indicators: CMIN/DF = 2.843; GFI = 0.863, AGFI = 0.835, RMSEA = 0.064; these results led to a re-specification of the previous model.

Model re-specification
Finally, some observable variables correlating with other exogenous latent variables were found and deleted for the model's fit, as shown in Figure 1.

The a priori model shows a causal relation among exogenous variables, supply, design and eco-natural environment, mobility and accessibility, entertainment and services, and physical environment with the endogenous variable of intention to visit. However, based on the studies by Suárez (2016) and El-Adly (2007), the respecified model considers no relation between factors such as mobility and accessibility and entertainment and additional services with the intention to visit. Similarly, based on the results obtained by Hira and Mehvish (2012) regarding the importance of the accessibility and mobility variable, indirect effects of the variables supply, design and eco-natural environment, entertainment and services, and physical environment were proposed through the latent variable mobility and accessibility.
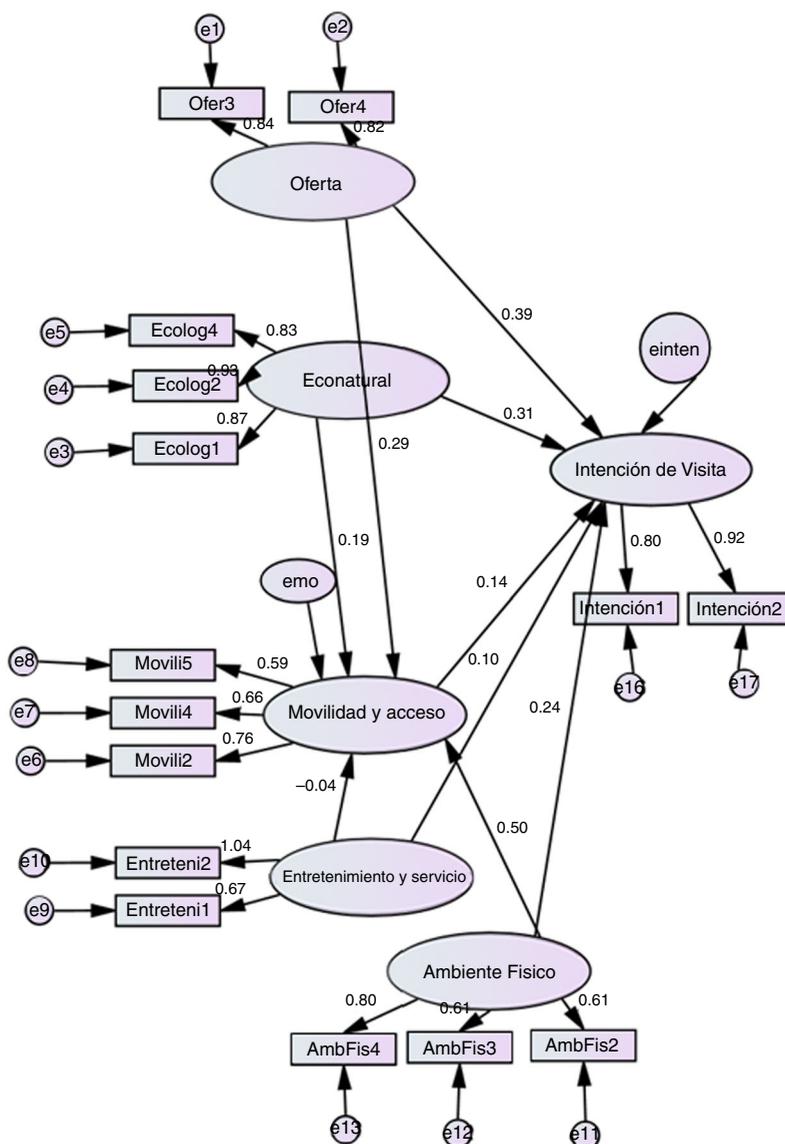
Goodness of fit measures of the respecified model
As mentioned before, there are different indexes to guide the goodness of fit using the SEM technique and, more specifically, using covariances. In addition, given the diverse implications and complexities of this process, different values are proposed to make a decision regarding the validity of the structural model (Kerlinger and Lee, 2002). This approach seems to be flexible in the limit values suggested by experts.

For this study and after some model adjustments, the following value was obtained for the most common indicators: CMIND/GL = 1.885. Schumacker and Lomax (2004) suggested that values below 3 are acceptable; GFI = 0.958 and AGFI = 0.933. Browne and Cudeck (1993) suggested that values greater than 0.90 are acceptable. Finally, the RMSE, which represents the square root mean or residual covariance mean, was analyzed; in this indicator, 0 represents a perfect fit, but the maximum is unlimited. According to some researchers, RMSE must be below 0.08 (Browne and Cudeck, 1993); ideally, it must be below 0.05 (Steiger, 1990).

	CA	CR	AVE	Correlations matrix – Fornell Larcker criteria				
Physical environment, maintenance and security	0.718	0.824	0.540	0.735				
Design and eco-natural environment	0.931	0.951	0.828	0.293	0.910			
Mobility and access	0.760	0.835	0.503	0.594	0.284	0.709		
Additional services and entertainment	0.773	0.853	0.594	0.411	0.312	0.435	0.771	
Product variety, quality and status	0.871	0.902	0.606	0.470	0.239	0.563	0.570	0.779
Intention to visit	–	–	–	0.489	0.392	0.506	0.442	0.610

Table V.
Reliability of convergent and discriminant validity analysis of constructs with PLS

Figure 1.
Model re-specification
of shopping center's
attraction factors

Alternatively, RMSE's maximum confidence interval should not exceed 0.08 (Hu and Bentler, 1998), in this case, the range was found to be between 0.032 and 0.055, where RMSE = 0.044, satisfying the values suggested by the experts.

Parameter estimation
The estimated results for latent variables are presented below. Although an adequate adjustment can be performed, this does not necessarily imply a good relation between the studied variables. Estimators of the relations between the different exogenous and

endogenous variables as well as their respective standard error, standardized estimate (C.R), and p-values are presented in Table VI.

Table VI shows that the intention to visit is significantly affected by latent variables, supply, design and eco-natural environment, and physical environment; mobility and accessibility ($p < 0.225$) and entertainment and services ($p < 0.885$) do not significantly influence the dependent variable intention to visit, as discussed above in the model re-specification.

Other important relations between latent variables were also detected. Thus, the mobility and accessibility variable is significantly influenced by design and eco-natural environment, physical environment, and supply variables. Furthermore, entertainment and additional services variable are close to statistical significance ($p < 0.054$). Table VII shows the relation between the exogenous variables and their constructs. Thus, the first column shows non-standardized estimates of the relations between the variables on the right compared with the ones of the left. When the estimation value equals 1, it indicates that this restriction was placed in one of the equations in all latent variables to calculate the model's structural relation.

Therefore, exogenous latent variables are measured with the following items, all of which are statistically significant:

- supply and variety: variety of available shops, offer, and/or merchandise;
- design and eco-natural environment: natural spaces or scenarios and environments with vegetation and architecture;

Relations	Estimations	SE	CR	p
Mobility and access ← entertainment and services	−0.102	0.053	−1.928	0.054
Mobility and access ← design and eco-natural environment	0.136	0.034	3.979	0.001
Mobility and access ← physical environment	0.472	0.076	6.213	0.001
Mobility and access ← offer	0.205	0.055	3.697	0.001
Intention to visit ← offer	0.420	0.075	5.572	0.001
Intention to visit ← design and eco-natural environment	0.276	0.047	5.939	0.001
Intention to visit ← physical environment	0.371	0.113	3.297	0.001
Intention to visit ← mobility and access	0.151	0.124	1.214	0.225
Intention to visit ← entertainment and services	−0.010	0.071	−0.144	0.885
Intention2 ← intention to visit	1.000			
Intention1 ← intention to visit	0.979	0.060	16.368	0.001

Table VI.
Estimators and their importance for endogenous and exogenous latent variables

Relations	Estimation	SE	CR	p
Ofer3 ← offer	1.063	0.094	11.361	0.001*
Ofer4 ← offer	1.000			
Ecolog4 ← Design y Eco-natural environment	1.000			
Ecolog2 ← Design y Eco-natural environment	1.043	0.045	23.254	0.01*
Ecolog1 ← Design y Eco-natural environment	0.989	0.046	21.542	0.001*
Movili5 ← mobility and access	1.000			
Movili4 ← mobility and access	0.963	0.102	9.408	0.001*
Movili2 ← mobility and access	1.160	0.114	10.148	0.001*
Entreteni2 ← entertainment and services	1.163	0.113	10.324	0.001*
Entreteni1 ← entertainment and services	1.000			
AmbFis4 ← physical environment	1.000			
AmbFis3 ← physical environment	0.901	0.082	10.932	0.001*
AmbFis2 ← physical environment	0.950	0.087	10.858	0.001*
Intencion2 ← intention to visit	1.000			
Intencion1 ← intention to visit	0.979	0.060	16.368	0.001*

Note: *Significant at $p < 0.05$
Source: Self-elaboration

Table VII.
Estimators and their importance for exogenous latent variables from observations

- mobility and accessibility: freedom of motion within the shopping center, ease of access to the shopping center, and precise orientations for walking areas;

- entertainment and services: availability of restaurants and cafes as well as food areas;

- physical environment: appearance and cleanliness of the bathroom areas, perceived level of security of the shopping center, and cleanliness and order inside the shopping center; and

- in a view to explain the endogenous variable intention to visit, the following item was also considered: possible frequent visitor.

Discussion

Assessing a shopping center's attractiveness is crucial as this aspect is closely related to the intention to visit (Michon *et al.*, 2005). Measuring attraction factors is fundamental for companies developing their economic activity in highly competitive markets such as retail distribution (Munuera and Cuestas, 2006). However, these factors are rather diverse, and there is no agreement regarding quality and typology (North and Kotze, 2004). Such factors are formulated and analyzed according to the objectives of each study, which can be categorized in the research lines of supply/offer, accessibility, services, and environmental components, as noted in the literature review.

Consequently, results obtained from the proposed structural model show a good overall adjustment, and their psychometric properties meet the criteria accepted in the marketing literature. These results support the existence of discriminant validity between shopping centers' attraction factors and, consequently, the validity of most of the proposed working hypotheses, especially when demonstrating the structural relation between design and eco-natural environment and the intention to visit, the main contribution of this study. The implications of each theory are discussed below.

Acceptance of *H1* corresponds to previous findings regarding the positive and moderately significant contribution of physical environment to the consumer's intention to visit shopping centers (Biehl-Missal and Saren, 2012; Bigne *et al.*, 2006; Sierra *et al.*, 2000). The perceived safety indicator articulated in this dimension was already formulated by Berman and Evans (1995) when discussing the need to include this type of environmental variables in the study of the shopping centers' attraction factors. Additionally, they suggested that including the human component, employee appearance and the use of uniforms are two variables that can favor the perception of security. In our opinion, the presence of uniformed employees (security, attention, and maintenance employees) inside the shopping center, added to the appearance of the visitors themselves, are relevant variables regarding physical environment. International publications support the influence of physical environmental variables on consumer's opinion and buying behavior (Jha and Singh, 2014; Mishra *et al.*, 2014).

Regarding the acceptance of *H2*, which is the main contribution of this research, we verified the significant and positive effect of design and eco-natural environment on the intention to visit. This factor is a consequence of the visitors' interest toward the environment. Thus, aspects such as the display of vegetation, architecture with natural elements, natural spaces or scenarios, and the perception of eco-environmental design influence the attractiveness factor, which motivates customers to return and become frequent visitors. Maximization of the visitor's experience through environmental resources was suggested by Dewey (1922), who believed that there must be an interrelation between human beings and their environment. Specifically, the study of this variable or factor has a particular influence on consumer experience and behavior (Amérigo *et al.*, 2013; Brengman *et al.*, 2012; Do Paço and Raposo, 2009), which makes it a valuable resource in the

field of commerce. Furthermore, the literature indicates that the design and composition of the ecological-commercial environment is an important research topic (Söderlund and Newman, 2015; Dover, 2015; Brengman *et al.*, 2012). This demonstrates the need for more empirical works to prove their influence.

It was not possible to empirically prove *H3*, concerning the relations between mobility and accessibility with the intention to visit, and *H4*, regarding the relation between entertainment and additional services factor and the intention to visit. Obtained results do not directly confirm these relations; nevertheless, the adjusted model allows to evidence indirect effects of the offer/supply, design and eco-natural environment, entertainment and services, and physical environment variables through the mobility and accessibility variable. That is, obtained results suggest that the accessibility and mobility construct mediates or moderates the effects of each of the attraction factors on the intention to visit, an issue that needs to be confirmed or dismissed in future research as it had not been considered in the initial conceptual framework.

H5, regarding the positive effect of variety, quality, and status of the shopping center, was proved to be most significant while considering shopping center's attractiveness. These effects have been discussed by different authors (Khei *et al.*, 2001; Gould *et al.*, 2005; Rajagopal, 2009) who consider supply/offer quantity and quality, including available stores and brands, to be fundamental elements regarding the shopping center's attractiveness. Kim (2002) also discussed the relations of the characteristics of the offer with the social value for the consumer, which can mold the preference and behavior of consumers toward the shopping center in accordance with the dominant image of sophistication associated with it (Michon *et al.*, 2015). In our opinion, shopping centers do not only have an offer based on the quantity, variety, and quality of the articles and services delivered but also suggest images or perceptions of status from the brands marketed in these spaces.

Conclusions, limitations, and future research lines

Park (2016), Baker and Wakefield (2012), and Howard (1997) considered that shopping centers are, by definition, spaces with a high level of design of the commercial environment. In this case, as evidenced in the results of this research, consumer behavior is influenced by variables that can be understood from the field of study of environmental psychology as it deals with the relation between human behavior and physical environment (Dewey, 1922; Mehrabian and Russell, 1974; Heimstra and McFarling, 1978; Kaplan and Kaplan, 1989; Kaplan, 1995). Meanwhile, Jiménez *et al.* (2015), Amérigo *et al.* (2013), Suárez and Gumiel (2012), and Herzog and Strevey (2008) suggested that environmental psychology analyzes the influence of environmental, physical stimuli on human behavior.

Park (2016) stated that people visit shopping centers for several reasons such as buying the product they need or enjoying the shopping center's atmosphere and environment. In this sense, shopping centers compete for customers' attention; thus, they must allow for memorable experiences, with attraction variables favoring sensations, feelings, cognitive, and emotional responses associated with the experience of each shopping center (Brakus *et al.*, 2009; Srinivasan and Srivastava, 2010). In this manner, a particular consumer response and an increase in the purchase probability can be achieved (Spence *et al.*, 2014; Turley and Milliman, 2000; Kotler, 1973).

With regard to business implications, identification of specific empirical findings related to the way attraction factors work allows marketing directors and managers to improve their management decisions concerning design and implementation of marketing strategies, tactical decision guidance, decision-making assessment or control, and the proposal of alternative positioning attributes, such as the design, management, and arrangement of eco-natural environments that allow to increase the number of visits and purchases within these establishments.

The main conclusion of this study was to empirically include and demonstrate the influence of design and natural eco-environment on the intention to visit, along with other elements considered in previous investigations. This effect highlights the need to consider the relations among shopping centers' design, environment and ecological architecture, and consumers' behavior. In this sense, the literature provides a research line regarding the effect of biophilic architecture, which suggests that people need to be in permanent contact with ecological or natural spaces (Beatley, 2011; Appleton, 1975). These spaces or environments offer multiple psychological, social, environmental, economic, leisure, and production benefits (Söderlund and Newman, 2015). Therefore, the design of ecological spaces and environments has the potential of becoming a field of interest for the commercial management of shopping centers, given its potential effect on visiting and shopping intentions (Wolf, 2005; Joye *et al.*, 2010). This is particularly because it provides favorable effects on positive emotional states such as pleasure and well-being (Brengman *et al.*, 2012).

We believe that given the limitations of this research, a generalization of our results should be made with caution. No further information on the treatment of this attraction factor regarding shopping centers was observed throughout the literature review conducted in this study. Therefore, findings and implications need to be examined in future research. Additionally, although the sample and sample units are considered to be large enough for Bogota, the sample is not random. Furthermore, this population does not represent all customers or users of different types of shopping centers, all customer profiles, or all possible geographical locations, segmentation, and specialization issues that were not considered in the search.

However, despite these limitations, we consider that this study provides relevant information to the body of knowledge about the commercial management of retail establishments and their attraction factors. In this light, it would be interesting to include information that compares the relation between design and green environment with the consumer's emotional states in future studies, given the limited information found in the literature. It would also be important to further expand the study of the relation between the attraction factors and the profiles of current and/or potential consumers. Finally, we recommend including hierarchical questions to relate attraction factors to visitor profiles, geo-demographic information, and format typology of the establishment for possible multigroup analysis according to size, supply, and proximity criteria.

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