Article

Clothing and Textiles
Research Journal
1-16

DOI: 10.1177/0887302X16675052
ctr.sagepub.com
SAGE

Impact of Interior Colors in Retail Store Atmosphere on Consumers' Perceived Store Luxury, Emotions, and Preference

Ji Young Cho[1] and Eun-Jung Lee[2]

Abstract

A retail store space in luxury fashion functions as a critical marketing point communicating the brand's intended image. This study explores the symbolic effect of aesthetic factors of retail atmosphere in luxury, focusing on the impact of perceived luxury of interior colors in retail atmosphere on perceived store luxury, consumer emotion, and preference. A total of 218 U.S. consumers participated in an online survey, employing a hypothetical store image reflecting a high- or low-luxury retail atmosphere (manipulated through the interior colors). The results statistically support that (a) participants exposed to the high-luxury retail atmosphere condition (of high-luxury colors) report a higher level of perceived store luxury than do the participants exposed to the low-luxury retail atmosphere condition (of low-luxury colors), (b) perceived store luxury increases felt pleasure and arousal but not felt dominance, and (c) felt pleasure and arousal improve store preference.

Keywords

retail atmosphere, luxury fashion, color, emotion, perceived store luxury

In the contemporary fashion industry, a retail store space is no longer just for displaying or selling products. Rather, it functions as a crucial branding element, affecting store image. In capturing the overall ambience of store space (Eroglu & Machleit, 1990), *retail atmosphere* refers to "the conscious designing of space to create certain effects in buyers" (Kotler, 1973, p. 50). A retail atmosphere is believed to exert significant cognitive, attitudinal, and emotional impacts on purchasing (Das, 2014; Levy & Weitz, 2001) by "drawing consumers in, keeping them engaged, and enhancing

[1] Department of Housing and Interior Design, Kyung Hee University, Seoul, Republic of Korea
[2] Fashion Design Department, Kookmin University, Seoul, Republic of Korea

Corresponding Author:
Eun-Jung Lee, Fashion Design Department, Kookmin University, #511 College of Design Building, Seoul 136702, Republic of Korea.
Email: eunjung.lee1@gmail.com

their shopping experience" (Elliot & Maier, 2014, p. 109). The atmosphere of a retail store space comprises such various sensory elements as color, layout, music, scent, temperature, and odor; each element makes its own contribution to the overall store image (Beverland, Lim, Morrison, & Terziovski, 2006; Bitner, 1992; Das, 2014; Gorn, Chattopadhyay, Yi, & Dahl, 1997; Levy & Weitz, 2001; Turley & Milliman, 2000; van Rompay, Tanja-Dijkstra, Verhoeven, & van Es, 2012). From the consumer's perspective, the aesthetic factors of retail atmosphere can be most powerful in forming store image due to their visual prevalence (Spence, Puccinelli, Grewal, & Roggeveen, 2014; van Rompay et al., 2012).

This role of aesthetic factors in retail atmosphere becomes further evident in luxury fashion, where purchasing decisions are based largely on hedonic values drawn from quality shopping environments (Atwal & Williams, 2009; Chung, Youn, & Lee, 2014; Spence et al., 2014). Consumers expect luxury retail environments to be significantly different from those of lower-priced fashion establishments, and they are aware that the high price of luxury items includes the costs of maintaining an exceptional store setting (Spence et al., 2014). Every year, luxury fashion houses make huge investments into retail store spaces; however, the executive decisions depend mainly on personal taste and past experience of interior designers. As such, there is a lack of managerial guidelines for developing a luxury retail atmosphere. Although researchers have examined retail stores' atmospheric effects on shoppers (Eroglu & Machleit, 1990; Levy & Weitz, 2001; Turley & Milliman, 2000), few have empirically addressed the effectiveness of the aesthetic factors of luxury retail environments on purchasing (Gorn et al., 1997; Labrecque, Patrick, & Milne, 2013; Spence et al., 2014). Given the importance of symbolic messages in luxury branding (Christodoulides, Michaelidou, & Li, 2009; Spence et al., 2014) and the significance of the aesthetic impact on consumers in retail settings (Elliot & Maier, 2014), addressing the research gap will benefit both the managers and academicians.

Accordingly, in this study, we attempt to address the symbolic role of aesthetic factors of the luxury retail atmosphere in creating store image. More specifically, we focus on color among the various aesthetic elements of store design, testing the impact of the perceived level (high or low) of interior colors' luxury meaning and their effects on consumer emotions and preferences in a retail atmosphere. Color is chosen because it is the most predominant visual stimulus in store design (Levy & Weitz, 2001; Spence et al., 2014) and is widely suggested to have an effective symbolic appeal in branding (Atwill, 2015; Elliot & Maier, 2007, 2014). Thus, we expect that interior color in a retail atmosphere can reflect a certain level of a perceived luxury image by itself, affecting subsequent in-store consumer psychology. Despite its significance, the symbolic impact of color on store image has been discussed rarely in the literature on retail environments or luxury branding (Deng, Hui, & Hutchinson, 2010; van Rompay et al., 2012). Our conceptual framework is derived from the multidisciplinary principles of luxury (Chung et al., 2014), retail atmosphere and store image (Bitner, 1992; Das, 2014; Spence et al., 2014), color (Elliot & Maier, 2007, 2014; Kobayashi, 1990), and environmental psychology (Donovan & Rossiter, 1982; Mehrabian & Russell, 1974).

Based on this, we hypothesize the following: (a) the interior color of a retail atmosphere creates different levels of consumer perceptions of store luxury (Christodoulides et al., 2009), (b) the perceived store luxury increases positive emotions among consumers (Mehrabian & Russell, 1974), and (c) positive emotions increase consumers' store preference (Bellizzi & Hite, 1992). In the main experiment, we employ a hypothetical retail store setting where the interior color is manipulated to reflect a differing level of perceived luxury (with all other factors of the retail atmosphere kept identical). Given that the color theory-based, top-down method of choosing specific wavelengths or hues lacks some relevance to realistic branding settings (Elliot & Maier, 2014; van Rompay et al., 2012), we employ a bottom-up method of setting multiple colors (Kobayashi, 1990) for a retail atmosphere that is realistic in representing fashion stores.[1]

Literature Review

Luxury Brand and Retail Atmosphere

Luxury refers to prestige, high status, premium quality, rarity, and items that are perhaps nonfunctional or superfluous (De Barnier & Valette-Florence, 2013; Vigneron & Johnson, 2004). In the context of the fashion business, luxury is first recognized by the highest price levels within the category (Miller & Mills, 2012). The legitimacy of high price comes from (a) an exceptional product quality and production processes based on craftsmanship, rarity, and tradition (Chung et al., 2014); (b) enhanced and fulfilled self-perceptions and self-expressive motivations from exclusive designs, images, and brand names; and (c) hedonic values experienced through shopping activities within luxury retail environments (Atwal & Williams, 2009; Chung et al., 2014; Grigorian & Oetersen, 2014). An ultimate goal of luxury branding is to create an exceptional consumption experience that significantly differentiates the brand from other brands targeting mass markets (Spence et al., 2014). Symbolic marketing factors, including the point-of-purchase contexts of retail stores, greatly impact luxury buying decisions (Miller & Mills, 2012).

A retail atmosphere is helpful in building a luxury retail store environment that contributes to exceptional shopping experiences. An in-store environment constitutes the man-made physical surroundings in contrast to the social or natural environment (Kotler, 1973). The atmosphere of a retail store space reflects the overall vibe and ambience (Bitner, 1992). From a broader perspective, a retail atmosphere is a subset of a servicescape (Bitner, 1992), which is "a composite of three dimensions: ambient conditions; spatial layout and functionality; and signs, symbols, and artifacts" (Bitner, 1992, p. 65). Past research highlights the crucial effectiveness of the retail atmosphere on in-store consumer psychology. The designs of retail environments elicit cognitive, physiological, and affective responses (Bitner, 1992) exemplified by but not limited to the following: Cognitive responses are the symbolic meaning-making or categorization of received information from the environment, physiological responses are the onset of fatigue as a result of certain lighting conditions, and affective responses are those that result in emotional responses, such as the feelings of arousal caused by a certain color. The three responses are not separate but interdependent and ultimately influence how people behave in their environment (van Rompay et al., 2012). Indeed, others highlight that visual, aural, olfactory, and tactile dimensions of an atmosphere are used in marketing to influence shoppers' behavior through at least the following three types of mediums: attention creation, message creation, and affect creation (Kotler, 1973; van Rompay et al., 2012).

A retail store space for luxury should be well designed to successfully communicate the desired luxury brand image (Levy & Weitz, 2001). The level of perceived luxury of the retail atmosphere results in the overall perceived luxury of the store, and various sensory stimuli of the retail atmosphere should be carefully chosen and managed so they reflect a coherent message of high luxury (Das, 2014; Levy & Weitz, 2001). Particularly, the aesthetic factors of the retail atmosphere are keys to luxury branding, as visual stimuli are most powerful in creating images and symbols (Das, 2014).

Luxury Interior Colors

Color is "the most influential ambient variable" (van Rompay et al., 2012, p. 803) among various aesthetic factors in a retail atmosphere. It is a fundamental visual attribute of store layout and design (Das, 2014; Turley & Milliman, 2000). Color is believed to convey meaning that influences an individual's cognition and behavior (Spence et al., 2014). Elliot and Maier (2007) offered the following six premises about color perception: (a) colors convey specific meanings, (b) those meanings are based on either biological proclivity or learned associations, (c) the perception of color evokes an evaluative process, (d) this evaluative process motivates behavior, (e) the process triggered by color perception that results in behavior motivation is automatic and subconscious, and (f)

the meaning of a color and its associated effects are context-specific, that is, a color may be perceived as positive or negative depending on the context where the color is used.

Then what is the perceived luxury of color, and which colors would reflect a high level of perceived luxury? Since color can express a specific meaning, certain colors likely reflect a higher level of perceived luxury meaning than other colors do; ritual and religious approaches to referential meaning of color associated with luxury have long existed since the Middle Ages, suggesting that hues like gold, purple, and silver represent luxury (Elliot & Maier, 2007; Pastoureau, 2008). Although popular, these notions lack validity as the same hue reflects different meanings in different contexts. A single hue often represents contrasting meanings, and no consensus exists on the universal colors reflecting luxury—even in the same context. For instance, black has often been used to represent authority, style, power, and elegance, however, it also implies humility, submission, sin, poverty, and evil (Pastoureau, 2008). Likewise, purple has often been associated with quality, luxury, and royalty, however, it can also be whimsical, decadent, or even tacky (Birren, 1997). Thus, in order to study luxury color, a bottom-up approach is necessary. Most researchers of relevant studies have tested the effectiveness of a single hue or two contrasting hues with extreme color temperatures (e.g., red vs. blue) or wavelengths (e.g., red vs. purple; Babin, Hardesty, & Suter, 2003; Crowley, 1993). For example, Babin, Hardesty, and Suter (2003) reported that using a blue hue in interior design significantly increases the feeling of excitement. Crowley (1993) found that colors with extreme wavelengths elicit arousing reactions while colors with short wavelengths elicit a positive evaluative response. While the top-down method of choosing colors based on color temperature theory is pioneering, it lacks some relevance to realistic branding settings (Elliot & Maier, 2014; van Rompay et al., 2012) because, in many stores, multiple hues are used and differences in color temperature or wavelength may not necessarily capture a consumer's response toward luxury.

Comparatively, several researchers have explored the associated meaning of color combinations using a bottom-up approach, focusing on empirical perspectives. For instance, in *Color Image Scale*, Kobayashi (1990) presented several color combinations associated with luxury; through a series of surveys and statistical analyses, he suggested 130 basic colors and 1,170 three-color combinations (i.e., themes) that matched 180 key words, including some theme colors reflecting luxury. Kobayashi matched combinations of black, brown, and yellow with the word luxurious; brown, black, and gray with the word sophisticated; and a combination of black, brown, and gray with the word dignified. We suggest that his bottom-up systematization of color combinations based on viewer perception of luxury in colors has more relevance to fashion retail marketers and designers by providing diverse sets of color combinations that can be used for store branding. We do not follow the exact luxury colors suggested by the *Color Image Scale*; they were based on Asian culture and required adjustment to the current context to reflect contemporary Western customers' views and retail settings. Meanings associated with colors vary across sociocultural contexts, individual backgrounds, and time (De Barnier & Valette-Florence, 2013; Elliot & Maier, 2014; Freire, 2014). In our study, we focus on American adults' perceptions of luxury, as the U.S. market represents the largest segment of luxury consumers (Bain & Company, 2014) and the fastest growing luxury market (Frank, 2013).

Perceived Store Luxury

A retail atmosphere of high-luxury interior colors should increase perceived store luxury. Perceived store luxury refers to the degree to which a store is perceived as luxurious by consumers (Christodoulides et al., 2009), which can be measured through a rating system (De Barnier & Valette-Florence, 2013; Dubois, Czellar, & Laurent, 2005). A store space itself may reflect certain symbolic images to customers (Kotler, 1973). The symbolic role of color in creating referential meaning in branding contexts has been discussed in the literature: Abril,

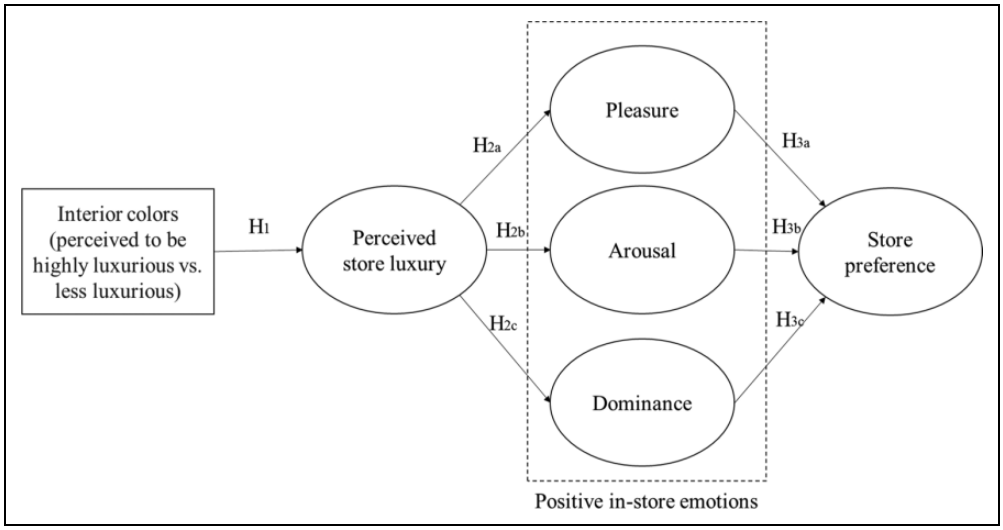

Figure 1. Conceptual framework and hypotheses.

Olazábal, and Cava (2009) contended that color carries intrinsic meaning that becomes central to the brand's identity and contributes to brand recognition. Indeed, Bottomley and Doyle (2006) and Labrecque, Patrick, and Milne (2013) suggest that color helps a brand to communicate the desired image in such branding forms as advertisements. Through color, a brand can establish an effective visual identity, form strong relationships with a target market, and position itself among competitors in the marketplace (Labrecque et al., 2013). A strong relationship has been suggested between the image reflected by the retail atmosphere and the store image; Cox and Brittain (2004) consider store atmosphere to be the major component of store image. Evans and Berman (2013) contend that a retailer's image depends heavily on its atmosphere. Based on the literature, the following is hypothesized (Figure 1):

Hypothesis 1: Interior colors perceived to be luxurious will increase perceived store luxury.

Emotions in Retail Environments

The perceived store luxury from the high-luxury colors should increase positive in-store emotions in the retail atmosphere. Researchers highlight that various in-store emotions are derived from store images (Bottomley & Doyle, 2006; Yani-de-Soriano & Foxall, 2006). The stimulus–organism–response (S-O-R) model in environmental psychology explains the effects of atmosphere variables on consumers' emotional states, their behavior, and the types of emotions experienced. The stimulus (S) reflects various physical and psychological factors associated with a store, the organism (O) is theorized as the emotional state following the introduction of a stimulus, and the response (R) is the approach or avoidance response to the stimuli (Donovan & Rossiter, 1982; Mehrabian & Russell, 1974). The intervening variables are the three distinct emotional states: pleasure (P), arousal (A), and dominance (D), or PAD, which play a mediating role for approach or avoidance response to the environment:

> Pleasure-displeasure refers to the degree to which the person feels good, joyful, happy, or satisfied in the situation; arousal-nonarousal refers to the degree to which a person feels excited, stimulated, alert, or

> active in the situation; and dominance-submissiveness refers to the extent to which the individual feels in control of, or free to act in, the situation. (Donovan & Rossiter, 1982, p. 38)

Perceived store luxury increases the three positive in-store emotions. First, perceived store luxury will enhance pleasure. Elliot and Maier (2014) suggest that high quality and aesthetics in designs increase positive customer emotions. More specifically, enjoying luxurious surroundings can produce sense of pleasure (Yani-de-Soriano & Foxall, 2006). When consumers perceive a great degree of luxury in a store, they will feel a high degree of pleasure because the perception of luxury has pleasurable and hedonic values (De Barnier & Valette-Florence, 2013). Second, perceived store luxury will enhance arousal. The emotion of arousal involves a mentally awake status—excitement rather than calm, aroused rather than unaroused, and wide awake rather than sleepy (Mehrabian & Russell, 1974). Luxury perception reflects something extraordinary and excessive that is associated with a strong sense of arousal (Chebat, Sirgy, & Grzeskowiak, 2010). In high-luxury environments, people feel excited and wide awake rather than calm or sleepy. Meanwhile, past researchers have shown a positive correlation between pleasure and arousal (Crowley, 1993; Donovan & Rossiter, 1982). Third, a perception of store luxury will increase dominance in the store environment. Dominance is the feeling of importance rather than insignificance and dominance rather than submissiveness (Donovan & Rossiter, 1982). Individuals feel powerful and dominant when they find the desired atmosphere fits their perceived environment (Babin et al., 2003; Kotler, 1973). Indeed, Chebat, Sirgy, and Grzeskowiak (2010) documented that a perceived congruency between expectation and reality increases dominance. Therefore, in high-luxury environments, consumers are likely to feel they are ''persons of privilege, deserving the utmost in control over the service they receive'' (Ward & Barnes, 2001, p. 143). Based on the literature, the following hypothesis is suggested:

Hypothesis 2: Perceived store luxury will increase consumers' positive emotions: (a) pleasure, (b) arousal, and (c) dominance.

Store Preference

Positive in-store emotions should increase luxury store preference. Store preference is expected as the outcome of the approach–avoidance decision derived from emotions (Donovan & Rossiter, 1982; Mehrabian & Russell, 1974). Store preference refers to the extent to which consumers like a specific store space (Bellizzi & Hite, 1992). The behavior of approach to or avoidance of the environment (R) includes the following: (a) physically remaining in the environment (approach) or avoiding it (avoidance), (b) willingness to explore the environment (approach) or remaining disengaged (avoidance), (c) willingness to interact with others in the environment (approach) or avoiding interaction (avoidance), and (d) the approach or avoidance of personnel and satisfaction in the environment (Donovan & Rossiter, 1982). Researchers have provided empirical support for the strong prediction of PAD in a customer's approach–avoidance intentions: Pleasure (P) in a store is known to create willingness to purchase (Donovan & Rossiter, 1982) and is considered to be the most significant factor among PAD in increasing approach behavior (Lunardo & Mbengue, 2009). Arousal (A) creates a positive desire to interact with the store environment and increases the likelihood of return visits to the same environment (Donovan & Rossiter, 1982) as well as raising purchase intention and spending (Sherman, Mathur, & Smith, 1997). Arousal (A) increases willingness to approach a pleasant environment, but this decreases with unpleasant environments (Donovan & Rossiter, 1982). Dominance (D), which is known to play the weakest role in the approach–avoidance decision (Russell & Pratt, 1980), has been inconsistently portrayed in prior research. Ward and

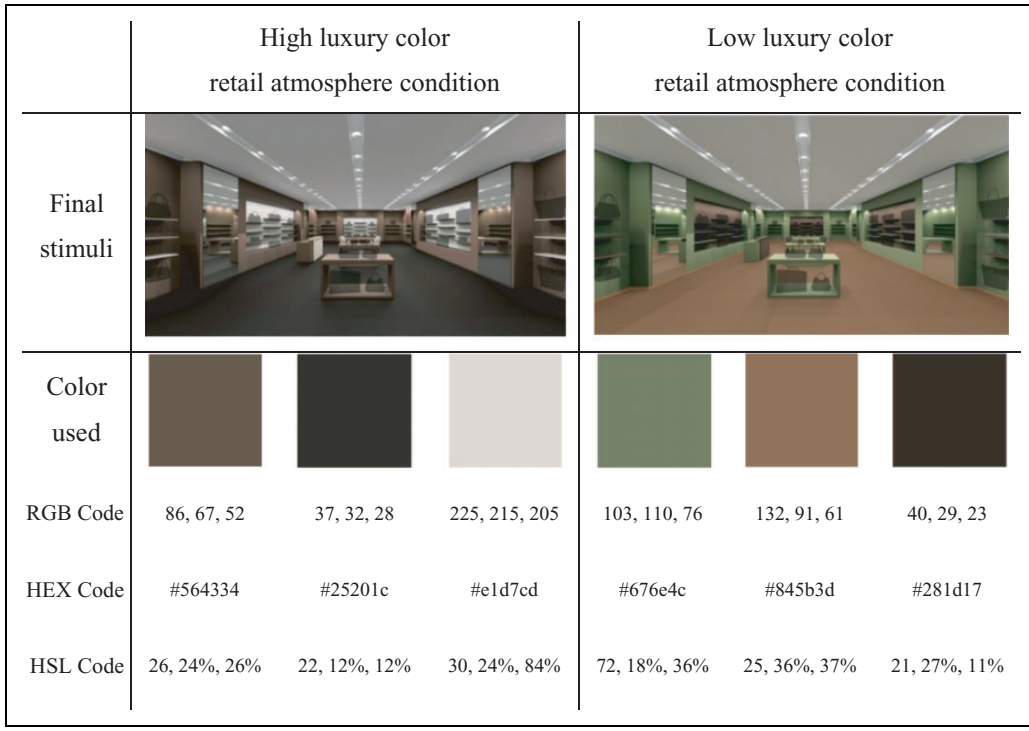

Figure 2. Visual stimuli used in the main experiment.

Barnes (2001) reported a positive impact of dominance on approach, however, Koo and Lee (2011) showed no impact of dominance on approach. Because dominance concerns whether you feel powerful or not from your reaction to the environment (Yani-de-Soriano & Foxall, 2006), one who feels powerful and significant in the space will like the store and want to spend more time there. In sum, we hypothesize the following:

Hypothesis 3: Consumers' positive emotions—(a) pleasure, (b) arousal, and (c) dominance—will increase their store preference.

Method

Study Design

Pilot study. For the hypotheses testing in the main experiment, we set up two hypothetical store images as the visual stimuli, each of which reflected either a high- or low-luxury color retail atmosphere condition. For this, we performed a multistep pilot study in the winter of 2014: (a) First, we randomly compiled a total of 50 store images from hundreds of actual fashion store images available on the web (including those for luxury or discount stores) and (b) we then had six professionals (who have degrees in interior or fashion design and years of relevant work experiences) rate the perceived luxury of the 50 images. Based on the result, we chose eight store images—four the most luxurious and four the least luxurious—and extracted a set of three dominant interior colors from each image; (c) we then developed a 3-D rendering platform of a standard fashion retail store using a computer-aided program (REVIT) and applied the eight sets of color combinations to

the rendering, creating a total of eight hypothetical retail store images (of the same rendering but with different interior colors); (d) and next we conducted a survey with 30 students, recruited at a Midwestern university through classes, testing the perceived luxury of the eight hypothetical store images. From the survey results, two out of the eight hypothetical store images—one with the highest perceived luxury and the other with the lowest—were finally set as the two visual stimuli of our main experiment, matching the low- or high-luxury color retail atmosphere condition. Figure 2 shows RGB (Red, Green, Blue) and HSL (Hue, Saturation, Lightness) information of the two color combinations and the two hypothetical store images used for the visual stimuli of the main experiment.[2]

Main experiment. We conducted our main experiment by administering an online survey to 218 U.S. consumers ($n_{low} = 109$, $n_{high} = 109$) recruited through https://qualtrics.com, a nationwide research company. The participants had been approached by the company via e-mail and invited to our survey website. Once logged on to the website, each participant was randomly assigned to either the low- or high-luxury color condition. In both luxury color conditions, the participants were exposed to the hypothetical store image of low- or high-luxury colors (4,000 × 2,100 size with 300 dots per inch resolution) developed from the pilot study. Along with the store image, the participants were also provided with a shopping scenario that described the retail context of the hypothetical store in the image as a luxury store selling high-priced fashion goods. This scenario was identical across the two color conditions. Having been exposed to the store image and the scenario, the participants were then asked to provide a self-report on their evaluation of the store in the image by completing the online survey. In the survey, a manipulation check on the perceived luxury level of store image was measured using a single 5-point Likert-type measurement ("the retail store environment in the image above looks luxurious"). The results of analysis of variance (ANOVA) on the item indicated a significantly higher perceived luxury for the store image of the high-luxury color condition than for the store image of the low-luxury color condition, $M_{high} = 4.12$, $M_{low} = 2.26$, $F(1, 216) = 43.70$, $p < .001$. The perceived realism of store images was measured using the two items initially suggested by Darley and Lim (1993) and modified for the current context: "I could imagine myself shopping in the store shown in the image" and "I believe that the store in the image could exist in real life." The responses reflected a sufficient level of realism of the employed stimuli and revealed no difference across the high- and low-luxury color retail atmosphere conditions, $M_{low} = 4.12$ vs. $M_{high} = 4.33$, $F(1, 216) = 2.25$, $p > .10$.[3]

Measures

We used established instrument items to measure the variables; in measuring perceived store luxury, we used the following five adjectives: premium, expensive, prestigious, exclusive, and superior. The adjectives were drawn from previous literature on luxury (Christodoulides et al., 2009; Das, 2014; Dubois et al., 2005; Miller & Mills, 2012) and were tested and selected through our pilot test. Store preference was assessed using Bellizzi and Hite's (1992) three items: "If the store is available in reality: (a) I will like to spend time browsing in this store, (b) I will like this color for luxurious branding store, and (c) I will like this retail environment." Each item in all measures was rated on a 5-point Likert-type scale from 1 (*not at all*) to 5 (*very much*). Finally, the three in-store emotions were tested using the set of 18 items originally suggested by Mehrabian and Russell (1974) and modified by Donovan and Rossiter (1982); each emotion was measured by six sets of the two contrasting adjectives, with one pole being positive and the other being negative (e.g., pleased-annoyed). Assessment was done with a 7-point Likert-type scale.

Table 1. Construct Means, Standard Deviations, and Correlations.

Model Constructs	Mean	*SD*	Correlations				
			1	2	3	4	5
1. Perceived store luxury	2.89	0.99	***.62***[a]				
2. Pleasure	4.65	1.56	.34**	***.72***			
3. Arousal	4.91	1.11	.32**	.78**	***.71*****		
4. Dominance	4.53	0.66	.00	.39**	.34**	***.70***	
5. Store preference	3.25	1.16	.33**	.77**	.68**	.34**	***.73***

Note. $N = 218$.
[a]The diagonal matrix is average variance extracted (AVE).
**$p < .01$.

Results

Preliminary Analysis

Sample profile. The average age of the participants was 49.79 years ($SD = 14.93$), with a range of 21–80 years (about 80% were between 25 and 65 years old). Of the total participants, 67.9% were female and 32.1% were male. Regarding education, 45.4% were high school graduates, 36.7% were college graduates, and 10.6% held graduate degrees. As for income, 17.0% earned less than US$30,000 per year (17.0%), 29.8% earned between US$30,000 and US$49,999, 28.4% earned between US$50,000 and US$69,999, 11.9% earned between US$70,000 and US$99,999, and 12.8% earned US$100,000 or more. With regard to ethnicity, the sample comprised Caucasians (87.6%), Asians (4.6%), African Americans (4.1%), and Hispanics (2.8%). Compared to the U.S. general population, the participants of our current research were older (with no teenagers included) and more Caucasian-focused with limited racial diversity (U.S. Census Bureau, 2016).

Validity and reliability. The measurement scales used in this study were subjected to commonly used tests of reliability, validity, and unidimensionality. First, the reliability of the constructs was evaluated using Cronbach's α coefficients. The reliability coefficients for the variables ranged from .82 to .95, which is considered satisfactory (Nunnally, 1978). We tested the convergent and discriminant validity of the measures using confirmatory factor analysis and found that factor loadings of all indicators exceeded .6 for the latent variable, indicating that the measures had acceptable convergent validity for each construct. Likewise, the composite reliability and average variance extracted (AVE) from the constructs met the required levels of .7 and .5 (Fornell & Larker, 1981). The AVE for one construct was found to be greater than the squared correlation between that construct and any other (Anderson & Gerbing, 1988), thereby confirming the discriminant validity of the measures. All the measures are shown in Table 1 along with their respective descriptive statistics, correlations, and discriminant validity analyses.

Testing Hypotheses

Hypothesis 1 predicted a positive effect of interior colors perceived to be highly luxurious on perceived store luxury. ANOVA revealed a significant difference in perceived luxury between the low- and high-luxury color retail atmosphere conditions, $M_{low} = 2.54$ vs. $M_{high} = 4.13$, $F(1, 216) = 52.30$, $p < .001$; we found statistical support that the perceived luxury of retail store atmosphere in the hypothetical image increases perceived store luxury. In other words, the participants

Table 2. Hierarchical Regression Model 1.

		Model 1			Model 2			Model 3		
	Dependent Variable	Pleasure			Arousal			Dominance		
Step	Independent Variables	β	R^2	*F* Value	β	R^2	*F* Value	β	R^2	*F* Value
1	Gender	−.057	.089	5.179**	−.065	.070	4.025**	.047	.023	1.242
	Age	−.231**			−.212**			−.127		
	Education level	−.160*			−.140*			−.075		
	Household income	−.129			−.101			.019		
2	Gender	−.039	.197	10.429***	−.047	.162	8.194***	−.046	.023	0.997
	Age	−.198**			−.182**			−.128		
	Education level	−.148*			−.129			−.075		
	Household income	.162*			.131			−.021		
	Perceived store luxury	.334***			.306***			−.013		

Note. We used dummy variables for gender (0 = *male*, 1 = *female*).
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 3. Hierarchical Regression Model 2.

Step	Variables	*b* (*SE*)	β	R^2	*F* Value
1	Gender	−.100 (.161)	−.040**	.102	7.185***
	Education level	−.024 (.005)	−312*****		
	Household income	−.190 (.083)	−.153**		
	Age	−.033 (.029)	−.077**		
2	Gender	−.008 (.107)	−.030**	.608	48.993***
	Education level	−.010 (.003)	−.214**		
	Household income	−040 (.055)	−.035*		
	Age	−.007 (.019)	−.036**		
	Felt pleasure	.419 (.051)	.574*****		
	Felt arousal	.197 (.071)	.190**		
	Felt dominance	.051 (.082)	.029**		

Note. We used dummy variables for gender (0 = *male*, 1 = *female*).
*$p < .05$. **$p < .01$. ***$p < .001$.

reported significantly higher levels of perceived luxury in the retail atmosphere using high-luxury colors than they did in the retail atmosphere of low-luxury colors. In sum, Hypothesis 1 was supported.

Hypothesis 2 suggested a positive effect of perceived store luxury on consumers' emotions, such as pleasure, arousal, and dominance. The hypothesis was tested using three sets of hierarchical regression analysis, each of which adopted one of the three emotions as the dependent variable. Table 2 summarizes the results of the hierarchical regression analyses for the variables under investigation in Hypothesis 2. All scales with multiple items were averaged to form composite scales in order to mitigate problems of multicollinearity (Edwards & Lambert, 2007). To control for the effects of sociodemographic variables on the dependent variables, we included four basic demographic characteristics (age, gender, household income, and education) as covariates in the first step (Verhoef, Franses, & Hoekstra, 2002). The results revealed a significant effect of perceived store luxury on pleasure (Hypothesis 2a: $\beta = .33$, $p < .001$) and arousal (Hypothesis 2b: $\beta = .31$,

$p < .001$). However, no significant effect was found in relation to dominance (Hypothesis 2c: $\beta = -.01$, $p > .05$). To summarize, the results provided statistical support for the positive effect of perceived store luxury on pleasure and arousal (but not on dominance). Thus, Hypothesis 2 was partially supported (Table 2).

Hypothesis 3 predicted that consumers' in-store emotions, such as pleasure, arousal, and dominance, would positively influence their preference for the store. The results of hierarchical regression analysis indicated that pleasure (Hypothesis 3a: $\beta = .57$, $p < .001$) and arousal (Hypothesis 3b: $\beta = .19$, $p < .01$) made important contributions to consumer preference for the store, however, no statistical support was found for an effect of dominance on store preference (Hypothesis 3c: $\beta = .03$, $p > .05$). To explain, the results revealed a significant positive impact of pleasure and arousal (but not of dominance) on store preference. Hypothesis 3 was partially supported (Table 3).

Conclusion

Theoretical Implications

By exploring the impact of associated meaning of color in retail contexts, we can add some new suggestions to the extant literature on retail atmospheres, which is focused mostly on such other atmospheric stimuli as music, scent, and lighting (Beverland et al., 2006) or on atmospheric effects of overall ambient and design factors (Lin & Liang, 2011). We expand the research of color in marketing contexts, while most prior researchers have focused on the effect of color temperature (warm vs. cool) or wavelength (red vs. blue) on emotion (Crowley, 1993; Labrecque & Milne, 2013); in this study, we explore the effect of the perceived (luxury) meaning of colors on the consumer. Research on color psychology in branding has highlighted some discrepancies from actual retail branding situations; most prior researchers employed a single hue in retail environments using a top-down method from color temperature theories, and this lacks applicability to an actual retail atmosphere. We took a bottom-up approach (Deng et al., 2010; Kobayashi, 1990) by searching realistic interior colors of existing store images. With this research, we add to the extant research of color in retailing (Elliot & Maier, 2014) by responding to prior research calls (Gorn et al., 1997; van Rompay et al., 2012) for empirical testing of the perceived meaning of a retail atmosphere from the customer's view. Therefore, we empirically elaborate on the positive interactions among the emotional and cognitive states of consumers in a store and thus contribute to the extant literature of in-store consumer psychology.

While we have contributed to the literature on emotions in stores, the hypothesized intervening role of dominance in the relationships among retail atmosphere, store image, and preference were not supported, while the predicted roles of pleasure and arousal were statistically found to be significant. This discrepancy across the three types of key emotions in a retail atmosphere differs somewhat from the initial suggestion by Mehrabian and Russell (1974). Further literature review shows that Russell and Mehrabian (1978) found an unexpected result—that people approach an environment where they are in a submissiveness-eliciting setting rather than a dominance-eliciting setting—which was not what they originally hypothesized and which they could not explain (Yani-de-Soriano & Foxall, 2006). According to Donovan and Rossiter (1982), people tend to spend more money in submissive environments although not at a significant level. Russell and Pratt (1980) argued that dominance is not purely an emotional response, because it requires cognitive interpretation, and they dropped dominance from their PAD model. We had expected that feelings of dominance (D) would increase when consumers felt that they could control the given environment, however, the prestige associated with the colors used in a luxury store might have intimidated customers. As a result, customers may have been awed by the environment and felt submissive.

Managerial Implications

Through our study, we have empirically confirmed the managerial belief that a store space can be a critical branding tool to communicate a specific store image. In addition, we suggest that luxury retail managers should be highly careful in addressing the store design, because a specific retail atmosphere design attribute such as interior color alone can create the perception of luxury, and the perceived luxury of interior color significantly affects the overall store image (i.e., perceived store luxury), which in turn leads to in-store consumer emotions and preference. This indicates that there is a possibility of a powerful symbolic effect of aesthetic factors on a retail atmosphere, and this will become more crucial with growing consumer demands for aesthetics and hedonic appeal, even in retail settings (Spence et al., 2014). Although we currently focused on a luxury retail context, the importance of store design factors (e.g., interior color) in a specific or retail atmosphere in general is expected to also be crucial in other fashion categories, given the increasing notion of consumers' need of a quality shopping experience at various price levels. Given the significance of changing the colors of a retail atmosphere in our results, forward-looking retail mangers should put further emphasis on store design based on a more thorough understanding of the symbolic meaning of retail atmosphere at the point of purchasing and the profile of customers. With limited useful theory-grounded guidelines, some brand managers and store designers may depend on anecdotal experiences, personal preference, or intuition in setting a retail atmosphere (Atwill, 2015). In this study, we provide some initial guidelines as to how the stimuli of a retail atmosphere cognitively and emotionally affects luxury shoppers. With the findings, therefore, luxury retail managers and interior designers should consider the effectiveness of various elements of retail environments to develop a luxury store space that fits the customers' demands. By empirically addressing a specific aesthetic factor of store design (i.e., interior colors) and showing its symbolic effect on shoppers, we attempted to highlight the importance of these details. Details of retail store design should be carefully chosen because each may have a significant contribution to the perceived store image. Based on the results, it is suggested that luxury retail managers should further elaborate their managerial plans for their luxury retail atmosphere, which will help them in more effectively planning and allocating costs for interior design.

Limitations and Future Research

The bottom-up approach of color choice employed in our study garnered a realistic color combination for a luxury retail context with some sacrifice of a thorough scientific background for chosen colors (which could be a benefit of a science-based, top-down approach on color choice). Our focus was to explore the symbolic effect of the perceived luxury image of interior colors in a retail atmosphere on consumers' in-store reactions, both cognitive (i.e., perceived store luxury) and emotional (i.e., in-store emotions). The high- and low-luxury colors used in our experiment can be noted as just a few among numerous colors reflecting a high- or low-perceived luxury image. Defining certain colors as representative of luxury (which can be universally employed in various retail settings) or analyzing scientific attributes of luxury colors was certainly out of our research scope. In fact, these might be almost impossible; the level of perceived luxury of color may vary across different consumer groups or sociocultural contexts because of varying definitions of luxury (De Barnier & Valette-Florence, 2013) and different color meanings across contexts (Elliot & Maier, 2014). Meanwhile, in most situations, multiple colors are used in fashion retail store environments (while most current color theories are based on single hue or wavelength). Yet, further research is necessary to improve and elaborate on scientific backgrounds of colors (Deng et al., 2010), reflecting certain meanings in a retail atmosphere (see Appendix for additional explanation of color attributes of our color choices). Furthermore, to enhance the findings, interactions between colors

and other design attributes in the luxury retail atmosphere should be explored. Another limitation is the potential for discrepancy in stimuli quality for participants per their screen size or resolution due to the online survey. The literature review shows no impact of mode of survey on response contents (Denscombe, 2006) and no correlation between screen size and resolution currently (Callergaro, 2013), but further investigation is worthwhile. Lastly, the results cannot be generalized due to the limited store surroundings used in the experiment and the confined demographic characteristics of the participants (Thorson, Wicks, & Leshner, 2012).

Appendix

Analyzing Hue Properties of Colors Used in the Experiment

Defining specific colors representing luxury or revealing scientific attributes of chosen colors (i.e., high- and low-luxury colors) is out of our research scope. Yet still, some explanation of color attributes may be necessary to better understand the underlying science of color and to produce results in line with the prior literature. Therefore, we have sought for some possible explanations of colors' perceived luxuriousness based on prior literature of color science.

The first reason for this may relate to the hue, saturation, and value used in high- versus low-luxury combinations. That is, our high-luxury colors comprise dark brown almost black, brown, and ivory while our low-luxury colors comprise green, orange, and brown (Figure 2). Black is believed to relate to sophistication, status, richness, and dignity, however, brown and green are reported to relate to ruggedness, strength, robustness, and reliability, which are somewhat far from the nature of luxury (Labrecque et al., 2013). Saturation and value are also considered to be important in predicting emotions and perception. Western adults are reported to dislike dark orange and dark green and dislike colors with lower saturation; both dark orange and dark green with low saturation were used in our low-luxury stimuli. Second, another other possible explanation is the preference for similar hue colors versus contrasting colors. Deng, Hui, and Hutchinson (2010) found that people like color combinations of close/similar colors rather than distinct colors, with some exception of preference for contrasting color combinations. Our high-luxury color combination is dark brown and brown, which are similar in hue, while a low-luxury combination has orange and green, which are complementary in the color wheel. Deng et al. (2010) explained a preference for monochromatic color combinations as visual coherence principle based on the Gestalt principle of similarity and coherence.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Notes

1. Prior researchers focused mostly on the referential meaning of a single hue, referring to color temperature theories that are somewhat irrelevant to realistic retail contexts (Kobayashi, 1990). Comparatively, we employ multiple colors in interior environments. The benefits and limitations of our approach in choosing colors are explored in more detail in the Discussion section, while an additional analysis of hue properties of colors appears in the Appendix.
2. As seen in Figure 2, all the design factors were identical and based on the same design platform of 3-D rendering across the two images except for the color combinations. In this way, we excluded the possible effect of visual stimuli of the retail atmosphere other than that of colors.

3. Keeping realism in the experiment using a hypothetical situation is critical to gain useful consumer responses relevant to actual marketing settings (Darley & Lim, 1993).

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Author Biographies

Ji Young Cho, PhD, LEED-AP, is an assistant professor in the Department of Housing and Interior Design at Kyung Hee University, Seoul, Republic of Korea. Her research interests include empirical study of perception and evaluation of design element based on aesthetic and cognitive theories, cultural and individual differences in such evaluation, and design process study for design pedagogy.

Eun-Jung Lee, PhD, is an associate professor in Fashion Design Department of College of Design at Kookmin University, Seoul, Republic of Korea. Her research interest focuses on interpersonal mechanisms of consumption, branding, and dynamics of aesthetic/functional elements in retail settings. Her recent works have appeared in multidisciplinary journals including *Psychology & Marketing*, *IJEC*, *CTRJ*, *Computers in Human Behavior*, and *Human Ecology Review.*