

The Relationship between Environmental Cues and Consumer Behavior¹

Shereen Khaled Shaheen

Freelance Scientific Researcher at ESLSCA University

shereenkshaheen@gmail.com

ABSTRACT

This study investigates the significance of environmental signals that can be controlled and the effect these cues have on consumer behavior in a variety of commercial settings, including shopping malls, retail stores, nursing homes, spas, and educational institutions. Environmental signals including environmentally responsible design, high-quality interior environments, colors, lighting, and acoustics are some of the things that are looked at. This study focuses on the impact that each cue has on customer behavior, as well as the chances for boosting profitability, a sense of perceived luxury, and a propensity to remain. Additionally, the study examines the opportunities for these factors. This research ought to teach interior designers and decision-makers how to incorporate suitable environmental cues in their commercial buildings to maximize productivity. This would increase the location's productivity. According to the general conclusions that were drawn from the research that was analyzed, sustainability and space design are both extremely important aspects that need to be incorporated into the environment. A person's color tastes can be shaped by factors such as age, available space, and the skillful use of color in their environment. The same color scheme that is used in a physical location differently generates distinct emotional responses from people, which might change their impression of luxury as well as their desire to remain there. Even a color scheme that isn't particularly luxurious can boost the feeling of luxury and make people want to stay longer, but this depends on how the space is being used. Music influences a person's buying and eating behaviors. Dim lighting encourages people to make more purchases of food, whereas bright lighting creates a sense of security and coziness; both types of lighting have their place in the design of an area, and each should be used appropriately.

Keywords: Retail store formats, Store environmental cues, Store-choice criteria, Pro-environmental attitudes, Ecological consumer behavior

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I. INTRODUCTION

This research aims to provide interior designers and decision-makers with information on how to incorporate the proper environmental cue in their respective commercial environments. Retail markets are becoming increasingly competitive, and retailers are constantly seeking to differentiate their offerings. One method to differentiate yourself is to offer a pleasant and stimulating retail environment. As retail marketplaces become more competitive, retailers strive to distinguish their retail offerings regularly. One-way companies might differentiate themselves is by creating a shopping experience that is tailored to clients' demands, not just in terms of products, convenience, and cost, but also by delivering a pleasant and exciting ambiance (Morisson et al., 2011).

Since the late 1960s, there has been a significant body of literature on store atmosphere. The major model in these studies is Mehrabian & Russell's (1974) model of Environmental Psychology. It is a stimulus-organism-response paradigm to explain and predict the effects of environmental variables on people's emotional states and behavior. Since then, there has been a growing interest in examining the function of shoppers' emotions to determine how to store ambiance influences their behavior patterns. As a result, numerous research employed the framework as a foundation for analyzing the effects of shop atmospherics (Mehrabian & Russell, 1974). Customers' emotive states boost the probability of purchase, and buyers' sensory characteristics of the retail environment influence their impression of the environmental quality of the space (Kotler, 1973). Consumer emotional experiences are impacted by the store's physical setting, which in turn affects the customers' behaviors and attitudes. A physical environment in which a service is provided is referred to as a servicescape. Servicescape plays a key role in causing emotional, cognitive, and behavioral responses. When people enter a room, they immediately begin to generate mental and emotional judgments based on the details they acquire from the space itself. Several researchers argue on both sides of this debate, and there is no clear winner when it comes to determining which of the two states, emotional or cognitive, comes first (Mehrabian & Russell, 1974). When assessing an environment, such as the servicescape, mental functioning in organizing the sensory image of the surroundings occurs before affective processing is preceded by the other cognition, which is a more tangible assessment of the environment.

This was the conclusion reached in an extensive review of the debate between cognition and emotion (Mehrabian & Russell, 1974). In the end, a behavioral response such as approaching or avoiding the situation takes place. This suggests that a customer initially perceives the sensory stimuli that are present in a retail business, and that these stimuli then alter the client's psychological response of pleasure–arousal. The customer's emotional state affects their cognitive evaluation of the surroundings, which includes their sense of friendliness and luxury. This perception, in turn, can lead to the customer's behavioral patterns of approach or avoidance, as well as the decision to make a purchase. The term "interior physical environment" refers to both the structural interior components of a room, such as the ceiling, floor, walls, columns, or stairs, and the non-structural spatial elements of a room, such as color, materials, light fittings, and decorative objects that structure the space image of the room. (Cho & Suh, 2020). Environmental factors may affect the consumer preference to stay in a store, eating habits, purchase behavior, and perceived luxury. For instance, dimly lit restaurants reduce diners' mental alertness and encourage more unhealthy food intake (Biswas et al., 2017). Food markets that provided relaxing background music or noise increase purchases of healthy foods (Biswas et al., 2019). Restaurants and bakeries know that odors, especially those signaling high-energy-dense products, can cause consumers to salivate, which increases their appetite and drives them to eat more (Proserpio et al., 2017). Thus, overall marketing research clarifies that ambient lighting, colors, odors, and sound impact food intake, preferences, and purchases.

2. REVIEW OF LITERATURE

2.1 STUDIES EXAMINING THE EFFECT OF SUSTAINABLE DESIGN, IEQ AND SPACE DESIGN ON CONSUMER BEHAVIOR

Obeidat et al. (2022) tested the importance of interior environment quality (henceforth, IEQ) and sustainable design on consumers' purchase behavior in service marketing and retailers. The research covers the importance of the interior designers' awareness of the criticality of interior environment quality which may affect the consumers' behavior and lead to less efficiency of the purchase behavior whether it is a service or goods resulting in low sales. The key question was to distinguish how sustainable design affects consumer behavior by

offering evidence on the significance of using the latter to enhance the market environment which will raise the customers' behavior in it.

In a market environment, a decline in performance and efficiency can result if the sustainable design is not exploited. The inefficiency to design a commercial plan with the correct necessities will lead to the reduction of the consumer's sense of contentment failing in the market environment. The displeasure in the environment lowers the psychological comfort of the customer leading to negative behavior. Sustainable design work as a shield from audio and air pollution as well as consumers' feeling of comfort. Sustainability is considered a recent academic trend that links the interior environment with the surrounding, respecting nature. Adapting sustainable interior design to business areas aids in environmental adaptation. This would improve merchants' and customers' pleasure, health security, privacy, and comfort. Using sustainable technologies seeks to protect the environment and create color harmony. It also affects customer behavior positively in the interior environment (Obeidat et al., 2022).

The research concluded that luxury, comfort, and healthy emotional states are stimulated by the interior design of the commercial environment which generates consumer loyalty as it contributes to their emotional, physical, and visual well-being which acts as a perpetual requisite in commercial spaces. A questionnaire was conducted among customers approving that using specific materials and natural sources sustains mental balance in the environment giving them a feeling of genuineness. From the Obeidat et al. (2022) point of view consumers' positive behavior was endorsed when the sustainable design was implemented making the malls a constant visit. The second finding from Obeidat et al. (2022), is that sustainable design components participated in the increase of market space's performance visual and purposeful that was due to the analysis of the outcomes from the questionnaires of consumers in Irbid city. Consequently, sustainable design elements, such as lighting, colors, materials furniture, and space plan, are approved to take a valuable part of the market space effectiveness due to the proficiency in increasing the space value visually and functionally. The third finding is that when the sustainable design is implemented in a commercial space, profits are achieved by 87% and that is due to the rise of space performance as it works on maintenance cost reduction while increasing consumer loyalty to the place. A questionnaire and personal

interviews result confirmed that sustainable interior design of commercial space needs profound consideration and study to be accurately and successfully implemented.

Dang et al. (2021) reviewed sixty-seven articles from 2010 to 2020 that investigate the IEQ's impact on consumer purchase behavior. They concluded that none of the studies confirmed the effect of IEQ on physical merchants on consumer purchase behavior and intentions. Therefore structural equation modeling practiced in China confirmed that there is a positive affiliation between the IEQ of a retail store, consumer purchase intention, and perceived service quality. Previous research concluded that retail shop owners customize their commercial space to increase in-door consumer behavior and to get the required results (Francioni et al., 2018). Another survey-based research (Dang et al., 2021) of 451 mall shoppers covered the Stimulus-Organism-Response (S-O-R) connecting the positive attitude and contentment of consumers towards wanting to stay in a shopping mall connected to three environmental cues which are lighting, acoustics, and colors. Behavior reactions are the outcome of factors that stimulate the individual (Russell & Mehrabian, 1976). Dang et al.'s (2021) study covered the importance of environmental cues such as visuals and acoustics on the desire to remain in the commercial space and the contentment of the consumers which will lead to positive word of mouth. In conclusion, persuading clients to return and talk positively about the shopping location is not solely dependent on their willingness to remain, but on their level of pleasure with this stay. The findings suggest that this desire can be created by the intermediaries that shape the relationship between shoppers' positive attitudes toward atmospheric cues of color schemes and music, on the one side, and shopper satisfaction and positive word-of-mouth, on the other.

Related outcomes were found by Vukadin et al., (2018), who confirmed that contented temperature and pleasing acoustics impact the consumer's desire to remain in the shop. Moreover, it was established by Roschk et al. (2017) that colors of cool tones increase levels of satisfaction. It was also confirmed that the desire to remain at the mall positively connects with word of mouth which leads to more mall visits (Dang et al., 2021). Previous studies worked on distinguishing marketing strategies that have an explicit effect on consumer behavior and the business to achieve its sustainability level (Jang & Lee, 2019). Indoor

environmental quality IEQ can have a direct impact on the comfort, efficiency, and well-being of occupants (Ganesh, 2021). A survey was handled in 7 dormitory universities. It was concluded that the highest impact on the satisfaction of indoor environmental quality was space design. A correlation analysis revealed that the association between the design of spaces and certain other indoor environmental quality indicators was overestimated. It was found with poor dormitories' IEQ students found learning and health difficulties.

There are tangible and intangible IEQ factors (Geng et al., 2019). Lighting, acoustics, air, and temperature qualities are considered tangible factors. Meanwhile, space design and other factors that are difficult to measure are considered intangible factors. Several types of research covered the effect of tangible factors on consumer comfort (Wang et al., 2021). Size and furniture layout are included in space design which affects consumers' satisfaction. A cognitive bias known as the halo effect outshines a specific attribute over others (Nicolau, 2020). It can be both positive and negative.

Several studies were conducted on the effect of tangible factors and their correlation. Yang & Moon (2018) concluded that with the increase in acoustics level thermal discomfort increases. Yang & Moon (2018) study stated that visual perception was influenced by acoustics. Thermal discomfort may be offset by improved visual comfort (Schlangen & Te Kulve, 2018). IEQ research may benefit from psychological ideas on evaluation, such as the halo effect. It has been extensively discussed in product evaluation in marketing studies (Nicolau et al., 2020). In the realm of building environment research, the Salient Dimension Model of the Halo Effect was presented to researchers. They wanted to know whether or not a consumer's assessment of one characteristic is affected by other attributes.

Overall, the thermal environment had the most impact on occupants' satisfaction with the whole IEQ. However, the study confirmed that space design has a leading effect on the whole overall IEQ satisfaction. The impact intensity of space design on satisfaction was 1.5 times more than the thermal environment. Therefore, it is important to pay attention to space design in IEQ. More analysis was made in-depth after finding that space design had a halo effect on different IEQ factors. As a result, it was found that the size of the space which is one of the important aspects of space design had a high impact on occupants'

satisfaction with different IEQ factors and that was through psychological and physiological effects. Stress and anxiety are psychological effects caused by crowding in a small space (Cavazza et al., 2021). Higher rates of stress require higher IEQ requirements (Li et al., 2022) which results in differences in satisfaction with different IEQ factors. Stress was also a consequence of poor air quality with the crowd in a small space. Furniture and toilet layout impact the satisfaction of the occupants with other IEQ factors. Daylight reaching the indoor environment cause a positive impact on satisfaction with lighting (Day et al 2019). On the other side, managers and policymakers may be misled by the halo effect. For instance, the assessment of an attribute might be greater or lower, leading to an unrealistic reflection of the attribute's value. Accordingly, in this study, the effectiveness of the lighting environment could be poor, but occupants are satisfied with the lighting condition, most likely because of the halo effect caused by the extreme lighting satisfaction with space design. The study recognized significant effects on space design. For space size, it was hypothesized that area per capita had a significant impact on space design satisfaction. Small area per capita results in stressful feelings. The hypothesis was verified. In addition to the prior, occupants' behavior was connected to furniture design. Using bunk beds is one way to utilize space however it was proven that it might be a cause of depression and injuries.

The evaluation of indoor environmental quality was expanded to include the incorporation of a building space index, and that index's usefulness in the optimization of the sustainable building design was investigated. The results of the experiments showed that when building space, temperature, and luminous environments fit the relative design standards, satisfaction with building space has the most significant impact on overall satisfaction with the environment, followed by satisfaction with luminous and thermal environments. The energy consumption for heating, cooling, and illumination in each experimental room was replicated using the findings of the experiments, and the environmental efficiency was determined by dividing the level of satisfaction with the overall environment by the total amount of energy consumed. When the results of the environmental efficiency under each set of experimental conditions were compared, it was discovered that introducing spatial quality could help reflect more accurately the difference in the environmental efficiency between different sets of experimental conditions, provide a scientific basis for the scheme

optimization of building space design, and coordinate the conflict between environmental quality and environmental load. This was discovered by comparing the results of the environmental efficiency under each set of experimental conditions (Xu et al 2018).

Du et al (2020) evaluated the IEQ of green and traditional buildings. Shopping malls have not received enough attention in these studies, and there have been no direct comparisons of buyer satisfaction at green vs non-green malls. An objective environmental measurement and subjective questionnaire survey were combined to compare green and conventional mall buildings in Beijing, China during the transitional season (spring, summer, and winter). Differences in objective IEQ and customer satisfaction between the two mall structures were discussed. Green retail malls have superior climates, lighting, humidity, carbon dioxide levels, and noise levels. Customers are more forgiving of a building's IEQ if it's environmentally friendly, and poll results vary by age and/or time spent in the facility. Strong links exist between indoor environmental assessments, and the effects of each on overall happiness are examined. This research offers principles for improving the physical environment and can be used to construct and operate environmentally responsible shopping centers in colder areas.

2.2 STUDIES EXAMINING THE EFFECT OF ILLUMINATION AND ODOR ON CONSUMER BEHAVIOR

Lighting is one of the most important atmospheric features, since it may significantly alter both the overall impression one gets of the space and their preferences about that space (Hemalatha et al., 2022). According to the findings of previous research, decisions of people may be subtly influenced by the ambient illumination around them, even though this factor is frequently hidden from their conscious knowledge. Lighting has been cited by researchers in the fields of atmospheric, sociological, and consumer psychology as one of the most important atmospheric elements that can influence human behavior (Esteky et al. 2020). Ambient light is a part of the store environment. It is important to study how light and other environmental cues affect each other to learn how the environmental factors of the store affect customers (Doucé, 2022). While these experts are all in agreement that illumination is important, their interpretations of how it impacts social behavior are divergent. There is a school of thought among academics that suggests low lighting levels can encourage conduct that is

both self-interested and antisocial. Others have suggested that low lighting encourages behaviors that are more beneficial to society rather than those that are harmful. In general, the findings of this research are consistent with one another when it comes to their collective conclusion that lighting influences social behaviors, most especially prosocial and antisocial behaviors (Esteky et al. 2020). On the other hand, they offer evidence that conflicts with one another about the nature of the effect, its direction, and the underlying mechanism.

Lower lighting levels reduce anxiety by promoting isolation, resulting in more egocentric and aggressive conduct, according to studies (DiLaura, 2013). Others have discovered what they call the "Sunshine Samaritan effect", which demonstrates that consumers are less kind to strangers on overcast days as compared to bright days. It has also been shown that being exposed to bright light is associated with having better social connections (Steffy, 2011). According to the results of this study, bright lighting is associated with higher pleasant behaviors and decreased quarrelsome behaviors among the participants. (Esteky et al., 2020)

Doucé (2022) adds to the studies on multiple sensory congruity effects between atmospheric cues by looking at whether multiple sensory factors (like warmth and brightness) of ambient cues (like light and smell) must match for positive effects on consumer evaluations and behavior or whether a match of only one sensory association is enough. Previous studies only worked through one specific factor. Nevertheless according to the findings of the two studies, matching ambient light and scent (as opposed to a discrepancy between the stimuli or especially in comparison to only one ambient cue) resulted in improvement of evaluations and approach behavior when these stimuli were matched on their perceived association with a warm temperature and with a darkened or vibrant lighting. Based on the theory of processing fluency which is the skill of being able to make mental associations easily and quickly, it was hypothesized that only an elevated level of multisensory congruence between the ambient light and odor would result in more favorable customer evaluations and actions. Two retail lab experiments confirmed the prior. When compared to low congruent ambient light and scent, high congruent illumination and odors helped lead to more positive shopping environment judgments, store reviews, product evaluations, and approach behavior.

Another study was to investigate the impact that color temperature and light intensity have on customers' perceptions of the space and their preferences when shopping at major retailers (Hemalatha et al., 2022). The research used a design called a four-by-four factorial design with two independent variables to form sixteen scenes that the participants interpreted as having different ambiances. After a detailed analysis, a positive correlation between satisfaction, desirable, visual clarity, and interest imply that these four attributes change with the alternation of illuminance were noted (Hemalatha et al., 2022). This finding may indicate that the participants were unable to differentiate between these factors, or it may indicate that these parameters are connected to illuminance in the same direction. The medium amount of correlation that exists between the sensory attributes and the general preference indicates that each of these may not be to articulate the preference on its own, but that all these attributes together may be able to explain the total preference. The outcomes of this study as well as the discussion that came before it suggests that the desire for lighting conditions and the perception of lighting features may vary depending on the purpose of the place, as well as cultural norms and ethnic backgrounds (Hemalatha et al., 2022).

Este et al., (2020) claimed that low illumination increases social distance and uncertainty, which in turn leads to compensating measures to lessen the social distance and create trust through behaviors such as collaboration and helping behavior. Others have demonstrated that people want social connection in dimly lit locations, lending support to the theory that such settings promote a person's need to identify with others. Previous research has shown that one stream of previous studies has demonstrated that bright lighting increases prosocial behaviors while another stream has demonstrated the opposite effect. In addition, it contributes to the existing body of research on the impacts of lighting by demonstrating that exposure to intense light accentuates the predominant behavioral patterns of individuals. The findings are in line with those of Xu & Labroo (2014), who discovered that illumination intensifies people's affective reactions, whether those reactions are favorable or negative. In the human-environment research on lighting, which has only rarely been investigated to compensate for cross-cultural differences, Esteky et al. (2020) brought a new perspective to the table by investigating the role that self-construal plays through our research.

Moving beyond the realm of experimental labs, the use of lighting as a "nudge" to encourage prosocial actions can be accomplished subtly and inexpensively.

2.3 STUDIES EXAMINING THE EFFECT OF COLOR ON CONSUMER BEHAVIOR

Color efficiently communicates information which makes it so significant in retail businesses in molding the overall impression and meaning (Kim and Kim 2017). Color has both psychological and physiological impacts, evoking a wide range of emotions and influencing anything from moods to value assessments to purchase intentions. The use of color in the design of interior space is important because it has the potential to affect people's feelings and behaviors in each setting (Cho and Suh 2020). The human eye is one of the primary sensory channels, and as a result, color, size, and structure are the primary aspects of visual perception that are associated with an environment (Kotler 1973). The focus of color choice studies must be on certain building types and their occupants (Torres 2020). Several studies have found a correlation between the colors people choose and the kinds of buildings they inhabit (Torres 2020).

Several studies have investigated the atmospheric characteristics of color for the enrichment of the customer experience. Most research has focused on the impact of colors with contrasting color temperatures (cool versus warm) or those with different wavelengths (long versus short) on arousal or pleasure. However, since the interior space where individuals lived is not monochromatic, understanding the effects of color combinations on emotion requires extra attention (Cho and Suh 2020).

Cho and Suh (2020) investigated the effect of color on behavior. They defined the concept of "spatial color efficacy" as the power of the ambiance produced by a three-dimensional space, where a specific color integration is implemented, to produce an emotionally, cognitively, and behaviorally desired effect. This definition ranges from extremely effective to completely ineffective. This study which included both a questionnaire and eye-tracking technology investigated the idea of shaping the concept of space color effectiveness by analyzing various applications of the same color palette in an interior to establish not whether they may end up causing various responses, thereby impacting viewers' view of luxurious lifestyle and intentions to stay. The research was carried out at a

university in Korea and involved a total of 26 students majoring in interior design. The results of this study show that the efficacy of color in different spatial applications of the same color combination can vary. In addition, the research showed that the efficacy of color in different spatial applications of the same color combination can vary in its influence on perceived luxury as well as the desire to stay.

Torres A. (2020) tested the preference of colors according to a certain age group of the elderly in the Valencia community to whether it is an activity environment or static environments such as bedrooms, spas, and hotel rooms. The main goal of this study was to find out which colors older people liked for their living spaces based on the activities they planned to do in separate rooms, activity rooms, and bedrooms, which can be used for hotels, nursing homes, and spas. The results were then compared to the level of arousal each color caused. People ranked six colors into two groups: warm (red, orange, and yellow) and cool (blue, green, and purple) (purple, red, and green) The results show that people like warm and cool colors in different rooms. Seniors of both sexes prefer warm colors over cool colors in activity rooms, which are areas for social activities that require more activity. Yellow, the warm color closest to the center of the visual spectrum, is their favorite warm color. This preference for warm colors in the activity room makes sense since warm colors tend to make people feel more alert than cool colors. In bedrooms, which are places to rest and do not require much activity, older people of both sexes prefer cool colors to warm colors. They like green the most, which is the cool color that is closest to the middle of the color spectrum. This color choice in the bedrooms fits with the fact that cool colors make women feel less awake and with other models that say low arousal levels are caused by colors in the middle of the visual spectrum (like green) and high arousal levels are caused by colors at the ends (i.e., red and purple). So, the colors people choose for interior spaces are determined by the type of room and how excited they want to be for the activity they will be doing in that room.

Müezzinoğlu et al (2020) studied the influence of warm, cold, and neutral monochromatic color combinations on Generation Z. In the study, students used real, controllable locations to increase their "productivity levels," "social adaptability," and "spatial quality" Participants in the study reported warm-colored rooms felt "warmer" than neutral or cool-colored rooms. Both cool- and

warm-colored rooms were perceived as more "motivating," "inviting," and "roomy" than neutral-colored spaces, improving design studios' "space quality" evaluations. Based on these findings, chromatic colors should be used instead of achromatic colors to construct educational facilities. The study also examined how teens who employed monochromatic color combinations "socially adapted." Students in the survey said cool-colored areas were more "open to discussion," "relaxing," and "encouraging" than neutral or warm-colored settings. Neutral walls were assessed less highly for "social adaption" than warm or cold walls. According to the research, individuals' "social adaptation" was better in cool-colored rooms. Cool colors could be employed in the design of educational spaces with intra-group activities, lots of teacher-student communication, face-to-face conversations, and interactive courses to increase "social adaptations".

In the last part of the study, the effects of monochromatic color combinations on the "individual productivity" of the students in the three distinctive design studios were looked at. It was discovered that the teenagers who took part in the research study thought that spaces with walls painted in cool colors were more "motivating," "helpful," "peaceful," and "open to creativity" than spaces with walls painted in warm or neutral colors. It was seen that the walls of the spaces with neutral colors were rated less positively in terms of "individual productivity" than the walls of the spaces with warm or cool colors. Based on the results, it can be said that the subjects' ratings of the cool-colored space on the "individual productivity" scale had a positive effect. If the goal is to increase "individual productivity" in an educational space, cool colors could be used to design it.

2.4 STUDIES EXAMINING THE EFFECT OF ACOUSTICS ON CONSUMER BEHAVIOR

Kotler (1973) defined the business atmosphere as the effort to build purchase settings to produce specific emotional responses. Among these, aspects of sound are regarded as crucial components of store ambiance. Retailers have long recognized that music influences consumers' perceptions of wait times, their desire to connect with sales staff, and their overall contentment. Restaurants, cafes, and retail outlets have used audio stimuli to influence client decisions and consumption experiences for decades (Spence et al., 2019). Eating human patterns, food assessments, perceptions, and consumption are indeed influenced by a variety of sensory elements (Spence et al., 2019). Background music holds a

prominent position among the numerous, intricate elements used in marketing communications and retail ambiance. For instance, stores utilize slow music in the background to encourage customers to browse, linger, and make additional purchases. Slow music has been demonstrated to make consumers feel less concerned about calculating costs and to make waiting periods feel shorter, but rapid music has been proven to make waiting times feel lengthier.

In dining settings, background music has indeed been linked to increased food consumption. The tempo has contradictory effects. Pantoja & Borges's (2021) study reports that when slow instrumental music was played in the background, guests waited 11 minutes longer and bought \$8.38 more on drinks. In contrast, a longitudinal field trial in a densely populated area involving the analysis of 40,000 individual shopping carts revealed that fast background music increased shoppers' spending. People are known to respond more quickly when listening to fast music, not just because they replicate the speed, but also because the tempo affects cognition and emotion.

Pantoja and Borges (2021) conducted two pilot studies with three different soundtracks of different genres. The studies were conducted in behavioral labs. The effects of music pace on taste expectation and buying intention in the dining situation were investigated in three experiments they hypothesized that when restaurants play quick background music, diners generate favorable evaluations of the flavor of food products and positive intents to purchase them. The fundamental mechanism is music-induced arousal leading to improved mood.

It was determined that individuals are reasonably accurate at categorizing the tempo of a musical stimulus as fast or slow. It was also determined that fast music in the background is most helpful for raising taste expectations and purchasing intents when customers are viewing food products, such as when they are scanning the menu. In the third investigation, an effective channel was identified as the effect's underlying mechanism. demonstrating a sequential causal chain in which faster music speed increases self-reported arousal and mood, resulting in more positive assessments and increased purchase intentions. Thus, significant evidence was shown that background music tempo affects consumer attitudes and intentions in dining domains. When fast background music is played during food stimuli, consumers anticipate that the food will taste

better. Therefore, they will desire to purchase it regardless of their appetite or dietary constraints.

Sensory input from store atmospheres influences cognitive and/or emotive reactions, which can change purchase behavior. To understand how the business atmosphere affects customer behavior, study shoppers' thoughts, and sensations while browsing. Moods affect consumer behavior in practically every buying transaction (Morisson et al., 2011). The effect of the store environment on consumer behavior is mediated by the consumer's emotional state (Morisson et al., 2011). Music and odor influence customer emotions and shopping habits. Numerous studies have examined their effects on time, spending, and recommended behavior (Morisson et al., 2011). Prior research on fragrance shows that environmental scent can influence sales, processing time, variety-seeking behavior, and perceived store dwell time. A recent study shows aroma-gender favorable connections on a range of behavioral variables. Studies indicated the interaction effects of fragrance and music on customer behavior, supporting their theory that arousal congruence influences approach/avoidance, impulse buying, and pleasure. Both impulsive and deliberate purchasers spent less when fragrance and quiet music were present. Given these contradicting results, no attempt is made to clarify which behavioral interactions may occur in the present study, which changes music intensity and fragrance presence and only involves female customers.

Morisson et al. (2011) studied music and odor at a retail store. The study examined if volume and aroma influence consumers' satisfaction and arousal levels and how this affects approach-avoidance behavior (S-O-R model), pleasure, preference to stay in the store, and spending level. Findings suggest a network of mediating links like the model described by (Kaltcheva & Weitz 2006), but directly affect arousal on behavior and an interaction or congruence impact between sound and odor on satisfaction and time spent in the store.

Using path analysis, Morisson et al. (2011) examined the effect of the interaction between scent presence and music volume on behavior and levels of satisfaction. Initially, the model findings suggested that a combination of loud music and vanilla fragrance increases enjoyment levels, implying a congruency impact comparable to that seen in prior research. This congruency, in turn, results in increased degrees of pleasure, as well as increased expenditures of money and

time, as well as increased approach behavior, and levels of contentment with this atmospheric state. Independent of pleasure, the results also demonstrated a favorable direct congruency effect on time spent in the store. It appears that the optimal combination of music and aroma not only promotes enjoyment but also encourages consumers to remain in the store longer regardless of their degree of arousal and pleasure

Yi & Kang (2019) made a study to examine the individual responses influenced by the building environment in specific space types, specifically the effect of background and foreground music on an individual's satisfaction, emotion, and behavioral responses in the public spaces of shopping malls with a field survey and laboratory setting. It was deduced that background music can considerably enhance enjoyment, encourage approach behavior, and improve the urge to browse and investigate. Arousal can be dramatically influenced by foreground music. Also, this study found that evaluations of appropriate space are higher in the absence of music, and when background music exists, large spaces are evaluated more positively than smaller spaces, except in the case of arousal, in which case foreground music has a statistically significant effect on arousal in large spaces compared to narrow spaces. In the context of big atria in shopping malls, which are becoming more prevalent in space design, music is significantly more potent than in other venues. Regarding personal characteristics, the outcomes and applications vary depending on the type of individual. In the absence of music, men are more satisfied than women, although background music arouses them more. Moreover, music genres have a greater impact on younger customers than on older ones, and persons in the oldest age group are more tolerant of noise in retail situations.

3. DISCUSSION

Offline shopping and services competition increased due to the expansion of business worldwide. Therefore, they must stand out by raising consumer experience and space environment. The research paper covered some of the controllable environmental cues such as IEQ, colors, lighting, and acoustic and presented their effects on different aspects of consumer behavior.

When sustainable design is used, it encourages good behavior and makes people want to go to the mall more often. Components of sustainable design

contributed to the improvement of the market space's visual and functional performance, and commercial space profits from this improvement because it lowers maintenance costs and makes customers more loyal. Sustainable design elements, such as lighting, colors, materials, furniture, and the space plane, are valued for their ability to make a space look and work better. The study showed that the design of a space has an effect on IEQ satisfaction as a whole.

A big part of space design is the size of the space, which has both psychological and physiological effects on the IEQ satisfaction of the people who use it. When there are too many people, it causes stress and anxiety. The effect of environmental cues like colors and sounds on customer satisfaction and word-of-mouth depends on how satisfied the customers are. The goal is to get customers to come back and talk positively about the shopping location.

Dim lighting encourages antisocial behavior, makes it harder to make friends, and makes people feel even more alone. Less light makes people feel less anxious by making them feel alone, which makes them more self-centered and aggressive. So, being in bright light is linked to having better relationships with other people.

Their overall conclusion, that lighting affects social behavior, especially prosocial and antisocial behavior, is consistent. All of these experts agree that light is important, but they have different ideas about how it affects how people act in groups. I believe that lighting conditions and features must be varied depending on the place, cultural norms, and ethnic backgrounds

Color's spatial utility varies. The efficacy of color in different spatial applications of the same color combination may vary in perceived luxury and willingness to stay. Comparing each color's arousal level. Depending on the place, age, and activity done in the space, color must be applied accordingly.

Listening to slow music can help customers feel less concerned about calculating expenses and can make waiting periods feel shorter, whilst listening to fast music can make customers feel as though they are waiting for a longer period.

According to the findings of all the previous studies, it is difficult to define a specific cue that can be utilized for general purposes. Because of the nature of the company, certain sorts of components are required to be included in each set to make them more desirable. To make the sets more desirable, these components

must be included. The managers as well as the interior design specialists who are operating the company are responsible for suitably applying the signals for them to be effective.

4. IMPLICATIONS

The significance of viewing the retail environment holistically and the difficulty of describing and implementing an atmospheric signal to have good congruence effects on consumer evaluations and behavior are implied by the holistic view of the retail environment. Executives and those in charge of making decisions can make advantage of the halo effect to improve customer or resident satisfaction.

Given the findings of this review article, sustainable design works to increase the overall effectiveness of commercial spaces, as well as their design quality and influence on the efficiency of their activities. Sustainable design has a direct and positive effect on the interior and exterior environments of these locations.

Rooms can range from being dimly lit and windowless to being well-lit and breezy. Individuals' psychological state and conduct can be influenced by lighting levels; therefore, managers and designers should implement an illumination level that is appropriate for the sort of company setting. Additionally, it is advised that researchers document and publicize the experimental context.

Environmental colors must adapt to the specific architectural typology under study, the function of the rooms, and end-user profiles. Color preference in a particular environment is related to the color emotion associations to the place. Managers should expect the arousal level of the activity to be developed in a room might determine the color preference for that interior.

By establishing a unique and pleasurable shopping experience, merchants may differentiate their environments. It was discovered that the loudness of the music and the variety of fragrances, depending on the setting, had a major impact on the emotions and degrees of pleasure of shoppers. Aroma and music can be utilized independently to alter levels of arousal. Having the ideal combination of fragrance and music, however, is a significant extra contribution to enjoyment levels and, by extension, to main outcome variables like purchase and satisfaction. Consequently, merchants should put into practice insights regarding how to build a competitive edge by personalizing the ambiance in their stores.

Management places a high value on store atmosphere, which can potentially affect the success or failure of a business. The acoustic environment must be designed based on the intended usage of the area and the projected population. For example, a more serene atmosphere with music in the background is more acceptable for places where individuals meet and wait, but upfront music is more appropriate for spaces close to areas where a higher level of engagement is desired. Moreover, because teenagers are more sensitive to shifts in the soundscape, facilities designed for this age group must pay greater attention to the soundscape. Contemporary music today is more appropriate for teens and has a significant effect on their emotions and behavior.

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العلاقة بين الإشارات البيئية وسلوك المستهلك

شيرين خالد شاهين

ملخص البحث باللغة العربية

تستقصي هذه الدراسة دور العوامل البيئية التي يمكن التحكم بها وتأثيرها على سلوك المستهلك في البيئات التجارية المختلفة. تشمل هذه البيئات متاجر التجزئة، ومراكز التسوق، ودور المسنين، والمنتجات الصحية، والمراكز التعليمية. وتتمثل العوامل البيئية التي يراجعها هذا البحث في التصميم البيئي، وجودة البيئة الداخلية، والألوان، والإضاءة، وصوتيات القاعات. تركز هذه الدراسة في مراجعتها لهذه العوامل تأثير كل منها على سلوك المستهلك من ناحية احساسه بالرفاهية ورغبته في البقاء لأطول وقت في البيئات التجارية وتأثير هذا كله على زيادة الربحية. تسهم خلاصة هذه الدراسة في تزويد مصممي الديكور وصانعي القرار بالمعلومات اللازمة للاستخدام الأمثل للعوامل البيئية في البيئات التجارية مما يزيد من كفاءتها.

وقد أظهرت نتائج الدراسة أهمية عوامل التصميم المستخدم للمساحات في تحسين البيئة التجارية. أظهرت النتائج أيضاً أن تفضيل الألوان يعتمد على عوامل العمر، والمساحة وكيفية استخدامها في البيئة التجارية. كما أظهرت النتائج أن تغيير تركيبات الألوان نفسها يحدث تأثيرات مختلفة على الإحساس بالرفاهية والأمن والدفء مما يدعو إلى مراعاة هذا العامل في تصميم المساحات التجارية.

الكلمات الدالة: تصميم متاجر التجزئة، الخصائص البيئية للمتاجر، معايير اختيار المتاجر، الآراء المؤيدة للبيئة، السلوك البيئي للمستهلك

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