

“The influence of store atmospherics on customers’ satisfaction at selected South African retail outlets”

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THE INFLUENCE OF STORE ATMOSPHERICS ON CUSTOMERS' SATISFACTION AT SELECTED SOUTH AFRICAN RETAIL OUTLETS

Abstract

In the retail environment, customers are stimulated by the look and feel of a store and how it is laid out. Certain store elements create an atmosphere that attracts customers to certain outlets as their preferred shopping destination. Therefore, retailers need to ensure the customers' shopping experience is enjoyable. This study aimed to examine the influence of atmospheric store elements on the factors that influence customers' satisfaction. A quantitative, cross-sectional, descriptive study was conducted in four retail outlets in Cape Town, South Africa, with data collected through a structured questionnaire distributed to the outlets' customers. A systematic random sample of 388 responses was achieved. The information collected was analyzed using relevant descriptive and inferential statistics. Although small, positive correlations were found between the independent variables (cleanliness, lighting, music, floor adverts, employee efficient service, employee appearance) and the dependent variables (positive image of store, pleasant mood, time spent in store, intention to revisit store). As such, the study highlighted the importance of store atmospherics to the factors that encourage customers' satisfaction. Since little research has been done into store atmospherics in the South African context of grocery stores, this study has contributed new knowledge in this field.

Keywords

retail, South Africa, time in store, revisit intention, store image, ambient factors, design factors, social factors, customer's mood

JEL Classification L81, M31

INTRODUCTION

The retail industry is extremely competitive, and retailers are constantly considering augmenting and remodeling their stores. These strategies are prompted by continuous developments in the industry and the need for an improved store atmosphere to reinforce customers' satisfaction. Previously customers were most interested in product features, benefits, and attributes. Nowadays, customers want more than just a shopping experience – they seek additional benefits within the shopping environment. Customers want a pleasant shopping atmosphere, which obligates retailers to formulate new designs to make the atmosphere and ambiance of their stores more attractive (Mathur & Goswami, 2014). A study conducted by Davis et al. (2017) has revealed that customers have a substantial role in influencing how retailers develop the shopping environment. These decisions involve positioning, values, and the guiding philosophy of the store. Through market research and understanding consumer needs, retailers can develop an environment that the consumer wants, thereby improving customers' satisfaction (Sabrina, 2014).



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Although there has been some research into the influence of store atmospherics on customers' satisfaction and store patronage in South Africa (Maziriri et al., 2019), there has been none investigating the specifics of the atmosphere (color, lighting, music, etc.) and their influence on the specifics of store patronage and satisfaction (e.g., customer mood, time spent in store and revisit intention). Furthermore, most such research has been in the clothing or luxury industries (Nell, 2017; Roschk et al., 2017) and little in the grocery industry or non-purchase related behavior, such as time spent in store or intention to revisit store (Roschk et al., 2017). Therefore, the research problem is a lack of understanding of the factors creating store atmospherics and how these relate to customer behavior and satisfaction in the South African retail environment.

The existing body of knowledge was first explored through extant literature to establish the current knowledge, especially in the South African environment, to establish the basis for an empirical investigation into the influence of store atmospherics on customer behavior and satisfaction at retail grocery outlets in Cape Town. In the literature review, the dependent and independent variables are first defined, and previous literature on these variables is clarified, culminating in a conceptual framework for the empirical research.

1. LITERATURE REVIEW AND HYPOTHESES

1.1. Store atmospherics

Akram et al. (2016) state that store atmospherics incorporates the elements of the physical nature of the retail outlet, elements designed to create a certain appearance for the outlet. The design and look of the outlet are created to attract and delight customers. Several physical factors incorporate store atmosphere, including color, lighting, music, cleanliness, store and merchandise layout, décor, scent, and temperature.

Sezgin and Küçükköylü (2014) concur with this notion, citing that store atmosphere incorporates a certain look and ambiance produced by the physical features of a retail store in order to attract customers. This "servicescape" is referred to as 'atmospherics', namely the overall atmospheric setting of a retail outlet in which various stimulants are involved. These stimulants may be store decoration, product forms, packaging, colors, lighting, air ventilation, scents, music, and display of products in the store, among others. The appearance, attitude, and demeanor of employees, coupled with how they interact with customers, may also affect store atmosphere.

According to Das (2014), store atmosphere is the process of deploying significant perceptual, at-

titudinal, and emotional impacts on purchasing by enticing customers into the store and keeping them engaged and fascinated. Retailers use this as their positioning strategy, where the created atmosphere interprets the retailer's values, mission, and guiding philosophy. In the process, environmental indications such as color, music, lighting, and cleanliness create the shopping context.

1.2. Customers' satisfaction

In the past, customers' satisfaction was regarded as a function of strategic management. However, strategic management was not hands-on enough to understand and anticipate customer needs and realize customers' satisfaction (Turner et al., 2017). This approach has changed through devolution of the responsibility for customers' satisfaction, and Jeske et al. (2015) note that many retailers have witnessed significant growth in customers' satisfaction. Businesses exist to close the demand gap in the market, and it is impossible to achieve that without satisfying customers.

Kotler and Armstrong (2016) explain that satisfaction, in general, has to do with contentment with the services offered and how they were delivered. Generally, customers are only content when their expectations are exceeded. Retail organizations use certain instruments to measure customers' satisfaction, such as recurrent buying, patronage tendencies, and time spent in the shop (Oliver, 1981). Buttle and Maklan (2015) warn that cus-

customer dissatisfaction is a great threat to any business, and retailers should be sensitive to it and address it immediately.

Arokiasamy (2013) notes that what satisfies the customer assumes various forms, from the merchandise the business has, through store layout, employee behavior, store philosophy, and principles. For a business that offers products and services to customers who have to be physically present, issues of this nature cannot be ignored as they are part of achieving customers' satisfaction (Ngo & Nguyen, 2016).

1.3. Relationship between store atmospherics and customers' mood

Das (2016) elucidates that the design and outlook of the store can influence the customer's mood, and as such, they are likely to be susceptible to impulse buying. In turn, when their positive mood is activated, this can influence the time and money they spend in the store. Feelings and mood are something sensual, so retailers should ensure the maintenance of the physical and psychological elements in the store. These include the type of music customers listen to while shopping, the cleanliness of the store, the display and layout of the store, the aesthetics and accessibility, and the aroma of the store. These elements are aimed at stimulating customers' senses and ultimately to improve their feelings and mood.

Hsiao (2016) observes that a store that stocks multiple kinds of merchandise is seen as attractive. When customers are spoiled for choice, they tend to experience feelings of pleasure and a sense of positivity. When those products are merchandised creatively and systematically, customers' moods and feelings are also likely to improve. For this reason, retailers should understand the importance of a friendly and inviting environment in the store. Customers can be stimulated to change their purchasing behavior, with more unplanned purchases and more time spent in an outlet (Latha & Karthikeyan, 2014). Sharma and Chadha (2020) also emphasize the importance of customer perceptions about the store. These perceptions are derived from, or at least influenced by, store atmospheric factors. As Mattila and Wirtz (2013) stated,

“people will forget what you said, people will forget what you did, but people will never forget how you made them feel”.

As suggested earlier, the fundamental reason for creating a pleasant atmosphere in a store is to encourage shoppers to experience pleasant and positive sentiments while in the store and inspire in them a sense of worth that encourages them to spend more money and time at the store. Therefore, investing company resources in creating a pleasurable shopping environment is a useful instrument to drive sales. Retailers can easily forfeit this opportunity if they do not maintain an attractive environment in their stores (Garaus, 2017).

1.4. Ambient factors

According to Ju and Ahn (2016), shoppers today feel that shopping should be more than just a routine basic experience. Shopping should be pleasurable and entertaining to these customers, keeping them excited and fascinated while in the store and amplifying their feelings and mood. Therefore, retailers should emphasize color, music, lighting, and cleanliness of the store (Levy et al., 2019). Hence, this study focuses on addressing the following ambient factors:

1.4.1. Color

Color is a ubiquitous and pervasive aspect in the store environment, providing clarity about the nature of the store and quickly influencing customers' perceptions about the outlet, and ultimately their feelings and mood. Feelings and moods vary from time to time, so colors play a significant role in inducing customer attitudes and behavior (Singh, 2006; Shi, 2013). Therefore, retailers need to understand the significance of color when marketing and presenting their outlets to customers color shapes customers' moods, thus influencing behavior in the store. Color can be used to attract customers, deliver the store's message, and is an important selling tool in the store environment. Furthermore, customers can be incited to remember events, evoke certain thoughts and experiences through the choice of color (Dash, 2018).

Color has a sensuous relationship with products, so it is important to arrange merchandise ac-

ording to color as this makes shopping easy and convenient for customers. Moreover, store colors should be a representation of the store's values and position. Color in a store should not be permanent but rather based on new developments, being changed when the need arises (Tornetta et al., 2014). Although Whalley-Smith (2015) describes the meaning of colors from the retail context, Tornetta et al. (2014) advise that such suggested associations are not cast in stone. Therefore, it is better to use color according to the stores' strategy than to follow the purported meanings of color.

1.4.2. Music

Background music in stores evolved in the early 1930s, and retailers worldwide have adopted this approach to encourage shoppers to spend more time in stores (Lindberg, 2017). The tempo of the music is believed to influence the speed at which the customer moves through the store and thus how much time they spend shopping.

Background music contributes to the store ambiance, having a significant role in customers' feelings and mood. There are disagreements among customers about the preferred level of noise and the type of music played (Biswas et al., 2019), and so music can have either a positive or negative influence, thus influencing the atmosphere in the store and ultimately the customers' buying behavior. Different sounds and genres of music played in the store can create different moods in the customer. Therefore, retailers should play pleasant music to encourage more time spent in an outlet (Biswas et al., 2019).

1.4.3. Lighting

Ticleanu et al. (2013) highlight the importance of lighting in the retail environment. Appropriate lighting supports the concept of store atmosphere and the image that the retailer seeks to create. Clear and visible lighting that shows the merchandise in the store has a major role in stimulating impulse buying. Pegler (2010) agrees that suitable lighting is a critical component for the perfect store environment, inducing a positive mood in shoppers, regardless of the type or format of the store. The reaction or behavior of the customer in an outlet is fundamentally af-

ected by the lighting effects (Kutlu et al., 2013), with up to two-thirds of buying decisions being influenced by lighting. Psychology suggests that lighting can evoke a certain mood in customers, and retailers should be cognizant of this when changing or installing new lighting systems (Biswas et al., 2017).

1.4.4. Cleanliness

Cleanliness relates to the appearance of the store, how neat and well organized it is. A clean outlet can trigger positive feelings and mood in customers, which will influence positive or negative word-of-mouth about an outlet, spread by customers because of their experience (Choi, 2019).

Regardless of whether the store is catering to a lower-, middle-, or higher-income group, the cleanliness of the store should not be compromised. A clean, well-organized store is more appealing, and customers are likely to increase their purchases, spend more time in, and are more likely to revisit, a clean outlet (Manuahe et al., 2017). Choi (2019) agrees that shoppers do not only perceive the image of the store through its physical design and appearance but also in their sense of how the store realizes its promise to its customers. The image is thus inferred from the values of the store, its mission, and guiding philosophy, which can be viewed negatively if the store does not maintain a clean environment.

1.5. Design factors

The design and physical nature of a store can impact customers buying behavior. Because of the design of the store, customers will develop a perception of the outlet that will lead to different behaviors (Wood, 2020). Levy et al. (2019) assert that the layout of a store should be designed with customers in mind – upon entering a store, customers should be able to easily find the items they want. A key objective of the store design is to create a pleasing shopping experience that will lead to customer loyalty, increasing sales volume, and maintaining or minimizing costs. Wood (2020) further suggests that a well-designed store should have a well-planned sales floor with adequate aisle space, displays that are inviting, and attractive signs and décor.

Store signage plays a significant role in communicating business objectives and market positioning. Within seconds of entering the store, there should be visible communication (signage) directing customers through sections of the store. Store signage is also a convenience strategy that encourages confidence and patronage (Niazi et al., 2015). Equally important, in-store displays encourage shoppers to engage in unintentional shopping. This is an opportunity for retailers and their suppliers to devise promotional strategies to increase revenue and drive slow-moving merchandise (Karbasivar & Yarahmadi, 2011).

1.6. Social factors

Social factors relate to people (customers and staff) and how retailers can communicate with them effectively throughout the customer's time in the store. One way is to utilize point of sale (POS) material to advertise the merchandise, always emphasizing the company's corporate identity. Social factors include the role of staff in ensuring effective communication in the store. With the knowledge that the staff possesses, customers should never be "lost" in the store. Retail organizations should implement ways to effectively use their staff to convey and uphold the standards and the mission of the company (Chen & Hsieh, 2011). According to Blessa (2010), many retail firms use this approach to encourage customers into the store and keep them fascinated while inside the store. Point of sale (POS) presents an opportunity for both retailers and suppliers to exhibit their merchandise and introduce new products. Some retail businesses have adopted the new technology of the virtual point of sale, which lasts longer than the physical point of sale and is easier and quicker to update.

According to Turkay and Sengul (2014), employees and their behavior are social factors in the store environment. Retail organizations need to understand and accept that their employees and how they behave towards customers will determine how the store is perceived. Employee behavior is the actions and behaviors of employees, whether good or bad (Hanna et al., 2004). As the saying goes, "first impressions last". The memory of a bad experience will last for a long time and is not reversible. Staff are the custodians of the store and should present and act in a manner that is satisfactory to customers, as they present the face of the company (Juwaheer,

2014). Customers do not differentiate employees from the company they represent. That is why the company's promise of service quality is dependent on its employees, whose behavior towards customers has a significant role in driving customers' satisfaction (Gandhi et al., 2017).

1.7. Customers' time spent in the store

Customers willingly spend more time in a store if their perceptions of it are favorable (Berman et al., 2018). However, the extent to which customers' immediate impressions of a store cannot be changed has been exaggerated, and retailers should strive to improve these impressions (Gupta & Randhawa, 2008). The design elements of the store also influence the time spent in an outlet. When planners decide on the design of the store, they should be cognizant of such effects. When customers are loyal, time is not an issue for them, but it always helps the store design be alluring and inviting (Helmefalk & Hultén, 2017).

1.8. Intention to revisit the store

Chen and Hsieh (2011) affirm that customers' patronage and revisit intentions depend on retailers' hospitality. Retailers, therefore, need to welcome people and do business in an inviting and pleasant environment. The design elements of the store must keep the customer captivated. Customers will then demonstrate approach behavior, showing support for the store (Harun et al., 2018). Leenders et al. (2019) agree, noting that store design is responsible for several factors, including the mood it creates. If a pleasant mood is aroused in a customer, they will revisit the store repeatedly. Retailers who understand the importance of sustainability would implement strategic decisions to retain existing customers and attract new ones. This includes strategies to attract customers to revisit the store (Singh et al., 2019).

1.9. Conceptual framework

The preceding discussion of the literature has shown that a positive store atmosphere, comprised of ambient, design, and social factors can have a positive impact on a customer's feeling and mood, how much time they spend in the store, and whether they intend to revisit the store, which

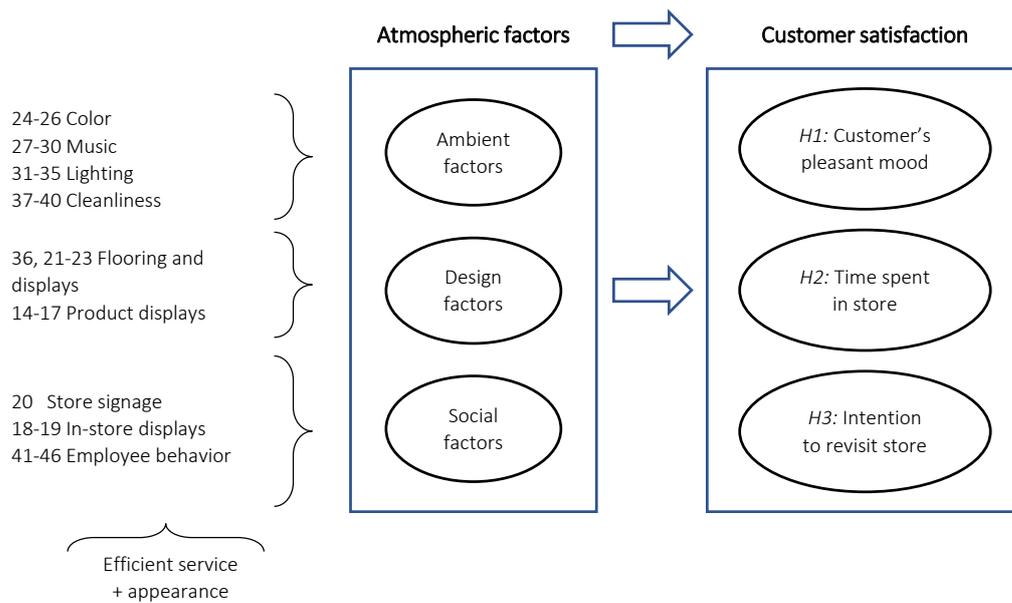


Figure 1. Conceptual framework

are indicators of satisfaction. A conceptual model mapping the dynamics and composition of store atmospherics and how they influence customers' satisfaction via pleasant mood, time in store, and revisit intention is illustrated in Figure 1, outlining the conceptual framework of this study.

Based on the literature review, the goal of this study was defined as to examine the influence of store atmospherics on customers' satisfaction, with three specific objectives, namely:

- To investigate whether store atmospherics influences the customers' pleasant mood.
- To explore whether the customers' time spent in the store is influenced by store atmospherics.
- To discover whether store atmospherics influences the customer's intentions to revisit the store.

Based on this framework and the three research objectives, three hypotheses were identified as follows:

- H1: Store atmosphere has a positive impact on customers' pleasant mood.*
- H2: Customers' time spent in outlet is influenced by store atmospherics.*

H3: Store atmosphere has a positive impact on intention to revisit store.

The remainder of this paper consists of an explanation of the method used to conduct the empirical study, the presentation and discussion of the empirical study results, and finally, conclusions are drawn.

2. METHODS

2.1. Study design

The research philosophy adopted in this study leans towards positivist or objectivist ontological assumptions (Long et al., 2000), with a deductivist approach (Creswell & Plano Clark, 2017). The research strategy adopted is a quantitative, descriptive methodology (Hair et al., 2006), with a cross-sectional time horizon and data collected via a survey (de Freitas et al., 2017).

2.2. Population and sampling

The population of interest was customers over the age of 18 who had shopped at the sample stores. This population was chosen as they presumably had buying power and had just experienced the atmosphere in a store of interest. A two-step sampling method was used to select the sample from this population. The first step was to select two re-

tailers (retailers P and R – names kept confidential at the request of the retailers), with two outlets each. These were selected via judgmental sampling, selecting two stores and their outlets that adequately matched the target population, were convenient for access, and were prepared to participate. Then systematic random sampling was used, as the second step, to select 100 interviewees from each of the four retail outlets (two each from retailers P and R), as illustrated in Table 1. The sample size is sufficient, according to Sekaran and Bougie (2019), as are the individual outlet samples (Diamantopoulos & Schlegelmilch, 1997).

Table 1. Sample size breakdown

Retailer P – outlet 1 = = 100 respondents	Retailer R – outlet 3 = = 100 respondents
Retailer P – outlet 2 = =100 respondents	Retailer R – outlet 4 = = 100 respondents
Retailer P – total = = 200 respondents	Retailer R – total = = 200 respondents

In this sampling process, a random number was chosen for the starting point (e.g., 3) and the intervals (i.e., 10). Thus, interviewers counted off three possible respondents before starting to interview – after that, they attempted to interview every 10th customer leaving the store. In the absence of a sampling frame, this method was appropriate (Javaid et al., 2019). In this way, Respondents are in a good position to recall their immediate experience and highly likely to provide correct and accurate information when completing the questionnaire.

2.3. Instrument derivation

The questionnaire was derived from the literature review, based on the constructs and variables in-

dicated in the conceptual framework in Figure 1. The source of the various questions for each of the research constructs and their factors are illustrated in Table 2.

The questionnaire was pilot tested with 20 respondents matching the study population, highlighting potential problems with questions 2, 13, and 20-31. These were reworded to overcome the problems. Furthermore, the questionnaire was checked by two subject matter experts and a statistician.

2.4. Data collection

The questionnaires were then administered by fieldworkers who were trained to intercept customers outside the four participating retail store outlets and explain the purpose and content of the questionnaire before administering it.

2.5. Data analysis

The data were processed and thoroughly checked for administrative errors. The Statistical Package for the Social Sciences (version 24) was used to conduct descriptive analyses of the data with tables and figures, including univariate and bivariate analyses and inferential analyses such as factor analysis, correlations, and regression analysis.

2.6. Validity and reliability

To ensure validity, the questionnaire was compiled in an easy to comprehend manner, jargon-free, simple English, and easy-to-grasp multiple-choice Likert scale questions. Construct and face validity were achieved through the pilot test of the ques-

Table 2. Questionnaire derivation

Construct	Factors	Individual concepts	Literature source
Store atmospherics	Ambient factors	Color	Hussain and Ali (2015)
		Music	Hussain and Ali (2015)
		Lighting	Yap et al. (2011)
		Cleanliness	Yap et al. (2011)
	Design factors	Flooring and displays	Yap et al. (2011), S. P. Das and S. S. Das (2015)
		Product displays	Yap et al. (2011), Hussain and Ali (2015), Sharma and Garg (2015)
	Social factors	Store signage and POS	S. P. Das and S. S. Das (2015), Sharma and Garg (2015)
		In-store displays	Hussain and Ali (2015)
Customers' satisfaction	Employee Behavior	Yap et al. (2011), Sharma and Garg (2015)	
	Pleasant mood	Sharma and Garg (2015)	
	Time spent in outlet	Hussain and Ali (2015)	
		Intention to revisit	Hussain and Ali (2015)

tionnaire with a sample of respondents and the subject matter experts, and a statistician.

Reliability was checked via factor analysis and Cronbach’s alpha coefficient – two factors that did not meet the requirements of these processes were excluded from the study.

3. RESULTS

3.1. Profile of respondents

A standardized questionnaire with closed-ended response alternatives was administered to 400 respondents. Table 3 presents the participant response rates by store.

This response of 388 usable responses (97%) is considerably better than the ideal percentage of 75% and above the response rate suggested by Ray (2012) as being acceptable.

A profile of the respondents’ demographics is provided in Table 4.

3.2. Factor analysis and reliability testing of questionnaire

Cronbach’s alpha coefficient was used for internal consistency reliability testing. Taber (2018) suggests that, although above the arbitrary figure of 0.70 is usually acceptable and greater than 0.80 is good, instruments of lower coefficient value can be worthwhile when there are only a few test items, where respondents’ knowledge may be limited and of course when developing a new instrument, all of which issues apply in this research. Therefore, those factors with a coefficient greater than 0.6 were left in the conceptual model. The Cronbach’s Alpha coefficients are shown in Table 5.

Following the factor analysis and the resultant restructuring of the factors (deleting those with coefficients of less than 0.6), as explained above, those with a score above 0.6 were accepted for consideration in the revised conceptual model. Based on this analysis and revision, a new conceptual model of the factors was developed.

Table 3. Response rate results

Selected store	Planned sample	Achieved sample	Response rate
Retailer P – outlet 1	100	94	94%
Retailer P – outlet 2	100	96	96%
Retailer R – outlet 3	100	100	100%
Retailer R – outlet 4	100	98	98%
Total responses	400	388	97%

Table 4. Profile of respondents’ demographics

Demographic category		N	%
Gender	Male	152	39.2
	Female	236	60.8
Age	18-29 years	170	43.8
	30-39 years	105	27.1
	40-49 years	80	20.6
	50-59 years	20	5.2
	60+ years	13	3.4
	Marital status	Single	235
	Married	117	30.2
	Divorced	22	5.7
	Widowed	9	2.3
	Other	5	1.3
Monthly income	No income	47	12.1
	Below R3,000	105	27.1
	R4,000 – 7,000	103	26.5
	R8,000 – R12,000	73	18.8
	Above R13,000	60	15.5

Table 5. Factor analysis and Cronbach’s alpha coefficient

Factor	No. of items	Cronbach’s alpha	Strength of association	Factor loadings: unidimensionality
Customer pleasant mood	3	0.642	Questionable	0.712 – 0.794
In-store displays	2	0.548	Poor	0.83
Flooring and displays	4	0.574	Poor	2 factors identified
Floor adverts	2	0.748	Acceptable	0.873-0.910
Floor space and cleanliness	2	0.317	Unacceptable	0.711-0.826
Color	2	0.544	Poor	0.771-0.773
Music	4	0.818	Good	0.786-0.834
Lighting	4	0.640	Questionable	0.618-0.768
Cleanliness	4	0.661	Questionable	0.6-0.824
Employee efficient service	3	0.805	Good	0.821-0.880
Employee appearance	2	0.749	Acceptable	0.880-0.909
New constructs				
Positive image	5	0.700	Acceptable	0.559-0.729
Wellbeing	4	0.567	Poor	0.425-0.777
Space and signage	2	0.395	Unacceptable	0.500; 0.814

Table 6. Descriptive statistics

Variables	N	Min	Max	Mean	Std. dev.
F7 Employee appearance	388	1.0	5.0	1.626	.6595
F4 Lighting	388	1.0	4.8	2.085	.6080
F5 Cleanliness	388	1.0	4.3	2.327	.6825
F3 Music	388	1.0	5.0	2.356	.8501
F8 Positive image of store	388	1.0	4.4	2.370	.6823
F2 Floor adverts	388	1.0	5.0	2.506	.9376
F1 Customers’ pleasant mood	388	1.0	5.0	2.512	.8124
F6 Employee efficient service	388	1.0	5.0	2.558	.8823

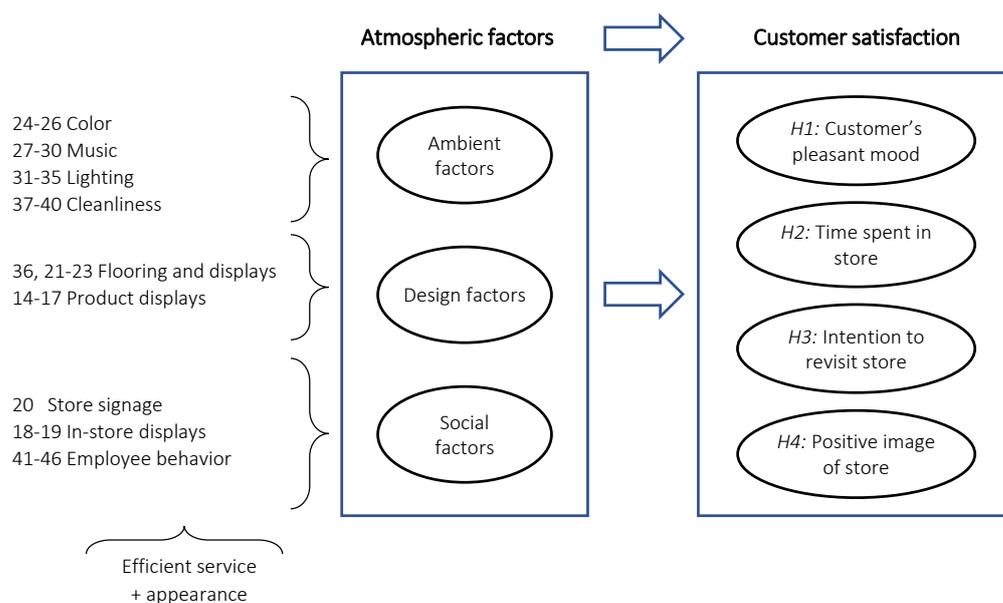


Figure 2. Revised conceptual model

Figure 2 shows the revised relationship between the factors (independent variables) and the dependent variables developed from the factor and reliability analyses and indicates a new set of hypotheses, including a new hypothesis, namely “H4: Positive image of store”.

After excluding variables that had no effect, like color as an ambient factor, descriptive statistics are displayed in Table 6.

3.3. Correlations between dependent and independent variables

A correlation analysis using Spearman’s rho was conducted to identify the relationship between the dependent variables and the independent variables. This included the new dependent variables and excluded the independent variables removed by the factor analysis. The correlations are indicated in Table 7.

Positive correlations between the dependent variables and all the independent variables are reflected in Table 7. All correlations bar two had p-values < 0.05. Hence, each of the independent variables contributes to shaping the feelings and mood of customers, the positive image of the store, the time spent in the store, and the intention to revisit the store. This meant that the hypotheses were accepted, although some have only a small influence. For example, Karl et al. (2016) report that the uniform worn by employees has no impact on how adult shoppers perceive the quality of a store. This study supports their finding, with employee appearance having the lowest degree of correlation (.09). Overall, although supporting the hypotheses, these correlations are generally very low. For example, when a regression was conducted between the independent variables and the four dependent variables, the r^2 for the customer’s pleasant mood

dependent variable was only 0.176 ($F = 13.61$; $p < 0.001$) and the r^2 for the positive image of store variable was only 0.077 ($F = 5.302$; $p < 0.000$). The regression for the other two dependent variables, Time spent in store and intention to revisit the store, were not statistically significant. Thus, although these variables contribute to customers’ feelings and mood, image, time in store, and intention to revisit the store, there are other factors that also influence these dependent variables.

4. DISCUSSION

The study provided knowledge about the role of store atmospherics and how they relate to the factors that influence customers’ satisfaction. Furthermore, the study aspired to provide a comprehensive interpretation of the area of store atmospherics concerning these factors.

Generally, store atmosphere relates to the stimulation of customers’ senses within the store environment. Certain ambient, design, and social factors that were believed to have the most significant impact on customers’ satisfaction were highlighted. This was achieved by identifying those components that received the highest ‘strongly agree’ and ‘strongly disagree’ scores. Points of argument were extrapolated from the frequencies recorded to lend substance to the discussion and test the hypotheses. The arguments to support or refute the hypotheses were underpinned by the literature reviewed in the study.

This study aimed to scrutinize the influence of atmospheric store elements on the factors that influence customers’ satisfaction in selected grocery retailers in Cape Town. The study endeavored to address whether store atmospher-

Table 7. Correlation analysis

IV \ DV	Positive image of store	Customer pleasant mood	Time spent in outlet	Intention to revisit outlet
Cleanliness	.224	.250	.271	.224
Lighting	.207	.260	.245	.230
Music	.195	.262	.321	.253
Employee efficient service	.188	.287	.279	.269
Employee appearance	.183	.159	.090	.171
Floor adverts	.174	.274	.314	.203

Note: DV – dependent variables; IV – independent variables.

ics influence the customers' feelings and mood, positive image of the store, time spent in store, and intention to revisit the store. As such, it was indeed revealed that store atmospherics could positively influence these factors that have been shown to influence customers' satisfaction.

However, it is also clear from the findings that there are other factors not considered in this study that influence the four dependent variables.

In addressing the research problem, the study has explored different store atmosphere dimensions, adding to the existing body of knowledge. The different dimensions of store atmospherics explored included ambient, design, and social factors. The study focused on the relationships and correlations between store atmospherics and the factors influencing customers' satisfaction to intensify engagement with the research problem.

CONCLUSION

This study has highlighted the influence of store atmospherics on the factors influencing customers' satisfaction in grocery retailer stores in Cape Town. The literature showed that most studies had covered only a single atmospheric stimulus, disregarding the effect of combinations of stimuli (Ettis, 2017) and with little research into grocery stores, especially in South Africa. Therefore, this study has contributed to the literature by exploring different store atmosphere dimensions in different geographic and industry contexts, thereby adding to the existing body of knowledge in this field.

As mentioned earlier, customers are stimulated by innovative atmospheric cues and can be seduced by the environment in which they shop. Thus, retailers must create an appealing shopping experience for customers. Retail growth and profitability are often motivated by small factors, making a big impact on customers' satisfaction and loyalty. This article provides a broad-based overview of several factors, namely ambient, design, and social factors. These factors, if well handled, can improve the customer's shopping experience. Remaining competitive in the market takes more than just making a sale – attracting and keeping customers through relevant innovations is key, and so retailers need to constantly revisit and re-energize their store atmospheric strategies.

Data were collected only in mostly lower-middle-income areas of Cape Town, so the findings may not reflect the entire population. Had opinions been obtained from higher-income respondents as well, the findings might have been different. Therefore, it is suggested that a similar study be conducted on both lower-middle- and higher-income groups. Furthermore, it was observed that many respondents wanted to comment and discuss issues, but the structured questionnaire did not cater to this. Therefore, it is recommended that qualitative research be conducted to probe for more in-depth information about how and why store atmospherics influence customers' satisfaction in the South African context.

AUTHOR CONTRIBUTIONS

Conceptualization: Richard Mfundi Ndengane, Roger B. Mason.

Data collection: Richard Mfundi Ndengane.

Formal analysis: Richard Mfundi Ndengane, Misheck Mutize.

Supervision: Roger B. Mason, Misheck Mutize.

Writing – original draft: Richard Mfundi Ndengane, Roger B. Mason.

Writing – review: Roger B. Mason, Richard Mfundi Ndengane, Misheck Mutize.

Writing – editing: Roger B. Mason.

ENDNOTE

Both Professor Mason and Dr Mutize were employed at the Cape Peninsula University of Technology at the time they supervised this research, which was conducted by Mr Ndengane towards a Masters degree in Retail Business Management.

REFERENCES

1. Akram, U., Hui, P., Khan, M. K., Hashim, M., & Rasheed, S. (2016). Impact of Store Atmosphere on Impulse Buying Behavior: Moderating Effect of Demographic Variables. *International Journal of u- and e- Service, Science and Technology*, 9(7), 43-60. <http://dx.doi.org/10.14257/ijunesst.2016.9.7.05>
2. Arokiasamy, A. A. (2013). The impact of customer satisfaction on customer loyalty and intentions to switch in the banking sector in Malaysia. *Journal of Commerce*, 5(1), 14-21. Retrieved from http://joc.hcc.edu.pk/articlepdf/3_5_1_14_21.pdf
3. Berman, B., Evans, J. R., & Chatterjee, P. (2018). *Retail management: a strategic approach* (13th ed.). Harlow, UK: Pearson Education.
4. Biswas, D., Lund, K., & Szocs, C. (2019). Sounds like a healthy retail atmospheric strategy: effects of ambient music and background noise on food sales. *Journal of the Academy of Marketing Science*, 47(1), 37-55. <https://doi.org/10.1007/s11747-018-0583-8>
5. Biswas, D., Szocs, C., Chacko, R. & Wansink, B. (2017). Shining light on atmospherics: How ambient light influences food choices. *Journal of Marketing Research*, 54(1), 111-123. <https://doi.org/10.1509/jmr.14.0115>
6. Blessa, R. (2010). *Merchandising no Ponto de venda*. São Paulo: Atlas.
7. Buttle, F., & Maklan, S. (2015). *Customer Relationship Management: Concepts and Tools*. Oxford: Routledge.
8. Chen, H., & Hsieh, T. (2011). The effect of atmosphere on customer perceptions and customer behavior responses in chain store supermarkets. *African Journal of Business Management*, 5(24), 10054-10066. <https://doi.org/10.5897/AJBM10.608>
9. Choi, J. (2019). Is Cleanliness Really a Reason for Consumers to Revisit a Hotel? *Journal of Environmental Health*, 82(5), 16-22. Retrieved from <https://www.neha.org/publications/journal-environmental-health/jeh-issue-december-2019>
10. Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods Research* (3rd ed.). Thousand Oaks, CA: Sage.
11. Das, G. (2014). Impacts of retail brand personality and self-congruity on store loyalty: The moderating role of gender. *Journal of Retailing and Consumer Services*, 21(2), 130-138. <https://doi.org/10.1016/j.jretconser.2013.07.011>
12. Das, G. (2016). Regulatory focus as a moderator of retail shopping behavior. *Journal of Strategic Marketing*, 24(6), 484-499. <https://doi.org/10.1080/0965254X.2015.1063679>
13. Das, S. P., & Das, S. S. (2015). Impact of Visual Merchandising on Consumer's Impulse Buying Behavior. *The International Journal of Business & Management*, 3(12), 188-201. Retrieved from <http://internationaljournalcorner.com/index.php/theijbm/article/view/128396/89045>
14. Dash, S. K. (2018). Role and Importance of Color in Marketing. *Vilakshan: The XIMB Journal of Management*, 15(1), 105-112. Retrieved from <https://www.coursehero.com/file/42742733/Role-and-Importance-of-Colour-in-Marketingpdf/>
15. Davis, L., Yue, H., & Davis, D. (2017). Shopping orientation, store attributes, and apparel retail format preference. In *Proceedings of the International Textile and Apparel Association Annual Conference*, 74(1). Retrieved from <https://www.iastatedigitalpress.com/itaa/article/1635/galley/1508/view/>
16. de Freitas, J. G., Costa, H. G., & Ferraz, F. T. (2017). Impacts of Lean Six Sigma over organizational sustainability: A survey study. *Journal of Cleaner Production*, 156, 262-275. <https://doi.org/10.1016/j.jclepro.2017.04.054>
17. Diamantopoulos, A., & Schlegelmilch, B. B. (1997). *Taking the fear out of data analysis*. London: The Dryden Press.
18. Ettis, S. A. (2017). Examining the relationships between online store atmospheric Color, flow experience and consumer behavior. *Journal of Retailing and Consumer Services*, 37, 43-55. <https://doi.org/10.1016/j.jretconser.2017.03.007>
19. Gandhi, S. K., Sachdeva, A., & Gupta, A. (2017). Treat employees like customers for an achievement culture: an intrinsic service quality perspective from Indian SMEs. *Journal of Industrial Engineering and Advances*, 2(3), 1-10. Retrieved from <http://matjournals.in/index.php/JoIEA/article/view/2119/1433>
20. Garaus, M. (2017). Atmospheric harmony in the retail environment: Its influence on store satisfaction and re-patronage intention. *Journal of Consumer Behavior*, 16(3), 265-278. <https://doi.org/10.1002/cb.1626>
21. Gupta, S., & Randhawa, G. (2008). *Retail Management*. New Delhi: Atlantic.
22. Hair, J. F., Bush, R. P., & Ortinau, D. J. (2006). *Marketing Research: Within a changing information environment* (3rd ed.). New York: McGraw-Hill.
23. Hanna, V., Backhouse, C., & Burns, N. (2004). Linking Employee Behavior to External Customer Satisfaction Using Quality Function Deployment. *Proceedings of The Institution of*

- Mechanical Engineers, Part B: Journal of Engineering Manufacture*, 218(9), 1167-1177. <https://doi.org/10.1243/0954405041897022>
24. Harun, A., Rashid, U. K., Chia, T. C. M., Kassim, M., Wahid, A., & Tahajuddin, S. (2018). Does retail image affect attitude and repatronage intention of apparel store in Malaysia? *WSEAS Transactions on Business and Economics*, 15, 44-54. Retrieved from <https://www.wseas.org/multimedia/journals/economics/2018/a145907-590.pdf>
 25. Helmfalk, M., & Hultén, B. (2017). Multi-sensory congruent cues in designing retail store atmosphere: Effects on shoppers' emotions and purchase behavior. *Journal of Retailing and Consumer Services*, 38, 1-11. <https://doi.org/10.1016/j.jretconser.2017.04.007>
 26. Hsiao, C.-H. (2016). The effects of post-adoption beliefs on the expectation–confirmation model in an electronics retail setting. *Total Quality Management & Business Excellence*, 29(7-8), 1-15. <https://doi.org/10.1080/14783363.2016.1250621>
 27. Hussain, R., & Ali, M. (2015). Effect of Store Atmosphere on Consumer Purchase Intention. *International Journal of Marketing Studies*, 7(2), 35-43. <https://doi.org/10.5539/ijms.v7n2p35>
 28. Javaid, A., Noor-ul-Amin, M., & Hanif, M. (2019). Modified Ratio Estimator in Systematic Random Sampling Under Non-response. *Proceedings of The National Academy of Sciences, India Section A: Physical Sciences*, 89(4), 817-825. <https://doi.org/10.1007/s40010-018-0509-3>
 29. Jeske, H., Chimusoro, E., & Karodia, A. M. (2015). An Evaluation of Customer Service and the Impact of Efficiency on Namibia's Logistical Sector: A Study Involving Selected Courier Companies. *Singaporean Journal of Business Economics and Management Studies*, 3(6), 1-38. Retrieved from <https://platform.al-manhal.com/Reader/Article/63221>
 30. Ju, J., & Ahn, J. H. (2016). The effect of social and ambient factors on impulse purchasing behavior in social commerce. *Journal of Organizational Computing and Electronic Commerce*, 26(4), 285-306. <https://doi.org/10.1080/10919392.2016.1228353>
 31. Juwaheer, T. D. (2014). Exploring International Tourists Perceptions: A Case Study of Mauritius. *Managing Service Quality*, 14(5), 350-364. <http://dx.doi.org/10.1108/09604520410557967>
 32. Karbasivar, A., & Yarahmadi, H. (2011). Evaluating Effective Factors on Consumer Impulse Buying Behavior. *Asian Journal of Business Management Studies*, 2(4), 174-181. Retrieved from [https://www.idosi.org/ajbms/2\(4\)11/4.pdf](https://www.idosi.org/ajbms/2(4)11/4.pdf)
 33. Karl, K., Peluchette, J. V. E., & Hall, L. M. (2016). Employee beliefs regarding the impact of unconventional appearance on customers in Mexico and Turkey. *Employee Relations*, 38(2), 163-181. <https://doi.org/10.1108/ER-05-2015-0083>
 34. Kotler, P., & Armstrong, G. (2016). *Principles of Marketing: Global and South African perspectives* (2nd ed.). Cape Town: Pearson South Africa.
 35. Kutlu, R., Manav, B., & Klanc, R. (2013). Retail Design: Color-Light Influence on Brand Identity Image Perception. *World Applied Sciences Journal*, 23(5), 598-606. Retrieved from https://www.researchgate.net/publication/287785604_Retail_design_Color-light_influence_on_brand_identity-image_perception
 36. Latha, A., & Karthikeyan, C. (2014). A Study on Impact of Store Satisfaction, Merchandise Quality, and Service Quality of Store on Store Loyalty with Reference to Mom & Me Store Anna Nagar. *Global Journal for Research Analysis*, 3(5), 1-2. Retrieved from https://www.worldwidejournals.com/global-journal-for-research-analysis-GJRA/recent_issues_pdf/2014/May/May_2014_1400585929_d41e4_77%20A.Latha.pdf
 37. Leenders, M. A., Smidts, A., & El Haji, A. (2019). Ambient scent as a mood inducer in supermarkets: The role of scent intensity and time-pressure of shoppers. *Journal of Retailing and Consumer Services*, 48, 270-280. <https://doi.org/10.1016/j.jretconser.2016.05.007>
 38. Levy, M., Weitz, B. A., & Grewal, D. (2019). *Retailing management* (10th ed.). New York: McGraw-Hill Education.
 39. Lindberg, P. J. (2017). *Bad Music in Public Spaces*. Retrieved from <https://www.travelandleisure.com/trip-ideas/bad-music-in-public-spaces>
 40. Long, R. G., White, M. C., Friedman, W. H., & Brazeal, D. V. (2000). The "qualitative" versus "quantitative" research debate: a question of metaphorical assumptions. *International Journal Value-Based Management*, 13, 189-197. <https://doi.org/10.1023/A:1007850027589>
 41. Manuahe, F., Lopian, S. J., & Tumbuan, W. A. (2017). Analyzing the store atmosphere of Centro department store in Manado town square using importance-performance analysis (IPA). *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis dan Akuntansi*, 5(3), 3471-3478. Retrieved from <https://ejournal.unsrat.ac.id/index.php/emba/article/view/17569>
 42. Mathur, M., & Goswami, S. (2014). Store atmospheric factors driving customer purchase Intentions: An exploratory study. *BVIMSR's Journal of Management Research*, 6(2), 111-117. Retrieved from <https://www.semanticscholar.org/paper/STORE-ATMOSPHERIC-FACTORS-DRIVING-CUSTOMER-PURCHASE-Mathur-Goswami/80309b0f89b5d5b3075893ea979e4bac2ed5e317>
 43. Mattila, A. S., & Wirtz, J. (2013). The role of store environmental stimulation and social factors on impulse purchasing. *Journal of Services Marketing*, 22(7), 562-567. <https://doi.org/10.1108/08876040810909686>
 44. Maziriri, E. T., Chuchu, T., & Madinga, N. W. (2019). Navigating on the antecedents that influence store patronage, apparel purchase decision and store attachment among the Generation Y cohort. *The Retail and Marketing Review*, 15(1), 39-56. Retrieved from <https://hdl.handle.net/10520/EJC-16f69c1959>
 45. Nell, E. C. (2017). The impact of sensory environments on consumer

- buying behavior: A study of visual displays and sight atmospherics. *Journal of Business and Retail Management Research*, 11(2), 155-164. Retrieved from https://jbrmr.com/cdn/article_file/i-26_c-264.pdf
46. Ngo, M. V., & Nguyen, H. H. (2016). The Relationship between Service Quality, Customer Satisfaction and Customer Loyalty: An Investigation in Vietnamese Retail Banking Sector. *Journal of Competitiveness*, 8(2), 103-116. <http://doi.org/10.7441/joc.2016.02.08>
 47. Niazi, U., Haider, T., Hayat, F., Awais, M., & Hassan, W. (2015). Visual Merchandising: Does it Matter for Your Brands? *Journal of Marketing and Consumer Research*, 18(6), 80-85. Retrieved from https://www.researchgate.net/publication/295496934_Visual_Merchandising_Does_it_Matter_for_Your_Brands
 48. Oliver, R. L. (1981). Measurement and evaluation of satisfaction process in retail settings. *Journal of Retailing*, 57(3), 25-48. Retrieved from <https://psycnet.apa.org/record/1984-10995-001>
 49. Pegler, M. M. (2010). *Visual merchandising and display* (5th ed.). London: Fairchild.
 50. Ray, W. (2012). *Methods toward a Science of Behavior and Experience* (10th ed.). Belmont: Wadsworth.
 51. Roschk, H., Loureiro, S. M. C., & Breitsohl, J. (2017). Calibrating 30 Years of Experimental Research: A Meta-Analysis of the Atmospheric Effects of Music, Scent, and Color. *Journal of Marketing*, 93(2), 228-240. <https://doi.org/10.1016/j.jretai.2016.10.001>
 52. Sabrina, E. (2014). The Influence of the Store Atmosphere on the Consumer Behavior. *Mediterranean Journal of Social Sciences*, 5(8), 2039-2117. <https://doi.org/10.5901/mjss.2014.v5n8p229>
 53. Sekaran, U., & Bougie, R. (2019). *Research methods for business: A skill building approach* (8th ed.). Chichester: Wiley.
 54. Sezgin, M., & Küçükköylü, S. (2014). Store's atmosphere's importance in creating store's image in sustainable management of store and a research in Konya (Turkey) city. *Journal of Advanced Management Science*, 2(3), 186-191. <https://doi.org/10.12720/joams.2.3.186-191>
 55. Sharma, B., & Garg, N. (2015). Impact of Store atmosphere on Customers' Buying Behavior in Super Market Environment. *International Journal in Management and Social Science*, 3(2), 1016-1026. Retrieved from https://www.researchgate.net/publication/272683565_Impact_of_Store_atmosphere_on_Customers'_Buying_Behavior_in_Super_Market_Environment
 56. Sharma, S., & Chadha, S. K. (2020). Customer Perceptions about Retail Store Attributes: A Comparative Analysis between Supermarkets, Department Store and Specialty Stores in India. *IIMS Journal of Management Science*, 11(1), 1-15. <https://doi.org/10.5958/0976-173X.2020.00001.9>
 57. Shi, T. (2013). The use of Color in marketing: Colors and their physiological and psychological implications. *Berkeley Scientific Journal*, 17(1), 1-6. Retrieved from <https://escholarship.org/uc/item/67v2q6g3>
 58. Singh, H., Naeem, H. A., Krubally, M., Balder, N., & Maaodhah, A. S. A. (2019). The impact of retailscape elements, customer mood and customer pleasure on customer re-patronage intentions. *The Journal of Indian Management & Strategy*, 24(3), 17-24. <https://doi.org/10.5958/0973-9343.2019.00020.6>
 59. Singh, S. (2006). Impact of Color on Marketing. *Management Decision*, 44(6), 783-789. <https://doi.org/10.1108/00251740610673332>
 60. Spies, K., Hesse, F., & Loesch, K. (1997). Store atmosphere, mood and purchasing behavior. *International Journal of Research in Marketing*, 14(1), 1-17. [https://doi.org/10.1016/S0167-8116\(96\)00015-8](https://doi.org/10.1016/S0167-8116(96)00015-8)
 61. Taber, K. S. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Research in Science Education*, 48(6), 1273-1296. <https://doi.org/10.1007/s11165-016-9602-2>
 62. Ticleanu, C. C., Littlefair, P. J., & Howlett, G. J. (2013). *The Essential Guide to Retail Lighting: Achieving Effective and Energy-Efficient Lighting*. Bracknell: HIS BRE Press.
 63. Tornetta, S., Fox, T., & Blackbird, J. (2014). *Color sells: How psychology of Color influences consumers*. Retrieved from <https://docplayer.net/6579463-Color-sells-how-the-psychology-of-Color-influences-consumers.html>
 64. Turkay, O., & Sengul, S. (2014). Employee Behaviors Creating Customer Satisfaction: A Comparative Case Study on Service Encounters at a Hotel. *European Journal of Tourism, Hospitality and Recreation*, 5(2), 25-46. Retrieved from http://www.ejthr.com/ficheiros/2014/Volume5/EJTHR_Vol5_2_Art2_Oguz.pdf
 65. Turner, M. J., Way, S. A., Hodari, D., & Witteman, W. (2017). Hotel property performance: The role of strategic management accounting. *International Journal of Hospitality Management*, 63, 33-43. <https://doi.org/10.1016/j.ijhm.2017.02.001>
 66. Whalley-Smith, L. (2015). *The importance of color in your business, branding and life*. Klarify Marketing.
 67. Wood, A. (2020). *Designed to Sell: The Evolution of Modern Merchandising and Display*. London: Routledge.
 68. Yap, S. F., Choong, R. H., Kuang, S. L., & Low, B. Y. (2011). *The Influence of Store Atmosphere on Customer Patronage Intention towards Clothing Stores in Malaysia*. Research project report, University Tunku Abdul Rahman, Malaysia. Retrieved from <http://eprints.utar.edu.my/455/1/MK%2D2011%2D0907844.pdf>