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ORIGINAL RESEARCH

How background music of shopping sites affects consumers during festival season

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Abstract

This study focusses on the impact of the background music on consumers' shopping experience during the festival seasons. The authors derived a new research model based on the environmental psychology model in the literature and then designed an empirical experiment to examine changes in consumers' non-behavioural shopping outcomes under different conditions. The authors built a virtual shopping website and chose a traditional Chinese festival, the Mid-Autumn Festival, as the experimental scenario in which the authors used a questionnaire to measure the differences in dependent variables formed by different treatments. Data from the online experiment showed that consumers' experience is more positive with music than without the background music, and the consumer's emotions play a mediating role. However, there is no significant effect of music with the theme of the Mid-Autumn Festival compared to ordinary pop music, which proves that the theme of music does not affect consumers' experience in the online shopping scenario. These findings reflect the psychology and behaviour of consumers when using shopping websites and provide suggestions for shopping site design.

KEYWORDS

background music, emotion, online store, shopping experience, website design

1 | INTRODUCTION

Atmospherics has been defined as 'the conscious design of spaces to create certain buyer effects, particularly the design of buying environments to create specific emotional effects among buyers that increase the probability of purchase [1]'. In a retail environment, retailers change the shopping atmosphere to enhance in-store behaviour and promote desired outcomes [2]. Many researchers have studied the effects of one or more components of traditional retail store ambience, such as music [3], lighting [4], ambience [5], and scent [6] on dimensions such as customer emotional state, customer satisfaction [7], positive word-of-mouth [8], patronage intention [9], and shopping behaviour [10, 11]. When applied to the online shopping environment, these atmospheres are defined as the sum of all cues visible and audible to the online shopper [12]. In contrast to traditional retail environments, the entire store environment is limited by the visual appeal and sound on the computer screen.

Music has long been recognised as an important environmental component influencing consumer behaviour. Academics have mainly studied the influence of music in terms of both non-behavioural outcomes (shopping experience, purchase intention, recall, store evaluation, return intention etc.) and behavioural outcomes (sales, selection of products, shopping time etc.) [13]. Researchers have studied different elements of music, such as volume [14], rhythm [15], and ethnicity [16], and the results of these studies suggest that musical stimuli are a powerful means of influencing consumer behaviour and evaluation of stores. Moreover, existing studies suggest that the consistency between music and marketing stimuli is also important in influencing consumer perceptions [17].

In e-commerce, the linking and integration of the Internet and commerce have produced more festival marketing

approaches, with online retailers taking advantage of consumers' emotional attachment to traditional holidays for advertising and promotion, or creating new types of festivals to create marketing hotspots. The convenience and price promotions of e-commerce can easily lead consumers to increase their online spending during the holiday season [18]. But in online festival marketing, more attention is paid to product prices, discounting methods, snapping up the atmosphere, and other marketing techniques. However, in online festival marketing, more attention has been paid to marketing tools such as product prices, discount methods, and shopping atmosphere, and less research has been done on the consistency between music and festival scenes. In the festival scenario, we want to know the impact of the consistency between music and festival on online shoppers. Specifically, we asked the following research questions: (1) What impact does the consistency of music and scenes have on consumers' emotions? (2) What impact does the consistency of music and scenes have on consumers' shopping experience? (3) Is there any correlation between the impact on emotions and the impact on consumers' shopping experience? We used the Mid-Autumn Festival, a typical traditional Chinese festival that carries the feeling of reunion and longing, as a research scenario and built a virtual shopping website to conduct an empirical experiment. This study is the first online study on the consistency of festival scenarios and music, which achieves a high degree of integration between music and online shopping scenarios, and theoretically clarifies how the background music of shopping websites affects consumers in festival scenarios.

2 | THEORETICAL BACKGROUND

2.1 | S-O-R model

In the model of Environmental Psychology [19], the individual's emotion has a moderating effect on the influence of environmental stimulus on behaviour. The theory holds that environmental stimuli can affect the internal state (cognitive and emotional responses) of individuals and then generate approach or avoidance behaviours following the stimuli-organism-response (S-O-R) paradigm. In the retail scene, stimuli represent the sum of external stimuli that cause changes in the body's state [20]. Organisation refers to the physiological state changes of consumers after being stimulated, such as mood, heartbeat, and other physiological signals, which are regarded as an intermediary that can exert regulatory influence. Response refers to the consumers' feedback behaviour triggered by environmental interference.

The S-O-R model is widely used in physical shopping environments, and it can help researchers better explain and observe the effects of in-store variables on consumer behaviour. Many researchers have used this framework to analyse retail shopping behaviour and found significant relationships between emotional state and time spent in the store, purchase intentions, and satisfaction with the experience [21–23]. Min Zhang [24] followed the SOR framework to propose that channel integration promotes consumer empowerment, which increases trust and satisfaction and enhances consumers' purchase intention. The results of the empirical tests confirm the significant mediating effect of consumer empowerment and demonstrate the positive consumer response to channel integration. After e-commerce became popular worldwide, a large number of researchers applied the SOR model to the study of online shopping: Qiang Yan [25]studied unplanned consumption and its influencing factors (promotion, time pressure, social environment [SE], and store) through a survey of consumers before and after the Taobao 'Double 11' promotion based on the SOR model and theory. The results showed the self-regulation of unplanned consumption and its influencing factors (promotion, time pressure, SE, and in-store relaxation). The results showed that promotion scope, lead time, SE, and in-store slack had an impact on unplanned consumption; Bing Zhu [26] used the SOR model to study the online shopping repurchase intention of Generation Y consumers and found that website security had the greatest impact on Generation Y consumers' trust. Moreover, the online repurchase intention of Generation Y consumers was positively influenced by their trust in the website.

The stimuli-organism-response model establishes the relationship between environmental stimuli and user behaviour and relevant studies have proved that the model is suitable for online shopping research. Therefore, following the S-O-R model, we take the background music of a shopping website as external stimuli. We thought that different external stimuli act on consumers and produce different emotions and cognition so as to regulate shopping behaviour. On the basis of this model, we build a research model used in the study, which will be described in detail in the next chapter.

2.2 | Music in atmospheric

Music is an important atmospheric factor, both in shopping malls and in advertising, and it is an important component of marketing. With the development of e-commerce, the focus of research has gradually shifted to online shopping behaviour. Lorenzo-Romero et al. [27] studied consumer behaviour under various stimuli in e-commerce and showed that compared to the absence of music, an online shopping environment with music will have a more positive emotional response to users, music has an impact on more favourable cognitive responses of users, and in the presence of music. The study shows that music has an impact on users' more favourable cognitive responses, and users' satisfaction with the website is higher in the presence of music. Chengng G. Ding [28] examined the effect of music tempo on consumer attitudes in online shopping and concluded that the fast-paced background music elicited higher arousal than the slow-paced background music. Jung-Hwan Kim et al. [29] showed that compared to those exposed to websites without music, those exposed to websites with familiar, highly compatible, and slow-paced music exhibited more positive affective states of valence and arousal.

Although dimensions such as music rhythm, genre, and familiarity have been the focus of research on music, existing research suggests that the consistency between music and marketing stimuli is also important in terms of its impact on consumer perceptions [16, 17]. For example, Adrian C. North in 1999 [16] found through a field study that French wine outsold German beer when French music was played in stores and German beer outsold French wine when German music was played. M. P. Toldos [30] found that songs with English lyrics would result in consumers spending more time in the store and having a greater likelihood of making a purchase. There are also many consistency studies conducted in specific consumer scenarios: K. Ballouli [31] found that shoppers who heard branded music in a stadium retail store felt a higher degree of musical fit than shoppers who heard generic (popular) music. At this point, shoppers will have a more positive evaluation of the shopping environment and a higher level of satisfaction with their shopping experience. In the Christmas scenario, Eric R. Spangenberg [32] and others have shown that consumers' evaluations are more favourable to the store when Christmas music and Christmas smells are present at the same time. Jung-Hwan Kim et al. [33] conducted an experiment in a flower store and showed that the average amount spent in the romantic music condition was significantly higher compared to playing popular music and no music. However, in online shopping, the effect of the consistency of music with the holiday theme in the holiday scenario on consumers is unknown.

2.3 | Emotion model

Emotions are usually complex and difficult to describe, but in psychological research, different emotions can be classified and quantified through emotion models [34, 35]. However, the discrete emotion system is difficult to quantitative analyse. It is difficult to meet the generation of further conclusions with the gradual completion of the research system. Mehrabian and Russell [19] put forward the pleasure arousal dominance (PAD) emotion model to quantify abstract emotions. The PAD emotion model measures different emotions using the three dimensions of pleasure-displeasure, arousal-no arousal, and dominance-submissiveness. The degree of pleasure represents the positive or negative nature of the emotion, low pleasure means sad while high pleasure means happy. Arousal is the intensity of the emotion and low arousal indicates drowsiness while high arousal means excitement. Dominance is the state of control over the outside world; high dominance means being in a dominant position or having very light influence while low dominance indicates that the emotion puts the person at a disadvantage or in a dominant position. The PAD model can meet the needs of quantitative research and make the description of emotions more accurate. After that, as one of the proponents of the PAD emotion model, Russel [36] modified the original classification method and proposed the classical two-dimensional emotion model—Arousal-Valence emotion model (AV emotion model). Different from the PAD model, the AV model can describe different emotions only by arousal and valence. The computational complexity of this model is generally considered to be very suitable for emotional research, so it is widely used in various fields.

2.4 | Utilitarian and hedonic

According to the environmental psychological influence model, values in the purchase process can be divided into two categories: utilitarian and hedonic [37]. One is for goods, which have hedonic or utilitarian values [38]. The second is for the consumer's shopping process, where the consumer can obtain the satisfaction of both utilitarian and hedonic values. When consumers focus on the visible benefits of the product itself, consumers who can efficiently buy the goods they want during the shopping process can achieve their desired goals and derive the utilitarian value from it [39]. The hedonic value is related to the emotional perception obtained from the purchase process, which brings pleasure and satisfaction to the consumer [40, 41]. The hedonic value of shopping can be derived from the shopping process, but not necessarily from the value of the product and the transaction process [42]. Studies have shown that utilitarian elements may increase purchases and hedonic elements are less related to purchase behaviour [43, 44]. However, hedonic elements of the online shopping experience lead to pleasure, engagement, or enjoyment [45] and can be used to measure users' hedonic perceptions of a website [46, 47]. It is important to understand the consumer experience and value perceptions in the online environment [48].

In the online shopping process, there are many factors that influence shoppers' perception of utilitarian or hedonic value, such as website elements, online reviews, social networks, brand familiarity, and gender differences [49–52], among which the factors that bring a hedonic value to consumers may be socially rich text or pictures showing the clothes worn by models [53]. The sources of the utilitarian value in the consumption process include the efficiency of the shopping process, satisfaction, and trust in the shopping website [54], which are determined by the information related to the goods provided by the website and the consumer's trust in the website platform while the utilitarian value brought by the convenience of technology and the increased efficiency of shopping can increase consumer satisfaction, enhance the desire to consume, and promote re-consumption [55]. We, therefore, considered the background music and the visual design of the website as hedonic elements and divided the value of online shopping into utilitarian and hedonistic categories, where effectiveness (whether consumers can find the desired product quickly) and trust (whether consumers perceive the shopping process as guaranteed) were used to describe utilitarian values [56] while involvement (whether consumers are immersed in the shopping process) and enjoyment (whether the shopping process makes the consumer happy) were used to describe hedonic values [38]. We explored the differences in consumers' perceived the hedonic value and the utilitarian value under conditions of different hedonistic elements.

3 | RESEARCH MODEL AND HYPOTHESES DEVELOPMENT

In this study, we constructed a research model to verify that the background music of a shopping website can influence the purchase experience by affecting the emotions of website visitors. First, we established an environmental psychology model to describe the effects of external sensory stimuli on consumer behaviour and cognition on the S-O-R model. We argued that the background music of the website has a positive impact on consumers' emotions and cognition. And consumers' emotions can have a moderating effect on the shopping experience. We also used the AV model from the environmental psychology model to describe consumers' emotions. Their shopping experience was used to evaluate shoppers' approach or avoidance behaviours, including the perception of value during the shopping process. We then pointed out that the hedonic and utilitarian values used to measure the shopping experience are not affected by the same effects due to the different composition architectures. Consumers will perceive more hedonic value as opposed to the utilitarian value because music is the hedonistic element in shopping sites. In summary, Figure 1 depicts the research model used in this study.

First, the sound of the website is the main component of the atmospherics of the online store and are important external environmental stimuli. Music helps to create a shopping atmospheric, and for different music, the atmosphere created will be different, which will lead to different shopping results [10, 11]. We argue that different music will have different effects on consumers.

Second, a large number of studies have proved that the mediating role of consumers' emotions and cognition during the shopping process cannot be ignored [57, 58], and the AV model was used in our study to evaluate the emotions of the subjects. The two dimensions of arousal and valence in the model play a moderating role in the effect of external environmental stimuli on subjects' approach or avoidance behaviours.

Finally, the value perception that consumers receive during online shopping is composed of two components, hedonic and utilitarian, according to the psychological influence model [37]. Value perception is important driver for consumers to make online purchases [45], so it can be used to evaluate consumers' shopping experience. According to previous research [56], we measure the hedonic value by enjoyment and involvement, and the utilitarian value was measured by both trust and effectiveness. The questionnaire items used were adapted from previous research works on these four dimensions [59–61]. The level of the hedonic value indicates the intensity of the user's perception of pleasure during the shopping process; based on previous research works, we believe that website atmospheric will have a positive impact on it. The Utilitarian value, which has a strong relationship with the outcome of the consumer's shopping behaviour (e.g. purchase or not, amount spent), depends on the completeness of the product information provided on the website and the consumer's trust in the retailer, and there should be no significant effect of website atmospheric on it.

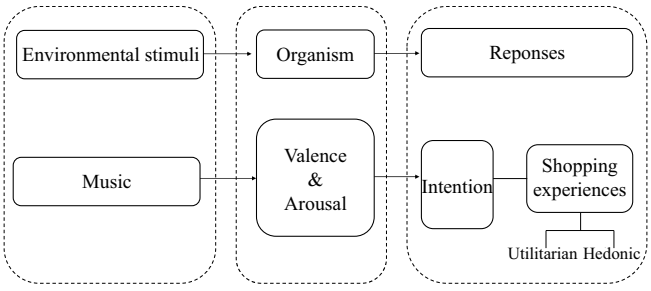

FIGURE 1 Research model

In summary, we propose the following hypothesis:

H1: The presence of music will have a positive impact on consumers' emotions and make the consumer experience more positive. This includes a higher AV value (H1-1); a higher hedonic value (H1-2); but no effect on a utilitarian value (H1-3).

Since music consistency can promote consumers' shopping experience [16, 17], we propose Hypothesis 2:

H2: When the theme of the music is consistent with the theme of the shopping website (Mid-Autumn Festival), consumers' experience will be more positive than when the music was unrelated to the festival. This includes a higher AV value (H2-1); a higher hedonic value (H2-2); but no effect on a utilitarian value (H2-3).

4 | RESEARCH METHOD

4.1 | Sample and independent variables

An experiment was used to test the hypotheses, and this study was conducted on a fictitious shopping website. Participants were recruited through a student forum at Zhejiang University. Two hundred and nine participants were eventually recruited, with a concentration of 18–25 years old (88.5%) and an even gender distribution (55% female). Data from 12 participants were not included in the analysis due to incomplete responses. This resulted in a final sample of 197.

The music factors in the experiment consisted of three levels: Mid-Autumn Festival music, non-Mid-Autumn Festival music, and no music. Before selecting the songs, we recruited 30 people to recall past Mid-Autumn festivals and evaluate the emotions of the festival. Based on the AV model in environmental psychology, arousal/valence was scored separately using the Likert 9-point scale. The scoring results were (7.1875, 7.3125). We then conducted a pre-experiment to select the music used on the website. We started with a selection of 16 Mid-Autumn Festival music tracks and 18 general music tracks. Then, participants' familiarity with these songs, the song's

arousal, the song's valence, and the song's consistency score with the Mid-Autumn Festival were scored. All questions were measured by a Likert 7-point scale. It has been shown that musical familiarity can have an impact on shopping [62], so we first selected songs with no difference in familiarity based on the scoring results. Among these songs, we selected five songs from each of the two groups that were closest to the emotions of the Mid-Autumn Festival.

In the experiment, the two groups of songs were played separately on the virtual shopping site. The participant was asked to play music and adjust the volume to an appropriate level before selecting a product, ensuring that the participant heard music throughout the shopping process.

4.2 | Procedure

We used wix.com to construct a shopping website to simulate the online shopping process and embedded the background music on the website as the experimental variables to improve the reliability of the experimental results. The background music of the website was randomly played in a list, which was divided into three different types of the background music: Mid-Autumn Festival music (five songs in total), non-Mid-Autumn Festival music (five songs in total), and no music at all (switching between different pages did not affect the playing of music).

This experiment took the form of an interactive website to present goods as previous studies showed the drawbacks of the picture rotation method of presenting information [63]. The shopping website was built with reference to the official eBay e-commerce sales website. The web design is shown in Figure 2 and Figure 3, with warm colours for the icons and navigation bar, and some banners related to the Mid-Autumn Festival promotion were also added to the home page of the website. A questionnaire was used to ask the participants how they felt about shopping on the website to eliminate the influence of the website design itself on the experimental results, including its ease of use and how much they liked its interface. The participants were asked to use a Likert 7-point scale to rate how much they like the website; 70.9% of the participants score four or more points ($M = 4.74$). Most of them found the website easy to use and they were able to complete the online shopping process smoothly.

The experiment was conducted in the form of online shopping, and each group is approximately 60 people. The procedure of the experiment is shown in Figure 4, where subjects first access the website through a link and then complete the experiment in turn. The product categories in the store are divided into those related to the Mid-Autumn Festival and those not related to the Mid-Autumn Festival. The category related to the Mid-Autumn Festival is named 'Mid-Autumn Festival Goodies', which mainly includes gifts that people give to each other during the Mid-Autumn Festival, such as moon cakes, hairy crabs, snacks boxes, and other gifts. Non-Mid-Autumn Festival-related products include electronic products, fashion (clothing, shoes etc.), health and beauty, handicrafts etc. Non-Mid-Autumn Festival-related products are added because festival marketing is different from offline festival marketing, and there are still other categories of products on shopping websites besides those closely related to the festival. The subjects could choose a product category to view as they wished, and there were 12 products under each category. The prices of the products were set with reference to similar products in real shopping sites to avoid any influence on the experiment results due to price. The participant could add the selected products to the shopping cart and checkout after completing the selection similar to real online shopping.

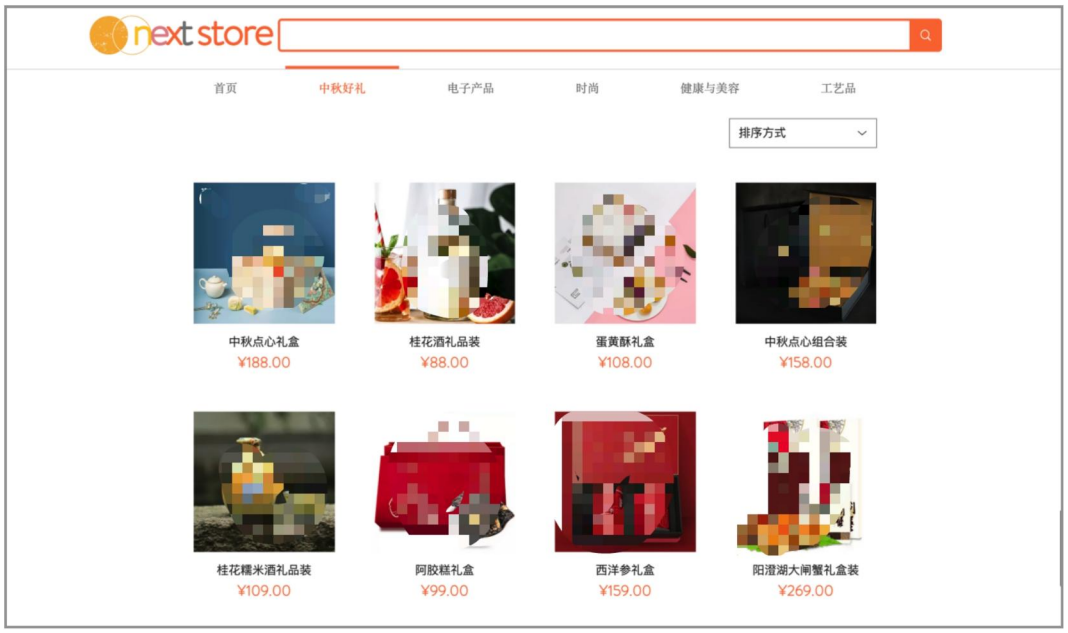

FIGURE 2 Virtual website page (1)

FIGURE 3 Virtual website page (2)

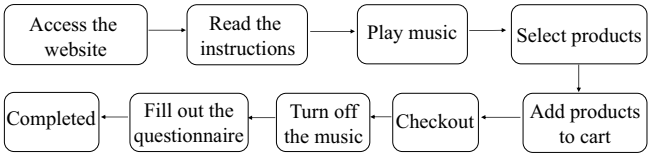

FIGURE 4 Procedure

The participant had to click on the questionnaire link on the website to access the questionnaire interface after completing the shopping. When they completed the questionnaire, the whole experiment process was completed. A web browser monitoring tool was used to record the participants' page jumping behaviour and page dwell time, which was used to exclude invalid data later.

4.3 | Dependent variables

The questionnaire used for the experiment consisted of three parts. The first part focusses on participants' personal information, such as gender, age, online shopping experience, and times of online purchases per week. The second part focusses on questions about website operation, including ease of use and likeness of the website. The third part focusses on the user's shopping experience on the website, including the AV value of emotions during shopping, the value perception during shopping, and the user's value perception by recalling their shopping behaviours.

Broadly categorised, the dependent variables included (1) consumers' emotions (2) value perception during the shopping process. All measures, except for the intensity of the holiday atmosphere, were based on previous research using a Likert 7-point scale (1 = strongly disagree to 7 = strongly agree). The dependent variables' constructs, the number of items in each, and sources are shown in Table 1.

Cronbach alpha scores are commonly used as a measure of reliability for a set of two or more construct indicators, whose values range between 0 and 1. Higher values of alpha indicate higher reliability among the indicators [64]. In this study, we used Cronbach alpha scores to test the intrinsic reliability of each dependent variable dimension. As shown in Table 2, the Cronbach alpha scores for all dimensions are greater than 0.7, which has a high intrinsic consistency. When an item correlated with other items ('Corrected Item–Total Correlation') is less than 0.3, we considered the item to be weakly correlated with the other items to be eliminated, so we eliminated the two items with weaker correlations before hypothesis testing.

5 | DATA ANALYSIS AND DISCUSSION

5.1 | Testing of hypotheses

The distribution of independent variables and the number of subjects in each group are shown in Table 3. According to the results of the internal consistency of the dependent variables in Section 4.3, we removed the less relevant items. We used one-way ANOVA to test the hypothesis, and the post hoc test was used to determine the effect size of the independent variable when the effect is significant.

Valence in the AV emotion model is the degree to which a person feels good, happy, blissful, or satisfied in a situation. The Estimated Marginal Means line chart for the music group in Figure 5 shows that consumers' valence scores are significantly higher when the web page has the background music than when it does not. The data analysis before the one-way ANOVA showed that the data in this study had no outlier and had equal variance ($p = 0.162$), the data were normally distributed ($p > 0.05$). The results of the pairwise comparison show in Table 4 suggested that there is no significant difference between the valences of subjects in each group.

One-way ANOVA was used to analyse the effect of the background music on consumer's arousal during the shopping process. Data analysis results before one-way ANOVA showed that the data had no outlier and the data were close

TABLE 1 The construct, number of items

Category	Construct	Definition	Sources	Items
Festival atmosphere		Whether consumers could feel the Mid-Autumn Festival atmosphere while shopping		2
Utilitarian	Involvement	Whether consumers are immersed in the shopping process	[59]	3
	Enjoyment	Whether the shopping process makes the consumer happy		3
Hedonic	Trust	Whether consumers perceive the shopping process as guaranteed		3
	Effectiveness	Whether consumers can find the desired product quickly		3
Emotions	Valence	The degree to which the person feels good, joyful, happy or satisfied in the situation	[34]	1
	Arousal	The desire that motivates individuals to have an interest in and giving attention to novel perceptual stimulation		1

TABLE 2 Confidence analysis of the dependent variable

Category	Construct		Corrected item-total correlation	Cronbach's alpha if item deleted	Cronbach's alpha
Festival atmosphere		This shopping site makes me feel like I'm in the Mid-Autumn Festival.	0.768		0.868
		I felt the Mid-Autumn Festival atmosphere during my shopping trip.	0.768		
Utilitarian	Involvement	I'm completely immersed in this purchase.	0.755	0.769	0.854
		I feel fully engaged in the shopping interaction process.	0.812	0.713	
		This shopping experience has piqued my curiosity.	0.620	0.894	
	Enjoyment	I'm happy with what I got myself.	0.626	0.850	0.840
		I enjoy the shopping process.	0.741	0.741	
		I thought the shopping process was fun.	0.754	0.728	
Hedonic	Trust	I think I'll get good reviews for the gifts I get.	0.509	0.797	0.773
		I trust the product information provided on this site.	0.710	0.571	
		The shopping experience made me feel secure.	0.634	0.670	
	Effectiveness	I can quickly know what I want to buy.	0.705	0.672	0.801
		I can efficiently decide what products I want to purchase.	0.714	0.653	
		Throughout the shopping process, the relevant information provided by the shopping site facilitated my purchasing decision.	0.533	0.848	

TABLE 3 Grouping and number of subjects

Group	Number of subjects
Mid-Autumn Festival music	68
Non-Mid-Autumn Festival music	67
No music	62

to a normal distribution ($p > 0.05$) and had equal variance ($p = 0.162$). The main effect analysis in Table 4 shows that the effect of the background music was statistically significant, which was F (2, 191) = 3.496, $p = 0.032$, and partial $\eta^2 = 0.035$. We then used pairwise comparisons to analyse the effect size of the music variable. As shown in Table 5, the estimated marginal means of the arousal under different background music were 4.6912, 4.5821, and 4.0484, 'Mid-Autumn Festival music' scored 0.6428 (95% CI 0.328–1.2528) higher than 'no music'. From the line chart in Figure 6, it can be learned that when Mid-Autumn Festival music was present, consumers' arousal scores were higher during shopping compared to the no-music group, but there was no significant difference between Mid-Autumn Festival music and non-Mid-Autumn Festival music.

Combining the above analysis of valence and arousal, we find that hypothesis H1-1 is partly valid, whereas hypothesis H2-1 is not valid. That means the only thing that affects the AV value of the consumer's shopping process is the presence or absence of music. The effect of music themes on emotion is

not significant. These can still indicate a positive effect on consumers when music is present, which is consistent with previous findings. But the theme of the music does not have a significant effect, possibly because the songs that use the Mid-Autumn Festival as a theme are themselves pop music, and they are not significantly different from the songs in the general pop group in terms of familiarity and AV sentiment scores, so the effect on consumer emotions is smaller.

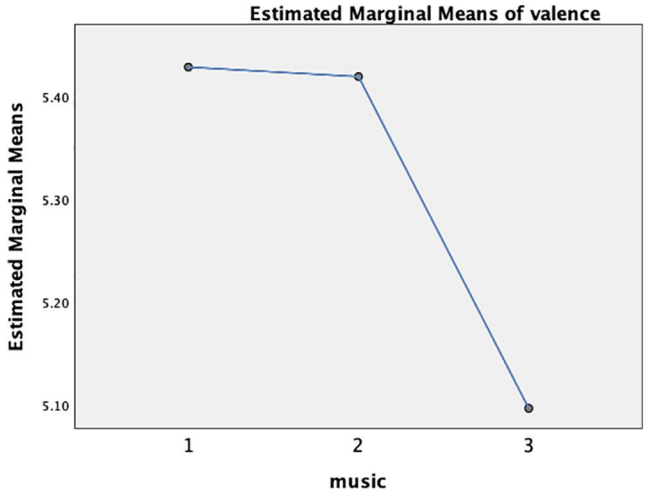

FIGURE 5 Estimated marginal means of valence

The two dimensions of involvement and enjoyment were used to measure the hedonic value subjects perceived during the shopping process. The hypotheses indicated that musical stimuli will positively modulate this perception, and a one-way ANOVA was used to test the hypotheses. The results of the one-way ANOVA for enjoyment are shown in Table 4, which shows that the effect of music is not statistically significant.

So, we focussed on involvement: analyse results showed that the data in this study had no outliers, and the data were close to a normal distribution ($p > 0.05$) and had equal variance ($p = 0.129$). As shown in Table 4, the effect of the background music on enjoyment was statistical significant, $F(2, 191) = 4.325$, $p < 0.05$, partial $\eta^2 = 0.43$. From the line chart in Figure 7, it can be learnt that when there is background music, consumers rated the involvement significantly higher than the no-music group. We then make pairwise comparisons of the three groups of

TABLE 4 One-way ANOVA

Source		Type III sum of squares	df	Mean square	*F*	Sig.	Partial eta squared
Music	Atmosphere	5.311	2	2.656	1.817	0.165	0.018
	Involvement	9.110	2	4.555	3.394	0.036*	0.034
	Enjoyment	1.572	2	0.786	0.768	0.465	0.008
	Trust	2.054	2	1.027	0.891	0.412	0.009
	Effectiveness	6.062	2	3.031	2.444	0.089	0.025
	Arousal	15.124	2	7.562	3.496	0.032*	0.035
	Valence	4.503	2	2.251	2.271	0.106	0.023

[a]The mean difference is significant at the 0.05 level.

TABLE 5 Estimates and multiple comparisons of involvement

Estimates

Music	Mean	Std. error
1	4.7794	1.39248
2	4.7811	0.93122
3	4.3172	1.09549

Multiple comparisons

						95% confidence interval for difference	
	(I) music	(J) music	Mean difference (I−J)	Std. error	Sig.b	Lower bound	Upper bound
Tukey HSD	1	2	−0.0017	0.20361	1.000	−0.4850	0.4817
		3	0.4622	0.21879	0.091	−0.0567	0.9812
	2	1	0.0017	0.20361	1.000	−0.4817	0.4850
		3	0.4639[a]	0.17972	0.030	0.0374	0.8904
	3	1	−0.4622	0.21879	0.091	−0.9812	0.0567
		2	−0.4639[a]	0.17972	0.030	−0.8904	−0.0374

Abbreviation: HSD, honestly significant difference.

[a]The mean difference is significant at the 0.05 level.

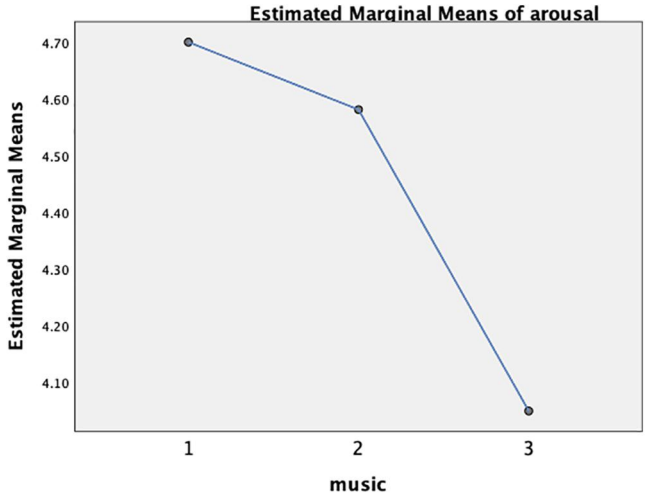

FIGURE 6 Estimated marginal means of arousal

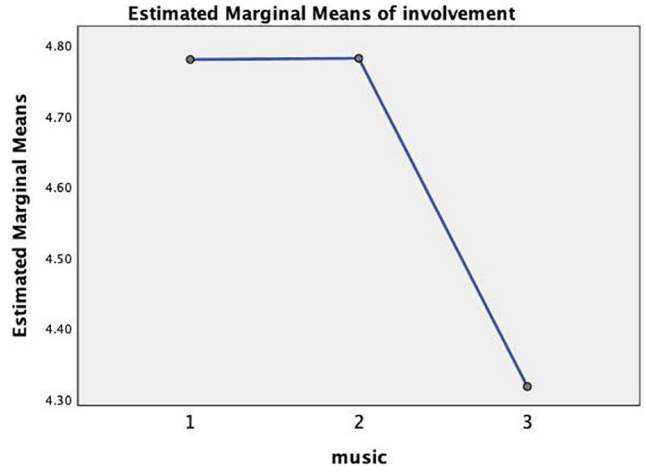

FIGURE 7 Estimated marginal means of involvement

music treatments. As shown in Table 6, the means of the involvement for the background music treatment as Mid-Autumn Festival music, non-Mid-Autumn Festival music, and no music were 4.7794, 4.7811, and 4.3172, respectively. The results of the pairwise comparisons show that when the background music is present, the value of enjoyment is higher; hence, hypothesis H1-2 is valid. The score of 'Mid-Autumn Festival music' is 0.4622 higher than that of 'no music'; the score of 'non-Mid-Autumn Festival music' is 0.4622 higher than that of 'no music'. However, there was no statistically significant difference between Mid-Autumn Festival music and non-Mid-Autumn Festival music, which is inconsistent with hypothesis H2-2.

The trust and effectiveness dimensions were used to measure the utilitarian value participants perceived during the shopping process, and we hypothesised that musical did not have an effect on the utilitarian value because the utilitarian value is related to the product-related information provided on the website and the consumer's trust in the online retailer.

Before the one-way ANOVA, the data analysis results showed that there were no outliers in the study data, where the trust was close to the normal distribution ($p > 0.05$) and had equal variance ($p = 0.068$); the effectiveness was close to the normal distribution ($p > 0.05$) and had equal variance ($p = 0.153$). The results of the ANOVA are shown in Table 4: for trust, the main effect of the background music was F (2, 191) = 0.891, p = 0.412, partial η^2 = 0.009; for effectiveness, the main effect of the background music was F (2, 191) = 2.444, p = 0.089, partial η^2 = 0.025, neither of which was statistically significant; hence, hypothesis H1-3 and hypothesis H2-3 are valid.

5.2 | Analysis of mediating effect

In the research model, we argue that different music can different festival atmospheres and that emotion has a mediating role in the role of the atmosphere on shopping outcomes. Here, we use the method proposed by Hayes [65] and Preacher [66] to detect this mediating role, which is verified using the process plugin in SPSS. The perception of the festival atmosphere is used as an independent variable, the two dimensions of the hedonic value were considered as dependent variables, and the valence and arousal of the emotion model were tested as moderating variables. The results of the data analysis are shown in Table 7, it suggests that both arousal and valence have indirect effects in the effect of the atmosphere on involvement and emotions, with an indirect effect of 0.426 for arousal, 0.2254 for valence, and a bootstrap 95% CI of (0.0059, 0.3744) and (0.1443, 0.3169). And the interval does not contain zero, so the mediating effect is considered to be statistically significant. Similarly, the mediating effect of arousal in the effect of the atmosphere on enjoyment was not statistically significant, but the mediating effect of valence was significant. The results of the data analysis are consistent with what we envisioned in our research model.

5.3 | Discussion

Taken together, these analyses allow us to conclude that the background music leads to higher consumer arousal in traditional festival online shopping sittings compared to no music, which is consistent with previous studies [27, 29]. In our study, we extended our approach to assessing consumer shopping experiences and found that the mediating effect of emotions led to a more positive online shopping experience, manifested by the perception of stronger hedonic value.

However, we also found that the theme of the music had no significant effect on the subjects' emotions and shopping experience. This is inconsistent with the findings of Eric R. Spangenberg's [32] previous study on Christmas that unfolded offline, where the experimental store setting was a Christmas gift store. But in this study, because it was a simulated e-commerce platform, the store did not sell only items related to the Mid-Autumn Festival. On the other hand, Mid-Autumn Festival music is not played only during specific festivals like Christmas or Spring festival music. Although Mid-Autumn

TABLE 6 Estimates and multiple comparisons of arousal

Estimates

Music	Mean	Std. error
1	4.6912	1.52841
2	4.5821	1.29274
3	4.0484	1.58298

Multiple comparisons

	(I) music	(J)music	Mean difference (I−J)	Std. error	Sig.b	95% confidence interval for difference	
						Lower bound	Upper bound
Tukey HSD	1	2	0.1091	0.25318	0.903	−0.4889	0.7071
		3	0.6428[a]	0.25827	0.036	0.0328	1.2528
	2	1	−0.1091	0.25318	0.903	−0.7071	0.4889
		3	0.5337	0.25919	0.101	−0.0785	1.1459
	3	1	−0.6428[a]	0.25827	0.036	−1.2528	−0.0328
		2	−0.5337	0.25919	0.101	−1.1459	0.0785

Abbreviation: HSD, honestly significant difference.

[a]The mean difference is significant at the 0.05 level.

TABLE 7 Test results of moderator

Dependent variable		Effect	BootSE	BootLLCI	BootULCI
Involvement	Total	0.2680	0.0513	0.1708	0.3744
	Arousal	0.0426	0.0214	0.0059	0.0888
	Valence	0.2254	0.0446	0.1443	0.3169
Enjoyment	Total	0.2882	0.0532	0.1878	0.3945
	Arousal	0.0207	0.0153	−0.0064	0.0542
	Valence	0.2675	0.0505	0.1728	0.3673

Festival music is consistent with the scene, they are not perceived as particularly special compared to popular music. North's study [17] focussed on the consistency between product and music, this study focusses on the consistency between scene setting or shopping time and music. The conclusion of this study that the theme of music does not affect consumers' shopping experience during the holiday season does not contradict the previous studies.

In the experiment, we ensured that there was no significant difference in familiarity and AV sentiment between Mid-Autumn Festival music and Mid-Autumn Festival music. Moreover, both groups were popular music and there was no difference in the music genre. According to the results of previous studies, music familiarity and genre are important factors influencing consumers' shopping experience [62, 67], which suggests that the theme of the background music is not the main factor promoting consumers' experience during the festival season. However, in this study, the results of this study cannot accurately predict actual online shopping behaviour because we only focus on consumers' shopping experience and do not count behavioural outcomes such as the amount of money spent and the number of purchases made by consumers.

In summary, this study extends previous research by extending music congruity research to the theme of music. During the festival season, music that matches the emotion of the festival can promote consumers' shopping experience; however, we found that the theme of the music has no significant effect on consumers.

6 | CONCLUSION

The background music of a shopping site can play a significant role in influencing the experience and behaviour of online shoppers. In this study, we derived a new research model based on the SOR model and explored the effect of the background music on online shoppers through an experimental approach in which a mock shopping website was built. The data analysis showed that consumers' experiences were more positive when there was the background music, regardless of the theme of it. The background music helps create visitors' higher arousal and resulted in more positive shopping experiences. But with the same familiarity and emotion of the music, the theme of the music does not have an impact on the consumer's non-behavioural outcomes in the online shopping environment. The results suggest several practical implications. First, the results showed that appropriate music has a facilitating effect on consumption. This indicates that background music can also be used for online sales, although it is still not common, it is possible to find suitable ways to insert music in future shopping website construction. Secondly, the results showed that there was no significant difference between Mid-Autumn Festival music

and non-Mid-Autumn Festival music on consumers' emotions and perceptions of value during the shopping process. Unlike offline holiday marketing, online stores do not sell only items strongly related to the holidays, but all categories of merchandise, so in online stores, even during certain festivals, store administrators may not deliberately choose the theme for the background music.

The limitation of this study is the fictitious shopping site used in the experiment. Although the website was referenced from the real shopping site, there are still some differences between it and a real shopping website. We collected feedback from the participants in the experimental questionnaire and found that the number of products is less than the real shopping site. A real shopping site not only displays basic information about the products but also shows the opinions of the users who have purchased the products. This is an important factor that influences consumer evaluation, but our fictitious website lacks this part due to its limitations. In addition, the experiment is conducted remotely and lacks the supervision of the experimenter. Although it has been screened by setting trap questions in the questionnaire and checking the IP of website browsing against the IP of questionnaire filling, there are still some uncontrollable factors in the experimental process that may lead to unreliable data sources.

In future research, we could investigate the effects of music or visual design on consumer shopping behaviour outcomes (e.g. number of items purchased and amount spent) rather than considering only the shopper's shopping experience. Also, other festival scenarios could be selected for study, enhancing the theoretical support for extending the findings to all festivals and providing stronger guidance for practice.

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CONFLICT OF INTEREST

No.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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