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How Background Music Affects Consumer Perception of Waiting Time? -A Mediating Role of Emotions-

Jee-Sun Park† · Leslie D. Stoel*

Dept. of Fashion Industry, Incheon National University, Korea
*Dept. of Marketing, Miami University, USA

Corresponding author
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Jee-Sun Park
Tel : +82-32-835-8259
Fax : +82-32-835-0765
E-mail: jpark@inu.ac.kr

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perceived waiting time,
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Abstract

The present study examines whether consumers' perception of waiting time and their behavioral intentions are influenced by the presence of background music in an online shopping environment. In particular, this study aims to explain the underlying mechanism for the effects of background music on consumers' perceived wait and behavioral intentions toward the online retailer by proposing the mediating role of emotions drawing on the Stimulus-Organism-Response (S-O-R) framework. A lab experiment was employed to test the hypotheses. A total of 102 college students were used for data analyses. Results show that the presence of music has a significant impact on participants' emotions, perceived waiting time, and approach behavior. Moreover, the findings show that pleasure and the perceived waiting time serve as mediators in the relationship between the presence of music and approach behavior. Implications of the model for theory, practice, and further research are discussed.

I. Introduction

Waiting time in any service environment negatively affects customers' evaluations of service quality and satisfaction (Taylor, 1994). Long waiting time for service is a major issue that customers complain about, and detracts from a positive consumer experience in retail stores (Lesonsky, 2012). Studies show that when customers have long wait times in retail stores they tend to move to online or mobile commerce sites and abandon their in-store transactions (Parks, 2014). Even in digital retail environments, waiting time becomes a critical issue. Although connectivity speed has been generally increased in the high-technology countries, consumers' expectations for website response times have risen as well, which makes it hard for retailers to satisfy

consumers (Wall, 2016). Moreover, retail websites have become more interactive and personalized than ever before with innovative add-on features, such as 360-degree images, videos, and interactive features, and as the pages have become richer, often they have slower response times. While consumers want rich images and interactive tools that make the website vivid and fun, they do not want a slow webpage. A study reports that consumers are not likely to wait for a website to load for more than 5 seconds (Wall, 2016). Thus, retailers strive to offer fast, stable, visually rich, and interactive websites, which is technically very difficult (Wall, 2016).

Although retailers try to reduce the objective waiting time (Dabholkar, Bobbitt, & Lee, 2003; Sheu & Babbar, 1996; Weijters, Rangarajan, Falk, & Schillewaert., 2007), controlling it is not easy since waiting is inevitable from time to time (Tom & Lucey, 1995). In digital retail environments, controlling the load time is technically difficult since it depends on the complexity of the products (Wall, 2016). For example, a customer viewing an image of a multi-colored product may have a longer delay than another customer viewing an image of a single-colored one. Therefore, service providers attempt to manage consumers' perceived waiting time by manipulating retail atmospheric cues (Baker & Cameron, 1996; Borges, Herter, & Chebat, 2015; Pruyn & Smidts, 1998). For example, retailers use audio and visual distracters to shorten consumers' perceived waiting time and thereby, increase their satisfaction (Baker & Cameron, 1996; Borges et al., 2015). The literature on atmospherics in retail environments has shown that atmospheric cues, such as background music, color, temperature, and aroma, are utilized as a way to mitigate consumers' perceptions of waiting time and to enhance their satisfaction (Areni, 2003; Cameron, Baker, Peterson, & Braunsberger, 2003; Gorn, Chattopadhyay, Sengupta, & Tripathi, 2004; Kellaris & Mantel, 1994; Oakes, 2003). Then, how do environmental cues play a role in affecting consumers' perceptions about online waiting time and their behavioral intentions toward the online retailer?

Atmospheric cues, defined as elements in the buying environment that generate "specific emotional effects in the buyer that enhance his purchase probability" (p.50) play an important role in retailing, and therefore have gained much attention by researchers (Kotler, 1973-1974). According to Kotler (1973-1974), atmospherics in retail environments can serve as an attention-creating medium, a message-creating medium, and/or an affect-creating medium. Thus, when consumers must wait for service, atmospheric cues will distract consumers' attention from the waiting time and will evoke positive affect. Based on the literature, this research explores whether consumers' perception of waiting time is influenced by an atmospheric cue, which is background music for shopping. In particular, this study aims to explain the underlying mechanism for the effects of background music on consumers' perceived waits and behavioral intentions toward the retailer in the context of an online retailer, by proposing the mediating role of emotions drawing on the Stimulus-Organism-Response (S-O-R) framework (Mehrabian & Russell, 1974).

II. Theoretical Framework

1. The S-O-R Framework

The role of atmospheric cues in affecting consumers in retail settings can be explained by the S-O-R framework. The Stimulus-Organism-Response (S-O-R) model, proposed by Mehrabian and Russell (1974), explains that environmental stimuli (S) that surround individuals influence their organismic responses, which in turn, influence their behavioral responses. The S-O-R framework, first proposed in environmental psychology, links individuals' organismic states in the relationship of environmental factors to human behavior. In their framework, sensory stimuli in the environment, such as color, sound, temperature, and texture, are shown to elicit individuals' emotions, which, in turn, influences individuals either to approach or to avoid the environment (Mehrabian & Russell, 1974).

The S-O-R model has been adopted in retail settings

in order to explain the role of store atmospheric cues in affecting consumer behavior (e.g., Turley & Milliman, 2000; Vieira, 2013). The model was firstly adopted and supported by Donovan and Rossiter (1982), which shows that variation in terms of environmental novelty and complexity in retail settings evokes a different level of emotion in consumers, which in turn influences their approach or avoidance behaviors. Following Donovan and Rossiter (1982), Baker, Levy, and Grewal (1992) manipulated store ambient and social cues in their experimental research to show that environmental cues in retail stores act as emotional motivators, which significantly affect consumers' emotional states and their approach/avoidance behaviors. Mehrabian and Russell's theory (1974) has also been applied to online retail environments by Eroglu, Machleit, and Davis (2001; 2003), whose research shows that environmental cues in online stores affect online consumers' affective and cognitive internal states, which in turn lead to their online shopping behavior.

Based on Mehrabian and Russell's theory (1974) and the previous literature on the S-O-R framework (Baker et al., 1992; Donovan & Rossiter, 1982; Eroglu et al., 2001; 2003; Turley & Milliman, 2000), the current research aims to test whether background music as a store environment stimulus (S) causes changes to individuals' internal states, which include emotions and their perceptions of delays (O), which in turn leads to their approach or avoidance behavior (R) in online retail websites.

2. Stimulus: Background Music

According to Kotler (1973-1974), atmospherics can be used as a marketing tool to affect consumer behaviors: They are used as an attention-creating medium, as a message-creating medium, or as an affect-creating medium. The literature on atmospherics suggests that retail atmospheric cues influence consumers' attitude and behaviors consciously or unconsciously (e.g., Baker, Parasuraman, Grewal, & Voss, 2002; Bitner, 1992; Kim & Lee, 2013; Kotler, 1973-1974).

Music is one atmospheric factor that affects consumers in stores (Bruner, 1990). Since background music in stores is relatively easy to control, it has been an important environmental factor; researchers have called it Musicscape (Oakes, 2000). Previous research has explored the effects of music on consumers' affective states, perceptions, and behavioral responses in stores. Specifically, the studies have shown that music positively influences individuals' mood (Bruner, 1990; Yalch & Spangenberg, 1990); mitigates perceptions of wait duration (Hui, Dube, & Chebat, 1997); increases shopping time (Areni, 2003; Milliman, 1982; 1986; Yalch & Spangenberg, 1990); enhances purchase intentions (Baker et al., 1992; North & Hargreaves, 1998); and raises sales (Mattila & Wirtz, 2001; Yalch & Spangenberg, 1990).

3. Organism: Emotions and Perceived Waiting Time

The S-O-R model shows that individuals' organismic states or internal states mediate the effects of environmental stimuli on their behavioral responses (Baker et al., 1992; Donovan & Rossiter, 1982; Eroglu et al., 2001; 2003; Mehrabain & Russell, 1974). That is, when individuals are exposed to a stimulus, their internal responses toward it precede and influence their behavioral responses.

1) Emotions: Pleasure and Arousal

In the S-O-R framework, emotions play a significant role in connecting environmental stimuli and their effects on human behavior (Mehrabian & Russell, 1974). Mehrabian and Russell (1974) propose that a combination of two major dimensions, pleasure and arousal, along with a third dimension of dominance, to some extent, are able to represent individuals' emotional states. These three dimensions of emotions are known as PAD, in which pleasure (P) is defined as a person feeling happy and contented in an environment; arousal (A) refers to a person's state of feeling excited and stimulated; and dominance (D) is the degree to which a person feels in control over the situation (Mehrabian and

Russell, 1974).

Numerous researchers in environmental psychology (e.g., Mehrabian & Russell, 1974) and in marketing (e.g., Baker et al., 1992; Donovan & Rossiter, 1982; Eroglu et al., 2001; Lee, 2013; Sherman, Mathur, & Smith, 1997) have shown that emotion plays a key role in affecting human behavior. Among the three PAD dimensions, however, dominance has played a very weak role in predicting individuals' behavioral responses (Vieira, 2013). Moreover, many studies have found that the effect of dominance is not significant (Donovan & Rossiter, 1982; Eroglu et al., 2003) or is irrelevant in consumption situations (Baker et al., 1992; Russell & Pratt, 1980). Thus, this study focuses on pleasure and arousal to capture individuals' emotions, eliminating dominance based on the previous research (Baker et al., 1992; Russell & Pratt, 1980).

2) Perceived Waiting Time

Perceived waiting time for service is the amount of time that individuals feel that they have had to pause to receive service (Antonides, Verhoef, & van Aalst, 2002; Borges et al., 2015). Perceived waiting time is a cognitive process (Borges et al., 2015; Cameron et al., 2003; Oakes, 2000). Although perceived waiting time is partially due to the actual length of time spent waiting, an individual's feeling of wait time may be more strongly related to the individual's subjective evaluations of the situation (Cameron et al., 2003).

In order to explain one's perceived duration, the research on the time perception has employed two different models: the memory-based storage model (Ornstein, 1969) and the resource allocation model (Fraisse, 1984; Zakay, 1989). The former proposes that the perceived time is positively associated with the amount of data that are processed during the duration while the latter asserts that one's perceived duration decreases when he or she is exposed to a stimulus that requires his or her attentional resources to process. Thus, according to the memory-based storage model (Ornstein, 1969), individuals' perceived waiting time tends to be overestimated if they focus on a stimulus containing more data to be cognitively processed. On the contrary, according to the resource allocation model (Zakay, 1989), the perceived time tends to be underestimated if individuals are exposed to a stimulus that distracts their attention from the passage of time since less attentional resources are allocated to the temporal information.

Perceived waiting time is important in retail environments since it affects consumers' responses toward the services. When consumers have to wait for service, their perceived waits become more critical than objective waiting time since individuals' evaluations of waits vary by situations (Borges et al., 2015; Cameron et al., 2003).

4. Response: Approach-Avoidance

Approach-avoidance is the behavioral response (R) in the S-O-R model, and refers to a broad range of responses, including "physical movement toward, or away from an environment or stimulus, degree of attention, exploration, favorable attitudes such as verbally or nonverbally expressed preference or liking, approach to a task, and approach to another person (affiliation)" (Mehrabian & Russell, 1974, p.96). Mehrabian and Russell (1974) explain that individuals' responses toward the environment are exhibited in two ways: approach and avoidance. Approach behavior is related to favorable responses toward the environment, which includes individuals' favorable attitudes and willingness to stay in and to explore the environment. Avoidance behavior, on the other hand, is associated with negative responses toward the environment, which includes individuals' negative attitudes toward the environment, desire to avoid interacting with others, tendency to be unfriendly and decreased performance in the environment. In retail settings, approach behavior can be represented by consumers' willingness to explore retail offerings, to stay more, to interact with people, and to make a repeat purchase, while avoidance behavior in retail environments are exhibited in the opposite way.

5. Hypotheses Development

1) Effects of Music

The logic of the S-O-R model can be applied to music; music would serve as an environmental stimulus and influence individuals' internal states: their affective and cognitive states. Background music is an ambient factor, which generally affects one of the five senses of human beings (Bitner, 1992). As a sense modality variable, it affects individuals' emotions (Mehrabian & Russell, 1974). Previous research on music has shown that music tends to be soothing to consumers (Milliman, 1982; 1986), serving as a mood-influencer (Bruner, 1990; Yalch & Spangenberg, 1990). Individuals feel positive emotions when they are in a good mood. Based on the previous research, it is expected that individuals feel more positive emotions when they are exposed to background music.

Music played to consumers in retail stores serves as non-temporal information, which distracts them from their cognitive timer. According to the information allocation model (Fraisse, 1984; Zakay, 1989), when the non-temporal information processing load is increased, fewer attentional resources are allocated to the temporal information, which keeps consumers from paying attention to the time duration. Thus, individuals exposed to background music, compared to those without music, will feel their waits to be shorter.

Previous research has also shown that background music positively influences consumers' approach behavior such as sales (Mattila & Wirtz, 2001; Yalch & Spangenberg, 1990), purchase intentions (Baker et al., 1992; North & Hargreves, 1998), shopping time (Areni, 2003; Milliman, 1982; 1986), and customer-staff interaction (Dube, Chebat, & Morin, 1995; Hui et al., 1997). Based on the literature, it is expected that background music has a positive influence on consumers' approach behavior in the context of online retail environments.

H1: Participants who are exposed to an online store with background music, compared to those without music, will feel more positive emotions of pleasure and arousal (H1a, H1b), perceive their waits to be shorter (H1c), and exhibit more approach behavior (H1d).

2) Effects of Emotions on Perceived Waiting Time

Since perceived waiting time is the subjective estimation that individuals make (Antonides et al., 2002), it is affected by individuals' characteristics and their situations. The literature suggests that emotions play a role in affecting consumers' responses toward the retail environment including perceived waiting time (Borges et al., 2015). The previous research has shown that the perceived waiting time is affected by customers' emotions induced by various environmental factors (Baker, & Cameron, 1996; Bitner, 1992). When consumers feel positive emotions, they tend to underestimate the wait (Borges et al., 2015; Hornik, 1993; Hui et al., 1997) since the music evokes pleasant emotion, and they are willing to wait when experiencing a positive emotion (Pyone & Isen, 2011). Therefore, it is expected that individuals' emotional states (pleasure and arousal) have a positive influence on their perceived waiting time in the context of online retail environments.

H2: Participants' emotions (H2a: pleasure, H2b: arousal) will negatively influence their perceived waiting time for an online store.

3) Effects of Internal States (Emotion and Perceived Waiting Time) on Approach/Avoidance Behavior

Numerous researchers have shown that emotion has a positive influence on consumer behavior both in offline and online retail environments (e.g., Baker et al., 1992; Donovan & Rossiter, 1982; Eroglu et al., 2003; Mehrabian & Russell, 1974). The positive emotion makes consumers feel satisfied in the environment and amplifies approach behavior (Mattila & Wirtz, 2000; Donovan & Rossiter, 1982; Eroglu et al., 2003; Mehrabian & Russell, 1974). Thus, it is expected that emotions have an influence on approach/avoidance behavior.

As addressed earlier, waiting time for service gives a negative experience (Taylor, 1994). If consumers feel they have waited long, they tend to abandon their cart exhibiting avoidance behavior (Parks, 2014). The previous

research in online environments also shows that consumers are more likely to show switching behavior when the loading time is long (Otto, Najdawi, & Wagner, 2003), and exhibit greater approach behavior with shorter loading situations (DiClemente & Hantula, 2003). Based on the previous research, it is hypothesized that individuals' perceived waiting time negatively influences their approach behavior.

H3: Participants' organism states (a: pleasure, b: arousal c: perceived waiting time) will influence their approach/avoidance behavior for an online store.

H3a & H3b: Participants' emotions (a: pleasure, b: arousal) will positively influence their approach/avoidance behavior.

H3c: Participants' perceived waiting time will negatively influence their approach/avoidance behavior.

4) Mediating Effects

The S-O-R model proposes that organism states mediate the relationship between stimuli and response (Donovan & Rossiter, 1982; Mehrabian & Russell, 1974). The music exposed to individuals will induce their emotional states and influence their perception of wait time, which in turn, leads to their approach/avoidance behavior. Therefore, it is expected that the effect of background music on consumers' approach/avoidance behavior is mediated by their emotional state and perception of their wait.

H4: Participants' emotional states (a: pleasure, b: arousal) and perceived waiting time will mediate the effect of background music on approach/avoidance behavior for an online store.

Base on the literature review, a hypothesized model has been proposed as shown in Figure 1.

III. Method

1. Research Procedure and Data Collection

A lab experiment was conducted to test the hypotheses using a between-subject design. In order to eliminate any possible prejudice or favor toward a particular retailer, a

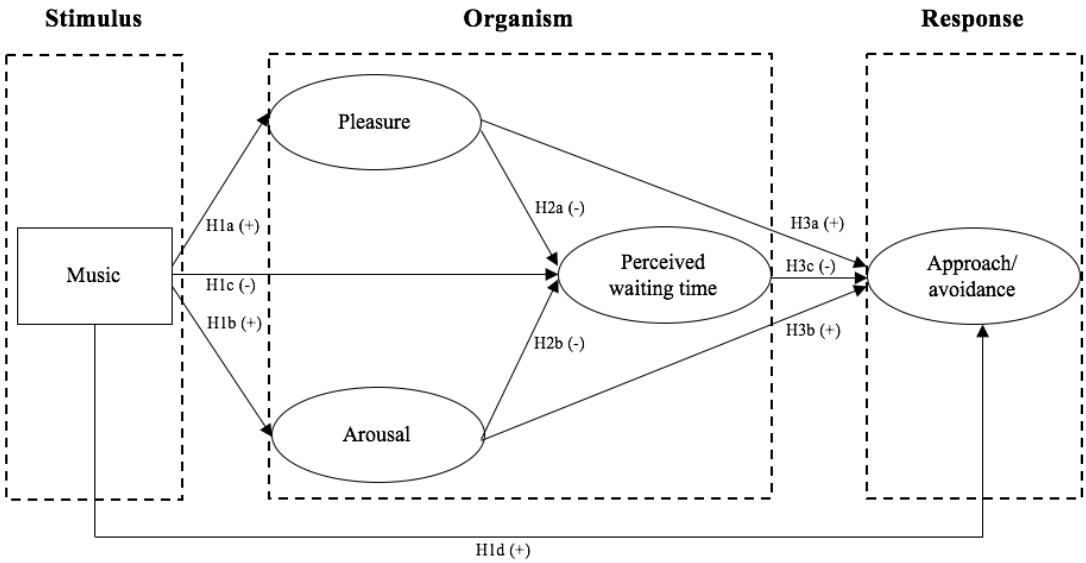

Figure 1. Proposed S-O-R Model of Consumer Responses to Background Music

mock retail website for a fictitious apparel retailer was developed. In order to develop a mock website for the experiment, the following steps were completed. First, background music was embedded in the experimental website. For the music stimulus, classical music was selected since it does not have vocals that can have confounding effects; since it does not follow trends; and since it has been shown to be preferred by people in general situations (Cameron et al., 2003; Kellaris & Rice, 1993). Then, music that is considered neutral in affect was selected from among five classical music tracks using 77 participants. Second, another pilot test was conducted to select appropriate apparel product items for the mock websites. The images of 10 apparel items were downloaded from online retail stores. Using the Photoshop program, the size of the apparel, background color, and clarity of the photos were controlled to be consistent since such information can have an idiosyncratic impact on consumers (Jeon & Yoh, 2014). Any logos or brand identification information were removed. Then, 59 participants assessed fashionability of the 10 items using eleven seven point scales adapted from Cox and Cox (2002) (e.g., fashionable/not fashionable, attractive/not attractive, functional/not functional). From the pilot test, three garments that were not too fashionable or too attractive were chosen for the items to be placed on the mock websites. Third, a loading time of 10 seconds was employed using Image Ready software. Thus, it took approximately 10 seconds for the next webpage to be fully loaded.

Finally, a mock retail website with background music and another website without music were developed for the lab experiment. The participants were randomly assigned to one of the two mock websites. Both websites had the same loading time (10 seconds) and the same contents on the website. The participants were invited to a computer lab, where they were asked to wear headsets in the lab. Once agreeing to participate in the study, there were asked to evaluate their moods before the treatment website was shown. Then, they started browsing the website, followed by answering the online survey.

A total of 102 undergraduate students attending a Midwest U.S. university participated in the online experiment in exchange for extra credit as an incentive. Among the 102 participants, 73 (71.6%) were female and 29 (28.4%) were male students. The mean age was 22 years with a range from 18 to 46.

2. Measures

All dependent variables were adapted from existing studies. To measure pleasure and arousal, six seven-point semantic differential items were adopted from Eroglu et al. (2003). Perceived waiting time was measured using three seven-point semantic differential scales adapted from Gorn et al. (2004). Approach/avoidance behavior was assessed using four seven-point semantic differential items adopted from Eroglu et al. (2003). Izard's (1972) Joy and Distress scale was also included and measured to control for the pre-existing mood state of respondents.

IV. Results

1. Exploratory Factor Analysis and Reliability Tests

An exploratory factor analysis with all measurement items was conducted to uncover the underlying structure of variables and to confirm that multiple items for each variable converged into those intended. Then, reliability for each variable was checked using Cronbach's alpha. Before conducting factor analysis, all scores were reversed to make a high score reflective of a higher likelihood of approach behavioral intentions, more positive emotional states (pleasure, arousal), and longer wait time, while a lower score indicated stronger avoidance behavior, more negative emotion, and shorter wait time perception.

All measure items were analyzed using principal component factor analysis with Varimax rotation, which revealed four factors with eigenvalues larger than one. 86.147% of the variance is accounted for by the four factors. Reliabilities of all four variables were over .855, which was satisfactory. Based on the results, scores

Table 1. Results of Exploratory Factor Analysis and Reliability Tests

Variable	Measure Items	Factor Loading	Eigen Value	Variance Explained %	Cronbach's α
Approach/avoidance behavior	*In this section, you will be asked about your shopping experience at the online store you just browsed. Please click the number in between the two words that best represents how you feel about the website you just browsed:*				
	How much time would you like to spend on this website? Lots of time—very little time	.860	5.495	42.266	.946
	Once at the site, how much did you enjoy exploring around? Enjoyed—did not enjoy	.909			
	How much would you like to either approach or avoid this particular site while shopping? Approach—avoid	.912			
	How much would you like to either approach or avoid looking around or exploring the site? Approach—avoid	.919			
Wait time perception	*The following is to measure your evaluation of the loading duration when you move on to the next page. Read the word on the left and the word on the right and click the number in between the two words that best represents how you feel about the duration:*				
	slow—fast	.912	2.260	17.386	.970
	not speedy—speedy	.929			
	not quick—quick	.944			
Emotion:	*In this section, we would like to know how you feel now. Read the word on the left and the word on the right and click the number in between the two words that best represents how you feel now:*				
Pleasure	happy— unhappy	.910	1.854	14.261	.902
	pleased—annoyed	.846			
Arousal	contended—melancholic	.885			
	stimulated— relaxed	.899	1.590	12.234	.858
	excited— calm	.897			
	aroused—unaroused	.792			

from multi-items were averaged in order to develop a single indicator for each variable. The summary of the results is presented in Table 1.

2. Hypotheses Testing

Hypotheses testing includes three parts: 1) testing the effects of stimuli (the presence of background music) on participants' organism states (emotion, perceived wait) and on their responses (approach/avoidance behavior) (H1); 2) testing the relationships among organismic states (emotion, perceived wait) and responses (approach/avoidance behavior) (H2, H3); and 3) the mediating effects of the relationship between stimuli (the presence of music) and responses (H4).

The first part examines the effects of stimuli (the presence of background music) on individuals' organism states (perceived wait and emotion) and their responses (approach/avoidance behavior). It was hypothesized that participants' pleasure (H1a), arousal (H1b), perceived wait (H1c), and approach/avoidance behavior (H1d) differ by whether the background music is available or not. To test the stimulus effects (H1a, H1b, H1c, and H1d), a multivariate analysis of covariance (MANCOVA) was conducted with participants' pre-existing mood as a covariate (Table 2). MANCOVA reveals that the

Table 2. Results of Univariate Analysis of Covariance

Variable	Absence of Music (n=50)	Presence of Music (n=52)	*F*
Emotion: pleasure	4.827	5.314	F(1, 99)=5.046*
Emotion: arousal	3.507	4.166	F(1, 99)=7.413**
Perceived wait	4.914	4.192	F(1, 99)=5.701*
Approach behavior	3.531	4.254	F(1, 99)=4.879*

Covariate: pre-existing mood, *p<.05

Table 3. Results of Regression Analyses

Dependent Variable	Independent Variable	*β*	*t*	*Adj* R^2	*F*
Perceived wait	Pleasure	-.340	-3.620***	.107	*F*(1,100)=13.103***
	Arousal	-.124	-1.247		
Approach/avoidance behavior	Pleasure	.221	2.310*	.184	*F*(2,99)=12.361***
	Arousal	.131	1.401		
	Perceived wait	-.321	-3.354**		

*p<.05, **p<.01, ***p<.001

background music plays a significant role in affecting participants' emotional states, perceived wait, and approach/avoidance behavior (Wilks' Lambda=.882, *F*(4, 96)=3.220, *p*<.05) while the effect of the covariate (pre-existing mood) was not significant. The results from ANCOVAs indicate that there is a significant main effect of background music on pleasure (*F*(1, 99)=5.046, *p*<.05), arousal (*F*(1, 99)=7.413, *p*<.05), perceived waiting time (*F*(1, 99)=5.701, *p*<.05), and approach/avoidance behavior (*F*(1, 99)=4.879, *p*<.05). Specifically, participants, who were exposed to music, compared to those without music, felt more pleasure ($M_{nomusic}$=4.827, SE=.155; M_{music}=5.314, SE=.152)and arousal ($M_{nomusic}$=3.507, SE=.173; M_{music}=4.166, SE=.170), perceived their wait to be shorter ($M_{nomusic}$=4.914, SE=.216; M_{music}=4.192, SE=.212), and exhibited more approach behavior ($M_{nomusic}$=3.531, SE=.234; M_{music}=4.254,SE=.229). Thus, hypothesis 1 is supported.

The second part of the analyses aims to explore the relationships of participants' organism states with their behavioral responses (H2 and H3). It was hypothesized that participants' emotional states (H2a: pleasure, H2b: arousal) would affect their perceived waiting time. To test H2, a stepwise linear regression was performed, which revealed that participants' level of pleasure (*b*=-.476, *β*=-.340, *t*=-3.620, *p*<.001), not arousal, significantly influenced their perceived wait (*F*(1,100)=13.103, *p*<.001, Adj R^2=.107) in the hypothesized direction. The finding indicates that individuals who are more pleased are more likely to feel their waits to be shorter than those who are less pleased. Thus, H2a is supported while H2b is rejected.

It was also hypothesized that participants' emotions and waiting perception (H3a: pleasure, H3b: arousal, H3c: perceived waiting time) would affect their approach/avoidance behaviors. To test the hypotheses, a stepwise linear regression was performed regressing approach/avoidance behavior on pleasure, arousal, and

perceived wait. The analysis revealed that participants' pleasure (b=.334, β=.221, t=2.310, p<.05) and perceived wait (b=−.347, β=−.321, t=−3.354, p<.01) significantly influenced their approach/avoidance behavior (F(2,99)=12.361, p<.001, Adj R^2=.184) in the hypothesized direction, whereas the effect of arousal was not significant. The results indicate that individuals who feel more pleased and perceive their waits to be shorter are more likely to exhibit intentions to approach the retail store than those who feel less pleased and perceive longer waits. Thus, H3a and H3c were supported while H3b was not.

The last hypothesis is about the mediation effects of individuals' organism states (emotions, perceived waits) on the relationship between a stimulus and response. Since the previous regression analyses revealed that participants' arousal affects neither their perceived waits nor approach/avoidance behavior, arousal was deleted for the further mediation analysis. Thus, a serial multiple mediator model regarding whether the effect of music on approach/avoidance behavior is transmitted through a series of mediators (music à pleasure à perceived wait à approach/avoidance behavior) was tested using the SPSS PROCESS macro (Model 6, 1,000 bootstrap samples), which allows estimation of multiple mediating processes simultaneously (Hayes, 2013). Tables 4 and 5 show the summary of the results

This serial multiple mediator model contains three indirect effects. The first indirect effect is the indirect effect of music on approach behavior through pleasure, which was estimated as .151 and found to be significant. The result suggests that the presence of background

Table 4. Results of Mediation Analysis

Predictor Variables	Outcome								
	Pleasure (M1)			Perceived Wait (M2)			Approach (Y)		
	b	SE	t	b	SE	t	b	SE	t
Music (X)	.487	.216	2.258*	-.514	.295	-1.741	.338	.313	1.081
Pleasure (M1)	-	-	-	-.425	.133	-3.183**	.309	.146	2.118*
Perceived wait (M2)	-	-	-	-	-	-	-.327	.105	-3.120**
Constant	4.827	.154	31.311***	6.963	.676	10.302***	3.644	1.015	3.590**
	R^2=.049, $F(1,100)$=5.097*			R^2=.142, $F(2,99)$=8.201***			R^2=.209, $F(3,98)$=8.645***		

***p<0.001

Table 5. Direct, Indirect, and Total Effects

	Indirect Effect	SE	CI
Total effect	.387	.158	[.134, .777]
music à pleasure à approach	.151	.115	[.001, .496]
music à Pleasure à perceived delay à approach	.068	.047	[.008, .210]
music à perceived delay à approach behavior	.168	.102	[.004, .414]

*Direct effect of music on approach behavior = .338 (SE = .313, t = 1.081, n.s)

music, as compared to the absence of music, enhances one's pleasure state, and the evoked pleasure leads to the higher likelihood of approach behavior to the store.

The second indirect effect is testing whether the indirect effect of music on approach behavior through pleasure and perceived delay in serial, with pleasure affecting perceived delay, which in turn influences intention to approach the store. Estimated as .068, this indirect effect is significant and positive as shown in the bootstrap confidence interval above zero. The background music positively evokes participants' pleasure, which in turn reduces their perceived delay, which is then associated with their intention to approach behavior.

The third indirect effect is the indirect effect of music on approach behavior through participants' perceived delay. This indirect effect, estimated as .168, is shown to be positive, suggesting that the effect of background music on one's approach behavior is mediated by his or her perceived delay. Thus, H4 was partially supported in that pleasure and perceived waiting time, but not arousal, mediate the relationship between the presence of background music and participants' approach behavior.

V. Discussion

Several interesting findings are found from the current study. First, music has been shown to evoke individuals' pleasure and to reduce their perceived wait time, confirming the role of music as a mood-influencer (e.g., Bruner, 1990) and a distracter from the individuals' cognitive timer (Fraisse, 1984; Zakay, 1989) in online retail environments. Moreover, the presence of music was shown to stimulate approach behavior, supporting the previous research arguing that background music positively influences behavioral outcomes (e.g., Mattila & Wirtz, 2001; Wang, Baker, Wakefield, & Wakefield, 2017; Yalch & Spangenberg, 1990). Second, as expected, the study confirms that the perceived waiting time has a negative impact on approach behavior. Third, the present results demonstrate that pleasure plays a most important role in causing individuals to feel shorter wait times and in leading them to show positive behavioral responses toward the service environment. Fourth, the effects of arousal on perceived waiting time and on approach behavior were not significant. This suggests that arousal state does not play an important role in affecting consumer perception and behavior for those who shop for apparel in online retail websites. Thus, our findings imply that pleasure serves as a stronger and more critical factor than arousal in affecting individuals' perception and approach behavior in the context of apparel shopping in online websites. Lastly, this study shows the mediating role of pleasure and perceived waiting time in the effect of music on approach behavior, supporting the S-O-R framework (Mehrabian & Russell, 1974; Wang et al., 2017) in the context of online retail websites.

This study makes important contributions to the literature. First, this study contributes to our understanding of how consumers respond to waiting time in online retail settings. Building on previous research (Baker et al., 1992; Donovan & Rossiter, 1982; Eroglu et al., 2001; 2003; Mehrabian & Russell, 1974; Turley & Milliman, 2000; Wang et al., 2017) that explains how individuals respond to external stimuli, this research confirms that consumers' emotions evoked by external stimuli lead to their responses toward perceptions of delay as well as their approach behavior to retail stores. Second, this study clarifies the role of music in online retail websites, which has been understudied so far. Recently Wang et al. (2017) show that background music in flight/hotel booking websites enhances consumers' emotions and cognitive responses. Extending from the previous study, the current research demonstrates that background music not only induces individuals' emotions but also mitigates their perceived waiting time in retail websites, which, in turn, leads to their approach behavior. Moreover, since this study focuses on music as an ambient element, this study contributes to Musicscape research (Oakes, 2000) by demonstrating how background music plays a role in the development of consumers' emotions, cognitions, and behaviors in online retail environments.

The findings of the study provide useful information to practitioners. The study shows that length of consumers'

perceived waiting time lowers intentions to approach retailers. While it is still important to manage actual waiting time in service organizations, it is recommended that practitioners understand the effects of consumers' subjective waiting time and to develop strategies to influence consumers' perceptions of the wait. As a way to reduce consumers' perceptions of waiting time, this study highlights the role of individuals' emotional states and the background music. Thus, practitioners are encouraged to add positive, emotion-inducing features to their websites. Moreover, the current study shows background music in online retail websites evokes positive emotions. Therefore, retailers may benefit from adding music on their website. Although some users may feel that music is annoying and may slow the loading time of websites, this empirical study provides evidence that background music generates favorable responses from consumers, as long as the wait time does not exceed ten seconds. Accordingly, it is recommended to provide background music on the websites. An option of turning off the music on the website may be helpful for those who feel annoyed by music.

There are several limitations to be noted. First, this study employed a laboratory experiment. Although it was efficient in controlling the waiting time duration and the presence of music, the laboratory environments are not close to actual shopping situations. Also, although mock websites were used to eliminate individuals' idiosyncratic attitudes toward pre-existing brands, the mock websites reduce the reality of the shopping experience. In addition, the current study used college students as a sample. Thus, the observed results may not generalize to other groups. Moreover, there were more female participants, which may generate different responses from those of male participants. Furthermore, this study used classical music as the music stimulus. Since people react differently to different genres of music, future research may manipulate different genres or various musical factors (e.g. tempo, pitch) to see whether consumers' internal and behavior responses toward the music stimulus vary by these different music characteristics.

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