

The Effects of Window Display Setting and Background Music on Consumers'
Mental Imagery, Arousal Response, Attitude, and Approach-Avoidance Behaviors

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Abstract approved:

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Window displays are an important means by which retailers communicate with both current and potential consumers. The present study investigated how the use of context setting (with or without) in a window display and background music (with or without) influence consumers' mental imagery, arousal response, attitude toward the display, and approach-avoidance behaviors. Furthermore, consumer involvement was investigated as a moderator in the relationship between context setting of a window display and mental imagery. A two by two factorial between-subjects experimental design with two independent variables, four dependent variables and one moderator was conducted. The independent variables in this study were the window display (with or without a context

setting) and background music (with or without background music). Mental imagery, arousal response, the attitude toward the display, and approach and avoidance behavior were the four dependent variables. Consumer involvement was tested as the moderator in present study. 202 male and female university students participated in the study by observing one of four window display and completing a survey that measured first impressions of the window display, mental imagery, arousal response, attitude toward display, approach-avoidance behavior, and consumer involvement.

The overall results showed that the context setting of a window display had significant effects on consumers' mental imagery and arousal response. Mental imagery and arousal response also had a significant influence on the attitude toward the display and consumers' approach behavior. Background music, however, showed no statistically significant effect on mental imagery nor on arousal response. Consumer involvement also had no interaction effect on the context setting of a window display-mental imagery relationship. The findings of the present study provide an important implication that window display with a context setting can improve consumers' positive behaviors. Therefore, visual

merchandise can effectively use this information to achieve their ultimate goals of increasing purchasing behaviors.

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The Effects of Window Display Setting and Background Music on Consumers'
Mental Imagery, Arousal Response, Attitude, and Approach-Avoidance Behaviors

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Chihmin Ti

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APPROVED:

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I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon request.

Chihmin Ti, Author

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A master degree, I never thought I can go so far.

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2009 年我在奧勒岡畢業了
謝謝你們給我支持、給我靈感
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Chapter1. Introduction

The influence of environmental stimuli on internal and external behaviors has received attention from marketing and environmental psychology literature (Gilboa & Rafaeli, 2003; Mattila & Wirtz, 2001). The Stimulus-Organism-Response model has been widely utilized for explaining how consumers will react (both internal and external responses) when they face different stimuli in retail environments. Based on the Stimulus-Organism-Response model, Mehrabian and Russell (1974) presented a theoretical model for studying the effects of the physical environment on human behavior (See Figure 1). Mehrabian and Russell (1974) suggested that consumers' inner responses (both cognitive and affective responses) are important mediators that can lead to approach and avoidance behaviors in response to environmental stimuli. In the environmental psychology field, researchers have demonstrated the importance of consumers' emotional states on approach and avoidance behaviors (Donovan & Rossiter, 1982; Donovan, Gilboa & Rafaeli, 2003; Donovan, Rossiter, Marcoolynn & Nesdale, 1994). Studies also show that different environmental stimulus, such as music (Grewal, Baker, Levy & Voss, 2003; Yalch & Spangenberg, 2000), color (Bellizzi &

Hite, 1992), and scent (Chebat & Michon, 2003) can significantly affect consumers' internal responses and, in turn, influence their external shopping behaviors.

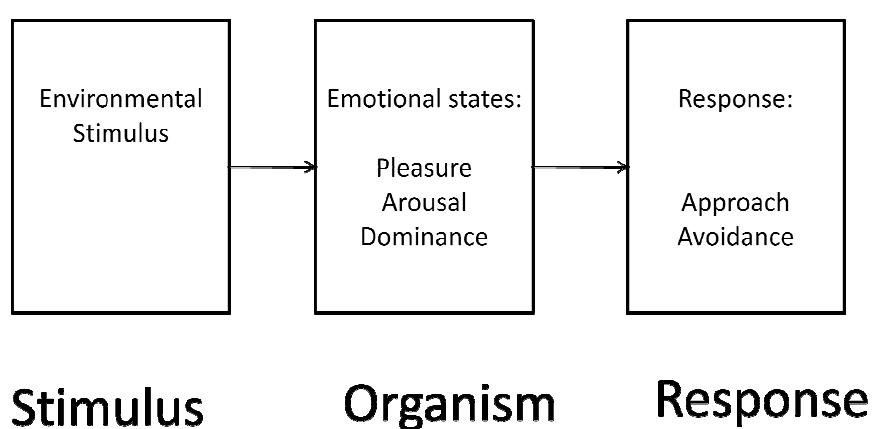


Figure 1: M-R Model

In 2001, Mattila and Wirtz suggested that consumers perceive the store environment holistically, and that their responses to the environment also depend on a combination of effects. Therefore, the present study investigates two environmental variables: the context setting of window displays and music. Also, the context setting of window display is a new variable applied to the S-O-R model.

Window displays are an important means by which retailers communicate with both current and potential consumers. Window displays play an especially important role for bricks-and-mortar store environments because they serve as “silent salesmen” (Buttle, 1988; Lea-Greenwood, 1988) that can differentiate store characteristics (Klokis, 1986). Therefore, how window displays catch consumers’ attention and influence their behaviors has become of interest to researchers (Edwards & Shackley, 1992; Sen, Block & Chandran, 2002).

Window displays frequently employ multiple information dimensions within an image, each of which is capable of generating both affective and cognitive responses. Studies have measured the effectiveness of window display on several dimensions (Edwards & Shackely, 1992). Results have shown that a successful window display treatment creates interest and elicits consumers’ positive emotions. Sen, Block and Chandran (2002) have suggested four types of information that consumers can acquire from window displays: new fashions, product fit, promotion messages, and store image. Although studies have presented the importance of window displays from different perspectives, a deeper investigation of the influence of window displays on consumers’ internal

responses in terms of both affective and cognitive responses in the consumer research field is still needed.

Although prior research has shown the importance of window displays in retail environments, researchers have only investigated window displays piece by piece by examining what kind of information window displays communicate with consumers and the advantages that window displays can bring to retailers. Window displays have never been investigated as an effective environmental stimulus in the M-R model scenario in terms of investigating the mediators of consumers' internal responses and external shopping behaviors. The proposed study will investigate how window displays, and specifically the context setting of a display, can influence consumers' affective and cognitive emotional responses and lead to approach-avoidance behavior.

Music has long been recognized as an efficient and effective means for influencing consumers' internal responses. The role of music in consumer research is also getting more and more attentions (Mattila & Wirtz, 2001; North & Hargreaves, 1998). Previous research also demonstrated that music not only affects consumers' emotional and cognitive responses, but also has a significant

influence on consumers' external responses (Boltz, 2001; Boltz et al., 1991; Dube, Chebat & Moris, 1995; Milliamn, 1982; Scherer & Oshinsky, 1977; Stewart, Punj, 1998; Swanwick, 1973; Yalch & Spangenberg, 1990). Music, however, has never been investigated as a combination effect with the context setting of a window display. Therefore, the present study aims to investigate these two variables (the setting of window displays and music) separately and also examine the interaction effect of window display context settings and music.

Research Questions

Research Question 1: Does the context setting of a window display influence consumers' mental imagery and arousal responses?

Research Question 2: Does the existence of the background music influence consumers' mental imagery and arousal responses?

Research Question 3: Does different level of mental imagery influence different level of arousal response?

Research Question 4: Does mental imagery and arousal responses enhance the attitude toward the display and ultimate approach-avoidance behavior?

Research Question 5: Does consumer involvement moderate the relationship between the stimulus (the context setting of a window display) and mental imagery?

Statement of Purpose and Objectives

The purpose of the present research is to investigate the effect of the context settings of window displays and background music on consumers' mental imagery, arousal response, consumers' attitude toward the display and approach and avoidance behavior.

The objectives of this study are to investigate:

1. How window display settings can evoke different levels of mental imagery.
2. How window display settings can evoke different levels of arousal response.
3. How the existence of background music can evoke different levels of mental imagery.

4. How the existence of background music can evoke different levels of arousal response.
5. How different levels of mental imagery can evoke different levels of arousal response.
6. How different levels of mental imagery in terms of cognitive response can influence consumers' attitude toward the display
7. How arousal response in terms of affective response can influence consumers' attitude toward the display.
8. How consumer's attitude toward the display can influence the approach and avoidance behaviors.
9. How consumer involvement as a moderator can affect consumers' mental imagery.

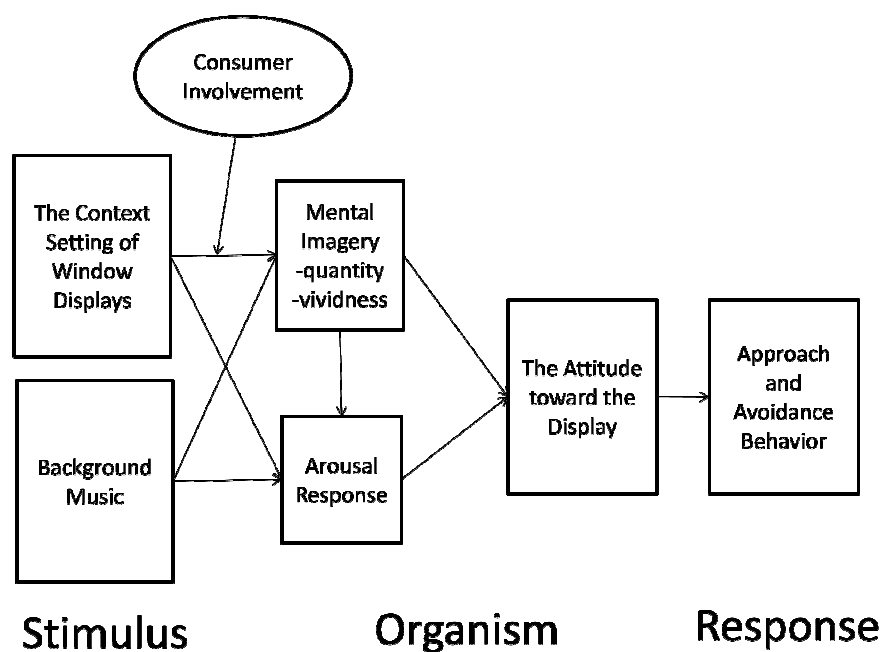


Figure 2: Study Model

Hypotheses

H1: Mental imagery will vary as a function of the context setting of window displays.

H2: Arousal response will vary as a function of the context setting of window displays.

H3: Mental imagery will vary as a function of the existence of background music.

H4: Arousal response will vary as a function of the existence of background music.

H5: Mental imagery will be positively related to arousal response.

H6: Mental imagery will be positively related to a consumers' attitude toward the display.

H7: Arousal response will be positively related to the attitude toward the display.

H8: The attitude toward the display will be positively related to the approach behavior.

H9: Consumer involvement will moderate the relationship between window display and mental imagery.

Definition of Terms

The following terminology will be used throughout this study

1. Visual merchandising: "the presentation of a store and its merchandise in ways that will attract the attention of potential customer" (Levy & Weitz 2007).
2. Window display: "presentation designed for display windows" (Colborne, 1996)

3. Mental imagery: an internal process, which can activate feelings and knowledge from stored memory (Miller, Hadjimarcou & Miciak, 2000).
4. Arousal response: the degree of excitement experienced by an individual in a service environment (Ang & Leong, 1997)
5. Consumer involvement: “a person’s perceived relevance of the object bashed on inherent needs, values, and interests” (Zaichkowsky, 1985).

In present study, consumer involvement is also classified into Normative involvement which is the relation between a product and personal values, feelings, and ego (Broderick, Greenley & Mueller, 2007).

Operational Definition

The following operational definitions are specific for mental imagery.

1. In the present study, the quantity and vividness of mental imagery are two areas to investigate the general idea of mental imagery. Quantity refers to the number of images evoked by a stimulus. Vividness refers to the quality of distinctiveness of imagery.

Chapter2. Literature Review

Overview

The present study examines the effect of window display context settings on consumer behavior and specifically, whether window display context settings and background music will affect consumers' mental imagery, arousal response, attitude toward the display and approach-avoidance behavior. This chapter provides a review of literature on the theoretical framework and concepts associated with window displays, music, mental imagery, arousal response and consumer involvement.

Theoretical Framework

S-O-R Model

Stimulus-Organism-Response (S-O-R) is a model that has been widely used to explain how environmental stimuli can affect consumers' emotional response which in turn may have an impact on consumers' response to the environmental stimuli (See Figure 1). Stimulus-Response behavior is a concept associated with environmental psychology. In this context, environmental psychology has two

applications. The first is the effect of physical environment on a person's emotional response. The second is that it focuses on the effects of physical environment on a variety of behaviors (Mehrabian & Russell, 1974).

Stimulus in the S-O-R conceptual framework represents various elements in the environment that can arouse a positive response toward the environment.

Sherman, Mathur, and Smith (1997) have defined stimulus in the consumer decision-making process as "external factors associated with a pending decision."

Kotler (1973) recognized these various elements in the environment as "atmospherics." Atmospherics are retail environmental designs that can influence consumers' emotional response and enhance purchase potential. Atmospherics include all sensory factors except taste (Kotler, 1973). Several studies have demonstrated that different atmospherics affect consumers' behavior and decisions, such as color (Babin, Hardesty & Suter, 2003; Bellizzi & Robert, 1992), scent (Fiore, Yah & Yoh, 2000; Spangenberg, Sprott, Grohmann & Tracy, 2006), and sound (Morin, Dube & Chebat, 2007). Visual stimuli, such as television, print advertisements, pictures, and product displays (Dijkstra, Buijtelts & Raaij, 2005;

Fiore et al., 2000; Kim & Lennon, 2008) also play an important part in affecting consumers' behavior.

Organism is the emotional response when consumers encounter atmospheric stimuli (Donovan et al., 1994). This internal response can be categorized into cognitive or affective response and is a mediator between the process of external stimuli and final response behavior (Sherman et al., 1997). Based on the S-O-R model, Mehrabian and Russell (1974) suggested three emotional states (pleasure, arousal, and dominance) that can mediate consumers' external responses to the environmental stimuli. Pleasure, arousal and dominance (PAD) have been widely investigated by researchers. For example, Gilboa and Rafaeli (2003) have measured PAD as mediators that influence the process between environmental aesthetics and approach-avoidance behavior. Even though PAD is the original set of organism variables suggested by Mehrabian and Russell (1974), in recent years, researchers have applied different organism variables, such as self-congruity (Sirgy, Grewal & Mangleburg, 2000) and hedonic and utilitarian shopping values (Eroglu, Machleit & Barr, 2000) as mediators that can influence the effect of store stimuli on consumer behavior.

Response is the last part of the S-O-R model and represents consumers' response toward the environmental stimuli. Bagozzi (1986) defines response as the outcome, final action toward, or reaction of consumers, including psychological reactions such as attitudes and behavioral reactions. According to Mehrabian and Russell (1974), in response to environmental stimuli, consumers will either approach or avoid an environment. Donovan and Rossiter (1982) suggested that approach and avoidance behavior also reflects consumers' behavior in retail environments in four ways:

1. Whether consumers will choose to stay or leave the store.
2. Whether consumers will get more information from the environment.
3. Whether consumers will interact with sales associates.
4. Consumers' willingness to patronize the store again.

Elaboration Likelihood Model

The Elaboration Likelihood Model was first introduced by Petty and Cacioppo (1981). This model proposes "multiple routes to persuasion" to attitude change. It also proposes that "people are neither universally thoughtful in

evaluation persuasive messages nor universally mindless (Petty & Cacioppo, 1984).” It is two types of relatively distinct routes to persuasion.

When elaboration likelihood is high, it is referred to as the “central route.”

This persuasion is more likely to occur when a person is carefully considering the true merits of the provided information. Consumers tend to process the information in an issue-relevant way. In addition, they are conscious about the product attributes, and factual information. When the elaboration likelihood is low, it is called “peripheral route,” and this type of persuasion occurs when a person processes the information without a thoughtful consideration of the central merits of the relevant and central value of the information presented (Laurent & Kapferer, 1985).

According to Cacioppo (1984), if a person has a high elaboration likelihood, this person is more likely to (1) appeal, (2) process the information by using relevant experiences, and images, (3) examine the information from associated memory, (4) draw conclusions from the previous steps, and (5) give an overall evaluation or attitude about the information given.

Window Display

Window displays are part of a broader category of atmospherics called “visual merchandising.” Levy and Weitz (2007) defined visual merchandising as “the presentation of a store and its merchandise in ways that will attract the attention of potential consumers.” Window displays play an important role in visual merchandising especially for bricks-and-mortar store environments because they are “silent salesmen” (Buttle, 1988; Lea-Greenwood, 1988) that can differentiate store characteristics (Klokis, 1986). Therefore, retailers try to maximize the potential capabilities of window displays in order to improve sales, and store image. Window displays are visual representations of the information that retailers want consumers to perceive about products, image, and fashion trends. They serve as a way for retailers to visually present products, store concepts, and the store image to their target consumers (Pegler, 2006). Window displays can also provide a fantasy or a dream that allows consumers to mentally soar in a wonderland, which in turn, may evoke positive emotional reactions or behavior, and reinforce the ultimate outcome, patronage and purchase behavior (Kerfoot, Davies & Ward, 2003). Therefore, the main purpose of window displays

is not only to sell merchandise, but to create an image and idea that retailers want consumers to perceive (Pegler, 2006).

Sen et al. (2002) recognized four characteristics of information that consumers can acquire from window displays. Two of the characteristics can be categorized as product-related information, whereas the other two can be categorized as store-related. Product-related and store-related information each present observed and inferred information, creating four categories of information in all. These four types of information are: new fashions, product fit, promotion, and store image (See Figure 3). *New fashion* is the idea that consumers can learn about the newest trends by observing the merchandise displayed in the window (product-related observed). *Product fit* refers to how consumers imagine the merchandise fits on them (product-related inferred). *Promotion* information refers to store promotion and sales messages (store-related observed). *Store image* (store-related inferred) refers to the information that retailers want consumers to perceive about the store.

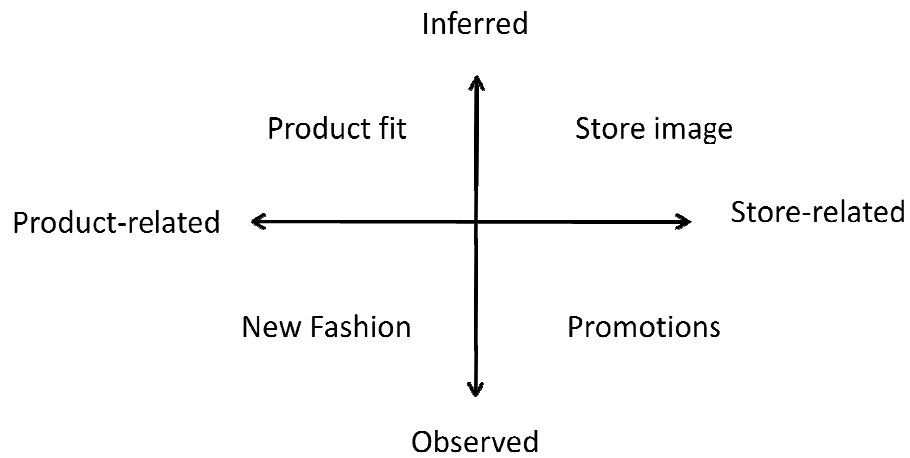


Figure 3: Dimensions of information acquired from window display

Music

Music, as one of the various environmental stimuli, has long been recognized as an efficient and effective means for triggering consumers' internal responses. The role of music in consumer research is also getting more attention by researchers (Mattila & Wirtz, 2001; North & Hargreaves, 1998). Bruner (1990) suggested that music can be described by three characteristics: time-related, pitch-related, and the musical texture. *Time-related* characteristic is the tempo of the music. *Pitch-related* is the melody of the music. *Musical texture* provides the richness for the music including timbre, orchestration, and volume. Prior researchers have investigated these characteristics, and found that each

characteristic provides different influence on consumers' emotional responses.

For example, consumers might perceive the music as happy, sad, and exciting

(Scherer & Oshinsky, 1977; Swanwick, 1973). Sweeney and Wyber (2002)

applied music to the S-O-R theoretical framework. Their findings indicated that

music has a significant effect on pleasure and arousal.

In addition to the influence on emotional responses, music can also affect

consumers' behavior in retail environments (Milliamn, 1982; Yalch &

Spangenberg, 1990). Research has shown that music can influence on consumers'

desire to have interactions with sales associates (Dube et al., 1995), the amount

of time spent in a store (Milliman, 1982; Yalch & Spangenberg, 2000), and

consumers' satisfaction (Mattila & Wirtz; 2001). Dube at al. (1995) conducted a

music-related experiment in a banking environment. Their results suggested that

consumers have a tendency to interact more with the sales associates when the

environment involved music categorized as pleasurable and arousing. Yalch &

Spangenberg (2000) investigated how music influenced on consumers'

perception of time in a retail store. Their results indicated that consumers

perceived themselves as spending longer time shopping when exposed to more familiar music than when exposed to unfamiliar music.

Mental Imagery

The traditional decision-making process has been widely studied by researchers. The process of traditional decision-making includes the following steps: (1) problem recognition, (2) Information searching, (3) evaluation of alternative and selection, (4) outlet selection and purchase, and (5) post-purchase processes (Hawkins, Mothersbaugh & Best, 2007). Phillips, Olson, and Baumgartner (1995) suggested that instead of the traditional consumer decision-making process, consumers may experience a visual of consumption. In this decision-making process consumers can mentally imagine themselves experiencing the product instead of going through the traditional process of need-recognition, information search, evaluation, choice, and visit (Levy & Weitz, 2007). Walker and Olson (1994) defined consumption vision as “a visual image of certain product-related behaviors and their consequences...they consist of concrete and vivid mental images that enable consumers to vicariously

experience the self-relevant consequences of product use (p. 27, 31).” For example, consider a newly-married couple considering the option of going to Hawaii for their honeymoon. Using consumption vision, the couple can imagine themselves lying on Waikiki beach enjoying the Hawaii sunshine. This consumption vision will be a crucial part of their decision as to whether they will decide to go to Hawaii for their honeymoon. Phillips et al. (1995) identified five characteristics of consumption vision: possible selves, narrative form, mental imagery, affective reactions, and goal representation.

Mental imagery is one of the important characteristics of consumption vision. Mental imagery is an internal process, which can activate feelings and knowledge from stored memories (Miller et al., 2000). This is not the same as visual imagery such as picture or perception, but can be considered “quasi- pictorial,” in that, it is processing and presenting a blended image of external stimuli and memory (Calder, 1978). Therefore, the process of mental imagery involves external stimuli, ideas, personal feelings, memory, and past experiences. Also, evidence has shown that mental imagery can provide a greater influence on evoking an

image if the external stimulus incorporates multiple forms of sensory input, such as scents, music, and sight (Babin & Burns, 1997).

Miller et al. (2000) argued that imagery is a multidimensional process.

“Theorists have suggested that imagery may vary in terms of quantity (Paivio, 1971; Kieras, 1978), vividness (Marks, 1973), affective tone (Lang, 1979) and modality (White, Sheehan & Ashton, 1977).” *Quantity* refers to the number of images evoked by a stimulus and is an indication of the number of activated memory structures containing perceptual information (Paivio, 1971; Kieras, 1978). *Vividness* relates to the quality of imagery, reflecting its clarity, intensity, and distinctiveness (MacInnis & Price, 1987). The vividness of imagery therefore indicates the elaborateness of the activated memory structures and the intensity with which they are activated (Lang, 1979).

Arousal Response

Consumers’ state of arousal response is an emotional state that has been examined extensively in different fields. From a psychophysiological perspective,

arousal response is an essential feature of behavior. It is the basis underlying human beings and includes emotions, motivations, and behavioral responses. (Groeppel-Klein, 2005). Based on the different features of arousal response, Kroeber-riell (1979) suggested that arousal response can be grouped into two different categories. The first type is *tonic arousal*, which controls long-term emotional change when faced with long-lasting stimuli. The second type is *phasic arousal*. Phasic arousal takes control in response to particular stimuli, which is specifically related to a short-term response in a retail environment (Groeppel-Klein, 2005). Arousal response from the psychophysiological perspective has been applied to research on consumer behavior. Studies have shown that there is a positive influence of arousal response on consumer behavior, information processing and memory recall (Groeppel-Klein, 2005; Loftus, 1972; Tversky, 1974).

From a psychology of consumer environment point of view, arousal response is one of the three organism responses to the environment presented by Mehrabian and Russell (1974). They defined arousal response as a “feeling state varying along a single dimension ranging from sleep to frantic excitement.”

Consumers' arousal response state varies considerably and is affected by the different interpersonal and environmental stimuli in everyday life. It is the degree of excitement that can be experienced by a person in a service environment (Ang & Leong, 1997), and it has been shown to be an effective influence on consumers' behavior (Donovan & Rossiter, 1982; Donovan, Rossiter et al., 1994). Sherman et al. (1997) found that the ambience of services environments has a positive impact on arousal response, and arousal response also positively influences time spent in the service environment. Ang & Leong (1997) conducted an experience in a bank environment, and considered arousal response as a mediating influence that would influence the final response outcome. The results support previous research findings that better service environments provide more arousal response toward the environment, which, in turn, also improves the consumers approach behavior toward the environment.

Consumer Involvement

The concept of consumer involvement has played an increasingly important role in the field of advertising and consumer research over the past three decades (Warrington & Shim, 2000). Consumer involvement has received great attention in previous research and recent conceptualizations of consumer involvement have evolved (Knox, Walker & Marshall, 1994; Poiesz & de Bont, 1995; Warrington & Shim, 2000). In product category research, Krugman (1965) referred to consumer involvement as a connecting experience between a person and a product. In a consumer decision-making scenario, researchers have viewed consumer involvement as analogous to motive to process information (Bloch & Richins, 1983; Greenwald & Leavitt, 1984). In 1985, Zaichkowsky gave a proper definition to consumer involvement. She defined involvement as “a person’s perceived relevance of the object based on inherent needs, values, and interests (p. 342).”

Based on the different characteristics and properties of consumer involvement, previous researchers have suggested four dimensions of consumer involvement: situational involvement, enduring involvement, normative

involvement and risk involvement (Broderick, Greenley & Mueller, 2007).

Situational involvement is a temporary involvement toward a particular situation.

(Richins, Bloch & McQuarrie, 1992). Bloch & Richins (1983) identified situational

involvement as a term of “instrumental importance,” which refers to a short-term

awareness of the importance of the merchandise. *Enduring involvement*, similar

to situational involvement, is a long-state and a cross-situation perception about

the product that a consumer brings to a situation (Bloch & Richins, 1983). In

other words, enduring involvement shows a consumer’s ongoing interest in the

merchandise (Warrington & Shim, 2000). *Normative involvement* (the

involvement applied in the present study) is the relation between a product and

personal values, feelings, and ego. Normative involvement concerns the product

in relation to self-reference, self-concept (Broderick, Greenley & Mueller, 2007),

and pleasure value, which are involvement characteristics proposed by Laurent

and Kapferer (1985). According to McQuarrie and Munson (1987), *risk*

involvement is the consumer’s concern of making a mistake when they purchase a

product.

Responses for consumer involvement are generally related to the consumer decision-making process (Richins et al., 1992). Typically, high-involvement consumers tend to be more engaged in processing product and store-related information, whereas, low-involvement consumers are less engaged in those behaviors (Laurent & Kapferer, 1985). The Elaboration Likelihood Model (ELM) outlines how information processes change when consumers are under different levels of involvement. ELM suggests that high-involvement consumers process the information in a central route. They are conscious about the product attributes, and factual information. Therefore, high-involvement consumers process information and messages that they believe are relevant very carefully (See Figure 4). Low-involvement consumers, however, respond via a peripheral route. They are less conscious about information processing and the central value of the product (Hawkins et al., 2007).

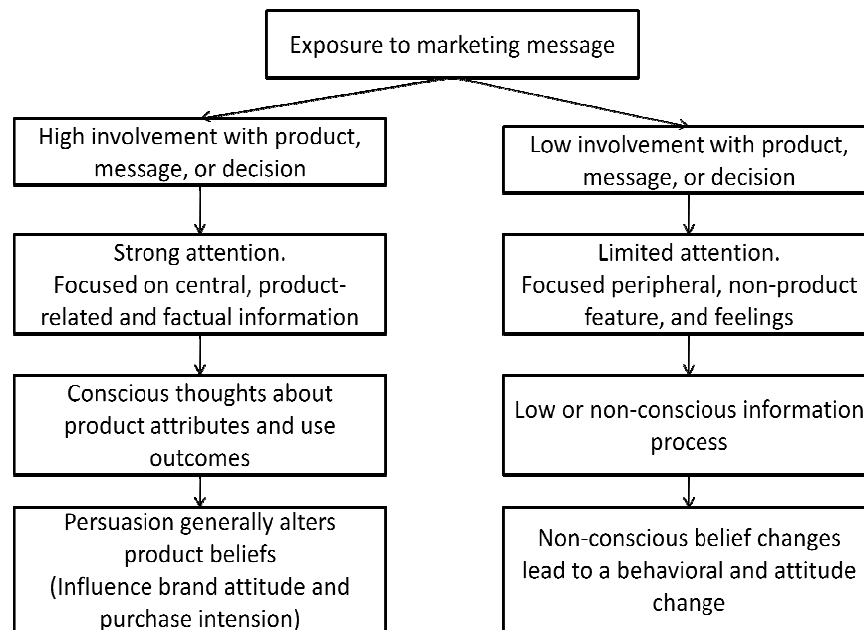


Figure 4: The Elaboration Likelihood Model

Hypotheses Development

H1: Mental imagery will vary as a function of the context setting of window displays

Mental imagery has long been recognized by advertisers because of its cognitive and affective influence on advertising stimuli (Miller et al., 2000).

Advertisers tend to use realistic visuals because they have greater effect than abstract visuals on evoking consumers' imagery process. In Sen, Block, and Chandran's (2002) study, they examined the relationship between window

displays and consumer's purchase decisions. They suggested four type of information are contained in a window display. Specifically, the product category with implied information provides information that allows consumers to process the message by imagining themselves wearing the merchandise or imagining the situation presented in the window. The results of their study show a significant positive relationship between the implied information and store entry. Based on their research results, we can presume that a positive attitude toward the display is because of the mental imagery the consumer has formed. Therefore, the following hypothesis is presented:

H1: Mental imagery will vary as a function of the context setting of window displays

H2: Arousal response will vary as a function of the context setting of window displays.

Previous research has thoroughly explored the relationship between environmental stimuli and arousal response; however, there is still a lack of evidence showing a direct relationship between a window display context setting

and arousal response. Even though there is a lack of direct evidence, peripheral research provides results showing a solid relation between these two variables. In earlier studies, Witt (1977) found that advertising with illustration helps consumers to process information. Based on Witt's (1977) findings, Kroeber-Riel (1979) went a step further to suggest that pictures are useful tools for evoking consumers' arousal response. Researchers in psychophysiology have suggested that pictures can evoke emotional responses, such as reactions in the autonomic, somatic, and myographical areas (Lang, Greenwald, Bradley & Hamm, 1993). In 2005, Groeppel-Klein conducted an empirical study to investigate the relationship between visual merchandising and phasic arousal responses. The results indicated that the experimental store, which used insights from environmental psychology, can evoke a higher arousal response.

Previous studies show a strong relationship between visual stimuli in illustrations and pictures and arousal response. In this way, it is logical to assume that consumers would be more aroused when a window display has a background setting which is presumed to have the same function as a picture

does in the consumer behavior scenario. Based on available findings regarding visual stimuli and arousal response, the following hypothesis was developed:

H2: Arousal response will vary as a function of the context setting of window displays.

H3: Mental imagery will vary as a function of the existence of background music

Music has long been acknowledged in the film-making field, especially background music has been shown to influence the overall memorability of movies events. Also, background music can exert a direct effect on cognitive processing by using mood-congruent music (Boltz, 2001; Boltz et al., 1991). In 1998, Stewart and Punj conducted a study to investigate the effects of using musical cue on recall of advertising. Their results also show that musical cues provide consumers' more memories about the advertising. Based on this connection, it is logical to apply this relationship to background music and mental imagery. Previous researchers have agreed on the notion that background music can improve the ability to remember. Therefore, it follows that background music

in a retail store may also elicit past or personal experiences from consumers.

Therefore, the following hypothesis was developed:

H3: Mental imagery will vary as a function of the existence of background music

H4: Arousal response will vary as a function of the existence of background music.

Music provides a special ability that can instill different moods and emotions within listeners (Boltz et al., 1991). According to previous research, different types of music provide different types of effects on consumers' internal and external responses (Dube et al., 1995; Milliamn, 1982; Yalch & Spangenberg, 1990). Specifically, researchers have discovered that music also has the ability to provide a sense of excitement or happiness (Hevner, 1937; Watson, 1942). In 1974, Simpkins and Smith suggested that the compatibility of background music can significantly influence the positive evaluation of a commercial source. Mattila and Wirtz (2001) also investigated the effects of the congruency of scent and music on store evaluation. The results show that when ambient scent and background music were matched, consumers' evaluations of the shopping

experience were enhanced. The findings of Sweeney and Wyber's study (2002) also indicated that music has a significant impact on the interaction between pleasure and arousal response. Therefore, the following hypothesis was developed:

H4: Arousal response will vary as a function of the existence of background music.

H5: Mental imagery will be positively related to arousal response.

A review of the literature has shown that pictures and illustrations have a positive relationship with both mental imagery and arousal response. Previous research showed a solid positive relationship between visual stimuli and mental imagery (Babina & Burns, 1997; Rossiter & Percy, 1978; Rossiter, 1980). Paivio (1971) suggested that the picture superiority effect is generally attributed to the mental imagery induced by visual stimuli. The result of Shepard's (1967) study also indicated that visual stimuli can evoke mental imagery in people's mind. Also, the review of the literature suggested a strong relation between visual stimuli and arousal response. Previous research has also shown that information rate

has a positive relationship with arousal response. For example, Nunnally, Knott, and Duchnowski (1967) found that people had greater pupil dilation when they viewed a novel picture as compared to when they viewed a familiar picture.

Therefore, it is possible that if people have more mental imagery in their minds, they will feel more aroused.

Previous studies, however, have not given a clear answer as to how mental imagery affects consumer's inner arousal response. According to the review, visual stimuli have a positive relationship with both mental imagery and arousal response, and therefore it is expected that a positive relationship exists between mental imagery and arousal response.

H5: Mental imagery will be positively related to arousal response.

H6: Mental imagery will be positively related to a consumer's attitude toward the display

In the field of advertising research, the influences of pictures in a print advertisement have been extensively studied. Many studies have shown a positive relationship between pictures and brand attitude (Dickson, Burnkrant,

Burnkrant & Hanumantha, 1986; Edell & Staelin; 1983, Mitchell, 1986; Mitchell & Olson, 1981). Based on this connection, it is logical to apply this relationship to mental imagery and display attitude. In this way, when consumers have more inner visual stimulation (mental imagery) this will lead to the development of a positive attitude toward the display. Therefore, the following hypothesis was developed:

H6: Mental imagery will be positively related to a consumer's attitude toward the display.

H7: The arousal response will be positively related to the attitude toward the display.

Arousal response is one of the affective responses proposed by Mehrabian and Russell (1974). Several researchers have agreed on the notion that arousal response is one of the important mediators that can influence consumers' behavior on environmental stimulation and response processes (Donovan & Rossiter, 1982; Giboa & Rafaeli, 2003; Sherman & Mathur, 1997; Tai & Fung, 1997). However, some research also suggests that arousal response needs to be

further studied because arousal response showed a tendency to have a stronger reaction when pleasure was taken into account (Donovan & Rossiter, 1982; Donovan et al., 1994). Therefore, it is necessary to examine arousal response and explore its contribution from an environmental psychology perspective.

Following the M-R model, the expectation is that arousal response induced by the store environment would intensify the final consumer response.

H7: The arousal response will be positively related to the attitude toward the display.

H9: Consumer involvement will moderate the relationship between window display and mental imagery

Consumer involvement refers to how consumers themselves relate to the product. For each consumer, the specific relevance of the product is based on that consumer's values, needs and interests (Zaichkowsky, 1985). Studies have shown that the responses for consumer involvement are generally related to the consumer decision-making process (Richins et al., 1992). Based on prior research, when consumers feel that a product is more important to them, they tend to

involve the decision-making process more deeply than consumers who do not think the merchandise is as important (Laurent & Kapferer, 1985). According to the Elaboration Likelihood Model, a high-involvement consumer is conscious about the product attributes and product factual information (Hawkins et al., 2007). In this way, it is logical that a high-involvement consumer would process the information in a more cognitive way than a low-involvement consumer. Therefore, a moderating role for consumer involvement (high, medium or low) was investigated to see if a consumer's level of involvement will influence different levels of mental imagery when consumers receive the visual stimuli. Therefore, the following hypothesis was developed:

H9: Consumer involvement will moderate the relationship between window display and mental imagery

Chapter3. Method

Overview

The present study adopted the Stimulus-Organism-Response model to examine consumers' internal and external responses when facing an environmental stimulus. More specifically, this study investigated the S-O-R model by utilizing window displays with or without a context setting and background music as environmental stimuli. Mental imagery and arousal response (representing cognitive and affective response) and the attitude toward the display were the internal responses, and consumers' approach-avoidance behavior was the consumer's external response. In this proposed study, consumer involvement was also investigated as a moderator between window display and mental imagery. To assess consumers' behavior when they encounter the context setting of a window displays and background music, hypotheses were tested based on data collected through a survey that was designed to measure the mental imagery, arousal response, attitude toward the display, consumers' approach-avoidance behavior and consumer involvement. The specific methods used for the present study are explained in this chapter.

Research Design

The present study was a two by two factorial between-subjects experimental design with two independent variables, four dependent variables and one moderator. The independent variables in this study were the window display (with or without a context setting) and background music (with or without background music). Mental imagery, arousal response, the attitude toward the display, and approach and avoidance behavior were the four dependent variables. Consumer involvement was tested as the moderator in present study.

Surveys were used to assess consumer internal responses and approach-avoidance behavior when participants encounter a window display with a context setting and without a context setting, and with or without background music. The survey measured mental imagery, the level of arousal response, attitude toward the display, approach-avoidance behavior, and level of consumer involvement.

Sample Selection

A convenience sample method was used for the present study. The sample consisted of 202 participants. Participants were students who were recruited from Oregon State University. This included undergraduate students and graduate students enrolled at Oregon State University during spring term of 2009. Specifically, students enrolled in three courses in the Department of Design and Human Environment and one course in the Department of Human Development and Family were recruited to participate in the study in exchange for course extra credit. Once permission was granted by instructors, a sign-up sheet was given to the corresponding instructors for students to randomly sign up on the date they were available to participate in the study.

In addition to the students recruited from Department of Design and Human Environment and Human Development and Family Science, several participants were recruited at the time of data collection without advance notification.

Instrument Development

The questionnaire consisted of nine sections. The first section of the questionnaire was three open-end questions that related to the display: (1) What are the first three things that come to your mind when you look at this display? (2) What two things do you like about the display? (3) What two things don't you like about the display? This section provided participants the opportunity to express their own adjectives and phrases that came to their minds when they viewed the display. Thus the open-ended questions contributed to the external validity of the study (See Table 1).

The second part of the questionnaire measured participants' attitude toward the display, which was the outcome variable in this study. Three 7-point scales (good-bad; like-dislike; favorable-unfavorable) were adopted from Yoo, Park, & Machlinnis, (1998). Cronbach's alpha was .93.

The third and fourth sections measured the quantity and vividness of consumers' mental imagery. Based on a scale developed by Miller, D., Jadjimarcou, J., and Miciak, A. (2000), four and six items were used for measuring the quantity and vividness of mental imagery that appears in consumers' mind when they see

a window display. Previous research has shown that Cronbach's alpha for this scale ranges from .79-.87 for quantity and .87-.89 for vividness of the mental imagery. These two scales were combined into one scale to examine overall mental imagery.

The fifth section of the questionnaire measured the arousal response in consumers' minds. This five-item scale was adopted from the original M-R model, which was introduced by Mehrabian and Russell in 1974. This study aimed to test internal arousal response because previous research has expressed doubts about the efficiency of arousal response in the S-O-R model. Therefore, the original scale was used in the present study for testing its efficiency ($\alpha = .74$).

The next part of the questionnaire measured consumers' approach-avoidance behavior. The scale was originally adopted from Mehrabian and Russell (1974), however, it was adjusted to match the purpose of the present study. The items included: (1) I would like to spend more time in this store. (2) I would like to explore the store. (3) I would like to get more information about the store. (4) I would like to get more information about the products displayed.

The seventh section of the questionnaire measured the moderator variable, which was consumer involvement. This twenty-item scale used seven likert-type response options and was developed by Zaichowsky (1985). Cronbach's alpha for this scale has ranged from .95- .99.

Two items used as a manipulation check were placed on the next section of the questionnaire. Seven likert-type scale were used in this section. The item for context setting manipulation check was "I think the context setting is appropriate for the store." When background music was played in two of the four conditions, the manipulation check question for background music was included in the questionnaire. The item for background music manipulation check was "I think the background music is appropriate for the store."

Finally, the following demographic information was collected in the last part of the questionnaire: age, gender, ethnicity, department and class standing.

Table 1: Open-ended Questions

	Items
Open-ended Questions	1. What are the first three things that come to your mind when you look at this display?
	2. What two things do you like about the display?
	3. What two things don't you like about the display?

Table 2: Adopted scales and alpha value

Variables	Items	Alpha
Mental Imagery (Quantity): Miller, Jadjimarcou	1. Many images came to my mind while I looked at the display	.79-.87
	2. A lot of images came to my mind while I saw the display	
	3. I experienced very few images while I looked at the display	
	4. While I watched the display I imagined visual scenes	
Mental Imagery (Vividness): Miller, Jadjimarcou & Miciak (2000)	1. Vague/ Vivid	.87-.89
	2. Unclear/ Clear	
	3. Indistinct/ Distinct	
	4. Weak/ Intense	
	5. Lifeless/ Lifelike	
	6. Fuzzy/ Well-defined	
Arousal response : Mehrabian & Russell (1974)	1. Frenzied/ Sluggish®	0.74
	2. Stimulated/ Relaxed®	
	3. Calm/ Excited	
	4. Dull/ Jittery	

Variables	Items	Alpha
	5.Unaroused/ Aroused	
Attitude: Yoo, Park, & MachInnis (1998)	1. Good/ Bad 2. Like/ Dislike 3. Favorable/ Unfavorable	0.93
Approach and avoidance behavior: Mehrabian & Russell (1974)	1. I would like to spend more time in this store. 2. I would like to explore the store. 3. I would like to get more information about the store. 4. I would like to get more information about the products displayed.	N/A
Consumer involvement: Zaichowsky (1985)	1. Important/ Unimportant ® 2. Of no concern/ Of concern to me 3. Irrelevant/ Relevant 4.Means a lot to me / Means nothing to me ® 5. Useless/ Useful 6. Valuable/ Worthless ® 7. Trivial/ Fundamental 8. Beneficial/ Not beneficial ® 9. Matters to me/ Doesn't matter ® 10. Uninterested/ Interested 11. Significant/ Insignificant ® 12. Vital/ Superfluous ® 13. Boring/ Interesting 14. Unexciting/ Exciting 15. Appealing/ Unappealing ® 16. Mundane/ Fascinating	.95-.99

Variables	Items	Alpha
	17. Essential/ Nonessential ®	
	18. Undesirable/ Desirable	
	19. Wanted/ Unwanted ®	
	20. Not needed/ Needed	

Note: Items identified with ® were reverse-coded.

Procedure

The experiment for the present study investigated the influence of the context setting of window display and background music on mental imagery, arousal response, attitude toward the window display, and in turn, how it affects the final outcome: approach-avoidance behavior. To increase external validity, rather than using pictures, a mock window display was decorated and used as the retail environmental stimulus. Participants viewed one of four window displays (with a context setting or without a context setting/ with background music or without background music).

The 12 feet long, 44 inches high and 12 inches deep show case in front of Milam 213 on the Oregon State University campus was used as the stimulus in the present study. Four 10-watt spotlights were placed both on the ceiling and

the floor of the show case for its lighting. Two conditions of window displays were presented (both including background music and no background music). The first condition was a window display decorated with a context setting. The context setting was related to the civil war football game because the civil war game is one of the most important games in which students want to participate and a football game is also a situation for which students are likely to want to purchase licensed sportswear. The second condition was a window display without a context setting.

Oregon State University licensed sportswear was used as the merchandise in the mock window display, which included both a female figure and a male three-quarter dress form (See Figure 5). The licensed sportswear for the female dress form was a black OSU long sleeve hooded sweatshirt with gray OSU fleece pants. An orange OSU long sleeve hooded sweatshirt and short OSU pants were the outfits for the male. To avoid the potential influence of football season and other potential factors that might affect reliability, research was conducted during the off-season.



Figure 5: Three-quarter forms with licensed outfits

A football theme was the context for the window with the context setting. Therefore, football and OSU spirit were two main goals of the context setting. Orange and black were the two basic colors for decorating the window for the conditions with context setting. Several items, which related to football spirit, were used for decorating the window. These items included: one hand-made football field, orange cones, footballs, OSU blow-up football helmets, beaver sign. The original color for the show case was black. 12 inches of each side of the show case were covered by orange-colored paper for the display with a context setting. The football field was hung in center of the case and two dress forms were placed

on the right hand side of the football field. The beaver sign was hung on the left hand side of the show case. The blow-up helmets, footballs, and orange cones were placed on the floor (See Figure 6).

For the window display without a context setting, a neutral gray fleece fabric was used for the background color for the window display without a context setting. And the dress forms were placed in the exact same place and position as the window display with a context setting (See Figure 7).

The OSU fight song was chosen to be the background music for the display. Because the fight song is considered to be important music related to football games, it can represent school spirit.



Figure 6: The window display with a context setting



Figure 7: The window display without a context setting

The dates for data collection were set on Monday and Wednesday of the second and third week of spring term 2009. The first condition for data collection was the window display with a context setting and background music. To avoid the viewing of the window outside of the study, the window was decorated over the weekend and covered until the day of data collection. After the first data collection day, the window was covered again for the second condition: the window display with a context setting, but without background music. Similarly, the window for the third condition (the window display without a context setting, but with the background music) was decorated over the weekend.

A paper questionnaire was used in this study, and data were collected during Spring Term 2009. Students (n=117) in a Design and Human Environment and Human Develop and Family Sciences (n=69), and 16 respondents from other departments participated in the present study. Participants were given specific dates and times to choose from for participating in the experiment. The questionnaire was given to the participants immediately after their arrival. Participants could answer the questionnaire while they observed the mock window display. On the questionnaire, participants were instructed to imagine that they were going to purchase the displayed outfit for the up-coming civil war football game. The items in the questionnaire intended to measure the quantity of mental imagery, vividness of mental imagery, arousal response, the attitude toward the display, approach-avoidance behavior, and consumer involvement. Demographic information was collected in the last part of the questionnaire.

Chapter4. Results

The purpose of present study was to investigate consumers' internal and external responses when they encountered window displays with or without a context setting and with or without background music. In this chapter, the questionnaire reliability is reported first. Then the demographic information of the participants is discussed. Finally, a descriptive analysis of the open-ended questions and hypothesis testing are presented.

Scale Reliability

Cronbach's alphas were used to test the reliability (internal consistency) of the scales included in the questionnaire. For the quality of mental imagery, the four items were reliable with a Cronbach's alpha of .84, and the vividness of mental imagery was found reliable with a Cronbach's alpha of .95. The scale reliability coefficient for combining quality and vividness of mental imagery was .92. The arousal scale from Mehrabian and Russell (1974) resulted in a Cronbach's alpha of .89. The three-item attitude scale was reliable with a Cronbach's alpha of .95. The three-item approach and avoidance behavior scale

had a Cronbach's alpha of .92. Finally, the twenty-item involvement scale was found to be reliable of a Cronbach's alpha of .96.

Table 3: Scale Reliability Coefficient

Scale Reliability Coefficient	
Variables	Cronbach's alpha Value
Mental Imagery (Quality, Vividness)	.92
Arousal	.89
Attitude	.95
Behavior	.92
Involvement	.96

Demographic Profile

The demographic profile of the sample is shown in Table3. Among the 202 respondents, 182 (90.10%) of the participants were female and 20 (9.90%) of the participants were male. Their ages ranged from 18 to 65 years with an average age of 21.3 years. About 95% of the participants were under the age of 25 years. Regarding ethnicity, the participants were 81.19% white, 1.98% Black, 2.48%

Asian American, 2.97% Asian, 0.99% Pacific Islander, 0.5% North African, 7.43% Hispanic American, 1.49% American Indian, and 0.99% other.

57.92% of participants were students in the Department of Design and Human Environment, 34.16% were students from Human Development and Family Sciences, 7.92% were students from other departments. 22.28% of the participants were first year students, 19.31% were sophomores, 16.83% were juniors, 37.62% were seniors, 1.98% were graduate students, and 1.98% were other.

In summary, participants were primarily white female DHE undergraduate students under the age of 25.

Table 4: Demographic Profile of the Sample (n=202)

Variable	Descriptions	Freq.	Percent	Cum.
Gender	Male	20	9.90	9.90%
	Female	182	90.10	100.00%
Age	20 and under	92	45.54	45.54%
	21-25	98	48.52	94.06%
	26-30	6	2.98	97.03%
	31 and up	6	2.98	100.00%
Ethnicity	White	164	81.19	81.19%
	Black	4	1.98	83.17%

Variable	Descriptions	Freq.	Percent	Cum.
	Asian American	5	2.48	85.64%
	Asian	6	2.97	88.61%
	Pacific Islander	2	0.99	89.60%
	North African	1	0.50	90.10%
	Hispanic American	15	7.43	97.52%
	American Indian	3	1.49	99.01%
	Other	2	0.99	100.00%
Department	Design and Human Environment	117	57.92	57.92%
	Human Development and Family Science	69	34.16	92.08%
	Other	16	7.92	100.00%
Class Standing	First year	45	22.28	22.28%
	Sophomore	39	19.31	41.58%
	Junior	34	16.83	58.42%
	Senior	76	37.62	96.04%
	Graduate	4	1.98	98.02%
	Other	4	1.98	100.00%

Results of Open-ended Questions

The first section of the questionnaire gave an opportunity for the participants to describe their feelings about the display which included: the first three things that came to their mind, two things they liked about the display, and two things they did not like about the display. The open-ended questions not only

provided an opportunity for participants to express their own adjectives and phrases about the display, but also contributed to the external validity of the study.

The first open-ended question asked about the first three things that came to the participants' minds when they looked at the background setting of the display. When observing the window display with a context setting (with or without music), the first impression in most people's mind was "Football", "Sporty", "beaver", "OSU color-black and orange", and "OSU spirit". However, when observing the window display with a context setting and background music, multiple participants described their first impression as "Exciting," "Team spirit, the music reminds me of the 50's, so happy we are going to win this game feeling. I want to be part of this event," "being in the game," "I'm at a football game," "I can hear the band and crowd," "Ready for the game." Therefore, background music might be an element that influences the first impression responses toward window displays.

The second open-ended question asked about the two things they liked about the background setting of the display. The football field in the window

display was what most participants reported they liked most. Followed by the lights for the window display, and the items which related to football spirit (e.g. the blow-up helmets, orange cones) were mentioned. Background music was also reported as one of the things they liked.

Finally, when asked what two things they did not like about the background setting of the display, several participants responded with “plain.” Other than plain, participants’ responses varied but included: “too dark,” “blew-up helmets,” “more apparel was needed,” “not professional enough,” or “the cord was exposed.”

Unlike the window display with a context setting, most participants reported the window display without a context setting was “plain” and “boring.” Multiple participants described their first impression as “it’s kind of blank.” “Too plain, doesn’t catch my eye.” Some participants also pointed out that the display should be “more sporty” since it’s a store for sportswear.

Even though most participants described the window display as too plain, when answering the second question-what two things do you like about the background setting of the display- several participants answered “it doesn’t

interfere with clothes,” “it makes the clothes stand out and it doesn’t distract from them either.”

Hypothesis Testing

The hypotheses in the present study were tested by using two statistical methods. A multivariate analysis of variance (MANOVA) was used to test hypotheses 1-4 on the impact of the context setting of a window display, and background music on mental imagery and arousal response. Hypotheses 5-8 (to evaluate the relationship between variables) were tested by using multiple regression analysis. Finally, a nested regression was used to examine the moderator influence on the relationship between the context setting of a window display and mental imagery.

H1: Mental imagery will vary as a function of the context setting of window displays

Results of MANOVA analysis showed that the context setting of window displays [Wilks’s $\lambda = .54$, $F(2, 197) = 81.93$, $p < .001$] was significantly related to

the set of dependent variables. More specifically, ANOVA analysis indicated that the context setting has a significant impact on mental imagery [$F(1, 198) = 128.91, p < 0.001$]. The result indicated that the window displays with or without a context setting provide the statistical different on mental imagery. More specifically, the window display with a context setting resulted in a higher level of mental imagery.

Therefore, hypothesis 1 was supported.

Table 5: Summary of Mental Imagery

Summary of Mental imagery					
Variable	Obs	Mean	Std. Dev.	Min	Max
Mental imagery with a context setting	103	4.75	0.99	2.4	7
Mental imagery without a context setting	99	3.03	1.15	1.1	6

H2: Arousal response will vary as a function of the context setting of window displays.

According to the MANOVA analysis, context setting of window displays [$\text{Wilks's } \lambda = .54, F(2, 197) = 81.93, p < .001$] was significantly related to the set of dependent variables. Further, ANOVA analysis showed that the context setting

has a significant impact on arousal response [$F(1, 198) = 127.51, p < 0.001$]. The result indicated that the window displays with or without a context setting elicited significant differences on arousal response. The window display with a context setting resulted in a higher level of arousal response than the window display without a context setting.

Therefore, hypothesis 2 was supported.

Table 6: Summary of Arousal Response

Summary of Arousal Response					
Variable	Obs	Mean	Std. Dev.	Min	Max
Arousal response with a context setting	103	4.44	0.92	2	7
Arousal response without a context setting	99	2.75	1.24	1	6.2

H3-4: Mental imagery and arousal response will vary as a function of the existence of background music

Unexpectedly, hypotheses 3 and 4 were not supported by the MANOVA [Wilks's $\lambda = .99, F(2, 197) = .42, p = .66$] nor ANOVA analysis [$F(1, 198) = .60, p = .44$], [$F(1, 198) = .69, p = .41$] (See Table 9). Therefore, the results suggested that mental imagery and arousal response did not show significant differences

when there was an existence of background music. In other words, the existence of the background music did not affect mental imagery and arousal response.

As a result, hypothesis 3 and 4 were not supported.

Table 7: Summary of Mental Imagery

Summary of Mental Imagery					
Variable	Obs	Mean	Std. Dev.	Min	Max
Mental Imagery with background music	97	3.97	1.46	1.1	7
Mental Imagery without background music	105	3.86	1.30	1.1	6.4

Table 8: Summary of Arousal Response

Summary of Arousal Response					
Variable	Obs	Mean	Std. Dev.	Min	Max
Arousal response with context setting	97	3.67	1.44	1	7
Arousal response without context setting	105	3.56	1.32	1	6.2

Table 9: The results of MANOVA Analysis

MANOVA Analysis		
	Context setting	Background music
Mental Imagery	F(1,198)=128.91	F(1, 198)= .60
	Sig***	ns
Arousal Response	F(1, 198)=127.51	F(1, 198)= .69
	Sig***	ns

* $p < .05$

** $p < .005$

*** $p < .001$

Hypothesis 5-8: The relationship between mental imagery, arousal response, attitude toward the display, and approach-avoidance behavior.

Hypothesis 5-8 were tested by using regression analysis. Regression analysis not only provided an insight regarding the relationship between each variable but also indicated the directions of each relationship, therefore regression analysis was chosen to examine hypothesis 5-8.

Hypothesis 5 stated that mental imagery will be positively related to arousal response. According to the results of the regression analysis, the regression model for mental imagery as a predictor of arousal response was statistically significant [$F(1, 200) = 227.45, p < .001$]. The $r^2 = 0.5321$, meaning that 53.21% of variance in arousal response could be explained by mental imagery. Further, the result also indicated that mental imagery significantly predicted arousal response [$t = 15.08, p < .001$]. This finding showed a significant positive relationship between mental imagery and arousal response. Therefore, H5 was statistically supported (See Table 10)

Table 10: Regression result of mental imagery and arousal response

Regression Model					
	SS	MS	F(1,200)	P	R-squared
Source	202.03	202.03	227.45	.000***	0.5321
Residual	177.65	0.88			
Total	379.68	1.89			
Coefficient					
Arousal	coef.	t	Beta	P	
Mental	0.73	15.08	0.73	.000***	
con.	0.75	3.73			

* $p < .05$ ** $p < .005$ *** $p < .001$

Hypothesis 6-7 tested the relationship between mental imagery, arousal response, and the attitude toward the display. A multiple regression was used to examine the relationship. The results indicated that the model including mental imagery and arousal response significantly predicted attitude toward the display [$F(2, 197) = 46.04, p < .001, r^2 = .3185$]. The r square showed that mental imagery and arousal response can explain 31.85% of variance in the attitude toward the display. Both arousal response [$t = 3.74, p < .001$] and mental imagery [$t = 3.20, p < .005$] significantly predicted attitude toward the display.

According to the previous findings, H6-7 were supported.

Table 11: Regression result of mental imagery, arousal response, and attitude

Regression Model					
	SS	MS	F(2,197)	P	R-squared
Source	127.33	63.67	46.04	.000***	0.3116
Residual	272.44	1.38			
Total	399.78	2.01			
Coefficient					
Attitude	coef.	t	Beta	P	
Mental	0.29	3.20	0.28	.002**	
Arousal	0.34	3.74	0.33	.000***	
con.	2.23	8.59			

* $p < .05$ ** $p < .005$ *** $p < .001$

Hypothesis 8 stated that the attitude toward the display will be positively related to the approach behavior. To test the relationship between these two variables, regression analysis was conducted. The regression model for the attitude toward the display as an indicator of approach behavior was statistically significant [$F(1, 198) = 52.52, p < .001, r^2 = .2097$] (See Table 12). A higher level of attitude toward the display was positively related to higher approach behavior. The r^2 value for this relationship is 0.2097, which means that 20.97% of variance in approach-avoidance behavior could be explained by the attitude toward the display. The positive beta value also indicated a positive relationship between the

attitude toward the display and approach behavior, $\beta = .45$, $p < .001$. Attitude toward the display significantly predicted behavior [$t = 7.25$, $p < .001$].

As a result, H8 was supported.

Table 12: Regression result of attitude and approach-avoidance behavior

Regression Model					
	SS	MS	F(1,198)	P	R-squared
Source	87.41	87.41	52.52	.000***	0.2097
Residual	329.53	1.66			
Total	416.95	2.10			
Coefficient					
Behavior	coef.	t	Beta	P	
Attitude	0.47	7.25	0.46	.000***	
con.	1.80	0.31			

* $p < .05$

** $p < .005$

*** $p < .001$

Hypothesis 9: Consumer involvement moderation

The last hypothesis stated that consumer involvement would moderate the relationship between window display and mental imagery. This hypothesis was examined using nested regression to test the interaction influence of consumer involvement.

According to the results, the nested regression model for context setting of a window display [$t = 2.13, p < .05$] and consumer involvement [$t = 4.54, p < .001$] had significant main effects on mental imagery; however, the interaction between the context setting and consumer involvement was not statistically significant [$t = 0.16, p = 0.87$]. The result indicated that consumer involvement did not provide an interaction effect on the relationship between the context setting of a window display and mental imagery (See Table 13).

Table 13: The result of nested regression

Regression Model					
	SS	MS	F(3,198)	P	R-squared
Source	183.90	61.30	62.81	.000***	0.4876
Residual	193.24	0.98			
Total	377.14	1.88			
Coefficient					
Mental	coef.	t	Beta	P	
Context	1.32	2.31	0.48	.022*	
Involvement	0.37	4.54	0.32	.000***	
Interaction	0.02	0.16	0.04	0.87	

* $p < .05$

** $p < .005$

*** $p < .001$

Table 14: Summary of Consumer Involvement

Summary of Consumer Involvement					
Variable	Obs	Mean	Std. Dev.	Min	Max
Consumer Involvement with a context setting	103	4.7	1.01	2.65	7
Consumer Involvement without a context setting	99	3.92	1.21	1.3	6.9

A graph provides a visual representation of the hypothesized interaction influence on the relationship between the context setting of a window display and mental imagery (See Figure 8). The graph shows that high, medium, and low involvement are parallel to each other, which confirmed the result of the nested regression analysis: consumer involvement provides no interaction effect on context setting-mental imagery relationship.

Based on the finding of the analysis, hypothesis 9 was not supported.

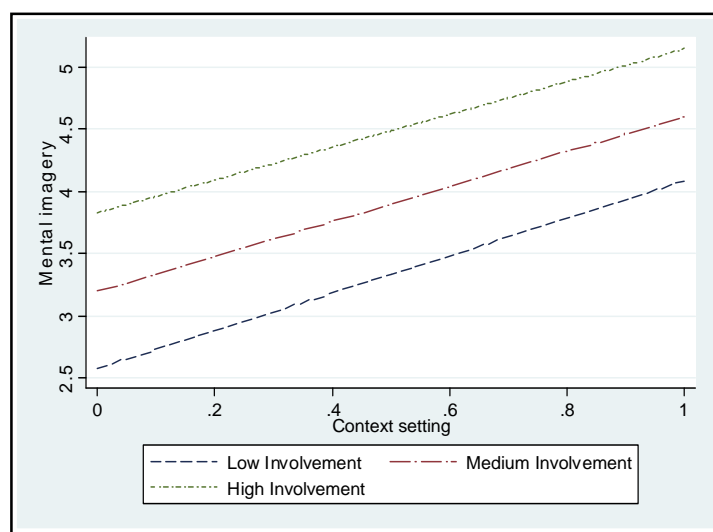


Figure 8: Moderation of Consumer Involvement

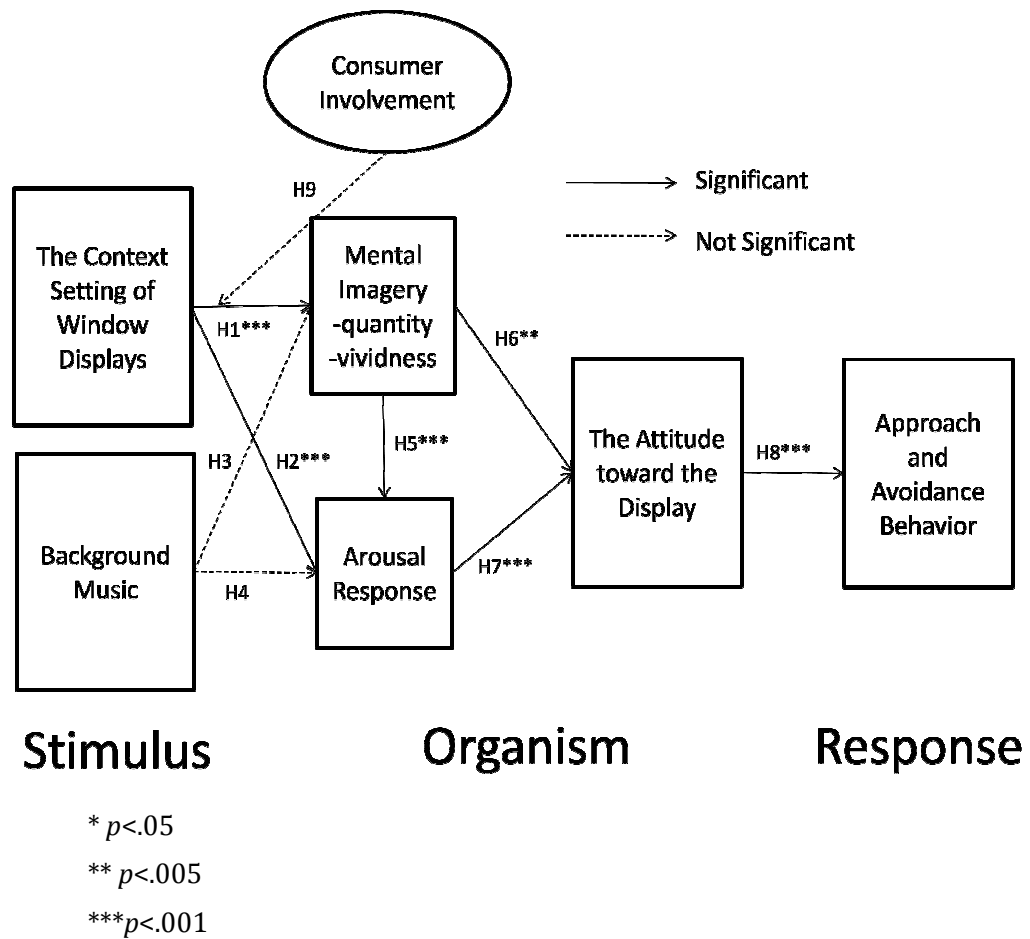


Figure 9: Study Model with Analysis Results

Chapter5. Discussion

The research questions of present study were: (1) Does the context setting of a window display influence consumers' mental imagery and arousal responses (See Figure 10)? (2) Does the existence of the background music influence consumers' mental imagery and arousal responses (See Figure 11)? (3) Does mental imagery and arousal responses enhance the attitude toward the display and ultimate approach-avoidance behavior (See Figure 12)? (4) Does different level of mental imagery influence different level of arousal response (See Figure 13)? (5) Does consumer involvement moderate the relationship between the stimulus (the context setting of a window display) and mental imagery (See Figure 14)? In this chapter, the results are interpreted and implications, limitations and recommendations are presented.

Research Question 1

The two hypotheses (See Figure 10) proposed in research question 1 were all supported. Hypothesis 1 stated that mental imagery will vary as a function of the context setting of window displays, and hypothesis 2 stated that arousal

response will vary as a function of the context setting of window displays. The results showed that a window display with a context setting had a significant influence on both mental imagery and arousal response. In other words, the level of mental imagery and arousal response were higher when window displays had a context setting.

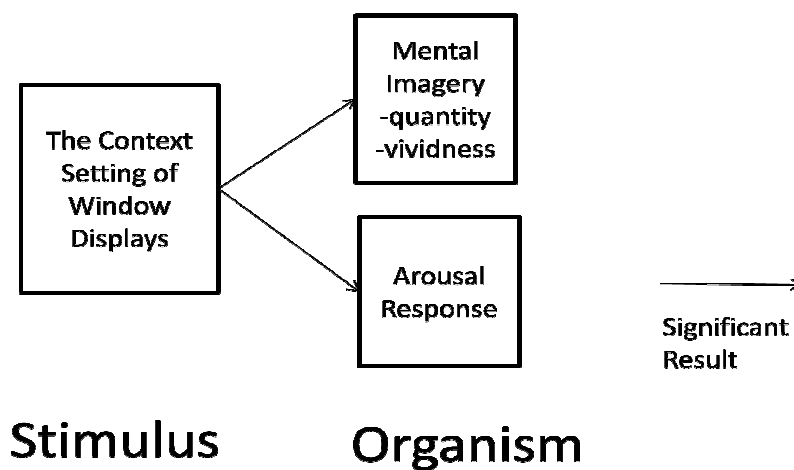


Figure 10: Research Question 1

A window display with a context setting is decorated to be related to the merchandise. In the present study, the window display was decorated with a theme related to football game and OSU spirit. Therefore, this might evoke participants' mental imagery which are related to their personal experiences and memories. In other words, when participants see the football field handing in the

middle of the window display and the decorations that related to the football game, they may feel a similar atmosphere as they would if they were at a football game. As most of the participants answered in the open-ended questions, they thought about football games when they saw the window display.

The level of arousal response also increased when the window display had a context setting. Arousal response is the degree of excitement that can be experienced by a person in a service environment (Ang & Leong, 1997). In the present study, a window display with a context setting may evoke their direct or indirect memories about how exciting it was when they were in a football game. In fact, several participants reported their first impression as “being in the game,” or “I’m at a football game.” Especially if participants had positive feelings about past football experiences, they might feel more excited than those who did not have any direct or indirect experiences or who had bad football experiences. Therefore, personal experience may be one of the reasons that participants felt a high level of arousal response when the window display had a context setting. In addition to past experience, according to the responses from open-ended questions, multiple participants thought about “fun” when they saw the window

display with a context setting for the first time. Therefore, the window display with a context setting might provide a feeling of vivaciousness to the participants.

Research Question 2

Research Question 2 (See Figure 11) includes H3: mental imagery will vary as a function of the existence of background music, and H4: arousal response will vary as a function of the existence of background music. Surprisingly, these two hypotheses were not supported by the data collected, which meant that the existence of background music or no background music did not significantly affect mental imagery and arousal response. There are several possible explanations as to why this relationship was not found to be significant.

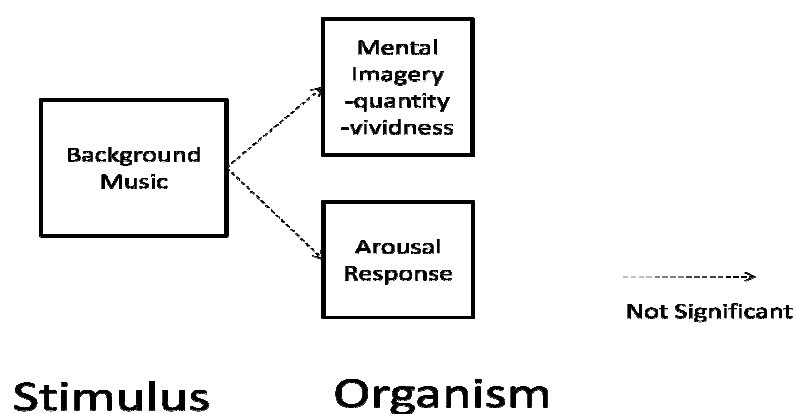


Figure 11: Research Question 2

First, the mental imagery scale adopted in the present study was constructed for measuring advertisement-evoked mental imagery. The measurement was designed to measure advertisement across three advertising media: print, radio and television. Therefore, the scale used in the present study might not be the most effective scale for measuring the influence of background music, even though radio advertising, which is the auditory stimulus, was tested when the scale was developed. Radio advertising, however, might involve a descriptive advertisement, and the background music used in the present study was pure music without any descriptive process involved. Second, according to the findings of the open-ended questions, several participants did notice the existence of the background music and said background music made them feel the crowd and the band in the field. Therefore, consistent with the first discussion, maybe the instrument could not effectively measure the imagery that appeared in participants' mind.

The effect of background music on arousal response was also not supported in the present study. For a similar reason as discussed with mental imagery, the scale was adopted from the original M-R model. The model was developed to

measure the stimulus in a store environment, and most of the stimuli can be visually experienced. Background music, however, can easily be ignored by most people in a service environment. Therefore, the scale might not measure the auditory aspect effectively. Moreover, the background music was the OSU fight song, and we cannot know if the fight song played on different occasion would provide the same excitement as when it is played at a football game. For that reason, people might feel less aroused when they hear the fight song outside of an actual football game. Moreover, the influence of background music might diminish for some participants who are very familiar with the OSU fight song. One participant mentioned "You can turn the music off because I listen to that music every time when I went to a game." Therefore, the background music might less stimulated for people who are familiar with the music.

Even though Hypotheses 3 and 4 were not supported by the MANOVA analysis, a simple main effect analysis was conducted to provide insight into the relationship between background music and mental imagery and arousal response. Based on simple main effect analysis, the effect of background music on arousal response was significant [$F(2, 197) = 53.79, p < .05$] only when the

window display without a context setting. When there was background music, participants who viewed the window display without a context setting reported a higher arousal response [$M = 2.98, SD = .141$] than those who viewed the window display with a context setting [$M = 2.43, SD = .167$]. The result can indicate that the window display without a context setting can make participants notice the peripheral environmental stimulus. In present study, people reported a higher arousal scores when the window display did not have a context setting. The result also relate to the results of the opened-end questions. The window display without a context setting can make the clothes stand out and does not interfere with the clothes.

Research Question 3

Research question 3 (See Figure 12) stated hypothesis 5: Mental imagery will be positively related to arousal response. This hypothesis was fully supported by the data collected. The result showed that when participants have a higher mental imagery, they also have higher arousal response scores.

When people were stimulated by the window display with a context setting, they started to develop a series of mental images in their mind. The mental imagery can awaken as an internal stimulus and influence the arousal response. Therefore, when the external stimulus (the context setting of the window display) started to work and evoke the internal stimulus (mental imagery), people would experience imagery related to football and their past experiences, this kind of imagery can also evoke their memories about football games.

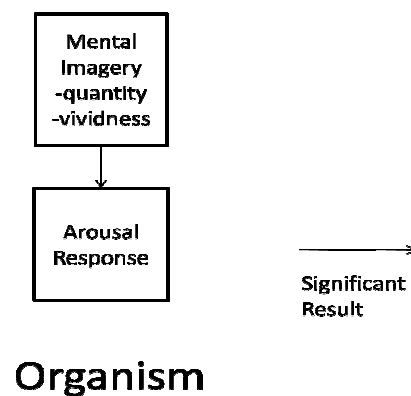


Figure 12: Research Question 3

Research Question 4

Hypothesis 6: Mental imagery will be positively related to a consumers' attitude toward the display, hypothesis 7: The arousal response will be positively

related to the attitude toward the display, and hypothesis 8: The attitude toward the display will be positively related to the approach and avoidance behavior were all included in research question 4 (See Figure 13). These three hypotheses were all supported. Mental imagery and arousal response showed a significant and positive relationship with the attitude toward the display. In addition, attitude toward the display also revealed a statistically significant positive relationship with approach-avoidance behavior. The results indicated two things: (1) when there is a high level of mental imagery and arousal response, the more positive (or higher score) attitude toward the display, (2) the more positive attitude toward the display, people would show more approach behaviors.

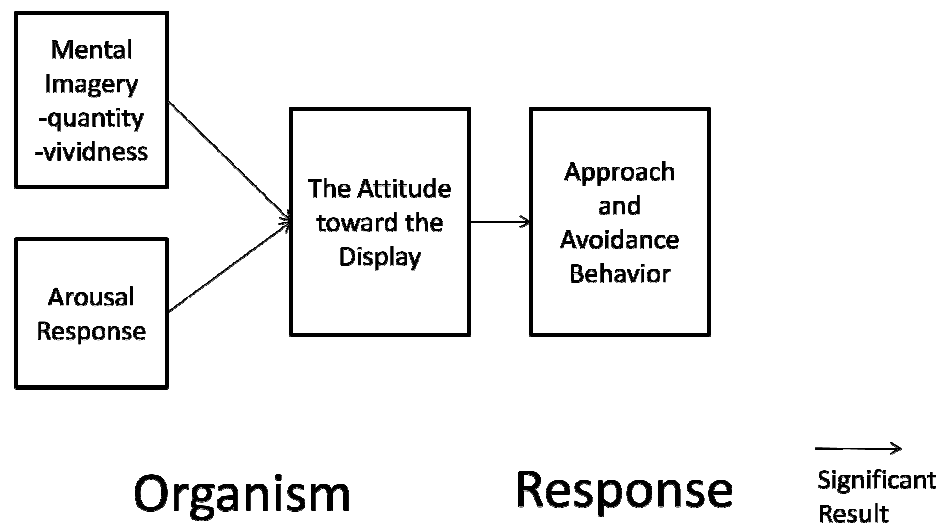


Figure 13: Research Question 4

According to the literature review, many researchers have noticed the importance of pictures as a predictor of attitude (Dickson, Burnkrant, Burnkrant & Hanumantha, 1986; Edell & Staelin; 1983, Mitchell, 1986; Mitchell & Olson, 1981). Therefore, the result showed a logical explanation that when people have more mental imagery, which work as a mentally visual picture projecting in their mind, it might produce a positive attitude, especially when the mental imagery is positive.

Arousal response in the present study also showed a positive relationship with the attitude toward the display. Therefore, people tend to have a more positive attitude toward the display when people have a higher level of

arousal response. Based on several research studies, arousal response has a stronger effect when the variable of pleasure is involved. This finding in the present study showed that the arousal response can work independently without taking pleasure into account. We cannot know, however, if this relationship can be applied in different situations and experiments. Hence, further research regarding this relationship is needed.

The current study also found a significant and positive relationship between the attitude toward the display and approach behavior. Attitude has been one of the important predictors of predicting future behavior. In the present study, when people felt positive mental imagery and feelings of arousal feeling, a positive attitude toward the display was produced, and because of this positive attitude, people were more willing to want to get close to the store or get more information about the products or the store itself.

Research Question 5

This research question was the last hypothesis, which was that consumer involvement would moderate the relationship between window display and

mental imagery (See Figure 14). This hypothesis was not supported. The results indicated that the interaction between consumer involvement and the context setting of a window display did not have a significant effect on context setting-mental imagery. This also meant that participants had a higher mental imagery when the window display was with a context setting no matter how high their involvement. There are several possible explanations as to why this relationship was not found to be significant.

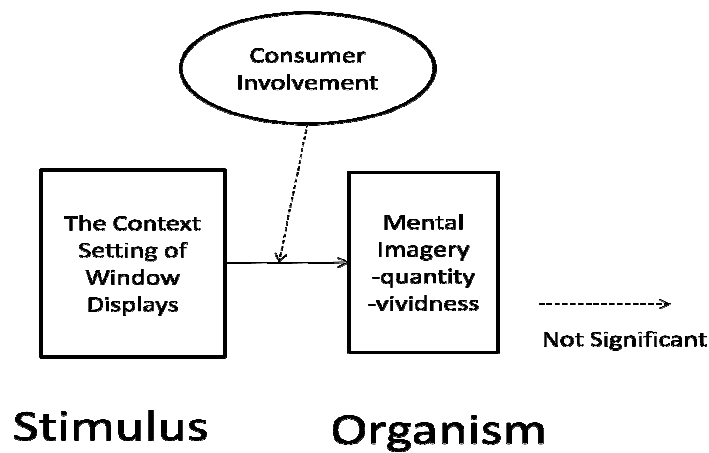


Figure 14: Research Question 5

When consumer involvement was hypothesized, it was predicted to be as the moderator in present study. Depending on different values one person is holding toward the specific product or situation, it should differ by the situations.

Therefore, we expected that consumers would process the information, which might evoke more mental imagery in people who had high involvement than in people who had low involvement. These data, however, showed interesting results that consumer involvement can have a significant effect on mental imagery as an independent variable. Also, when consumers' involvement is higher, their mental imagery increases (See Figure 15).

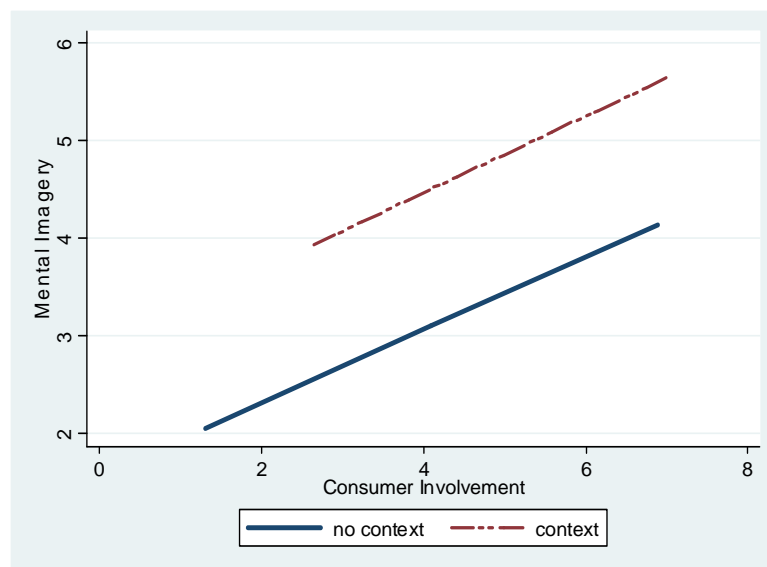


Figure 15: Mental imagery and consumer involvement

According to the findings of nested regression, consumer involvement may have worked as an independent variable rather than a moderator. This suggested that consumer involvement has a direct influence on mental imagery, not an

interaction effect. It would also be interesting to consider whether “personality” had an impact on the result. For example, if a person tends to be deeply involved in everything happening around he/ she, then she/ he might have a high involvement score in present study, but this high score was not because she/ he like football. In another case, when a person likes football, he or she would feel excited or have more mental imagery about football when he/ she shops for the up-coming football game regardless of whether or not the window display has a context setting. In this situation, it is not about the relation between a product and personal values and feelings; a person can become involved because of their “nature.”

Next, based on the Elaboration Likelihood Model, people who have high involvement process the information in a central route, which means that they tend to process information cognitively. Following this logic, the present study suggested that context setting-mental imagery might be moderated by consumer involvement. One thing that needs to be considered, however, is whether a context setting of the window display really belongs to the central value of the product? Or is it peripheral information for consumers?

Implications

Two theoretical implications are found in the results of current study. First, music did not provide a direct impact on both mental imagery and arousal response. An interaction effect with the context setting of the window display was found to be significant in predicting arousal response. In addition, the moderator of consumer involvement provided a statistically significant direct effect on mental imagery. Therefore, the present study provided general information about the relationship between the context setting of a window display and consumers' internal and external behaviors. However, it can be modified and examined again by having music as a moderator and consumer involvement as an independent variable.

The study also provides managerial implications. According to the findings of present study, the context setting of a window display is a crucial element that can influence consumers' mental imagery and arousal response, which in turn can improve their attitude and behavior. This information provides several important insights for the visual merchandising field. First, a window display with a context setting can improve consumers' positive behaviors. Second,

presenting techniques that can evoke consumers' mental imagery and arousal response perhaps can also provide the same effect as context setting on consumers' behaviors. Therefore, the visual merchandiser can effectively use this information to achieve their ultimate goals of increasing purchasing behaviors.

Limitations

A limitation of the present study is that the stimuli were constructed in a show case. The ideal stimuli for the study would be using an actual retail window display, however, considering the difficulty of finding a proper retailer that was willing to provide their window, a show case that belongs to Department of Design and Human Environment was used. Even though the show case was designed as a retail window display, the circumstances still did not provide the same environment as a real retail window display. This limitation also influenced the external validity of the present study.

Second, the size of the show case is another limitation. The show case is 12 feet long and it might be too empty when window display without a context setting. Therefore, the size of the show case might create the proportion problem

for the window display without a context setting, and this might be the reason for most participants reporting the window display without a context setting was boring and plain.

Next, the efficacy of background music was also limited. Due to the limitation of instrument provided, a speaker was used to play the background music. The speaker, however, could only be placed on one side of the show case, which was approximately 12 feet long. Classrooms were on either side of the show case, therefore, the volume was controlled. In this way, some of the participants on the far side of the show case might have had difficulties hearing the background music.

In addition, the stimuli may not work for the participants who did not have any direct or indirect past experiences about football game or never listened to the OSU fight song before. The present study was designed to use the stimuli (the context setting of a window display and background music) to evoke consumers' mental imagery and arousal response which were mostly come from consumers' past experiences and stored memories. Therefore, if people who did not have any

related experiences before, that would be a limitation for them to have any images and feelings.

Lastly, the population of the present study was college students. These results cannot be generalized to other groups or populations considering this convenience sampling method.

Recommendations

Future research is needed to continue research about presenting window displays. Window displays are still a missing part of consumer literature. The results of the present study reveal only one small part of it. Further studies should continue to examine different techniques of presenting window displays, and figure out how different presenting types influence consumers' behaviors. Examples might include how differences in the background color can influence consumers' behaviors or whether a window display that is transparent into the store can influence consumers' responses. Furthermore, consumer involvement has been found to serve as an independent variable, future research can include consumer involvement and examine the working process of consumer

involvement. Different internal variables or external behaviors such as pleasure, perceived time spent in the store environment, or perceived store image, could be included in future research.

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APPENDICES

APPENDIX I

IRB APPROVAL



Oregon State University, 312 Kerr Administration Building, Corvallis, Oregon 97331-2140
Tel 541-737-4933 | Fax 541-737-3093 | <http://oregonstate.edu/research/osprc/rc/humansubjects.htm>
IRB@oregonstate.edu

TO: Leslie Davis Burns
Design and Human Environment

IRB #: 4233 – Window Displays and Consumer Attitudes (Student Researcher: Chihmin Ti)

Level of Review: Exempt

Expiration Date: 3-18-10

Approved Number of Participants: 250

The referenced project was reviewed under the guidelines of Oregon State University's Institutional Review Board (IRB). The IRB has **approved** the:

(X) Initial Application () Continuing Review () Project Revision
with a (if applicable): (X) Waiver of documentation of Informed Consent () Waiver of Consent

A copy of this information will be provided to the full IRB committee.

- **CONSENT FORM:** All participants must receive the IRB-stamped informed consent document. If the consent is in a format that could not have stamp placement (i.e. web site language, email language, etc), then the language must be **exactly** as the IRB approved it.
- **PROJECT REVISION REQUEST:** Any changes to the approved protocol (e.g. protocol, informed consent form(s), testing instrument(s), research staff, recruitment material, or increase in the number of participants) must be submitted for approval before implementation.
- **ADVERSE EVENTS:** Must be reported within three days of occurrence. This includes any outcome that is not expected, routine and that result in bodily injury and/or psychological, emotional, or physical harm or stress.
- **CONTINUING REVIEW:** A courtesy notice will be sent to remind researchers to complete the continuing review form to renew this project, however – it is the researcher's

responsibility to ensure that continuing review occurs prior to the expiration date.

Material must be submitted with adequate time for the office to process paperwork. If there is a lapse in approval, suspension of all activity including data analysis, will occur.

- **DEVIATION/EXCEPTIONS:** Any departure from the approved protocol must be reported within 10 business days of occurrence or when discovered.

Forms are available at: <http://oregonstate.edu/research/osprc/rc/humansubjects.htm>.

If you have any questions, please contact the IRB Human Protections Administrator at IRB@oregonstate.edu or by phone at (541) 737-8008.



Date: 3-19-09

Elisa Espinoza Fallows

IRB Human Protections Administrator

APPENDIX II

QUESTIONNAIRE

Please read the following instruction
before you start!!

To start this survey, please assume that you want to purchase new sports apparel for an up-coming Civil War football game. Now imagine you are in front of a store that sells OSU licensed apparel, and looking at the merchandise that is displayed in the window case as if it were a window display for the store. Please take the next few moments to answer the following questions.

If you have any questions about this research project, please contact: Leslie Davis Burns at 541-737-0983 or by email at Leslie.Burns@oregonstate.edu as well as Chihmin Ti at (541) 737-3797 or by email at tic@onid.orst.edu . If you have questions about your rights as a participant, please contact the Oregon State University Institutional Review Board (IRB) Human Protections Administrator, at (541) 737-4933 or by email at IRB@oregonstate.edu

1. What are the first three things that come to your mind when you look at the background setting of the display?

2. What two things do you like about the background setting of the display?

3. What two things don't you like about the background setting of the display?

4. Based on your evaluation of the window display, indicate your feelings about the window display. Use the following scale (1 = Strongly Disagree, 7 = Strongly Agree).

Good	1	2	3	4	5	6	7	Bad
Like	1	2	3	4	5	6	7	Dislike
Favorable	1	2	3	4	5	6	7	Unfavorable

5. Please respond to the following questions while you are viewing the merchandises in the display case. Use the following scale and circle the number that best indicates your feelings. (1 = Strongly Disagree, 7 = Strongly Agree)

Many images came to my mind while I looked at the display	1	2	3	4	5	6	7
I could visualize myself in the setting displayed by the background	1	2	3	4	5	6	7
I experienced very few images while I looked at the display	1	2	3	4	5	6	7
While I looked at the display I imagined visual scenes associated with football	1	2	3	4	5	6	7

6. The images that came to mind while I was looking the window display were

Vague	1	2	3	4	5	6	7	Vivid
Unclear	1	2	3	4	5	6	7	Clear
Indistinct	1	2	3	4	5	6	7	Distinct
Weak	1	2	3	4	5	6	7	Intense
Lifeless	1	2	3	4	5	6	7	Lifelike
Fuzzy	1	2	3	4	5	6	7	Well-defined

7. Please indicate your feelings to the window display

Frenzied	1	2	3	4	5	6	7	Sluggish
Stimulated	1	2	3	4	5	6	7	Relaxed
Calm	1	2	3	4	5	6	7	Excited
Dull	1	2	3	4	5	6	7	Jittery
Unaroused	1	2	3	4	5	6	7	Arousal

8. Please respond to the following questions while you are viewing the window display in front of an OSU licensed store. (1 = Strongly Disagree, 7 = Strongly Agree)

I would like to spend more time in this store.	1	2	3	4	5	6	7
I would like to explore the store.	1	2	3	4	5	6	7
I would like to get more information about the store.	1	2	3	4	5	6	7
I would like to get more information about the products displayed.	1	2	3	4	5	6	7

9. Based on the described situation, please rate your football outfit shopping experience along the following characteristics.

Important	1	2	3	4	5	6	7	Unimportant
Of no concern	1	2	3	4	5	6	7	Of concern to me
Irrelevant	1	2	3	4	5	6	7	Relevant
Means a lot to me	1	2	3	4	5	6	7	Means nothing to me
Useless	1	2	3	4	5	6	7	Useful
Valuable	1	2	3	4	5	6	7	Worthless
Trivial	1	2	3	4	5	6	7	Fundamental
Beneficial	1	2	3	4	5	6	7	Not beneficial
Matters to me	1	2	3	4	5	6	7	Doesn't matter
Uninterested	1	2	3	4	5	6	7	Interested
Significant	1	2	3	4	5	6	7	Insignificant
Vital	1	2	3	4	5	6	7	Superfluous
Boring	1	2	3	4	5	6	7	Interesting
Unexciting	1	2	3	4	5	6	7	Exciting
Appealing	1	2	3	4	5	6	7	Unappealing

Mundane	1	2	3	4	5	6	7	Fascinating
Essential	1	2	3	4	5	6	7	Nonessential
Undesirable	1	2	3	4	5	6	7	Desirable
Wanted	1	2	3	4	5	6	7	Unwanted
Not needed	1	2	3	4	5	6	7	Needed

10. Please evaluate the window display using following scale (1 = Strongly Disagree, 7 = Strongly Agree)

I think the context setting appropriate for the store. 1 2 3 4 5 6 7

I think the background music is appropriate for the store. 1 2 3 4 5 6 7

11. What is your age? _____

12. What is your gender?

Male _____

Female _____

13. Please mark your ethnicity

White, European American, Non-Hispanic _____

Black, African American, Non-Hispanic _____

Asian American _____

Asian _____

Middle Eastern _____

Pacific Islander _____

North African _____

Hispanic American _____

Hispanic / Latino _____

American Indian, Alaskan Native _____

Other _____

14. What is your department

Design and Human Environment (DHE) _____

Human Development and Family Science (HDFS) _____

Other (Please specify) _____

15. What is your class standing

First-year	_____
Sophomore	_____
Junior	_____
Senior	_____
Graduate Student	_____
Other (please specify)	_____

Please provide your onid account email address and class for extra credit. E.g. xxx@onid.orst.edu/
DHExxx

If you have any questions about this research project, please contact: Leslie Davis Burns at 541-737-0983 or by email at Leslie.Burns@oregonstate.edu as well as Chihmin Ti at (541) 737-3797 or by email at tic@onid.orst.edu . If you have questions about your rights as a participant, please contact the Oregon State University Institutional Review Board (IRB) Human Protections Administrator, at (541) 737-4933 or by email at IRB@oregonstate.edu

APPENDIX III

PHOTOS OF WINDOW DISPLAYS



Appendix Figure1: Window display with a context setting



Appendix Figure2: Window display without a context setting