

**The Effects of Design Complexity and Novelty on Aesthetic Response: The Moderating
Role of Centrality of Visual Product Aesthetics**

by

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A thesis submitted to the Graduate Faculty of
Auburn University
in partial fulfillment of the
requirements for the Degree of
Master of Science

Auburn, Alabama

August 6, 2011

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Abstract

In support of holistic processing of aesthetic objects, this study examines the combinatorial effects of the design principles of complexity and novelty on aesthetic response for apparel products. Further, this study investigates whether the influence of these principles is moderated by consumers' centrality of visual product aesthetics (CVPA), as well as whether aesthetic response to product design determines purchase intentions. The results suggest that products with high complexity and low novelty or low complexity and high novelty lead to more favorable evaluations. The findings also reveal that high CVPA consumers have a more positive aesthetic response to high novelty than low novelty product designs. An interaction effect between complexity and CVPA was not found. Further, results show that aesthetic response predicts purchase intentions. Implications focus on assisting managers and apparel designers in understanding their target consumer and on advancing research on the integrative effects of design principles.

Acknowledgments

In the first place I would like to express my sincere gratitude to Dr. Veena Chattaraman for her supervision, advice, and guidance from the very early stage of this research. Above all and the most needed she provided me unflinching encouragement and support in various ways. Her enthusiasm, her inspiration, and her great efforts to explain things clearly and simple, helped me all the time of research and writing of this thesis. I wish to thank my committee members: Prof. Forsythe and Dr. Kim for their guidance, insightful comments and help.

I would also thank my family for all their love and encouragement. For my parents, Ines and Jens Seifert, who supported me in all my pursuits. Thank you for giving me the opportunity to study abroad. This thesis would not have been possible without them.

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CHAPTER 1. INTRODUCTION

The term 'aesthetics' has its origins in the Greek word 'aesthesis' that means "understanding through sensory perception" (Hekkert & Leder, 2008, pp. 261). Before the nineteenth century, the goal of aesthetic study was to analyze the creative process and develop rules to assess beauty and taste in the fine arts. In the late nineteenth century, aesthetics made fundamental changes in that aestheticians applied the theory of cognition and its methods to the study of aesthetic judgments. Moreover, it came to be recognized that consumers prefer products with both, functionality and attractiveness. Thus, aesthetics pervaded the design of everyday objects.

In recent years, aesthetic product design has become so important that it has spread into a rising number of product categories, such as vegetable peelers, wireless phones, car-washing buckets, and lawn tractors (Bloch, Brunel & Arnold, 2003). While most household objects meet utilitarian needs, aesthetic attributes in everyday object help to influence consumer choice (Eckman & Wagner, 1995). Consumers' development of aesthetic sensibility in the appreciation of all products is increasing (Bloch, 1995) and most consumers consider aesthetic value for functional products as the most crucial value above all others (Creusen & Schoormans, 2005). The increasing emphasis on aesthetics provides designers and marketers with a critical tool for competitive differentiation (Cox & Cox, 2002). Aesthetic aspects of consumption are most important in the design of fashion goods such as apparel (Eckman & Wagner, 1995). Eckman and Wagner (1995) emphasize that the aesthetic aspects of fashion are a compelling area for future research since as it is important for companies to reduce fashion risk.

Early research in experimental aesthetics suggests that the design principles of novelty and complexity of visual patterns (using geometrical shapes and objects) play an important role in influencing aesthetic preferences of consumers (Berlyne, 1974). Thus, perceptions of visual complexity and novelty in designs underlie aesthetic responses of consumers.

Complexity refers to “the degree of stimulation from the number and physical quality of units, the degree of dissimilarity of units, and the level of organization in the arrangements of the units” (Day, 1981, p. 33). Consequently, the number of units, the degree of interest of the units, and the cohesion among the units are important determinants of product complexity (Fiore & Kimle, 1997). Classic aesthetics theory (Berlyne, 1974) posits an inverted U-relationship between pleasure and complexity, where the highest level of pleasure is achieved at a moderate level of complexity. Hence, objects with extremely low or high levels of complexity evoke a lower level of pleasure than objects in the moderate range of complexity.

The other variable influencing pleasure is novelty. Novelty is defined as “the perceived newness of the units and their organization, based on comparison of the present form with forms of past experience” (Fiore & Kimle, 1997, p. 237). With respect to fashion and apparel products, styles that are avante garde such as post modern styles are considered novel. Basic and classic styles are considered less novel since the consumer is already familiar with them (Fiore & Kimle, 1997). Consumers prefer different levels of novelty and Berlyne’s inverted U-relationship of pleasure is said to apply to the design principle of product novelty much in the same way as it does to complexity. Hence, the highest pleasure is achieved at a moderate level of novelty. Low and high levels of novelty lead to lower pleasure.

Aesthetic response is helpful in determining consumers’ preferences since the aesthetic value of a product pertains to the pleasure derived from observing the product without thinking about its use (Holbrook, 1982). Aesthetic response is defined as a “deeply

felt experience that is enjoyed purely for its own sake without regard for other more practical considerations” (Holbrook & Zirlin, 1985, pp. 21). In general, aesthetic responses are associated with positive affect and pleasurable experiences. A beautiful design arouses positive reactions among consumers and willingness to observe it (Bloch, 1995). However, unappealing products may lead to feelings of dislike, or even disgust (Bloch et al., 2003). Consequently, feelings of like or dislike can influence purchase behavior of consumers.

In addition to product features, there are many individual difference factors which also shape design preferences. Brunel and Swain (2008) point out that differences in centrality of visual product aesthetics (CVPA) may explain why different consumers place different weights on design characteristics. CVPA is the “overall level of significance that visual aesthetics hold for a particular consumer in his/her relationships with product” (Bloch et al., 2003, pp.552). Consumers’ centrality of visual aesthetics may determine how they evaluate product aesthetics before making a purchase (Bloch et al., 2003). High CVPA consumers have a higher concern for visual aesthetics regardless of product category and setting, than low CVPA consumers. Studies on CVPA also demonstrate that consumer with high CVPA possess a higher need for uniqueness, are sensation seekers and use clothing to express their individuality (Bloch et al. 2003; Workman & Caldwell, 2007). Hence, understanding how the target consumers’ CVPA interacts with the level of novelty and complexity in product designs is important for meeting the tastes and needs of a differentiated market.

Purpose

The purpose of this study is to investigate how consumers respond to and perceive a product’s design by examining the influence of design principles of product complexity and novelty and their combinatorial effects on consumers’ aesthetic responses. Further, the moderating effect of the centrality of visual product aesthetics (CVPA) on the above

relationship will also be investigated. Bloch's (1995) model of consumer response to product form provides a useful framework for understanding these variables. An important aspect of this framework is that it considers various individual difference and situational moderators. According to this model, the initial psychological process provoked by product form leads to psychological responses which can be identified as cognitive and affective. These processes, in turn, lead to behavioral responses which are associated with approach or avoidance behaviors. The model also incorporates moderating effects before and after the psychological processes such as situational factors. Further, individual tastes and preferences also act as moderators of psychological response. Therefore, Bloch's conceptualization of consumer responses to product form provides a unifying framework for examining aesthetic response (affective psychological process) arising from the complexity and novelty of product designs (determinants of product form) moderated by CVPA (individual difference moderator), and its influence on consumers' purchase intent (approach behavior).

Problem Statement

Despite the growing awareness of the influence of product aesthetics on consumer preference and choice, surprisingly little experimental research has focused on how aesthetic responses stem from a product's design attributes (Veryzer & Hutchinson, 1998). Very few studies have considered the specific determinants of aesthetic response. Although research exploring design novelty and complexity does exist, most of this research has been studied in context to geometric objects and shapes. Despite the fact that these principles are closely related to the design and evaluation of fashion products such as apparel, there is little research on this topic within the discipline. Further, although a few studies have examined the individual effects of each principle, their combinatorial effects warrant examination since aesthetic appreciation is a holistic process. This study contributes to filling this gap by

examining the interaction effects of design complexity and novelty on aesthetic response for apparel products. Furthermore, the concept of centrality of visual product aesthetics is relatively new and has not been studied prior to 2003 when the construct and measure for CVPA was defined and developed by Bloch et al. (2003). Thus, little is known about how consumers with high CVPA versus low CVPA respond to complexity and novelty in a product's design. This study thus helps to provide deeper insights regarding the impact of centrality of visual product aesthetics on consumer responses to product design.

Significance of the Study

The fashion industry continues to be of interest to researchers and marketing practitioners alike due to its highly competitive nature, high profitability and volatility (Newman & Patel, 2004). Consumer acceptance of fashion, styles, and materials often seem unpredictable. Further, consumer behavior has changed such that in recent years there is a focus on the aesthetics of everyday products. For this reason, it is more important than ever before to determine variables influencing consumers' aesthetic response and purchase intentions for hedonic products such as apparel. Despite Berlyne's (1974) suggestions that design principles such as novelty and complexity of visual patterns may influence judged pleasantness, earlier literature on this topic as well as on aesthetic response in clothing is fragmentary and does not provide a comprehensive picture of the nature of the relationship between these variables. Since complexity and novelty may have a big impact on aesthetic response, particularly in relation to apparel and fashion products, it is important for designers and marketers to gain a full understanding of these variables. Specific product development, marketing and management strategy implications will emerge from the findings of this study. Results will also benefit retailers in selecting product offerings for specific consumer segments and educators in preparing students for apparel design and merchandising positions.

This research will also be beneficial for a deeper understanding of the concept of aesthetic centrality. Since the measure of CVPA has not been previously used in order to understand consumers' responses to apparel designs, this study will extend the external validity of this concept. Knowing more about CVPA in relation to apparel preferences can help designers understand the differentiated nature of consumer decision processes, and future studies can investigate meaningful links between CVPA and important demographic variables such as gender and ethnicity.

Definition of Constructs

Aesthetic Response: a “deeply felt experience that is enjoyed purely for its own sake without regard for other more practical considerations” (Holbrook & Zirlin, 1985, pp. 21).

Centrality of Visual Product Aesthetics: “the overall level of significance that visual aesthetics hold for a particular consumer in his/her relationships with products” (Bloch et al., 2003, pp. 552)

Complexity: “the degree of stimulation from the number and physical quality of units, the degree of dissimilarity of units, and the level of organization in the arrangements of units” (Day, 1981, p. 33)

Novelty: “the perceived newness of the units and their organization, based on comparison of the present form with forms of past experience” (Fiore & Kimle, 1997, p. 237)

Purchase intention: “a predictor of subsequent purchase” (Grewal, Krishnan, Baker, & Borin, 1998, pp. 339)

Pleasure: is the hedonic value of an object (Berlyne, 1970)

Inverted-U relationship: is the relationship between pleasure and complexity/novelty, where the highest level of pleasure is achieved at a moderate level of complexity/novelty. Low and high levels of complexity/novelty lead to lower pleasure (Berlyne, 1974)

CHAPTER 2. LITERATURE REVIEW AND CONCEPTUAL DEVELOPMENT

This chapter provides an overview of Bloch's model of consumer responses to product form that will be used as a framework for this research. Subsequently, based on Bloch's model, the research model for this study is proposed. The proposed model in this research includes complexity and novelty of product form, aesthetic response, centrality of visual product aesthetics, and purchase intention. The proposed model is followed by the review of existing research and hypotheses development with respect to the model constructs and their relationships.

Bloch's Model

Bloch's (1995) *Model of Consumer Responses to Product Form* integrates insights from theories of design as well as consumer behavior. As Figure 1 shows, the core of Bloch's model is composed of three components including product form, psychological responses to product form, and behavioral response. The product form needs to evoke pleasure in the consumer and simultaneously satisfy different design constraints. Thus, product form is influenced by different design goals and constraints with respect to performance, ergonomics, production and cost, regulations and legal constraints, marketing program and the designer. The consumer's psychological processes are initiated by the product's design and these processes in turn lead to concrete observable behavior. Psychological responses to product form can be further differentiated into cognitive responses and affective responses. Cognitive responses include product beliefs and categorization, whereas affective responses are associated with positive or negative feelings. Furthermore, before and after the psychological

processes, situational factors such as sequence effects, social setting and marketing program operate as moderators. The model also includes the moderating role of individual factors such as innate design preferences, cultural and social context, design acumen, experience, and personality.

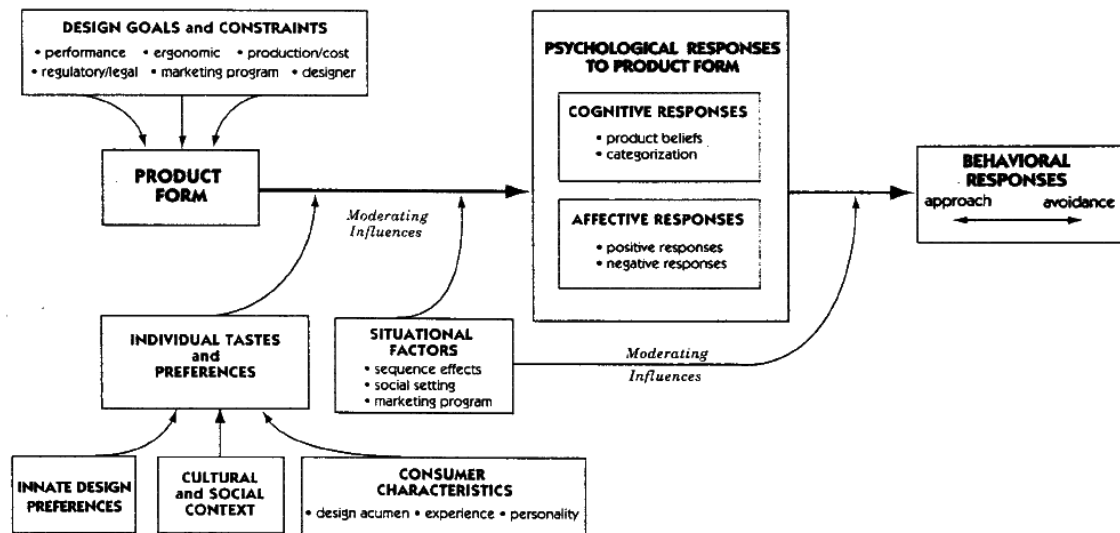


Figure 1. A Model of Consumer Responses to Product Form. Conceptual model of consumer response to product form with moderating effects. Adapted from “Seeking the ideal form: Product design and consumer response”, by P. H. Bloch, 1995, *Journal of Marketing*, 59, p. 17.

Product Form

Bloch (1995) defines the product form as a combination of elements, assembled into a whole, and chosen by the design team in order to achieve a particular sensory effect. When consumers see a product, they view design elements such as shape, scale, tempo, proportion, texture, materials, color, reflectiveness, and ornamentation that together represent the design of the product (Blijlevens, Creusen, & Schoorman, 2009; Davis, 1987; Kellaris & Kent, 1993). Knowing how to combine these elements will help determine the level of congruity that comes from them (Bloch, 1995). Thus, the design message is generated during the

product design and development process as the design team makes decisions that determine what the product form should convey visually.

In recent decades, product aesthetics has gained importance in both hedonic and utilitarian product categories (Cox & Cox, 2002). Consumers have developed an increasing aesthetic sensibility in the appreciation of a wide variety of products, such as technical products, home appliances, apparel, interiors, etc. Further, Bloch (1995) states that sensory pleasure and stimulation can arise from using and perceiving a well designed product. A form or design of a product is crucial for its success and designers constantly try to modify it to make it stand out from the competition. However, designers need to combine design elements and create a product which can be widely accepted by consumers. With respect to product form, this study integrates the design principles of novelty and complexity in the proposed model.

Complexity. The concept of complexity is crucial to aesthetic experience (Fiore & Kimle, 1997) and has been widely studied in context to architecture, music, paintings, and apparel products. Complexity is an organizational property (Berlyne, 1971), which refers to principles of good organization and is central in aesthetics research. Organizational properties such as complexity can be measured and formalized since one can perceive the extent to which they exist in a design (Hekkert & Leder, 2008). Specifically, objects are perceived by a) analyzing edges, contours, blobs, and basic geometrical shapes and b) analyzing which elements belong to the same object (Hekkert & Leder, 2008). Elements that are perceived similar in color, size, or shape, are seen as belonging together (principle of similarity). Such design principles contribute to efficient encoding and interpretation of an object, which constitutes the law of Prägnanz (Hekkert & Leder, 2008). These Gestalt principles or laws of perceptual organization demonstrate why we see what we see and why we have preferences

for certain patterns over others (Hekkert, 2006). The Gestalt principles decrease the level of complexity as they decrease the perceived number of units and increase cohesion. For example, the principle of similarity enables designers to reduce complexity since units that are similar are processed as one rather than many.

An object consists of numerous units and a unit is an identifiable part of the form, such as a color, a stripe in print, or a shape created by a garment layout. Complexity refers to “the degree of stimulation from the number and physical quality of units, the degree of dissimilarity of units, and the level of organization in the arrangements of units” (Day, 1981, p. 33). Consequently, complexity can be increased by increasing the number of units and the degree of interest of the units, and by decreasing the cohesion among the units (Fiore & Kimle, 1997). For example, irregular shapes and curvilinear lines are more complex than predictable geometric shapes with straight lines. With regard to fashion design, Littrel and Miller (2001) point out that the perceived complexity of garment attributes is influenced by basic elements such as a garment’s fabric, color, construction, fastening system, and silhouette which can be creatively blended together to design a new style.

Novelty. Objects can be defined as familiar or novel, typical or strange, original or updated (Hekkert & Leder, 2008). Novelty is classified as a meaningful property, which is subjectively perceived (Berlyne, 1971). It is defined as “the perceived newness of the units and their organization, based on comparison of the present form with forms of past experience” (Fiore & Kimle, 1997, p. 237). If a work/product is a derivative of somebody else’s work and is in some ways very similar to another product, then this work/product can be said to lack novelty. In terms of fashion, a new style that is unfamiliar to the consumer such as a post modern style is considered novel. In contrast, styles such as basic and classic styles which have been seen in previous years are perceived less novel (Fiore & Kimle, 1997).

Within product design, novelty plays a major role in influencing assessments of attractiveness (Veryzer & Hutchinson, 1998). Fiore and Kimle (1997) also point out that culture has an impact on the level of novelty desired in the aesthetic form.

Psychological Responses to Product Form

As shown in Figure 1, product form may initiate a variety of psychological responses. Bloch (1995) separates the psychological response to design into cognitive or affective categories. Cognitive responses can be divided into product-related beliefs and categorization. Beliefs created or influenced by product form convey certain perceptions about the product's characteristics such as durability, dollar value, technical sophistication, ease of use, role appropriateness, and prestige. Designers need to pay attention to product-related beliefs while creating a special product, since they may lead to misperception about the ease of use and price (Bloch, 1995). According to Bloch (1995), another type of cognitive response to product form is categorization. In order to understand a product, consumers consciously or unconsciously place the product within an existing category and this process is called product categorization. The product design is very important in the categorization process since it offers abstract information about the product. Coupey, Irwin, and Payne (1998) found that consumers' preferences are based on the familiarity of a product category. In addition, familiarity exhibits a stronger influence on judgment than on choice. For example, if a consumer was presented with an unfamiliar vehicle they may not categorize it. While taking a look at the vehicle they may recognize the familiar Mercedes symbol and would automatically place it into a category associated with high price and luxury.

The psychological affective responses to product form can be either positive or negative in valence. According to Bloch (1995), aesthetic response refers to positive affective reactions which are derived from strong positive emotions and pleasure. These positive

feelings emerge consciously or unconsciously in interaction with the object (Veryzer, 1993). According to Bloch (1995), aesthetic positive or negative responses typically originate from the design and sensory attributes of the product, rather than functional attributes. The goal of marketers and designers is to associate more positive than negative consumer affect with the product design.

Aesthetic response. The focus of the present study is aesthetic responses since affective responses originate from the design attributes of the product (Bloch, 1995). Aesthetic response is defined as a “deeply felt experience that is enjoyed purely for its own sake without regard for other more practical considerations” (Holbrook & Zirlin, 1985, pp. 21). If two products have similarities in functionality and price, consumers favor the product with the most pleasurable and aesthetical appeal. An aesthetic response is a reaction to the symmetry, proportion and unity of an object, a work of poetry or a performance (Olson, 1981; Veryzer, 1993). According to Bamossy, Scammon, and Johnston (1983), aesthetic responses are derived primarily from emotion and feelings and, hence, are very personal.

Aesthetic responses also contain a variety of factors which vary in “their degree of generality” (Veryzer & Hutchinson, 1998, pp. 375). On one end of the continuum, there are different abstract principles of perceptual organization that have been mainly studied in art and experimental aesthetics (Veryzer & Hutchinson, 1998). At the other end, there are the learned responses that are particular to certain categories. This continuum can be helpful in understanding the aesthetic responses because it takes into consideration how they are influenced by experiences, including external interventions, such as marketing activities, fashion changes, and social norms (Veryzer & Hutchinson, 1998).

Behavioral Responses

To complete the horizontal path of Bloch's model, psychological responses influenced by a design lead to behavioral responses. These responses can be categorized as either approach or avoidance. Approach behaviors are associated with being attracted to a design and taking time to explore it (Bloch, 1995). Approach responses indicate a desire for a careful exposure, the need for seeking information about the product and willingness to go to the shop where the product is available. This response may lead to the most important approach behavior, the purchase (Berkowitz, 1987; Roy, 1994). Avoidance behaviors are the opposite of approach behaviors. They may be associated with ignoring the product, failure to make the purchase, product abuse and even hiding the product.

Purchase intentions. With respect to behavioral responses which subsequently lead to behavioral intention, the present study examines *purchase intentions*. It can be defined as “a predictor of subsequent purchase” (Grewal et al., 1998, pp. 339). Purchase intentions can be either negative or positive, depending on the psychological responses to product form. Positive feelings about a pleasing product design may lead to greater intentions to make a purchase. On the other hand, consumers who have negative feelings about the design may not be willing to make a purchase.

Moderating Influences on Consumer Response

The cognitive and affective responses derived by the perception of the product form may also be affected by other moderating influences such as individual tastes and preferences as well as situational factors. Consumers evaluate product forms more positively, if the product form conforms to the individual's tastes and preferences (Bloch, 1995). Innate design preferences and tastes, cultural and social context, and consumer characteristics can influence

the taste. Some design preferences can arise from birth, or can be developed early in life. The laws of Gestalt principles are innate and universal rather than learned and research has confirmed that consumer prefer product designs that follow Gestalt principles (Veryzer, 1993).

Also, Bloch (1995) points out that the cultural and social aspects constitute preferences for product form. Evaluation of design is influenced by cultural values and preferences. Further, cross-cultural differences in design preferences exist. Therefore, it is important for designers and marketers to learn about the color, material, and shape preferences of a culture before entering the market. Additionally, they need to consider the significance of social class, age, region, and ethnic subcultures in shaping design preferences.

Irrespective of a culture or social setting, individuals possess their own tastes and preferences. Personality variables, experience and design acumen may account for different consumer characteristics influencing tastes (Bloch, 1995). Various personal traits such as the need for uniqueness may influence individual tastes and design preferences. Since people rate others and express themselves by the type of products they use, individuals with higher need for uniqueness are prone to prefer novel or unusual products. The uniqueness of a product helps consumers to distinguish themselves from the majority (Bloch, 1995). The other aspect of consumer characteristics influencing tastes and preferences is the prior experience of the user with the product.

Unlike experiences, acumen reflects an ability to recognize, categorize, and evaluate product designs (Osborne, 1986). Individuals have different degrees of design acumen which means that people with high design acumen have the ability to make quicker sensory connections and prefer more sophisticated product designs than people with low design acumen. Besides variation in consumer preferences, also variation in the importance of those preferences can be seen. Some consumers may place more emphasis on the appearance of

products than do others; a phenomenon examined through a construct termed Centrality of Visual Product Aesthetics (Bloch, Brunel, & Arnold, 2003), discussed in the subsequent section.

Centrality of visual product aesthetics. The present study examines the moderating influence of this concept on the relationship between product form and aesthetic response. CVPA is an essential factor which moderates aesthetic response. Bloch et al. (2003) define it as “the overall level of significance that visual aesthetics hold for a particular consumer in his/her relationship with products” (Bloch et al., 2003, pp. 552). According to the authors, CVPA comprises four facets or dimensions: 1) the value a consumer relates to product appearances by increasing personal and societal status; 2) acumen (discussed previously); 3) the level of responses to the aspects of visual design of the products; and 4) determinancy of visual aesthetics that affects product preferences and satisfaction of purchases. However, after numerous studies, the authors Bloch et al. (2003) concluded that CVPA is a “unidimensional construct” that includes elements such as the perceived value attached to superior product design executions, skills in understanding and evaluating product design, and the level of response to product aesthetics (Bloch et al., 2003, pp. 561). Consumers who score high on CVPA have a higher concern for visual aesthetics independent of product category and setting as compared with low CVPA consumers. Moreover, high CVPA consumers place a greater importance on product aesthetics in the formation of purchase intentions than do low CVPA consumers (Bloch et al., 2003). Previous research measured CVPA in relation to fashion consumer groups and the interaction with the need for touch and uniqueness (Workman & Caldwell, 2007). Also, CVPA has been studied in context to price expectations based on package design (Orth, Campana, & Malkewitz, 2010), and for heterogeneous sensory

preference clusters (Kergoat, Giboreau, Nicod, Faye, Diaz, Beetschen, Gerritsen, & Meyer, 2010).

Proposed Model

Based on the review of Bloch's model of consumer response to product form and the constructs identified, this study proposes the following research model:

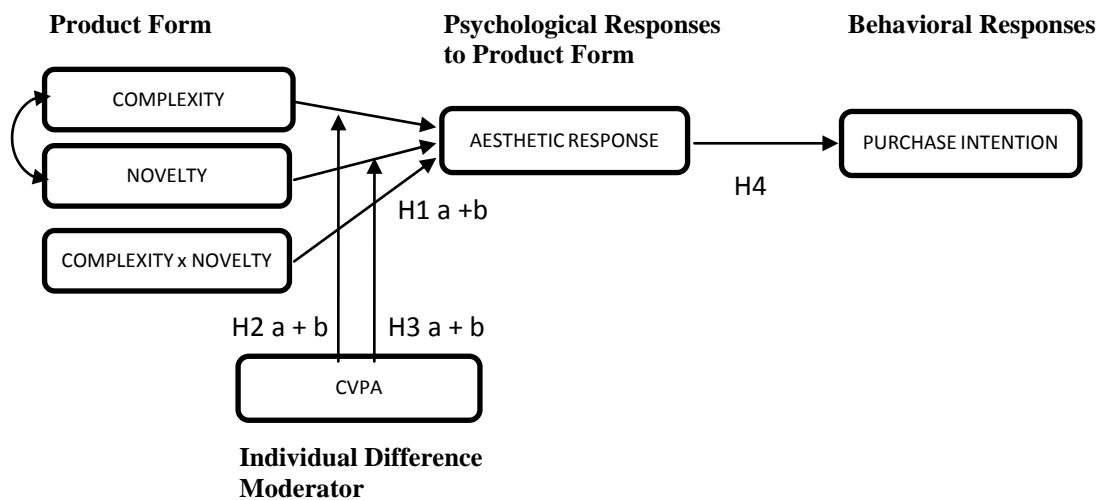


Figure 2. A Model of Aesthetic Response to Complex and Novel Product Forms

Hypotheses Development

Complexity and Aesthetic Response

Berlyne (1967) developed arousal theory and defined the arousal potential of a stimulus as the set of properties that determine the individual's level of arousal. This theory postulates that the pleasure evoked by different kinds of stimuli is related to their degree of complexity. As shown in Figure 3, the relationship between hedonic value (pleasure rating) and complexity makes an upside down or inverted U shape. Objects with low or high complexity evoke a lower level of pleasure. The highest level of pleasure is achieved at a moderate level of complexity.

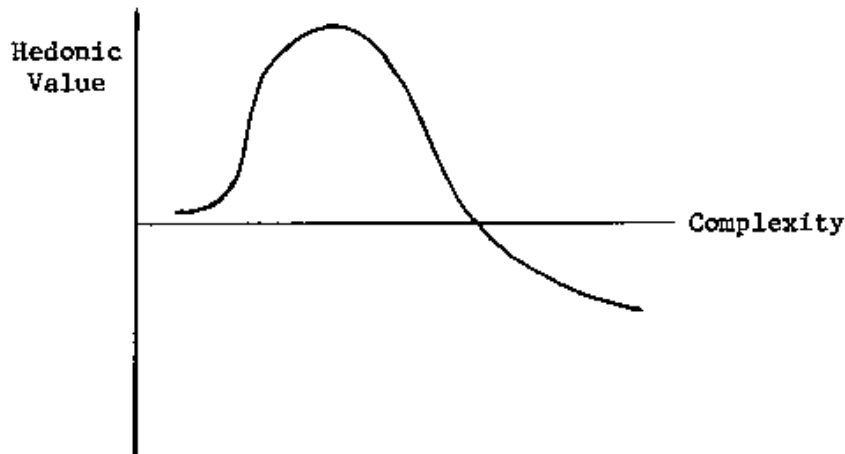


Figure 3. Inverted U-relationship of Pleasure and Complexity. Adopted from “*Studies in the new experimental aesthetics: Steps toward an objective psychology of aesthetic appreciation*” by D. E. Berlyne, 1974. Washington DC: Hemisphere.

According to Fiore (1997), objects with low complexity hold little stimulation and are boring resulting in less pleasure than objects with a moderate level of complexity. Forms with high complexity lead to confusion and are less pleasing as well. However, as it can be noticed in Figure 3, the moderate range of complexity is wide. Hence, this wide range of complexity levels accounts for pleasure (Fiore & Kimle, 1997). Other studies confirm this finding for an inverted U-shaped relationship between preference and complexity (Cox & Cox, 2002; Smets, 1973; Walker, 1980). A more recent study by Cox and Cox (2002) used fashion apparel drawings which varied on visual complexity of fashion shapes (“turns” and embellishments versus very simple) and fabrics (solid shade versus complex prints) to test this relationship. Their findings confirm the inverted-U curve where products perceived to be moderately complex were the most liked.

Creusen, Veryzer, and Schoormans (2010) assessed consumer preference for design as they investigated the influence of complexity and symmetry on consumers’ product preferences. A set of eight pictures of video recorders were used as stimuli with two levels of complexity and symmetry. Their findings indicate that the participants generally preferred a

product with low complexity and high symmetry. Further, the level of complexity influences the perception of aesthetics. Creusen et al. (2010) observed when product value, namely functionalities and quality played an important role for consumers, their product preferences for complexity increased. On the other hand, when aesthetics and ease of use were more crucial for the participants, consumers prefer a less complex product design. This indicates the preference for design complexity is moderated by the product value that the consumer is seeking, with lower complexity being preferred for products that serve an aesthetic value.

Further, a study by McWhinnie (1968) found differences in the aesthetic preferences of professionals and nonprofessionals. Simple and symmetric visual elements are preferred by people without art training whereas complex and asymmetric visual elements are preferred by people with art training. Reber et al. (2004) explain practice in the arts may increase the fluency with which complex art objects can be processed.

In summary, the design principle of complexity influences consumer aesthetic response. Classic aesthetics theory (Berlyne, 1974) posits an inverted U-relationship between pleasure and complexity, where the highest level of pleasure is achieved at a moderate level of complexity. However, there exist moderators for this relationship. Low complexity is preferred over high complexity for products that serve an aesthetic function. Further, high complexity is preferred over low complexity, by viewers with training in the visual arts. Previous research has focused on organizational properties as influencers of aesthetic response, however, meaningful properties such as novelty has not been taken into account. To get a more complete and valid insight into the relationship between design complexity and consumer's aesthetic response, the impact of meaningful properties such as novelty should be considered as well.

Novelty and Aesthetic Response

Meaningful properties are subjective and can be perceived. According to Berlyne (1974), novelty of the product or environment also influences pleasure. Berlyne's inverted U-relationship of pleasure is said to apply to the principle of product novelty much in the same way as it does to complexity. Therefore, low and high levels of novelty lead to lower pleasure. Pleasure is at its highest when novelty increases to a moderate level (Berlyne, 1974; Walker, 1981). This finding may be a potential explanation why novelty is associated with positive response (Veryzer & Hutchinson, 1998). It seems that people prefer more novel objects which might be due to consumer's variety seeking (Holbrook and Hirschman, 1982; Hutchinson, 1986) or to a product's salience in relation to other products (Loken and Ward, 1990). Another reason why novel products are more preferred is the fact that the best products are offered at a higher price range. Thus, these products are seldom seen and can only be gained by wealthy people. This leads to the assumption that products high in demand and price are "very atypical" (Veryzer & Hutchinson, 1998, pp. 376).

Since the design principle of product novelty is subjective, the level of perceived novelty depends on the extent to which the product deviates from forms which the consumer is already familiar with. One example given by Crilly, Moultrie, and Clarkson (2004) is that products with unfamiliar shapes and lines evoke interest as a result of their novelty. Berlyne (1970) suggests that a novel stimulus initially may be too unfamiliar and arousing, and repeated exposures make the stimulus more familiar, comfortable, and appealing. This phenomenon can be explained by the fact that the brain, which has developed in order to understand the world, obtains pleasure from processing new and unfamiliar objects (Biederman & Vessel, 2006). However, the visually perceived pleasure from an object can only arise when it is not extremely unfamiliar.

In 1951, Loewy proposed the theory that the balance between innovation, novelty and a certain amount of typicality comprise a successful design. Hekkert, Snelders, and van Waringen (2003) provided an empirical test of this assumption. They used various stimuli such as telephones and tea kettles which differed in the level of typicality and novelty in order to test the aesthetic preference. They found that novelty, typicality and aesthetic preference for consumer products are highly intercorrelated. However, both variables were equally strong when the influence of the other variable was not incorporated. Thus, the results confirm the assumption by Loewy (1951) that novelty and typicality exert independent, equally strong effects on aesthetic preference.

Combinatorial Effect of Novelty-Complexity on Aesthetic Response

Fiore and Kimle (1997) claim that designers need to consider both complexity and novelty “in tandem” when developing a product (pp. 242). Hence, focus needs to shift from examining the individual effects of each principle to exploring their combinatorial effect since aesthetic appreciation is a holistic process. An apparel item can be either simple or complex, and simultaneously can be perceived as novel or familiar. The most pleasurable experiences evoke from less complex yet novel forms or complex yet familiar forms (Berlyne, 1970). Low pleasure is obtained by less complex and less novel forms or highly complex and highly novel forms (Fiore & Kimle, 1997).

Cox and Cox (2002) show that participants’ perception of complexity of apparel designs decreases with repeated exposure since one can gain experience through repetition. Moreover, their results show that with repeated exposure, the perceived complexity of complex stimuli tends to move toward the optimal level of complexity, while, the perceived complexity of simple stimuli show a tendency to move away from the optimal level. Hence, complex designs show an increase in liking with repeated exposure, whereas simple designs

demonstrate a decrease in liking. The above phenomenon can be extended to the level of novelty as well. As participants develop familiarity toward an apparel product through each repeated exposure, their perception of design novelty will decrease. Thus, products with a combination of high versus low perceived novelty and complexity may achieve the most positive consumer responses.

Reber, Schwarz, and Winkielman (2004) propose that “aesthetic experience is a function of the perceiver’s processing dynamics” (Reber et al., 2004, pp.365). The authors suggest that the more fluently the consumers can process a product, the more positive is their aesthetic response. They indicate that high fluency evokes more positive evaluations. In addition, simple stimuli enable more precise processing expectations, which reduce the strength of the fluency-based positive experience since the simple object provides the perceiver with an obvious attribution for the experience (Reber et al., 2004). Reber et al. (2004) posit that simple stimuli are a source for fluency attributions and complex stimuli serve as a source of processing expectations. Fluency has a greater impact on pleasure if the object is unknown but to the perceiver’s surprise, can be fluently processed since the object does not provide the perceiver with an obvious source for attributing the fluency experience. Based on this account, the level of design novelty and design complexity may interact to influence pleasure. For example, a stronger experience of aesthetic pleasure will be achieved when perceiving a novel yet simple product since the perceiver expects difficulties in processing due to the lack of familiarity with the product, and yet it turns out to be fluently processed due to lack of complexity.

The degree to which complexity and novelty will covary is an empirical question, and may depend on the object features taken into account when judging the two characteristics.

Huang (2000) studied the effect of information complexity and novelty on approach-avoidance behavior for Web shopping sites. The novelty dimension relates to unfamiliar and

surprising aspects of the site and the complexity dimension refers to the amount of elements or features of a site. Based on the results, information complexity and novelty are “interwoven” (pp. 344) and hence, the researcher suggests that one should not concentrate solely on any single dimension. Thus, virtual shopping environments that are perceived as novel and simple are most successful since they keep the consumer browsing.

Mukherjee and Hoyer (2001) explored complexity and novelty for functional products. They demonstrate that adding novel attributes to relatively low-complexity products (refrigerators and washing machines) increased evaluations when compared with adding novel attributes to high-complexity products (computers, programmable cameras, and Web television). A similar interaction effect can be expected for aesthetic products as well.

This study proposes the following hypothesis on the combinatorial effects of novelty and complexity on aesthetic response for apparel products.

H1: Product (apparel) complexity and novelty will interact to influence aesthetic response. Specifically:

- a) When complexity is high: Product designs with low novelty will result in more positive aesthetic response than product designs with high novelty.
- b) When complexity is low: Product designs with high novelty will result in more positive aesthetic response than product designs with low novelty.

Moderating Role of Centrality of Visual Product Aesthetics

A variety of factors such as individual differences, learning, situational and social differences, culture and fashion trends can affect people’s taste and preferences for designs (e.g. Holbrook & Schindler, 1994; Holbrook & Hirschman, 1982; McCracken, 1986; Solomon, 1983). According to Bloch’s model, these factors moderate consumers’ cognitive

and affective responses to product forms and, to some extent, their behavioral responses as well. CVPA has been shown to moderate the effect of product design on aesthetic evaluations, product attitudes, purchase intentions, and willingness to pay (Bloch et al., 2003). According to Bloch et al. (2003), aesthetic centrality is a determinant of how one evaluates the product aesthetic and consequently, moderates aesthetic response to product form. A recent study by Orth et al. (2010) on package design provides further support for CVPA as a moderating variable in aesthetic response. The study found that natural and elaborate design factors exert a stronger effect on attractiveness for individuals high on CVPA than those low on CVPA.

Brunel and Swain (2008) suggest differences in CVPA may explain why different consumers place different weights on design characteristics that evoke stereotypicality versus novelty. Their results revealed an interaction effect between CVPA and the perceptual distance between the object and its stereotype which can be conceptualized as a measure of novelty. The researchers point out that this interaction effect between novelty/stereotypicality and CVPA accounts for differences in evaluating a product design.

The centrality of visual product aesthetics is also a parameter of consumer behavior variables, such as innovativeness. The construct innovativeness is closely related to novelty. Manning, Bearden and Madden (1995) state that “innovativeness is equated with inherent novelty seeking” (pp. 330). In Workman and Caldwell’s (2007) study, CVPA was applied to study fashion adoption of consumers and results show that innovative communicators had the highest score on CVPA, followed by fashion innovators and fashion opinion leaders. Fashion followers had the lowest score on CVPA. In addition, scores on CVPA were positively correlated with scores on consumers’ need for uniqueness. Innovative communicators had a greater need for uniqueness than fashion followers. An earlier study by Stanforth (1995) studied fashion groups as well. The results showed that there is a significant difference between fashion innovators and fashion followers in terms of sensation seeking and in using

clothing to express individuality. Fashion innovators scored much higher on sensation seeking than fashion followers. Sensation seeking can be defined as a “trait defined by the need for varied, novel, complex sensations and experiences and the willingness to take physical and social risks for the sake of such experience” (Zuckerman, 1979, pp. 10).

In summary, findings show that high CVPA consumers are fashion innovators who wear the latest fashion trends, have a higher concern for visual aesthetics, independent of product category and setting, possess a higher need for uniqueness, are identified as sensation seekers who desire complex and novel sensations and use clothing to express individuality. Moreover, previous research found an interaction effect between CVPA and novelty/stereotypicality on product aesthetic evaluations. Thus, one can speculate that high CVPA consumers are more likely to prefer novel and complex products than low CVPA consumers. Hence, the level of CVPA is expected to moderate the effect of complexity and novelty on aesthetic response:

H2: The effect of product complexity on aesthetic response is moderated by the level of CVPA. Specifically:

- a)** High CVPA consumers will have a more positive aesthetic response to high complexity than low complexity product designs.
- b)** Low CVPA consumers will have a more positive aesthetic response to low complexity than high complexity product designs.

H3: The effect of product novelty on aesthetic response is moderated by the level of CVPA. Specifically:

a) High CVPA consumers will have a more positive aesthetic response to high novelty than low novelty product designs.

b) Low CVPA consumers will have a more positive aesthetic response to low novelty than high novelty product designs.

Aesthetic Response – Purchase Intention Relationship

Aesthetic responses lead to behavioral intentions which can be either approach or avoidance (Bloch, 1995). Avoidance behavior results from negative feelings about the product. Approach behavior, on the other hand, is associated with a positive aesthetic response since it reflects an attraction to a design and willingness to observe it (Bloch, 1995). Lam and Mukherjee (2005) examined the effects of merchandise coordination and juxtaposition on consumers' evaluation of and intention to purchase clothing items. Their findings suggest that aesthetic response has a significant effect on product evaluations and purchase intentions. Thus, people with positive aesthetic responses to a product design are more likely to make a purchase than people with feelings of dislike. Hence, it is proposed that:

H4: Aesthetic response will positively influence purchase intentions toward the product.

CHAPTER 3. METHODOLOGY

Overview and Experimental Design

To test the hypotheses, this study used a 2 (Product Design Complexity: Low, High) x 2 (Product Design Novelty: Low, High) x 2 (CVPA: Low, High) mixed factorial design with the two levels of product design complexity and novelty as the within subjects factors, and CVPA as the between-subjects factor. Women's fashion products were used as the stimuli in the study. Prior to the experiment, a series of three pretests were conducted with the purpose of identifying apparel stimuli representative of each novelty and complexity combination to create an orthogonal factorial stimulus design: high complexity-high novelty, high complexity-low novelty, low complexity-high novelty, low complexity-low novelty. The hypotheses proposed in this study were investigated using an online experiment and quantitative data analysis.

Sample and Data Collection

The convenience sample for this study consisted of 260 female undergraduate students enrolled at Auburn University, United States. Students aged 19 or older were recruited from the College of Human Sciences. This study focused on female students since they are more sensitive to fashion and the stimuli developed in this research focuses on female fashion products. Data was collected over a cross-sectional time frame (two weeks) through an Internet-based, closed-ended questionnaire including pictures of the experimental stimuli products (see Appendix D). In order to maintain anonymity, students were contacted in their

classes and informed of the website link that they could visit if they wished to participate. Emails with information regarding the purpose of the study, time required to fill out the online questionnaire, protection of confidentiality, voluntary participation, contact information of the researchers and link to the web address for the online questionnaire (see Appendix C) were sent to 352 students to allow for non-response. The researcher sent out an email to the class as a whole so that those who wished to participate could visit the survey website. Therefore, when the questionnaires were completed and submitted, the respondents remained completely anonymous. Two 35\$ gift incentives (based on drawing) and extra course credit were provided in order to increase the response rate. The participants had to print off the last page of the questionnaire which did not include any questions, sign it and turn it in to receive the extra credit and to be entered in the drawing. The Institutional Review Board at the University approved the protocol for this study (Protocol #10-154 EX 1006, see Appendix E).

Stimuli and Pretests

The stimuli were color photographs of fashion apparel products combining different levels of complexity (low/high) and novelty (low/high). Apparel products were selected because aesthetic response is crucial for these products (Schmitt & Simonson, 1997). The category tops were chosen because they can be easily presented in 2D which is important regarding the online questionnaire, as most design elements are on the front side. Further, tops can easily be manipulated in Photoshop to create uniformity in color, length, silhouette, and design elements. The stimulus tops were selected from the retailer website, Anthropologie.com since the website displays tops on torso mannequins. This was important in order to avoid model differences which could impact the aesthetic response of female students.

The number of units, the degree of interest of the units and cohesion among the units in the apparel designs is used to vary the visual complexity of the designs. To convey high complexity, the researcher selected tops which have either an increased number of units, a higher degree of interest of the units or a decreased cohesion among the units. The visual novelty of the designs was varied based on the newness or originality of the apparel design. To convey high novelty, the researcher chose tops which cannot be easily recognized from past experiences. Basic and classic styles served as low novelty styles for this study, since they have been seen in previous years and the consumer is familiar with them.

Initially, the researcher chose 29 photographs (see Appendix A) from the Anthropologie website that best met the above criteria. The size and quality of each photograph (300 pixels/inch) were standardized. To prevent the effect of color confounding the effect of the visual principles on aesthetic response and purchase intention, the tops were presented with a consistent grey/light blue background. In addition, differences in color, silhouette, length and design details of the tops may influence the consumer's evaluation as well. Hence, to control the potentially confounding effect for these differences the researcher manipulated the tops using various Photoshop tools. Thus, all tops are presented in neutral colors (grey and blue) with a medium length, a slim-fitting cut and they are either sleeveless or have cap sleeve. In order to find a final set of 8 stimuli (2 for each complexity/novelty combination) for the experiment, three pretests were conducted to identify apparel stimuli which best met the criteria.

Expert Panel

First, an expert panel (four fashion and apparel professors from the Department of Consumer Affairs) evaluated complexity and novelty for each of the 29 photographs (see Appendix A), using measures modeled after Cox and Cox (1988, 2002). Initial perceived

complexity was measured on two 7-point semantic differential scales anchored by *simple–complicated* and *not complex–complex* (1 = simple, 7 = complex). The coefficient alpha for this scale was 0.85 (Cox & Cox, 2002). The perceived novelty was measured on five 7-point semantic differential scales anchored by *unoriginal-original*, *common-unusual*, and *familiar-novel*. The coefficient alpha for this scale was 0.89 (Cox & Cox, 2002).

Based on the results of the expert panel, 13 tops were eliminated because high complexity or high novelty was not rated higher than low complexity or low novelty. The mean perceived complexity of the low complexity designs needed to be lower than that of the high complexity designs and the mean perceived novelty of the low novelty designs needed to be lower than that of the high novelty designs (Cox & Cox, 2002). From the expert panel test involving 29 product designs, 16 were found to meet the criteria (see Appendix B) and were then pretested among a student sample.

Students Pretest

The 16 fashion apparel photographs (four for each complexity-novelty combination) were pretested with 57 female Auburn University students to evaluate participants' perception of their complexity and novelty. The procedure to recruit participants was the same as for the main study. Also, the same Cox and Cox (2002) rating scales measured complexity and novelty. Further, to minimize the effect of brand preference confounding the effect of the visual principles on aesthetic response and purchase intention, the last question of the questionnaire asked the participants whether they recognized the brand/s of the garments shown in the photographs. If they said yes, they were asked to write down the brand name/s.

The results indicated 63.2% of the participants did not recognize the brand of the garments. About, 17.5% believed to recognize the brand and 19.3% skipped this question. Only 3 of 10 students who believed they recognize the brand mentioned the apparel retailer

Anthropologie. With respect to the results of brand recognition, it can thus be assumed that brand preference would not have a significant confounding effect on aesthetic response and purchase intention.

Based on the mean scores of complexity and novelty, the 16 stimuli were divided into low and high novelty and complexity conditions to fill the cells of the orthogonal factorial stimulus design. The findings showed that students responses were consistent with the expert panel evaluation for products with high complexity-high novelty and low complexity-low novelty. Thus, two stimuli of these two complexity-novelty combinations were chosen which showed the clearest results regarding their means (see Figure 4 for chosen stimuli with their means of complexity and novelty). Two products also fitted into the high complexity-low novelty cell (see Figure 4) and none in the low-complexity-high novelty cell.

Consequently, interviews with students were held in order to identify what makes a top novel and familiar for them. Based on students' responses, the researcher selected new tops from the retailer (Anthropologie.com) website for pretesting. In order to identify a set of stimuli suited to fill the low complexity-high novelty cell, another pretest was conducted with 15 students in their third or fourth year of study. These subjects, majored in fashion design, were trained in visual design principles, which made them well suited to judge design principles of novelty and complexity. Before the photographs were presented in class, a definition of complexity and novelty were given to clarify the meaning of these terms. The same rating scales (Cox & Cox, 2002) as used for expert panel and main study measured complexity and novelty. As a result of the pretest, two appropriate products were found to fill the low complexity-high novelty cell. The mean perceived novelty of the stimuli was higher than that of the complexity (see Figure 4). Through the series of three pretests a set of eight tops was developed and finalized the 2 (low/high complexity) x 2 (low/high novelty) factorial

within-subjects experimental design. These eight apparel stimuli (see Appendix D) were employed in the main experimental study.



Figure 4. An overview of the apparel stimuli used in the study with means of complexity and novelty from the pretests. Note: C = Complexity, N = Novelty

Procedure

Participants, recruited through the class emails, were given information on how to access the online survey. Data were collected over a two-week period. By the end of the first week, email reminders were sent to all students from the convenience sample list. After the desired sample size was achieved, the link of the web address to the survey was removed and the promised incentives were delivered.

Main Study Instrument

The self-administered, internet-based questionnaire (see Appendix D) used in this study included a set of eight fashion apparel products shown earlier (two tops for each complexity-novelty combination). The photograph of each of the eight tops was presented on a separate page. Measures of aesthetic response, purchase intention, complexity, and novelty appeared after each stimulus photograph. The order of the eight fashion photographs was randomized in the experiment to control for order effects in within-subjects design. Following the presentation of the stimuli, the questionnaire continued with the measure of CVPA, followed by questions about demographic information. The items on demographic information included respondents' age, academic standing, major area of study, ethnicity, annual household income, and shopping behavior.

Dependent measure – aesthetic response and purchase intention. Aesthetic responses to each of the apparel photographs were measured using the aesthetic/emotional response scale developed by Hirschman (1986). Hirschman (1986) reported the reliability of this scale to range from 0.82 to 0.96. Based on this measure, aesthetic response was measured by three 7 point semantic differential scales anchored by *not attractive – attractive*, *not arousing – arousing*, and *not beautiful – beautiful* (7 = positive, 1 = negative) (see Table 1). Two adjective pairs of this scale referring to emotions were deleted since they do not apply to the current study. Moreover, there was a need to reduce the number of items in the questionnaire to avoid fatigue. Purchase intention was measured using three-items on 7 point semantic differential scales anchored by *improbable - probable*, *unlikely - likely*, and *impossible - possible* (Lee, Yun, & Lee, 2005). This scale was adapted from Lee et al. (2005) and had a Cronbach's alpha reliability of .90 in Lee et al.'s study (see Table 1).

Manipulation checks – perceived complexity and perceived novelty. Perceived complexity was measured by two 7-point semantic differential scale items developed by Cox and Cox (2002) anchored by *simple–complicated* and *not complex–complex* (1 = simple, 7 = complex) (see Table 1). The Cronbach’s alpha reliability for this scale was 0.85 (Cox & Cox, 2002). Cox and Cox (2002) also developed a scale of perceived novelty, which was used in this study. Three 7-point semantic differential items anchored by *unoriginal-original*, *common-unusual*, and *familiar-novel* were included for manipulation checks (see Table 1). The Cronbach’s alpha reliability for this scale was 0.89 (Cox & Cox, 2002). For the purpose of this study, two adjective pairs that did not apply to fashion products, were eliminated from the questionnaire.

Moderator – CVPA scale. The construct and measure for CVPA was defined and developed by Bloch et al. (2003) who established the scale as theoretically relevant with acceptable reliability and validity. The 11-item scale was found to be unidimensional with internal consistency of 0.89. Each item is accompanied by a 5-point Likert response scale from strongly agree (=5) to strongly disagree (=1) (see Table1). In order to identify low and high CVPA consumers based on this CVPA scale, an overall CVPA score was computed for each subject. Next, a median split was conducted by CVPA scores to group the participants above the median as high CVPA consumers, and those below the median as low CVPA consumers.

Table 1

Pretests and the Main Study along with Measurements

| | Goal | Variable | Measures | α |
|--------------------------|----------------------------------|--------------------|---|------------|
| Pretests | Selection of appropriate stimuli | Complexity | 7 point semantic differential scale adapted by Cox and Cox (2002) This top is:: a) simple – complicated b) not complex - complex | .85 |
| | | Novelty | 7 point semantic differential scale adapted by Cox and Cox (2002) This top is: a) unoriginal - original b) common - unusual c) familiar - novel | .89 |
| Main Study ($n = 260$) | Dependent variable | Aesthetic response | 7 point semantic differential scale adapted by Hirschman (1986) This top is: a) not attractive - attractive b) not arousing - arousing c) not beautiful - beautiful | .82 to .96 |
| | | Purchase intention | 7 point semantic differential scale adapted by Lee, Yun, & Lee (2005) My purchasing this top is: a) improbable - probable b) unlikely – likely c) impossible - possible | .90 |
| | Manipulation Check | Complexity | 7 point semantic differential scale adapted by Cox and Cox (2002) This top is a) simple - complicated b) not complex – complex | .85 |
| | | Novelty | This top is: a) unoriginal - original b) common - unusual c) familiar – novel | .89 |
| | Moderator | CVPA | 5 point Likert scale adopted by Bloch et al. (2003) a) Owning products that have superior designs makes me feel good about myself b) I enjoy seeing displays of products that have superior designs c) A product’s design is a source of pleasure for me d) Beautiful product designs make our world a better place to live e) Being able to see subtle differences in product designs is one skill that I have developed over time f) I see things in a product’s design that other people tend to pass over g) I have the ability to imagine how a product will fit in with designs of other things I already own. h) I have a pretty good idea of what makes one product look better than its competitors i) Sometimes the way a product looks seems to reach out and grab me j) If a product’s design really “speaks” to me, I feel that I must buy it k) When I see a product that has a really great designs, I feel a strong urge to buy it | .89 |

CHAPTER 4. RESULTS

This chapter discusses the results of the main study. Before hypotheses were tested, initial preliminary analysis had to be conducted. As part of the preliminary analysis, descriptive statistics were run on demographic information contained in the main study data. Next, the reliabilities of each scale were tested and a factor analysis for each scale was conducted. Then, manipulation checks were performed to identify whether the complexity and novelty manipulations were successful. Once the preliminary analysis was completed, the proposed hypotheses were tested using repeated measures ANOVA (H1 – H3) and simple linear regression (H4).

Preliminary Analysis

Demographics

Of the 265 questionnaires returned (75% response rate), 260 were completely filled in and were used for data analysis. Due to the fact that the participants were selected from the College of Human Sciences, the participants represented the majors in the college (see Table 2). A majority of the participants were from Human Development and Family Studies (15.3%), followed by Nutrition (13.9%), Apparel Merchandising (13.6%), and Hotel and Restaurant Management (10.2%). The remaining participants (47%) major in different programs within the departments. Respondent ages ranged between 19 and 50 years, with a mean age of 20. A majority of respondents were Caucasian (87.8%). Of the remaining, 9.2% were African American, 0.4% Multiracial, 1.5% chose the “other” category (0.8% identified as Hispanic, 0.4% identified as European American), and 1.2% would rather not say. In terms

of academic standing, 17.3% of the respondents were freshman, 46.1% were sophomores, 28.1% were juniors, 8.1% were seniors, and 0.4% graduate student. Regarding shopping behavior, the majority of participants (40%) indicated that they shopped most frequently at specialty stores. Also, a majority of the participants (41.5%) reported that they shopped for clothes two or three times a month on average. Further details of sample characteristics are provided in Table 2.

Table 2

Sample Characteristics and Frequency Distributions

| Demographic characteristic | <i>n</i> | % |
|---|----------|------|
| Majors (<i>N</i> =260) | | |
| Human Development and Family Studies | 40 | 15.3 |
| Nutrition | 36 | 13.9 |
| Apparel Merchandising and Design | 35 | 13.6 |
| Hotel and Restaurant Management | 27 | 10.2 |
| Others | 122 | 47.0 |
| Age (<i>N</i> =260) | | |
| 19 | 97 | 37.3 |
| 20 | 85 | 32.7 |
| 21 | 51 | 19.6 |
| 22 | 15 | 5.8 |
| 23 | 5 | 1.9 |
| 24 | 1 | 0.4 |
| 25 and higher | 6 | 2.4 |
| Ethnicity (<i>N</i> =260) | | |
| Caucasian | 228 | 87.8 |
| African American | 24 | 9.2 |
| Multiracial | 1 | 0.4 |
| Other | | |
| - Hispanic | 2 | 0.8 |
| - European American | 1 | 0.4 |
| Would rather not say | 3 | 1.2 |
| Academic Standing (<i>N</i> =260) | | |
| Freshman | 45 | 17.3 |
| Sophomores | 120 | 46.1 |
| Juniors | 21 | 8.1 |
| Graduate Student | 1 | 0.4 |
| Most frequent shopping venue (<i>N</i> =260) | | |
| Specialty stores | 104 | 40.0 |
| Other | 80 | 30.8 |
| Department stores | 56 | 21.5 |
| Discount stores | 39 | 15.0 |

(Continued)

| Demographic characteristic | <i>n</i> | % |
|---------------------------------------|----------|------|
| Frequency of shopping (N=260) | | |
| At least once a week | 42 | 16.2 |
| Two or three times a month | 108 | 41.5 |
| Once in a month or two | 79 | 30.4 |
| Once in three or four months | 25 | 9.6 |
| Twice a year | 5 | 1.9 |
| Once a year | 1 | 0.4 |
| Total family household income (N=260) | | |
| under \$19.999 | 11 | 4.2 |
| \$20.000 to \$39.999 | 17 | 6.1 |
| \$40.000 to \$59.999 | 19 | 7.3 |
| \$60.000 to \$79.999 | 18 | 6.9 |
| \$80.000 to \$99.999 | 41 | 15.7 |
| \$100.000 to \$149.999 | 51 | 19.6 |
| \$150.000 to \$199.999 | 35 | 13.5 |
| \$200.000 to \$249.999 | 11 | 4.2 |
| \$250.000 or over | 53 | 20.4 |

Reliabilities

Reliability analysis using the Cronbach's alpha was performed on each of the scales measuring the independent and dependent variables, as well as the moderator. The reliability analysis demonstrated an adequate reliability for each scale since α was greater than 0.7:

aesthetic response, $\alpha = 0.944$; purchase intention, $\alpha = 0.970$; complexity, $\alpha = 0.949$; novelty, $\alpha = 0.919$; CVPA, $\alpha = 0.882$. Alpha coefficients were close in comparison to the alpha coefficients found by the original authors during scale development.

Factor Analysis

This was conducted to define the dimensions underlying existing measurement instruments to verify unidimensionality before creating composite scales for all the variables. The magnitudes on the eigenvalues were used to decide how many factors to extract. All factors that had eigenvalue greater than 1 were retained. Based on these eigenvalues, the results of the factor analysis indicated that each variable was comprised only one factor (see Table 3 for eigenvalues of each scale), except for CVPA. Based on the results for CVPA, three factors had an eigenvalue greater than one. When developing the scale of CVPA,

Bloch's et al. (2003) results indicated that CVPA comprised conceptually of three dimensions: value, acumen, and response. Thus, Bloch et al. (2003) examined several alternative factor structures and according to their results, the one factor model (11 items forced to load on a single factor) provided a good fit of the data. For this study, the factor analysis results of CVPA were similar to the results in Bloch et al. (2003). Furthermore, support for the one-factor model can be found in the results of the eigenvalues and scree plot. Component 2 and 3 are slightly greater than 1 and in close proximity to each other. Component 1 is separated from the others and there is a big gap between eigenvalue of component 1 and components 2 and 3. Components 4-11 had eigenvalues less than 1 and hence, were not included in Table 3. Further, the scree plot reflects a sharp descent after component 1 and then the eigenvalues start to level off (see Figure 5). Hence, CVPA was treated as a one factor model owing to the results of the factor analysis as well as the scale recommendations of Bloch et al. (2003).

Table 3

Eigenvalues of each scale after factor analysis

| Scale | Initial Total Eigenvalues | | |
|---|---------------------------|-------------|-------------|
| | Component1 | Component 2 | Component 3 |
| Aesthetic Response (scale with 3 items) | 2.700 | 0.178 | 0.122 |
| Purchase Intention (scale with 3 items) | 2.829 | 0.124 | 0.047 |
| Complexity (scale with 2 items) | 1.902 | 0.098 | |
| Novelty (scale with 3 items) | 2.587 | 0.290 | 0.124 |
| CVPA (scale with 11 items) | 5.174 | 1.316 | 1.210 |

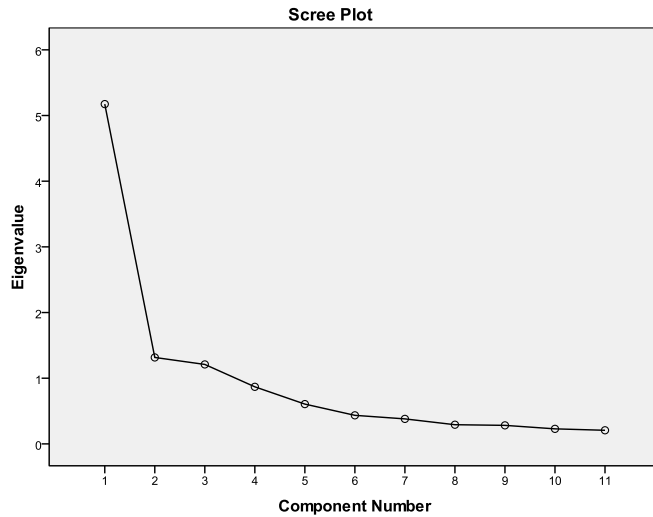


Figure 5. Scree Plot of 11 components of CVPA scale

Manipulation Check

Based on comparison of means of complexity and novelty, the two stimuli of three complexity/novelty combinations fitted into the cells of the orthogonal factorial stimulus design, except for two stimuli for the high complexity-low novelty condition (see Table 4). For the other three complexity-novelty combinations (high complexity-high novelty, low complexity-low novelty, and low complexity-high novelty), the manipulations were successful since there were significant differences between the means of complexity and novelty resulting from the paired samples t-test (see Table 5) and the means were in the anticipated direction.







For the high complexity-low novelty condition, the result revealed that the means of complexity and novelty were opposite than anticipated [Picture 5: $M_{c5} = .4.5481$, $M_{n5} = 4.6038$; Picture 6: $M_{c6} = 4.1519$, $M_{n6} = 4.3692$]. Thus, the participants perceived this top more novel than complex. These results suggest the possibility that non-experts are not able to distinguish between complexity and novelty due to the insufficient knowledge and experience about design principles of apparel products, and could be confounding the two constructs in their judgments of complexity and novelty. Hence, the two stimuli for the high complexity-

low novelty combination together with the stimuli of the other three conditions were given to five faculty of the Department of Consumer Affairs for expert evaluation. Using comparison of means, the results of expert evaluations of the high complexity-low novelty combination showed that the means of complexity and novelty were in the anticipated direction only for one stimulus [Picture 5: $M_{c5} = 4.8$, $M_{N5} = 4.2$] (see Table 4). As a result, the manipulation of this top was deemed successful and fitted into the cell of the orthogonal factorial stimulus design. Also, the means of complexity and novelty of the second stimulus [Picture 6: $M_{c6} = 4.2$, $M_{N6} = 5.0$] for the same condition were not in the anticipated direction (see Table 4). Thus, the manipulation of this top was deemed unsuccessful and this stimulus was not considered for further data analysis. The means of the six stimuli of the other three conditions were in the anticipated direction, reconfirming the results found with the students.

In conclusion, the complexity and novelty manipulations were successful for high complexity-high novelty, low complexity-low novelty, and high complexity-low novelty conditions. Only one stimulus of the high complexity-low novelty combination (stimulus 5) reflected a successful manipulation and was included for further data analysis.

Table 4

Paired Samples Statistics for each stimulus

| Stimulus | | Variables | Mean | N | Std. Deviation | Std. Error Mean |
|------------------------------|---|------------|------|-----|----------------|-----------------|
| Low Complexity-Low Novelty | | | | | | |
| 1 |  | Complexity | 2.18 | 260 | 1.31 | 0.08 |
| | | Novelty | 2.58 | 260 | 1.40 | 0.09 |
| 2 |  | Complexity | 1.37 | 260 | 0.85 | 0.05 |
| | | Novelty | 1.70 | 260 | 1.07 | 0.07 |
| High Complexity-High Novelty | | | | | | |
| 3 |  | Complexity | 5.10 | 260 | 1.31 | 0.01 |
| | | Novelty | 4.92 | 260 | 1.31 | 0.08 |
| 4 |  | Complexity | 5.41 | 260 | 1.30 | 0.08 |
| | | Novelty | 5.16 | 260 | 1.42 | 0.09 |
| High Complexity-Low Novelty | | | | | | |
| 5 |  | Complexity | 4.55 | 260 | 1.39 | 0.09 |
| | | Novelty | 4.60 | 260 | 1.39 | 0.09 |
| 6 |  | Complexity | 4.07 | 260 | 1.57 | 0.10 |
| | | Novelty | 4.37 | 260 | 1.41 | 0.09 |

(Continued)



| Stimulus | | Variables | Mean | N | Std. Deviation | Std. Error Mean |
|------------------------------------|---|------------|------|-----|----------------|-----------------|
| Low Complexity-High Novelty | | | | | | |
| 7 |  | Complexity | 3.86 | 260 | 1.42 | 0.09 |
| | | Novelty | 4.42 | 260 | 1.42 | 0.09 |
| 8 |  | Complexity | 4.02 | 260 | 1.43 | 0.09 |
| | | Novelty | 4.53 | 260 | 1.36 | 0.08 |

Table 5

Paired Samples t-Test for each stimulus

| Stimulus | | Mean Difference | Std. Deviation | St. Error Mean | t | Df | Sig. (2-tailed) |
|----------|-------------------------|-----------------|----------------|----------------|--------|-----|-----------------|
| 1 | Complexity- Novelty | -0.39808 | 1.04560 | 0.06485 | -6.139 | 259 | 0.000 |
| 2 | Complexity- Novelty- | 0.33077 | 0.77636 | .004815 | -6.870 | 259 | 0.000 |
| 3 | Complexity- Novelty- | 0.17821 | 1.16334 | 0.07215 | 2.470 | 259 | 0.014 |
| 4 | Complexity- Novelty- | 0.24936 | 1.21476 | 0.07534 | 3.310 | 259 | 0.001 |
| 5 | Complexity- Novelty- | -0.05577 | 1.22404 | 0.07591 | -0.735 | 259 | 0.463 |
| 6 | Complexity- Novelty- | -0.21731 | 1.91023 | 0.11847 | -1.834 | 259 | 0.068 |
| 7 | Complexity- Novelty- | -0.56090 | 1.24775 | 0.07738 | -7.248 | 259 | 0.000 |
| 8 | Complexity- Novelty- | -0.51218 | 1.23727 | 0.07673 | -6.675 | 259 | 0.000 |

Test of Hypotheses

Hypothesis 1 proposed an interaction effect between complexity and novelty on aesthetic response. More precisely, it was expected that when product complexity is high, product designs with low novelty will result in more positive aesthetic response than product designs with high novelty. In turn, when product complexity is low, product designs with high novelty will result in more positive aesthetic response than product designs with low novelty.

This hypothesis was tested through a two-way repeated measures analysis of variance with complexity and novelty as the within-subjects factors and aesthetic response mean scores as the dependent variable. In addition, pairwise comparisons were conducted to test the specific interaction of complexity and novelty on aesthetic response.

The results (see Table 6) revealed a significant main effect for complexity [Wilk's $\lambda = 0.550$, $F(1/259) = 211.562$, $p = 0.000$, $\eta^2 = 45.0\%$] and novelty [Wilk's $\lambda = 0.972$, $F(1/259) = 7.483$, $p = 0.007$, $\eta^2 = 2.8\%$] on aesthetic response. Specifically, consumers had a higher aesthetic response to high complexity (C) than low complexity products [$M_{High} = 4.988$, $M_{Low} = 3.715$, $SE = 0.088$, Mean Difference = 1.273, $p = 0.000$] and to high novelty (N) than low novelty products [$M_{High} = 4.461$, $M_{Low} = 4.242$, $SE = 0.080$, Mean Difference = 0.219, $p = 0.007$]. As hypothesized, there was also a significant interaction effect for complexity and novelty on aesthetic response across the stimuli [Wilk's $\lambda = 0.793$, $F(1/259) = 67.499$, $p = 0.000$, $\eta^2 = 20.7\%$]. Specifically, as demonstrated in Figure 6, when product complexity is high, product designs with low novelty result in significantly more positive aesthetic response than product designs with high novelty [$M_{High*Low} = 5.158$, $SE = 0.092$, $M_{High*High} = 4.819$, $SE = 0.091$, Mean Difference = 0.339, $p = 0.001$]. Hence, Hypothesis 1a was supported. Moreover, when product complexity is low, product designs with high novelty result in significantly more positive aesthetic response than product designs with low novelty [$M_{Low*High} = 4.103$, $SE = 0.085$, $M_{Low*Low} = 3.327$, $SE = 0.080$, Mean Difference = 0.776, $p = 0.000$]. Thus, Hypothesis 1b was also supported.

Table 6

Effects of design complexity and novelty on aesthetic response

| Source | Wilks' λ | <i>df</i> | <i>F</i> | <i>p</i> | Partial η^2 (%) |
|----------------------|------------------|-----------|----------|----------|-------------------------|
| Complexity | 0.550 | 259 | 211.562 | 0.000 | 45.0 |
| Novelty | 0.972 | 259 | 7.483 | 0.007 | 2.8 |
| Complexity x Novelty | 0.793 | 259 | 67.499 | 0.000 | 20.7 |

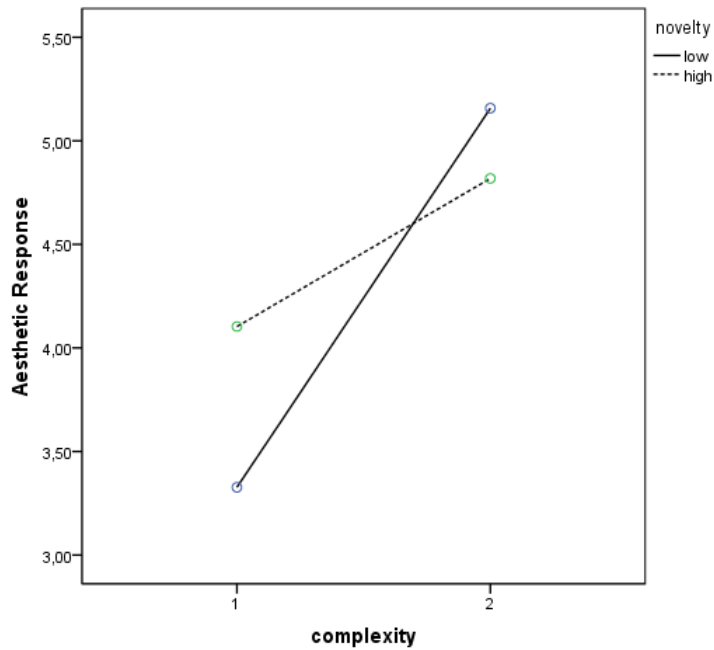


Figure 6. Effect of product complexity and product novelty on aesthetic response

Hypothesis 2 proposed that the effect of product complexity on aesthetic response is moderated by the level of CVPA. Specifically, Hypothesis 2a predicted that high CVPA consumers will have a more positive aesthetic response to high complexity than low complexity product designs. Conversely, Hypothesis 2b predicted that low CVPA consumers will have a more positive aesthetic response to low complexity than high complexity product designs. Hypothesis 3 proposed that the effect of product novelty on aesthetic response is moderated by the level of CVPA. Specifically, Hypothesis 3a predicted that high CVPA consumers will have a more positive aesthetic response to high novelty than low novelty product designs. Conversely, Hypothesis 3b predicted that low CVPA consumers will have a more positive aesthetic response to low novelty than high novelty product designs.

First, an overall CVPA score was computed for each subject. The mean CVPA score for this sample was 3.7175 (SD = 0.67026). To test hypotheses 2 and 3, a median split was conducted by CVPA scores to group the participants above the median as high CVPA consumers, and those below the median as low CVPA consumers. The median of CVPA was

3.8182. Since none of the participants scored the median value, all responses could be maintained. Thus, 141 subjects were grouped as low CVPA consumers and 119 as high CVPA consumers. Hypotheses 2 and 3 were tested through a three-way repeated measures analysis of variance with CVPA as the between-subjects factor, product complexity and novelty as the within-subjects factors and aesthetic response mean scores as the dependent variable. In addition, pairwise comparisons were conducted to test specific contrasts in the interaction of design complexity x CVPA, and design novelty x CVPA.

The results revealed a main and interaction effect for complexity and novelty on aesthetic response (see Table 7). However, the interaction effect for complexity and CVPA on aesthetic response was not-significant [Wilk's $\lambda = 0.994$, $F(1/258) = 1.456$, $p = 0.229$, $\eta^2 = 0.6\%$]. Results revealed that both high and low CVPA consumers had a significantly more positive response to high complexity than low complexity product designs. Hence, H2a was supported [$M_{CVPAhigh}^{*Chigh} = 5.132$, $SE = 0.112$, $M_{CVPAhigh}^{*Clow} = 3.744$, $SE = 0.092$, Mean Difference = 1.388, $p = 0.000$]. However, H2b was not supported since low CVPA consumers did not demonstrate higher aesthetic response to low complexity product designs as compared to high complexity designs [$M_{CVPALow}^{*Clow} = 3.691$, $SE = 0.085$, $M_{CVPALow}^{*Chigh} = 4.867$, $SE = 0.103$, Mean Difference = 1.176, $p = 0.000$]. In summary, high CVPA consumers were more distinguishing with respect to design complexity, but both low and high CVPA consumers reveal a more positive aesthetic response to high complexity product designs than low complexity product designs.

With respect to hypothesis 3, the results revealed a significant interaction effect for novelty and CVPA on aesthetic response [Wilk's $\lambda = 0.979$, $F(1/258) = 5.463$, $p = 0.020$, $\eta^2 = 2.1\%$] (see Table 7). This implies that the effect of product novelty on aesthetic response is moderated by the level of CVPA. Specifically, high CVPA consumer have a more positive aesthetic response to high novelty than low novelty product designs [$M_{CVPAhigh}^{*Nhigh} = 4.648$,

$SE = 0.101$, $M_{CVPAhigh}^{*Nlow} = 4.228$, $SE = 0.097$, Mean Difference = 0.420, $p = 0.000$]. Hence, Hypothesis 3a was supported. However, Hypothesis 3b was not supported since low CVPA consumers did not demonstrate significant differences in aesthetic response to low or high novelty product designs [$M_{CVPAlow}^{*Nlow} = 4.255$, $SE = 0.089$, $M_{CVPAlow}^{*Nhigh} = 4.303$, $SE = 0.093$, Mean Difference = -0.048, $p = 0.653$]. In summarizing the results of hypothesis 3, it can be said that high CVPA consumers distinguish between high and low novelty in their aesthetic response to product designs, however, low CVPA consumers do not differentiate high and low novelty in their aesthetic responses.

Table 7

Three-way mixed analysis of variance results for aesthetic response

| Source | Wilks' λ | df | F | p | Partial η^2 (%) |
|----------------------|------------------|------|---------|-------|----------------------|
| Complexity | 0.547 | 258 | 213.390 | 0.000 | 45.3 |
| Novelty | 0.967 | 258 | 8.684 | 0.004 | 3.3 |
| Complexity x Novelty | 0.789 | 258 | 68.904 | 0.000 | 21.1 |
| Complexity x CVPA | 0.994 | 258 | 1.456 | 0.229 | 0.6 |
| Novelty x CVPA | 0.979 | 258 | 5.463 | 0.020 | 2.1 |

Hypothesis 4 predicted that aesthetic response will positively influence purchase intention toward the product. This hypothesis was tested through simple linear regressions with mean values of aesthetic response and purchase intention for each condition (2 stimuli for each complexity-novelty combination, except for high complexity-low novelty condition). The results of the data analysis revealed that aesthetic response positively influenced purchase intention for low complexity-low novelty product designs [$Beta = 0.781$, $R^2 = 0.610$, $F(1,258) = 403.444$, $p < 0.001$], low complexity-high novelty designs [$Beta = 0.833$, $R^2 = 0.694$, $F(1,258) = 583.814$, $p < 0.001$], high complexity-low novelty designs [$Beta = 0.857$, $R^2 = 0.735$, $F(1,258) = 714.507$, $p < 0.001$] and high complexity-high novelty designs [$Beta = 0.912$, $R^2 = 0.832$, $F(1,258) = 1280.200$, $p < 0.001$]. Also, 61% - 83.2% of the variance in purchase intention was explained by the aesthetic response. Table 8 shows the results of the

regression analysis with aesthetic response and purchase intention for each C-N combination. Based on the results, H4 was supported. Hence, when consumers have a positive aesthetic response towards a product design they are more likely to make a purchase and in turn, when consumers have a negative aesthetic response toward a product design they are less likely to have the desire to own the product.

Table 8

Regressing aesthetic response on purchase intention for each condition

| Measure | Beta | R^2 | F | p |
|----------------------|-------|-------|----------|-------|
| AR for low C-low N | 0.781 | 0.610 | 403.444 | 0.000 |
| AR for low C-high N | 0.833 | 0.694 | 583.814 | 0.000 |
| AR for high C-low N | 0.857 | 0.735 | 714.507 | 0.000 |
| AR for high C-high N | 0.912 | 0.832 | 1280.200 | 0.000 |

Note. AR = Aesthetic Response, C = complexity, N = Novelty

Additional Analyses

In addition to hypothesis testing, additional data analyses were performed to examine characteristics of low and high CVPA consumers with respect to shopping behavior and other demographic variables. Independent samples *t*-tests and Chi-Square Tests were conducted for this purpose. The last part of the survey included demographic information where participants had to indicate how frequently they use department stores, discount stores, specialty stores, and other stores (asked to specify the type) for purchasing clothing. Subjects who chose the “other” category mentioned boutiques most often for purchasing clothing ($N=47$). When looking at the means, the results indicated that subjects who scored low in CVPA use department stores, specialty stores, and boutiques less frequently than those high in CVPA (see Table 9). The independent samples *t*-test revealed no significant differences between the means for department store and boutique patronage. This test was significant for specialty store patronage though. Further, low CVPA consumers use discount stores more frequently

than subjects who scored high in CVPA. Again, the independent samples *t*-test revealed no significant differences between those means.

Table 9

Means and t-Test results for retail store patronage among high versus low CVPA consumers

| Stores | CVPA | N | Mean | SD | t-test for equality of means (equal variances not assumed) | | | | |
|-------------------|------|-----|-------------------|-------|---|-----------|----------|--------------------|------------------|
| | | | | | <i>t</i> | <i>df</i> | <i>p</i> | Mean Difference | SE Difference |
| Department Stores | Low | 141 | 2.54 ¹ | 1.143 | 0.731 | 253.5 | 0.465 | 0.102 | 0.140 |
| | High | 119 | 2.44 ¹ | 1.102 | | | | | |
| Discount Stores | Low | 141 | 3.06 ¹ | 1.274 | -1.405 | 252.2 | 0.161 | -0.220 | 0.157 |
| | High | 119 | 3.28 ¹ | 1.241 | | | | | |
| Specialty Stores | Low | 141 | 2.18 ¹ | 0.095 | 3.070 | 258.0 | 0.002 | 0.396 | 0.129 |
| | High | 119 | 1.78 ¹ | 0.087 | | | | | |
| Boutique | Low | 21 | 1.43 ¹ | 0.202 | 0.190 | 31.8 | 0.850 | 0.044 | 0.231 |
| | High | 26 | 1.38 ¹ | 0.112 | | | | | |

¹Note. 1= most frequently – 5 = never

Moreover, subjects were asked how often they go shopping for clothes, including the internet. A larger percentage of low CVPA consumer indicated shopping two or three times a month, once in a month or two, or once in three or four months (see Table 10). Whereas, a larger percentage of high CVPA consumers indicated shopping once a week, two or three times a month, and once in a month or two. The results of Chi-Square analysis showed significant differences between high and low CVPA consumers regarding frequency in shopping behavior ($\chi^2 = 51.055, p < 0.001$). In summary, subjects who scored high in CVPA shop more frequently for clothes than those with low scores in CVPA.

Table 10

Frequency of shopping behavior for clothes among high and low CVPA consumers

| CVPA | At least one a week | Two or three times a month | Once in a month or two | Once in three or four months | Twice a year | Once a year | Total |
|-------|------------------------|----------------------------------|------------------------------|------------------------------------|-----------------|-------------|-------|
| Low | 6 | 53 | 54 | 23 | 4 | 1 | 141 |
| High | 36 | 55 | 25 | 2 | 1 | 0 | 119 |
| Total | 42 | 108 | 79 | 25 | 5 | 1 | 260 |

CHAPTER 5. DISCUSSION

This study aimed to offer a holistic view of the effects of the design principles of complexity and novelty on aesthetic responses towards product designs among female consumers. Further, this study investigated whether the influence of these design principles is moderated by consumers' level of CVPA, as well as whether aesthetic response to product design predicts purchase intentions for products.

The first hypothesis in this study proposed an interaction effect between design complexity and novelty on aesthetic response. As hypothesized, there was a significant interaction effect for complexity and novelty on aesthetic response. Further, the results suggested that when complexity is high, product designs with low novelty result in more positive aesthetic response than those with high novelty. In turn, when complexity is low, product design with high novelty resulted in more positive aesthetic response than those with low novelty. When these variables are considered individually, 45.0% of the variance in aesthetic response can be explained by complexity; whereas only 2.8% of the variance in aesthetic response is explained by design novelty. When these variables are considered holistically, the interaction between complexity and novelty can explain 20.7% of the variance in aesthetic response. These results demonstrate the importance of organizational and meaningful properties on aesthetic response and show the significance of adopting a holistic approach in investigating the influence of product design principles on consumer behavior. For greatest effectiveness, the design principles of complexity and novelty in product design must be considered combinatorial rather than atomistical.

This finding is consistent with the claims of previous literature (Berlyne, 1970) that have argued that the most pleasure comes from a product design which is simple yet novel or complex yet familiar. Hence, a product design that is simple and familiar or complex and novel is less preferred by consumers (Berlyne, 1970). A study by Mukherjee and Hoyer (2001) was one of the few studies to examine both complexity and novelty for functional products. They demonstrate that adding novel attributes to relatively low-complexity functional products leads to a positive evaluation and in turn, adding novel attributes to high-complexity functional products can decrease the product evaluation. This study extends their findings in the context of aesthetic products and aesthetic principles. Mukherjee and Hoyer (2001) explain their phenomenon through the negative-learning-cost inferences about these attributes. The term “learning cost” is defined as the “cognitive effort required to accumulate the knowledge necessary for effective usage” (Mukherjee & Hoyer, 2001, pp. 463). Moreover, Reber et al. (2004) suggest that the more fluently consumers can process a product, the more positive is their aesthetic response. They posit that simple stimuli are a source of fluency and complex stimuli serve as a source of processing expectations, whereas fluency is affected by the moderators of expectations and attributions. The results of the current study may support their claims. The novel and simple apparel stimuli of this study may evoke a particularly positive aesthetic response since the source of novel stimuli may be first unknown, hence the perceiver may have higher processing expectations. But to the perceiver’s surprise, it can be fluently processed because it is simple to perceive, resulting in increased the strength of the fluency-based experience. Similarly, high complexity is expected to be difficult yet turns out to be easy to process due to the familiarity of the stimuli, resulting in higher aesthetic response.

Mukherjee and Hoyer (2001) also point out that consumers’ negative evaluations of high-complex products with additionally novel attributes is persistent even after consumers

are given explicit benefit information of novel attributes. This suggests that combinatorial effects of complexity and novelty are the result of non-conscious processes in a consumers' mind and occur in the absence of conscious and explicit processing of novelty and complexity information. Hence, irrespective of whether consumers perceive the novelty and complexity of product designs, they automatically respond to these factors in their aesthetic evaluations.

To provide further insights into the relationship between the design principles and consumers' aesthetic response, this study also examined whether CVPA moderates the influence of product complexity on aesthetic response (Hypothesis 2). It was predicted that high CVPA consumers will have a more positive aesthetic response to high complexity than low complexity product designs. This hypothesis (2a) could be supported. Conversely, it was predicted that low CVPA consumers will have a more positive aesthetic response to low complexity than high complexity product designs. Surprisingly, this hypothesis (2b) could not find support through data analysis. The results showed that the interaction effect of complexity and CVPA on aesthetic response was not significant. Although high CVPA consumers were more distinguishing with respect to design complexity, both high and low CVPA consumers had a significantly more positive aesthetic response to high complexity than low complexity product designs. Thus, low and high aesthetic responses of a complex and simple design product do not arise from differences in consumers' CVPA. The lack of an interaction effect is most likely caused by the fact that low CVPA consumers did not distinguish between the product's design complexity in their aesthetic response. The non-support of hypothesis 2b leads to an important finding with respect to low CVPA consumers – these consumers are also affected by the presence/absence of design principles such as complexity in evaluating apparel products. However, other non-design criteria such as functionality, quality, and value/price may still be important to them. This needs to be investigated in future studies.

The third hypothesis in this study proposed that the effect of product novelty on aesthetic response is moderated by the level of CVPA. It was found that high CVPA consumers had a more positive aesthetic response to high novelty than low novelty product designs with the interaction effect between complexity and CVPA explained 2.1% of variance in aesthetic response. This implies that CVPA as an individual difference factor does shape consumers' aesthetic responses. These findings support the Model of Consumer Responses to Product Form by Bloch (1995). Bloch's (1995) model emphasizes that psychological responses to product form are influenced by individual taste and preferences factors. More specifically, consumers' affective responses to product form are moderated by design acumen. Consistent with the predictions of this model, the current study shows that consumers' aesthetic responses to a novel and familiar apparel product design is moderated by CVPA. Moreover, the results of this study give further insight on high versus low CVPA consumers' responses to a product novelty.

The findings of this current study also support the results of Orth et al. (2010) who found that natural and elaborate design factors exert a stronger effect on attractiveness for individuals high on CVPA than those low on CVPA. In addition, it also supports Bloch's et al. (2003) claim that consumers who score high on CVPA are more likely to prefer products with superior design and that high CVPA consumers evaluate high aesthetic products in a more favorable manner than do the low CVPA consumer. This is due to the fact that novel stimuli possess higher aesthetic value and have a more superior design than stimuli low in novelty. Further, this study confirms the finding of Workman and Caldwell (2007) that identified high CVPA consumers as fashion innovators. Fashion innovators are concerned with the latest fashion trends who seek novelty and surprise. Moreover, the results of this study are also consistent with the findings of Brunel and Swain (2008) who found that CVPA interacts with novelty. The findings of this study add to the existing literature since there is insufficient

research that examines the relationship between perceived product novelty and aesthetic response moderated by CVPA for apparel products. Hence the findings of the current study are important because they provide new information in a currently unexplored area.

The results of the data analyses also revealed that low CVPA consumers did not have a more positive aesthetic response to low novelty than high novelty product designs. In general, their aesthetic response was unaffected (non-significant effect) by the product's design novelty. Bloch et al. (2003) found that both low and high CVPA consumers rated the high aesthetics product as more aesthetically pleasing than the low aesthetics product. The researchers explained further that even though both levels of CVPA consumers evaluated it higher, high CVPA consumers were more discriminating in their evaluations of product design than were the low CVPA consumers. This support the findings from the present study, which demonstrates that as compared with high CVPA consumers low CVPA consumers are less affected by product design principles such as novelty in their aesthetic responses.

The fourth hypothesis proposed that aesthetic response will positively influence purchase intentions toward the product. According to the results of the data analysis, this hypothesis was supported. Based on regression analyses for each condition, 61% - 83.2% of the variance in purchase intention was explained by aesthetic response towards the design of the product. These findings show the importance of aesthetic response, and product principles in consumers' purchase intentions for products. The results of this study help to support the Model of Consumer Responses to Product Form by Bloch (1995). It describes that psychological responses to product form influence either approach or avoidance behavioral responses. The behavioral responses influence the desire to own the product. Avoidance behavior derives from negative feelings about the product. Approach behavior, on the other hand, is associated with a positive aesthetic response since it reflects an attraction to a design and willingness to observe it (Bloch, 1995). Purchase is the most important approach behavior

(Berkowitz, 1987; Roy, 1994). Thus, according to the results of the current study, aesthetic response to product design, influences behavioral intention and accounts for the decision to make a purchase. These results are also consistent with the findings of Lam and Mukherjee (2005) who found that aesthetic response has a main effect on purchase intentions in the context of merchandise coordination and juxtaposition on consumers' evaluation of and intention to purchase clothing items. It can hence be concluded that product design serves as an important purchase determinant. Specifically, different levels of design complexity and novelty affect consumers' aesthetic responses and in turn, influence the purchase intention.

Moreover, the results of additional analysis revealed differences in the shopping behavior of low and high CVPA consumers. These findings support Bloch's et al. (2003) results who found that consumers across the two CVPA groups differ in how much money they are willing to pay for a product and purchase intention. This study found that subjects with high scores in CVPA shop most often at specialty stores, boutiques, and department stores. Whereas, low CVPA consumer shop more often at discount stores. It was also found that subjects with a higher score in CVPA shop for apparel more frequently than subjects with lower scores in CVPA.

CHAPTER 6. IMPLICATIONS AND CONCLUSIONS

Much can be learned from the application of the findings of this study and this chapter will explore these implications. Since this study was based on Bloch's (1995) model of consumer response to product form, there are both theoretical and practical implications from this research. This chapter also includes suggestions for future research as well as limitations of the study.

Theoretical Implications

This study investigated the influence of design principles of complexity and novelty on consumers' aesthetic responses for apparel products and extends research in the area of apparel design. For greatest insight into consumer responses to a product's design, design principles such as complexity and novelty in product (apparel) designs must be considered holistically rather than individually, with respect to how consumers process them.

It has been proposed by Reber et al. (2004) that high fluency evokes more positive evaluations and that fluency is affected by the moderators of expectations and attributions. This study helps to support the importance of the perceptual fluency in aesthetic response to apparel products. This research shows that through the interaction of novelty and complexity these apparel products result in even more positive aesthetic responses due to the increase of the strength of the fluency-based experience.

Our findings extend previous studies by including CVPA as moderating factor in the effect of product design on consumers' aesthetic responses. According to Bloch et al. (2003), CVPA captures consumers' visual product aesthetics. There has not been much research

which explores visually perceived complexity and novelty with CVPA, most likely due to the fact that the concept CVPA is relatively new and was established in 2003 by Bloch et al. Further, there is no research dealing with CVPA and apparel design. The findings of this study with respect to the significant interaction effect of CVPA and design novelty on aesthetic responses opens a new perspective on apparel design. Moreover, differences in consumers' responses to visual aspect of product design (such as unity, symmetry, prototypicality) can be further understood through a concurrent examination of CVPA. Also, CVPA may have differential influence on aesthetic response to product design based on culture, gender, and age.

Managerial Implications

The interaction effect of design principles of complexity and novelty on aesthetic response may have implications for the way in which marketers and designers decide on a product design. Specific implications for practice on the amount of visual complexity and novelty in the appearance of a product follow from the results of this study. Creating a product with high design complexity and low design novelty or a product with low design complexity and high design novelty is the key for companies to remain competitive and to increase their sales volume since these combinations revealed positive aesthetic responses which in turn affects consumers' purchase intentions. Especially, when introducing avant garde styles in a line, companies will benefit by keeping the design complexity of products low. Similarly, when introducing a line of classic styles, companies need to bring design complexity in products since both low and high CVPA consumers have a more aesthetic response for complex than simple product designs.

Designers and buyers also need to keep these guidelines in mind when making selections of apparel items for a line or in the arrangement of elements within an apparel item

or a collection. A more positive aesthetic response can be achieved in several ways with regard to the right amount of visual complexity and novelty within a product design. One way of creating a successful product is combining high complexity through a mix of surface design and layout shape with familiar elements. Another way is combining low complexity through simple surface design with newness through new silhouettes or new production techniques to create unfamiliar design elements and shapes.

Based on the results of this study, most of the variance in aesthetic response can be explained by complexity, with high complexity products resulting in more positive responses than low complexity products for both, high and low CVPA consumers. Therefore, designers, marketers and buyers should keep in mind that design complexity is crucial for consumers when judging an apparel product design. Cutting costs is unavoidable in the production process since designers and buyers have a limited budget when developing a line or a product. However, removing construction details and design elements which make an apparel item complex (e.g. zippers, ruffles, surface design and texture) may be a wrong measure to cut costs since complexity is very important for a positive consumer's aesthetic response. Further, brands which mainly carry basic and classic styles should provide a good assortment in product complexity to meet their target consumers' needs.

Finally, the findings that CVPA moderates the effect of design novelty on aesthetic response should enable managers to better understand their target customers. It is suggested that managers, marketers and designers need to account for the level of their target's market CVPA when making design decisions. Sales forecasts can be more accurate when managers know who their customers are with respect to the level of centrality of visual product aesthetics. Offering novelty products for high CVPA consumers may increase the company's profit. Regarding design development, the results can also help to estimate the investment in design based on the level of CVPA of the target consumer in order to avoid over- or

underspending, since the low CVPA consumer is less discriminating with respect to product design principles (Bloch et al., 2003).

With the information about the level of their target's market CVPA and that high CVPA consumers go shopping more frequently than low CVPA consumers, retailers can increase sales. For example, high CVPA consumers might be encouraged to shop more often when marketers make these target consumers aware of new clothes and trends through advertisements or certain events, since product novelty is important for this group. Since consumers low in CVPA might not have the abilities in understanding and rating product design (Bloch et al., 2003) in comparison to high CVPA consumer, marketers and visual merchandiser need to keep that in mind when presenting new fashion styles or lines. It is suggested that shop assistants wear the new styles, so that low CVPA consumers get first an understanding of how to wear or combine certain apparel looks. With respect to online shopping sites, it is recommended not only present apparel items separately but rather in combination with other matching apparel products, so that low CVPA consumers can see a complete look and hence, other matching products which might serve as an inspiration for future purchases. In addition, when clicking on an apparel item, giving examples of "you may also like" may be important for low CVPA consumers, so that they get specific recommendations which may increase companies profit as well.

Also, fashion magazines, celebrities or advertising might influence high and low CVPA consumers differently when selecting a wardrobe. A study by Workman and Caldwell (2007) found that fashion consumer groups differ in CVPA. Based on their results, it can be expected that low CVPA consumers follow the directions in fashion magazines more precisely or imitate the look of celebrities when choosing their wardrobe. High CVPA consumers crave for individualism and may not consider fashion directions in magazines for

choosing their own fashion looks. This might suggest that celebrities and fashion magazines are an important tool in influencing low CVPA consumer's clothing choice.

Limitations

Although this study provides important insights into consumers' responses to product design, several limitations should also be noted. A limitation of this research is that only one product category (apparel - tops) was investigated. However, the results of this study can be adaptive to other apparel products, such as jackets, pants, as well as other hedonic products such as cars, jewelry, electronics and technical products (e.g. computers, cell phones). Another limitation, following from the stimuli, is that different stimuli were used for the four different complexity-novelty combinations. Using only one stimuli for each combination, but modifying it (with the help of various Photoshop tools) to develop variants for high/low complexity and high/low novelty conditions might be less confounding when judging a product design. Further, most of the participants in this study were undergraduate students. A more age diverse sample would have enhanced the external validity of the results.

Suggestions for Future Research

One potentially important topic for further research concerns the degree to which the significant interaction effect for design complexity and novelty on consumer responses is applicable to other products, such as high quality products. For this product category, consumers are much more selective. Examples include high-end luxury automobiles, watches, and luxury designer clothes. Further, nearly 32% of the variance in aesthetic response remaining unexplained suggests directions for future studies to explore interaction effects of other design principles, such as unity, familiarity, prototypicality as well as which combination of these is most preferred by consumers. Since complexity explains 45% of the

variance in aesthetic response, further research is needed to identify how specific sources of complexity (e.g. symmetry/asymmetry, radial/all-over balance) affect aesthetic responses of consumers toward apparel products.

As it has been suggested by some researchers, an aesthetically appealing product design is crucial for consumers' responses. Most consumers consider aesthetic value for functional products as the most crucial value above all others (Creusen & Schoormans, 2005). It would be interesting to see if this claim relates to functional apparel products as well. Therefore, it is useful for future research to focus on design principles for different product categories, particularly on those in which aesthetic design is constrained by functional considerations, such as sportswear and outer wear.

Moreover, apparel can be used to create optical illusions, so that the body is closer to the ideal body as apparel can increase or decrease body areas. Some design principles can increase visual weight of a body's area and thus, can change the body proportions. They can also deemphasize less ideal areas, but on the other hand wrong apparel choices can enhance these areas. For example, one determinant of complexity is number of units. The level of complexity is increased with an increase of number of units, thus adding details such as zippers, embellishments, layers of fabrics, accessories (belt, beading, bow), pockets or patterns bring emphasis to certain body parts. Hence, design principles may be further understood through examining if different body types of consumers moderate the effect of complexity on consumer preferences. For instance, it can be assumed that female consumers with full bust may dislike complex tops and jackets in comparison to woman with little protrusion of the bust since the design details mentioned above increase the dimension of the bust area. Moreover, complex skirts or pants may be less preferred by female consumers with buttocks fullness since adding details, such as zipper, side pockets, layers of fabric enhance

instead of deemphasize the less ideal body part. They may rather prefer simple skirts or pants which conceal their hips.

In addition, there are differences in shopping behavior for low and high CVPA consumers which imply that CVPA is an important variable in the psychographic segmentation. With respect to these findings, future research could examine store and national brand attitudes of low and high CVPA consumers. Further, since high and low CVPA consumers differ in their understanding of product design, differences in shopping patterns need to be examined. For example, future research could investigate whether low CVPA consumers are more dependent on other people such as friends or sales associates when selecting fashion apparel in stores.

With respect to levels of novelty for shopping environments, further research could explore how the two groups of CVPA consumers specifically respond to novel versus familiar online shopping sites. A study by Huang (2000) found that novel online shopping environments keep consumer exploring the shopping sites. Future research can explore this relationship of novel and familiar online shopping environments with different levels of CVPA consumers. It can be expected that high CVPA consumers would prefer online shopping sites with higher level of novelty, whereas low CVPA consumers may be less discriminating of novelty present in the online shopping sites.

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APPENDIX A. EXPERT PANEL PRETEST QUESTIONNAIRE







For each stimulus, the same set of questions was asked:

The top is _____.

Simple 1 2 3 4 5 6 7 Complicated

Not complex 1 2 3 4 5 6 7 Complex

The top is _____.

Unoriginal 1 2 3 4 5 6 7 Original

Common 1 2 3 4 5 6 7 Usual

Familiar 1 2 3 4 5 6 7 Novel

APPENDIX B. STUDENT PRETEST QUESTIONNAIRE

We are interested in your assessment of women's apparel. The following pages show photographs of apparel items. Please indicate your assessment of each apparel item on the scales below.





For each stimulus, the same set of questions was asked:

The top is _____.

Simple 1 2 3 4 5 6 7 Complicated

Not complex 1 2 3 4 5 6 7 Complex

The top is _____.

Unoriginal 1 2 3 4 5 6 7 Original

Common 1 2 3 4 5 6 7 Usual

Familiar 1 2 3 4 5 6 7 Novel

Last question of the questionnaire:

Do you believe to recognize the brand/s of the garments shown in the photographs?

☐ Yes
☐ No

If "YES", what brand/s do you believe to recognize?

APPENDIX C. INFORMATION LETTER

Auburn University
College of Human Sciences
Department of Consumer Affairs

INFORMATION LETTER

for a Research Study entitled

“The Influence of Novelty and Complexity on Aesthetic Response: The Moderating Role of Centrality of Visual Product Aesthetics”.

You are invited to participate in a research study to examine consumers’ responses to product designs as part of my thesis. The study is being conducted by Christin Seifert, graduate student, under the direction of Dr. Chattaraman, Assistant Professor in the Auburn University Department of Consumer Affairs. You were selected as a possible participant because you are an Auburn female student and are age 19 or older.

What will be involved if you participate? Your participation is completely voluntary. If you decide to participate in this research study, you will be asked to complete a questionnaire. The questionnaire will involve questions about demographic information and how you perceive a product’s design. Also, photographs of women’s clothing will be shown and you will be asked to evaluate them. Your total time commitment will be approximately 15 minutes.

Are there any risks or discomforts? We assure that the participation in this study would put you in no physical or psychological risks other than the minimal inconvenience of completing the survey. Personal information collected through this survey will be kept confidential and used only for the purpose of this study. No identifiers will be used to link your responses to your identity.

Are there any benefits to yourself or others? The general population may benefit from this study as product designers and marketers may produce and sell products that better fit the aesthetic preferences of their target market.

Will you receive compensation for participating? To thank you for your time you will be offered one extra credit for the class from which you are recruited from. You will need to check with your instructor as to how the one extra credit will be allocated in that course. In addition, you will have the option of entering a drawing for a gift card of \$35 to a local women’s clothing store “Behind the glass“. To have the option of entering the drawing and to acquire one extra credit, you can print off the last page of the questionnaire, sign it and turn it in. The last page of the questionnaire will not contain any questions so that you can remain anonymous. The chances of winning the gift card are between 1/240 and 1/500. Male students and students who do not choose to participate within the class will be given the option to earn the same one extra credit through alternative means as determined by the professor.

If you change your mind about participating, you can withdraw at any time during the study by closing your browser window. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Once you’ve submitted anonymous data, it cannot be withdrawn since it will be unidentifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, the Department of Consumer Affairs.

Any data obtained in connection with this study will remain anonymous. We will protect your privacy and the data you provide by not collecting IP or email addresses from research participants. Information collected through your participation may be published in a professional journal, and/or presented at a professional meeting. If so, none of your identifiable information will be included.

If you have questions about this study, please contact Christin Seifert at czs0009@auburn.edu or Dr. Chattaraman at vzc0001@auburn.edu.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Human Subjects Research or the Institutional Review Board by phone (334) 844-5966 or e-mail at hsubjec@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, THE DATA YOU PROVIDE WILL SERVE AS YOUR AGREEMENT TO DO SO. THIS LETTER IS YOURS TO KEEP.

Christin Seifert 01/ 31/ 2011

Investigator Date

Dr. Veena Chattaraman 01/31/2011

Co-Investigator Date

The Auburn University Institutional Review Board has approved this document for use from June 6, 2010 to June 5, 2011. Protocol #10-154 EX 1006

PLEASE CLICK THE BUTTON BELOW.

APPENDIX D. MAIN STUDY QUESTIONNAIRE

PART 1: In the first part, we are interested in your assessment of women's apparel. The following pages show photographs of apparel items. Please indicate your assessment of each apparel item on the scales below.



1.1 The top is _____.

| | | | | | | | | |
|----------------|---|---|---|---|---|---|---|------------|
| Not attractive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Attractive |
|----------------|---|---|---|---|---|---|---|------------|

| | | | | | | | | |
|--------------|---|---|---|---|---|---|---|----------|
| Not arousing | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Arousing |
|--------------|---|---|---|---|---|---|---|----------|

| | | | | | | | | |
|-----------|---|---|---|---|---|---|---|-----------|
| Beautiful | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Beautiful |
|-----------|---|---|---|---|---|---|---|-----------|

1.2 My purchasing this garment is _____.

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Improbable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Probable |
|------------|---|---|---|---|---|---|---|----------|

| | | | | | | | | |
|----------|---|---|---|---|---|---|---|--------|
| Unlikely | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Likely |
|----------|---|---|---|---|---|---|---|--------|

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Impossible | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Possible |
|------------|---|---|---|---|---|---|---|----------|

1.3 The top is _____.

| | | | | | | | | |
|--------|---|---|---|---|---|---|---|-------------|
| Simple | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complicated |
|--------|---|---|---|---|---|---|---|-------------|

| | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---------|
| Not complex | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complex |
|-------------|---|---|---|---|---|---|---|---------|

1.4 The top is _____.

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Unoriginal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Original |
| Common | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Usual |
| Familiar | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Novel |



2.1 The top is _____.

| | | | | | | | | |
|----------------|---|---|---|---|---|---|---|------------|
| Not attractive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Attractive |
| Not arousing | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Arousing |
| Beautiful | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Beautiful |

2.2 My purchasing this garment is _____.

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Improbable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Probable |
| Unlikely | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Likely |
| Impossible | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Possible |

2.3 The top is _____.

| | | | | | | | | |
|-------------|---|---|---|---|---|---|---|-------------|
| Simple | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complicated |
| Not complex | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complex |

2.4 The top is _____.

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Unoriginal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Original |
| Common | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Usual |
| Familiar | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Novel |



3.1 The top is _____.

| | | | | | | | | |
|----------------|---|---|---|---|---|---|---|------------|
| Not attractive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Attractive |
| Not arousing | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Arousing |
| Beautiful | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Beautiful |

3.2 My purchasing this garment is _____.

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Improbable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Probable |
| Unlikely | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Likely |
| Impossible | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Possible |

3.3 The top is _____.

| | | | | | | | | |
|-------------|---|---|---|---|---|---|---|-------------|
| Simple | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complicated |
| Not complex | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complex |

3.4 The top is _____.

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Unoriginal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Original |
| Common | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Usual |
| Familiar | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Novel |



4.1 The top is _____.

| | | | | | | | | |
|----------------|---|---|---|---|---|---|---|------------|
| Not attractive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Attractive |
| Not arousing | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Arousing |
| Beautiful | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Beautiful |

4.2 My purchasing this garment is _____.

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Improbable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Probable |
| Unlikely | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Likely |
| Impossible | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Possible |

4.3 The top is _____.

| | | | | | | | | |
|-------------|---|---|---|---|---|---|---|-------------|
| Simple | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complicated |
| Not complex | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complex |

4.4 The top is _____.

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Unoriginal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Original |
| Common | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Usual |
| Familiar | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Novel |



5.1 The top is _____.

| | | | | | | | | |
|----------------|---|---|---|---|---|---|---|------------|
| Not attractive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Attractive |
| Not arousing | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Arousing |
| Beautiful | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Beautiful |

5.2 My purchasing this garment is _____.

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Improbable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Probable |
| Unlikely | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Likely |
| Impossible | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Possible |

5.3 The top is _____.

| | | | | | | | | |
|-------------|---|---|---|---|---|---|---|-------------|
| Simple | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complicated |
| Not complex | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complex |

5.4 The top is _____.

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Unoriginal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Original |
| Common | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Usual |
| Familiar | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Novel |



6.1 The top is _____.

| | | | | | | | | |
|----------------|---|---|---|---|---|---|---|------------|
| Not attractive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Attractive |
|----------------|---|---|---|---|---|---|---|------------|

| | | | | | | | | |
|--------------|---|---|---|---|---|---|---|----------|
| Not arousing | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Arousing |
|--------------|---|---|---|---|---|---|---|----------|

| | | | | | | | | |
|-----------|---|---|---|---|---|---|---|-----------|
| Beautiful | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Beautiful |
|-----------|---|---|---|---|---|---|---|-----------|

6.2 My purchasing this garment is _____.

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Improbable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Probable |
|------------|---|---|---|---|---|---|---|----------|

| | | | | | | | | |
|----------|---|---|---|---|---|---|---|--------|
| Unlikely | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Likely |
|----------|---|---|---|---|---|---|---|--------|

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Impossible | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Possible |
|------------|---|---|---|---|---|---|---|----------|

6.3 The top is _____.

| | | | | | | | | |
|--------|---|---|---|---|---|---|---|-------------|
| Simple | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complicated |
|--------|---|---|---|---|---|---|---|-------------|

| | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---------|
| Not complex | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complex |
|-------------|---|---|---|---|---|---|---|---------|

6.4 The top is _____.

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Unoriginal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Original |
|------------|---|---|---|---|---|---|---|----------|

| | | | | | | | | |
|--------|---|---|---|---|---|---|---|-------|
| Common | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Usual |
|--------|---|---|---|---|---|---|---|-------|

| | | | | | | | | |
|----------|---|---|---|---|---|---|---|-------|
| Familiar | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Novel |
|----------|---|---|---|---|---|---|---|-------|



7.1 The top is _____.

Not attractive 1 2 3 4 5 6 7 Attractive

Not arousing 1 2 3 4 5 6 7 Arousing

Beautiful 1 2 3 4 5 6 7 Beautiful

7.2 My purchasing this garment is _____.

Improbable 1 2 3 4 5 6 7 Probable

Unlikely 1 2 3 4 5 6 7 Likely

Impossible 1 2 3 4 5 6 7 Possible

7.3 The top is _____.

Simple 1 2 3 4 5 6 7 Complicated

Not complex 1 2 3 4 5 6 7 Complex

7.4 The top is _____.

Unoriginal 1 2 3 4 5 6 7 Original

Common 1 2 3 4 5 6 7 Usual

Familiar 1 2 3 4 5 6 7 Novel



8.1 The top is _____.

| | | | | | | | | |
|----------------|---|---|---|---|---|---|---|------------|
| Not attractive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Attractive |
|----------------|---|---|---|---|---|---|---|------------|

| | | | | | | | | |
|--------------|---|---|---|---|---|---|---|----------|
| Not arousing | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Arousing |
|--------------|---|---|---|---|---|---|---|----------|

| | | | | | | | | |
|-----------|---|---|---|---|---|---|---|-----------|
| Beautiful | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Beautiful |
|-----------|---|---|---|---|---|---|---|-----------|

8.2 My purchasing this garment is _____.

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Improbable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Probable |
|------------|---|---|---|---|---|---|---|----------|

| | | | | | | | | |
|----------|---|---|---|---|---|---|---|--------|
| Unlikely | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Likely |
|----------|---|---|---|---|---|---|---|--------|

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Impossible | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Possible |
|------------|---|---|---|---|---|---|---|----------|

8.3 The top is _____.

| | | | | | | | | |
|--------|---|---|---|---|---|---|---|-------------|
| Simple | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complicated |
|--------|---|---|---|---|---|---|---|-------------|

| | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---------|
| Not complex | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complex |
|-------------|---|---|---|---|---|---|---|---------|

8.4 The top is _____.

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|----------|
| Unoriginal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Original |
|------------|---|---|---|---|---|---|---|----------|

| | | | | | | | | |
|--------|---|---|---|---|---|---|---|-------|
| Common | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Usual |
|--------|---|---|---|---|---|---|---|-------|

| | | | | | | | | |
|----------|---|---|---|---|---|---|---|-------|
| Familiar | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Novel |
|----------|---|---|---|---|---|---|---|-------|

PART 2: The following set of statements addresses how you perceive a product. Please indicate your level of agreement with each statement using the scale below.

9.

| | ← Level of Agreement → | | | | |
|--|------------------------|---|---|---|-------------------|
| | STRONGLY DISAGREE | | | | STRONGLY AGREE |
| 1. Owning products that have superior designs makes me feel good about myself. | 1 | 2 | 3 | 4 | 5 |
| 2. I enjoy seeing displays of products that have superior designs. | 1 | 2 | 3 | 4 | 5 |
| 3. A product's design is a source of pleasure for me. | 1 | 2 | 3 | 4 | 5 |
| 4. Beautiful product designs make our world a better place to live. | 1 | 2 | 3 | 4 | 5 |
| 5. Being able to see subtle differences in product designs is one skill that I have developed over time. | 1 | 2 | 3 | 4 | 5 |
| 6. I see things in a product's design that other people tend to pass over. | 1 | 2 | 3 | 4 | 5 |
| 7. I have the ability to imagine how a product will fit in with designs of other things I already own. | 1 | 2 | 3 | 4 | 5 |
| 8. I have a pretty good idea of what makes one product look better than its competitors. | 1 | 2 | 3 | 4 | 5 |
| 9. Sometimes the way a product looks seems to reach out and grab me. | 1 | 2 | 3 | 4 | 5 |
| 10. If a product's design really "speaks" to me, I feel that I must buy it. | 1 | 2 | 3 | 4 | 5 |
| 11. When I see a product that has a really great design, I feel a strong urge to buy it. | 1 | 2 | 3 | 4 | 5 |

PART 3: Below are a few questions regarding demographic information. Please check the answer that best matches your response in each statement.

10. Age

11. Academic Standing

- ☐ Freshman
☐ Sophomore
☐ Junior
☐ Senior
☐ Graduate student

12. Major area of study and college

13. Ethnicity

- ☐ African American/Black
☐ Caucasian/White
☐ Asian/Pacific Islander
☐ American Indian
☐ Multiracial
☐ Would rather not say
☐ Other

14. Please indicate how frequently you use each of the following purchasing clothing ("1" for most frequently used to "4" for least frequently used or "never" for those you have never used).

| | Most frequently | Frequently | Sometimes | Least frequently | never |
|--|--------------------|------------|-----------|---------------------|-------|
| DEPARTMENT STORES (Ex. JC Penney, Dillard's, Macy's) | 1 | 2 | 3 | 4 | 5 |
| DISCOUNT STORES (Ex. Wal-mart, Kmart, Target) | 1 | 2 | 3 | 4 | 5 |
| SPECIALTY STORES (Ex. Gap, Express, Jos A. Bank, Old Navy) | 1 | 2 | 3 | 4 | 5 |
| Others (Please specify type below): | 1 | 2 | 3 | 4 | 5 |
| <input type="text"/> | | | | | |

15. On average, how often do you go shopping for clothes (including the Internet)?

- ☐ At least once a week
- ☐ Two or three times a month
- ☐ Once in a month or two
- ☐ Once in three or four months
- ☐ Twice a year
- ☐ Once a year

16. Which of the following represents your annual household income?

- | | |
|---|---|
| <input type="checkbox"/> UNDER \$5,000 | <input type="checkbox"/> \$5,000 TO \$9,999 |
| <input type="checkbox"/> \$10,000 TO \$14,999 | <input type="checkbox"/> \$15,000 TO \$19,999 |
| <input type="checkbox"/> \$20,000 TO \$24,999 | <input type="checkbox"/> \$25,000 TO \$29,999 |
| <input type="checkbox"/> \$30,000 TO \$39,999 | <input type="checkbox"/> \$40,000 TO \$49,999 |
| <input type="checkbox"/> \$50,000 TO \$59,999 | <input type="checkbox"/> \$60,000 TO \$69,999 |
| <input type="checkbox"/> \$70,000 TO \$79,999 | <input type="checkbox"/> \$80,000 TO \$89,999 |
| <input type="checkbox"/> \$90,000 TO \$99,999 | <input type="checkbox"/> \$100,000 TO \$124,999 |
| <input type="checkbox"/> \$125,000 TO \$149,999 | <input type="checkbox"/> \$150,000 TO \$199,999 |
| <input type="checkbox"/> \$200,000 TO \$249,999 | <input type="checkbox"/> \$250,000 OR OVER |

APPENDIX E. IRB PROTOCOL FORM



Office of Research Compliance
307 Sanford Hall
Auburn University, AL 36849

Telephone: 334-844-5966
Fax: 334-844-4391
hsubject@auburn.edu

July 2, 2010

MEMORANDUM TO: Ms. Christin Seifert
Department of Consumer Affairs

PROTOCOL TITLE: "The Influence of Novelty and Complexity on Aesthetic Response: The Moderating Role of Centrality of Visual Product Aesthetics"

IRB FILE NO.: 10-154 EX 1006

APPROVAL DATE: June 6, 2010
EXPIRATION DATE: June 5, 2011

The referenced protocol was approved "Exempt" by the IRB under 45 CFR 46.101 (b) (2):

"Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:

- (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and
- (ii) any disclosure of the human subjects' response outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation."

You should retain this letter in your files, along with a copy of the revised protocol and other pertinent information concerning your study. If you anticipate a change in any of the procedures authorized in this protocol, you must request and receive IRB approval prior to implementation of any revision. Please reference the above IRB file number in any correspondence regarding this project.

If you will be unable to file a Final Report on your project before June 5, 2011, you must submit a request for an extension of approval to the IRB no later than May 16, 2010. If your IRB authorization expires and/or you have not received written notice that a request for an extension has been approved prior to June 5, 2011 you must suspend the project immediately and contact the Office of Research Compliance.

A Final Report will be required to close your IRB project file. Please note that only copies of the approved information letter should be provided to participants.

If you have any questions concerning this Board action, please contact the Office of Research Compliance.

Sincerely,

Kathy Jo Ellison, RN, DSN, CIP
Chair of the Institutional Review Board
for the Use of Human Subjects in Research

cc: Dr. Carole Warfield
Dr. Veena Chattaraman