

CEBALLOS OCHOA, LINA MARIA, Ph.D. Examining the Effects of Typicality and Novelty on Aesthetic Preference and Positive Emotions Using the MAYA Principle: The Moderating Role of Usage Situation. (2017)  
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A design principle is defined as a basic logic that explains why individuals are attracted to certain products. One design principle that has received attention in the literature is the Most Advanced Yet Acceptable (MAYA) principle, which is a two-factor theory that proposes that individuals prefer products that are simultaneously perceived as typical (i.e., familiar, good example of the category) and novel (i.e. new, unique). That is, the most commercially viable products share a balance between the aesthetic properties of typicality and novelty. To better predict product preference in apparel products, in this dissertation, the MAYA principle was explored relative to products that have yet to be tested.

The overall purpose of this dissertation was to examine the effects of the aesthetic properties related to the MAYA principle, specifically typicality and novelty, on consumer responses to apparel products. To address this purpose, the methodology includes a series of experimental designs consisting of two phases: Phase I (Preliminary Study) and Phase II (Main Study). In Phase I, the MAYA principle was explored relative to three categories of apparel products (pants, jackets, and shirts) in an experiment with repeated measures (student sample). Phase I was divided into two steps: Stimuli Selection and Testing Stimuli Selection. In the first step, Stimuli Selection, the property of typicality was explored in relation to the consumer's perception of this property. As a result, 48 drawings were generated and 15 were selected to determine the prototypes

consumers have in their minds regarding the categories of pants, jackets, and shirts.

Based on the selected prototypes, 60 product pictures were chosen as stimuli for the three categories of apparel products in accordance with the typicality and novelty of product form. Next, three judges (i.e., expert raters) assessed the typicality, novelty, and aesthetic preference of those products. In the second step of Phase I, Testing Stimuli Selection, visual analyses of the judges' ratings resulted in the selection of 30 pictures that were pre-tested ( $n = 46$  students). Based on the pre-test, a total of 21 pictures (seven pictures per category) were selected as stimuli for the class experiment ( $n = 138$  students) that rated the typicality, novelty, and aesthetic preference of those stimuli.

In Phase II, the MAYA principle was further examined with respect to shirts. The moderating role of usage situation, the relationship between aesthetic preference and positive emotions, and the mediating role of aesthetic preference were also investigated. Based on what was learned in Phase I, Phase II was divided into two steps: Stimuli Selection and Final Study. In the first step, Stimuli Selection, a total of 13 shirt pictures were rated by the same three judges used in Phase I. Based on these ratings, the second step, the Final Study, involved two pre-tests via survey distributed in TurkPrime for manipulation purposes. Eight stimuli pictures were rated in Pre-test #1 ( $n = 250$  non-students) and a total of 14 pictures were rated in Pre-test #2 ( $n = 215$  non-students). Based on these ratings, four pictures were selected as stimuli for the 2 (typicality: low vs. high) x 2 (novelty: low vs. high) x 3 (usage situation scenarios: professional oriented vs. non-professional oriented vs. neutral) between-subjects experimental design. TurkPrime

participants were randomly assigned to one of the 12 experimental scenarios using a survey (n = 487 non-students).

Phase I results revealed that while the preference-for-prototypes theory holds for pants and jackets, the MAYA principle better explains the relationships between typicality, novelty, and aesthetic preference for shirts. That is, typicality is the primary predictor of aesthetic preference for pants and jackets, while both typicality and novelty are significant predictors of aesthetic preference for shirts. Therefore, the MAYA principle does not hold for all categories of apparel. Thus, pants and jackets would likely generate higher preference if created through restrained design. Phase II confirmed that the MAYA principle holds for shirts, as results indicated that the two-way interaction of typicality and novelty was significant. Findings further indicated a positive relationship between aesthetic preference and positive emotions, as pleasant surprise, fascination, desire, and joy were positively influenced by aesthetic preference. However, results did not support the moderating role of usage situation or the mediator role of aesthetic preference.

By drawing from theories across different fields, an updated framework for empirical research on aesthetics was developed and tested. As a result, this study provides valuable insights into the MAYA principle as well as the properties of typicality and novelty relative to apparel products. Conclusions go beyond confirmation of existing results, such as that both factors, typicality and novelty, are jointly considered when explaining the aesthetic preference for products. Findings further extend theory, indicating that the properties of typicality and novelty interact, not only functioning as

suppressors but also as catalysts. Findings of this dissertation provide several theoretical, managerial, and methodological contributions to academics as well as managers and designers in the fashion industry to better understand the impact of typicality and novelty on aesthetic preference for apparel, and therefore consumer adoption of apparel products, apparel collections, and fashion trends.



EXAMINING THE EFFECTS OF TYPICALITY AND NOVELTY ON  
AESTHETIC PREFERENCE AND POSITIVE EMOTIONS USING  
THE MAYA PRINCIPLE: THE MODERATING ROLE  
OF USAGE SITUATION

by

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## APPROVAL PAGE

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## CHAPTER I

### INTRODUCTION

What makes a new product a success? What can be done to improve the odds of winning at new products? As Cooper and Kleinschmidt (2011), two of the most world-renowned authors in relation to conceiving, developing, and launching new products, state, “new-product development is probably one of the riskiest, yet most important endeavors of the modern corporation” (p. 9). Several invisible success factors have been identified as influencing product innovation, including listening to the voice of the consumer (Cooper, 1999) and investing in the best new-product ideas via effective portfolio management (Cooper, 2011). Yet, despite a company’s best efforts, new products continue to fail at alarming rates. For instance, 46% of the resources spent in the development and launching of new products in the United States go toward unsuccessful ventures. Likewise, 63% of senior executives are disappointed about the results of their firm’s new product development programs (Cooper, 2011).

When a new product reaches the consumer, its visual cues will generate initial reactions in the individual, such as evaluating the object as “beautiful” or “ugly” (Jacobsen, Buchta, Köhler, & Schröger, 2004). In some cases, perceiving an object’s beauty influences an individual more than just evaluative judgments of it. For example, consumer aesthetic response to the design of new products in the marketplace has been positively linked to sale of those products (Cooper & Kleinschmidt, 1987). Indeed, much

literature proves the importance of product design, not only for achieving success in new product launches, but also company-level gains. For instance, there is a strong correlation between company image (by using design) and the contribution made by new products to company turnover (Trueman & Jobber, 1998). Merritt (2010) even argued that there is a strong connection between beauty and business, and that what the author calls the “A Factor” (aesthetic factor), should be used to make strategic decisions, including judging ideas (e.g., new products) (p. 72). Nevertheless, when linking product design to marketing strategy and new product development, there are numerous design principles, consisting of laws, guidelines, and considerations, that can guide strategic decisions and determine good product design versus bad (Lidwell, Holden, & Butler, 2010). Finally, there are also various means of testing consumer response to products via these principles.

To better predict product preference, Berlyne (1971) emphasized certain design principles called “two-factor theories.” He stated, “Since the Renaissance, most attempts to specify the conditions making for beauty or aesthetic pleasure have focused on the necessity of equilibrium between two mutually counterbalancing factors” (p. 125). Berlyne (1971) cited Descartes who posited that the most agreeable object “is not the one that is perceived by it either very easily or with great difficulty but the one that is not so easy to become acquainted with that it leaves something to be desired in the passion” (p. 125). In light of the interest in two-factor theories, the Most Advanced Yet Acceptable (MAYA) principle, initially coined by Loewy (1951), has been introduced as the logic

that explains why humans prefer a balanced mix of typicality and novelty, and support this mix within the most commercially viable products. This principle establishes that both typicality and novelty (as aesthetic properties) are opposites on a continuum and are important for determining product design preference, and ultimately, product sales (Hekkert, 2006; Hekkert, Snelders, & van Wieringen, 2003; Lidwell et al., 2010). Clearly this principle is critical, as the appearance of a product or product design “is an unquestioned determinant of its marketplace success” (Bloch, 1995, p. 16).

Understanding consumers’ reactions to product design provides marketers with additional tools for product differentiation (Cox & Cox, 2002; Leder, 2011; Ravasi & Lojacono, 2005; Schmitt & Simonson, 1997; Trueman & Jobber, 1998). Thus, testing the MAYA principle relative to apparel products has potential for academics as well as practitioners and therefore is the primary goal of the dissertation. However, before discussing the research gaps, research objectives, and contributions of the dissertation, it is necessary to provide a background on the topic and its importance, to locate the reader within this wide area of study, as well as to clarify some additional considerations.

### **Background**

Every day an individual encounters thousands of objects, including products, in the physical world, to which he or she must react. Indeed, the body’s senses are the doorways to perceiving the physical world that surrounds it. In 1735, the German philosopher Alexander Gottlieb Baumgarten proposed the term *aesthetics* as a name for this phenomenon, as its root from the Greek verb *aesthanomai* means, “to perceive”

(Berlyne, 1974, p. 1). Aesthetics, then, is about perceiving with all senses. However, as Hekkert (2006) states, “the most prominent sensory system in perception research, and maybe the most dominant modality in our experience of the world, is the visual system” (p. 162). In other words, for humans, aesthetic response is based primarily on reactions to visual stimuli. Thus, *aesthetic experience* is framed as a consequence of *how* we perceive a stimulus visually. Consequently, throughout this dissertation, “aesthetics” will be used to specifically address *visual aesthetics*. Likewise, attention will be given to objects that are classified as products when determining *what* the observer perceives during the aesthetic experience.

In order to position this study within the broader topic of product aesthetics, the next section begins with discussion of product aesthetics in relation to marketing. This is followed by discussion of the aesthetic phenomenon. Finally, key terms used throughout the dissertation are identified and defined.

### **The Importance of Product Aesthetics in Marketing**

Despite the strong connection between aesthetics and arts, “Aesthetics is not restricted to arts of artistic expression” (Hekkert & Leder, 2008, p. 260). In fact, marketing relies heavily on aesthetics. Some types of marketing even concentrate on the senses. For instance, Krishna (2010) defines *sensory marketing* as marketing that engages the consumer’s senses and affects behavior by focusing on how sensory aspects of products affect choice. Similarly, Schmitt and Simonson (1997) define *marketing aesthetics* as “the marketing of sensory experiences in corporate or brand output that

contribute to the organization's brand's identity" (p. 18). These authors argue that a marketing based on aesthetics offers tangible value to an organization, as it creates loyalty, allows for premium pricing, and generates attention in the consumer so the product and brand can assist the consumer in cutting through information clutter (Schmitt & Simonson, 1997). There are countless examples of companies that utilize marketing focused on aesthetics. For example, Nike has reinforced its identity through integrating environmental aesthetics into its retail spaces and product displays (Schmitt & Simonson, 1997). Likewise, Apple employed design in its high-tech revitalization of the brand (Ravasi & Lojcono, 2005).

Authors focusing on product aesthetics also point to the emergence of product design as a topic of inquiry in management studies (Ravasi & Stigliani, 2012), marketing (Luchs & Swan, 2011), and brand management (Creusen, 2011). Additionally, product design as a topic in consumer behavior research allows consumer research to function as an interconnected field that builds "bridges" with other fields (Peracchio, Luce, & McGill, 2014, p. v). On the flip side, authors in product design, such as Hekkert and Schifferstein (2008), recognize marketing as a discipline contributing to product design, in that "marketing studies how the products find their way to consumers" (p. 7). Clearly, the connections between product design and business-specific disciplines like marketing, management, branding, and consumer behavior are evident in the literature. For instance, because research in marketing often employs communication models (Solomon, 2013), response to the visual domain of product design has been presented as one part of the

whole of the communication process (Crilly, Moultrie, & Clarkson, 2004). Because a product is encoded with a message created through its design (Crilly et al., 2004), companies will strategically employ design to prompt visual recognition of their brands among consumers (Karjalainen & Snelders, 2010). Design has also been used in company strategy to drive brand repositioning, refocus brand identity, and expand product ranges (Ravasi & Lojcono, 2005).

Product design can also communicate beauty, in as much as attractive objects are believed to work better (Hekkert, 2014). In many ways, great product design is an opportunity for achieving differential advantage in the marketplace (Creusen & Schoormans, 2005; Trueman & Jobber, 1998). For instance, higher visual levels of product newness tend to elicit more affective reactions and symbolic associations than lower levels of product newness (Radford & Bloch, 2011). The visual aesthetics of products can also enhance consumers' quality of life thanks to the enjoyment that comes from aesthetic properties (Bloch, Brunel, & Arnold, 2003). For instance, consumers that place importance on product aesthetics perceive beautiful products as one means of positively influencing quality of life and satisfying higher level needs (Yalch & Brunel, 1996). In this case, "the aesthetic is an end in itself," in that humans enjoy favorable aesthetic experiences (Berlyne, 1971, p. 117).

According to market data, the teenagers of today, who are the adults of the future, are more visually-driven than older generations, are more influenced by the Internet when making purchasing decisions, and are also very tech-savvy (Euromonitor, 2013).

Moreover, one market research company, WeSEE, reports that young shoppers even perform a “visual search” when looking for visual clues and inspiration to support their browsing and online purchases (Digital Strategy Consulting, 2013). The findings of these reports indicate that the younger generation is not just constantly connected to the Web, but seeks to search the Internet via images, avoiding text as much as possible. Likewise, another market research company, Trendwatching (2015), emphasizes the importance of visual materials as a means of empowering consumers. According to Trendwatching, consumers get multiple ideas about what they want and what they can have from visuals. These trends imply that future consumers will tend to be even more visually-driven than previous generations and derive more pleasure and information from visual stimuli. Consequently, consumers will and are becoming more sensitive to the aesthetic cues of products, and particularly those that are visual.

Marketing is interested in the reaction of consumers to aesthetic cues of products, not just as one of the classic four P’s of the marketing mix, but because product form has been linked to sales success (Bloch, 1995). The impact of aesthetic properties on product evaluation is relevant because marketing is concerned with how product attributes lead to consumer choice (Lim & Olshavsky, 1988). Because vision is the most influential of the senses for establishing product preference (Crilly et al., 2004; Hekkert & Leder, 2008), decisions regarding the selection of designs based on the visual properties of product image are also relevant, and particularly so online. Indeed, Internet retailing registered value growth of 13%, reaching sales of 271 billion USD in 2015 in the U.S.

(Euromonitor, 2016). Moreover, online retailing is on the rise, with 60% of all U.S. retail sales expected to involve the Internet by 2017, while accounting for about 10.3% of total retail sales (Dusto, 2013). As a result, the rise of e-commerce is one of the main reasons for the American retail crisis of 2017, which has included multiple bankruptcies (e.g., Macy's, Sears, Payless) (Thompson, 2017). In regards to apparel products online, the NPD Group reports that online apparel sales increased by double digits in all top U.S. markets (> +11% during the 12 months ending in February 2015 as compared to the prior year). Online sales of apparel already represent 8% of the total apparel sales in certain market areas, like New York (Marshall, 2015). Internet retailing forecasts by category further indicate that apparel and footwear will experience a value growth of 42.4% by 2020 (Euromonitor, 2016). Not surprisingly, one designer apparel manufacturer, Ralph Lauren, is projected to reach 1 billion USD in online sales in the next few years (Lidner, 2015). Nevertheless, despite the increasing relevance of online sales and the importance of aesthetics for practitioners as well as academics, the topic involves certain challenges, the main one being its complexity. In order to fully introduce the topic of the dissertation, discussion of the various facets involved in the study of consumer responses to the visual aesthetics of products is necessary.

### **The Complexity of the Aesthetic Phenomenon**

The study of aesthetics has resulted in various approaches to and conceptions of the topic—including a connection to the supernatural—generating not just complexity, but speculation (Berlyne, 1971). Due to the multiple perspectives, disciplines, and fields



of study that explore the phenomenon of aesthetics, one of the main challenges to understanding the topic is the multiplicity of terms used to discuss the same concepts, as well as lack of definitions for others. As Kozblet and Kaufman (2014) point out, “there are numerous aesthetic constructs... Each construct can itself be operationally defined in various ways and studied via a range of methodologies” (p. 87). Thus, the following subsection includes an overview of the topic, as well as a few initial definitions applicable to the present study, starting with the link between aesthetics and consumer response.

#### *From Aesthetics to Consumer Response*

Berlyne (1974) employed aesthetics to investigate how humans acquire knowledge through perception and imagination. For Berlyne, “aesthetics” can be classified as either speculative or empirical. Speculative aesthetics refers to the philosophical study of aesthetics that aims to “make general statements about the entities, concepts, terms, and values connected with art, beauty” (p. 3). One example of this can be found in the works of Harold Osborne, a prolific author within the aesthetics literature. Osborne (1986) dedicated an entire article to discussing the roots and meaning of symmetry, starting with Classical antiquity and the Greeks, to the Middle Ages, the Renaissance, and up to the modern period. The goal was to delineate the different concepts (e.g., dynamic symmetry) and their evolution.

As for Berlyne’s second type of aesthetics, empirical aesthetics is concerned with the behavioral sciences’ (e.g., psychobiology, sociology) interest in aesthetics and derives

conclusions from observation, specifically controlled observation (Berlyne, 1974). For example, any work that involves an experimental approach using mathematics in the analysis of aesthetics-based data can be classified as empirical aesthetics (e.g., Hung, & Chen, 2012). As will be discussed in full in Chapter III, the focus of this dissertation is empirical aesthetics.

When reviewing articles and books on aesthetics, it is common to find that each author proposes his or her own definition of the term. Like Berlyne (1974), to paraphrase Fiore, Moreno, and Kimle's (1996a) definition, aesthetics is the nature of the rewarding quality of the aesthetic object or experience, the activated state of awareness in relation to the qualities of the object, and the involvement and imagination involved in this process (p. 30 - 31). The same authors later propose a different definition: "Aesthetics is the study of human response to the non-instrumental quality of the object or event; specifically, aesthetics addresses the activated internal processes, the object or event's multisensory characteristics, and the psychological and sociocultural factors affecting the response of the creator or the appreciator to the object or event" (Fiore, Moreno & Kimle, 1996c, p. 178). In contrast, Hekkert (2014) offers a more succinct definition: "aesthetics is defined as sensorial gratification" (p. 279). However, Hekkert's definition is rather general, while Fiore et al.'s definition includes both events and the creator of the object.

Other authors, such as DeLong (1998), define aesthetics as the experience or understanding of the response involved in the evaluation of something excellent and valued. For DeLong, this experience is about connecting with the object and implies

interest and involvement in what the observer senses and feels. DeLong (1998) writes, “Aesthetics is about learning what visual qualities people are attracted to and make evaluative judgments about” (p. 5). Despite the emphasis DeLong put on the visual aspect of the aesthetic experience, Berlyne (1974) posited that aesthetics is not limited to the visual senses. However, because the focus of the present study is the visual, DeLong’s working definition of aesthetics is the most appropriate.

An aesthetic experience evokes the notion of beauty, which is the main interest of art history as well as philosophical and psychological aesthetics (Jacobsen, 2006; Vartanian, 2014). Some definitions of aesthetics, such as that provided by Palmer, Schloss, and Sammartino (2013), even include the relation of the concept to the sense of beauty. Indeed, because most authors seem to agree that aesthetics is the experience of perceiving something that is attractive to the observer, it is necessary to define the genesis of the aesthetic experience as well as the outcome of it. For Berlyne (1971), *stimuli* refers to “some condition causing a sense organ to be excited” (p. 35). A stimulus (i.e., product), therefore, is the cause that leads to an aesthetic experience. The outcome or reaction to this stimulus is considered as the “response” and is directly linked to the stimulus (Berlyne, 1971). Berlyne defined *response* as the “activities of muscles and glands” and *behavior* as the association between stimulus and response (p. 36). Based on Berlyne (1974), Veryzer (1993) defined the concept of “aesthetic response” as “the reaction a person has to an object (e.g., product) based on his or her perception of the object” (p. 224). As will be discussed next, in studies that consider consumer response as

the outcome of aesthetic experience, other authors, like Bloch (1995), refer to the same concept as “consumer response,” in that they analyze the aesthetic response from a consumer behavior perspective. Among the possible consumer responses, positive emotions such as joy are included. This will be explained in detail in the next chapter.

#### *From Product Design to Products*

The product is the stimulus as well as *what* the observer perceives during the aesthetic experience. Therefore, it is relevant to consider “product design,” as it is the field wherein these products are produced. Bloch (2011) writes, “Design refers to the form characteristics of a product that provide utilitarian, hedonic, and semiotic benefits to the user” (p. 378). However, other authors might not agree with this definition. Indeed, Luchs and Swan (2011) analyzed 168 articles related to product design published in the top eight marketing journals from 1995 and 2008. The authors examined the product design definitions used by marketing scholars and found that the definitions focused upon dimensions of the product, either product “form,” product “function,” or both. Bloch’s focus on product form is most relevant to this dissertation, while function will not be addressed.

It is important to define what is meant by “product form” (Bloch, 1995). For Bloch, the first term, “product,” refers to the wide variety of goods and services that marketers consider in the “P” of product. Similarly, based on a marketing dictionary, Imber and Toffler (2000) present the concept as, “an object, service, activity, person, place, organization, or idea. Each product has its own benefits, styling, quality, brand

name, and packaging that gives it its own identity and distinguishing characteristics” (p. 447). “Form” relates to a number of elements that are mixed together when designers create the product (Bloch, 1995). Bloch’s interest in the “product” equates to Fiore, Moreno, and Kimle’s (1996b) interest in the “object,” where the aesthetic experience starts with the creative process of the object creation. Fiore et al. (1996a, 1996c) also analyze the “creator” or designer of the object, as well as the “appreciation process” and the “appreciator,” and consider each as separate aspects of the aesthetic experience.

Theoretical discussion of product design by Hekkert and Leder (2008) also focused on the formal qualities of objects, such as size and color, except the authors do not use the same concept of product form (Bloch, 1995). For Hekkert and Leder (2008), the product is the aesthetic object with structural visual properties that act as stimuli to the observer. Fiore et al. (1996a) additionally described the same concepts of product form (Bloch, 1995) and aesthetic properties (Hekkert & Leder, 2008); however, they classified them as the “formal aspects” of the “object” (Fiore et al., 1996a, p. 98).

As Luchs and Swan (2011) explain, product design can refer not only to the object of design but to the design process. Likewise, Davis (1996) suggests that the concept of design includes two things: process and product. Although the focus of the dissertation is on the product rather than the process, based on Ravasi and Stigliani’s (2012) analysis, in some ways the design process will be considered. That is, these authors classified three different stages of the design process: *design activities*, *design choices*, and *design results*. Regarding the last stage, “design results,” they identified three types of empirical

research: design and performance, design and consumer response, and design and operation efficiency. Thus, based on Ravasi and Stigliani (2012), the design result of “design and consumer response” is addressed in the present study, if only tangentially. In other words, in this dissertation consumer response is examined through visual perception of designed products while considering form and not function.

Along with clarifying the relation between the terms “product design” and “product,” it is also important to identify the type of product under study. According to Kaiser (1997), there is confusion between the terms used to talk about clothing. Terms range from “apparel,” to “fashion,” to “dress.” For the sake of clarity, the focus of this dissertation will be *apparel* products, which are defined by Sproles (1979) as “a body covering, specifically referring to an actual garment constructed from fabric” (as cited by Kaiser, 1997, p. 4). Terms like “clothing,” “adornment,” or “dress,” will not be used, as this dissertation is not concerned with modifications of the body (e.g., tattoos) or with appearance management and perception.

Specifically for apparel products, the occasion for which apparel items are purchased (Moye & Kincade, 2002) can be influential in the consumers’ aesthetic experiences. Empirical research on sports apparel further suggests that consumer perceptions are influenced by usage situations (d'Astous & Chnaoui, 2002). In fact, during the purchasing process, consumers take into consideration the “where,” “when,” and “how” of the consumption (Belk, 1975). A consumer then may prefer an item of apparel over another because of the occasion for which the apparel will be purchased. For

instance, if a consumer wants to get comfortable clothes for staying at home on a rainy day, a shirt made of a see-through and shiny material may not be the most attractive option when browsing new products. Instead, a simple long-sleeved t-shirt may be the most attractive item to purchase for that occasion of use. Consequently, the perception of products involves not only the type of stimuli (e.g., apparel) being observed, but also situational factors (e.g., usage situation) influencing that experience, along with other factors that will be further discussed in Chapter II.

In conclusion, this subsection on the complexity of the aesthetic phenomenon provided an overview of the basic concepts helpful to understanding the overall topic. For the sake of further clarity, Table 1 distills some of these initial concepts, by highlighting key areas of focus for the dissertation.

Table 1. Conceptual Focus of the Dissertation

Concepts	Associated Concepts and Definitions	Focus of the dissertation
Aesthetics	<p><b>Aesthetics</b> is “the study of human response to the non-instrumental quality of the object or event; specifically, aesthetics addresses the activated internal processes, the object or event’s multisensory characteristics, and the psychological and sociocultural factors affecting the response of the creator or the appreciator to the object or event” (Fiore et al., 1996c, p. 178).</p> <p><b>Aesthetics</b> is “to perceive” with all the senses (Berlyne, 1974, p. 1).</p> <p><b>Aesthetics</b> is “defined as sensorial gratification” (Hekkert, 2014, p. 279).</p>	Aesthetics is “about learning what <b>visual qualities</b> people are attracted to and make evaluative judgments about” (DeLong, 1998, p. 5). Focus on the sense of vision.
Classification of research on aesthetics	<p><b>Speculative aesthetics</b> refers to the philosophical study of aesthetics that aims to “make general statements about the entities, concepts, terms, and values connected with art, beauty” (Berlyne, 1974, p. 3).</p> <p><b>Empirical aesthetics</b> is concerned with the behavioral sciences’ (e.g., psychobiology, sociology) interest in aesthetics and derives conclusions from observation, specifically controlled observation (Berlyne, 1974).</p>	Focus on <b>empirical aesthetics</b> .
Stimuli	<p><b>Stimuli</b> (i.e., product) refers to “some condition causing a sense organ to be excited” (Berlyne, 1971, p. 35).</p> <p><b>Product form</b> refers to the visual characteristics of the product acting as stimulus (Bloch, 1995).</p> <p>The product is the <b>aesthetic object</b> with structural visual properties, or <b>aesthetic properties</b>, that act as stimuli to the observer (Hekkert &amp; Leder, 2008).</p>	The <b>apparel</b> product is the <b>stimulus</b> as well as <i>what</i> the observer perceives during the aesthetic experience. The focus is given to the <b>product form</b> that includes certain <b>aesthetic properties</b> .



Concepts	Associated Concepts and Definitions	Focus of the dissertation
	<p>The product is an “<b>object</b>” with certain “<b>formal aspects</b>” (Fiore et al., 1996a, p. 98).</p> <p>A product of <b>apparel</b> is defined by Sproles (1979) as “a body covering, specifically referring to an actual garment constructed from fabric” (as cited by Kaiser, 1997, p. 4).</p>	
Product design	<p>“<b>Design</b> refers to the form characteristics of a product that provide utilitarian, hedonic, and semiotic benefits to the user” (Bloch, 2011, p. 378).</p> <p><b>Product design</b> focuses upon dimensions of the product, either product <b>form</b>, product <b>function</b>, or both; and can refer to the <b>object of design</b> and/or the <b>design process</b> (Luchs &amp; Swan, 2011).</p>	<b>Product design</b> is the field wherein products are produced. Focus on <b>product form</b> and not function as well as the <b>object of design</b> and not the process.
Outcome of aesthetic experience	<p><b>Consumer response</b> is the aesthetic response from a consumer behavior perspective (Bloch, 1995).</p> <p><b>Aesthetic response</b> is “the reaction a person has to an object (e.g., product) based on his or her perception of the object” (Veryzer, 1993, p. 224).</p> <p><b>Response</b> is the “activities of muscles and glands” (Berlyne, 1971, p. 36).</p>	Focus on <b>consumer response</b> . There are various types of consumer responses, which include, for example, positive <b>emotions</b> such as joy.
Usage Situation	The occasion for which an apparel item is purchased and refers to the setting in which consumption will occur (Moye & Kincade, 2002).	The outcome of the aesthetic experience is influenced by the <b>usage situation</b> .

## **Research Gaps**

Despite the academic and managerial relevance of studying aesthetics, there is still much to learn about this complex phenomenon, and specifically in relation to the properties of the MAYA principle. MAYA helps researchers to understand the contradiction that is implicit in the preference-for-prototypes theory. Whitfield and Slatter (1979) argue the importance of categorization and prototypicality (i.e., typicality) when establishing product preference. However, most authors focusing on categorization and the preference-for-prototypes theory have not considered the opposite scenario, wherein consumers are attracted to products that are novel and different from the prototype (e.g., DeLong & Minshall, 1988). Authors that support typicality, such as Whitfield and Slatter (1979), make the assumption that most consumers prefer products that are closer to the prototype. Instead, the MAYA principle allows for a more universal way of looking at product preference, while considering opposing aspects of the phenomenon. As research indicates, novelty is an important determinant of aesthetic preference (Berlyne, 1971). Nevertheless, in the real world, a relevant percentage of success as well as failure in new product commercialization can be attributed to the product's uniqueness and innovativeness (Cooper & Kleinschmidt, 1990). Thus, in the launching of new products, novelty can become both a key factor of success as well as a reason for failure. Consequently, a balanced approach to new product development based on the MAYA principle can offer fewer risks to a company as well as the possibility for greater returns.

Although Berlyne (1971) positions novelty as one of the main determinants of aesthetic preference, later works on aesthetics suggest that typicality, rather than novelty, accounts for most of the variance explained in preference (Martindale, Moore, & West, 1988). Limited studies examine both typicality and novelty in apparel products, as so far studies have utilized other types of stimuli such as words (Martindale et al. , 1988), sanders, telephones, teakettles, medium-size cars (Hekkert el at., 2003), car driver environment (Tractinsky, Abdu, Forlizzi, & Seder, 2011), and urban compact electric concept vehicles (Diels, Siamatas, & Johnson, 2013). Clearly, while the MAYA principle has been tested with various products, it has not been tested with apparel.

There also remains much to learn about aesthetics of products in general from the marketing perspective. Despite its high number of citations, Bloch's (1995) model is limited in its classification, definition, and operationalization of the different psychological responses to product form. Therefore, this dissertation addresses that gap and utilizes additional theories in order to provide further explanation of product-based aesthetic response phenomena. Furthermore, despite recognition of the influence of situational factors in consumer responses to product form (Bloch, 1995), aesthetics research usually disregards the effects of usage situation (e.g., Cox & Cox, 2002), which is influential in the apparel buying process (d'Astous & Chnaoui, 2002). Therefore, usage situation is considered in this dissertation.

From a branding perspective, Ravasi and Lojacono (2005) argue that design is not only useful for enhancing product styling (i.e., product form) but is also a “powerful

symbolic medium for expressing or reinforcing a brand” (p. 71). Verganti (2003) adds that design needs to be based in a product language that drives design innovation. That is, those brands, including fashion brands, that better understand product form, will be better equipped to successfully communicate to consumers through product design. Achieving this involves understanding the right balance between how a brand should manage aesthetic factors, such as typicality and novelty, in its new product development, from individual products to collections. Yet, with a few exceptions, apparel products are frequently overlooked within aesthetics research in general.

Although aesthetics research on apparel products has focused on product characteristics such as complexity (e.g., Cox & Cox, 2002) and categorization (e.g., DeLong & Minshall, 1988), such studies stop short of examining other aesthetic properties of these products. Furthermore, results of quantitative studies such as DeLong & Minshall (1988) have included just one part of the MAYA principle (categorization/preference-for-prototypes) without simultaneously considering the other (i.e., novelty). Fiore et al. (1996c) acknowledged that textile and clothing researchers have contributed to the understanding of the nature of mental structures of apparel. However, there is a need to not just consider dependence of aesthetic preference on goodness of fit with the cognitive structure (i.e., typicality) but also discrepancy with the cognitive structure (e.g., novelty).

Research gaps in the study of aesthetics are not restricted to the field of textiles and apparel. Academic marketing research in general has overlooked product design,

despite its long-term relevance to marketing strategy and increasing popularity (Bloch, 1995, 2011), and the fact that opportunities for using visual design as part of strategy in brand management have gained more attention in the literature (Creusen, 2011).

Thus far, aesthetic research on apparel has not considered its various product properties (e.g., novelty) as well as psychological considerations (e.g., aesthetic preference), despite the importance of these properties to apparel designers and retailers. Within apparel-related research, fashion drawings have most often been used as stimuli (e.g., Cox & Cox, 2012) as well as photographs of women wearing apparel (e.g., DeLong & Minshall, 1988). Yet, very little research has included experiments with pictures presenting the product as it is shown to the consumer in an online shopping environment (e.g., Rahman, Yan, & Liu, 2010). Categories of apparel studied thus far include sweaters, jackets, pants, and skirts, mainly via drawings. None of these studies have focused on typicality and novelty. Consequently, this dissertation utilizes drawings of apparel for exploring the aesthetic property of typicality while using apparel product photographs for testing the MAYA principle.

There is also a need for more research specifying the aesthetic properties of apparel products and investigating the effects of these properties on consumer response. Perhaps a reason for the lack of aesthetic research on apparel is that most research on product form is focused on products that are produced in very high quantities, have a long life-cycle, and require considerable investment in the production process (e.g., cars in experiments conducted by Hekkert et al., 2003). In contrast, fashion products in general

are comparably not that expensive to create or produce, are sometimes not produced in high quantities, and tend to have shorter life-cycles.

Alongside product bias, the literature on aesthetic response related to apparel products also demonstrates a gender bias. This may be related to the fact that apparel is often linked to women and usually seen as a feminine product (Kawamura, 2005). For instance, Cox and Cox (2002) analyzed consumer response to women's apparel products with both female and male respondents. However, the authors did not report nor clarify whether they controlled for the gender effect on the overall aesthetic preferences of respondents. To address this gap, the Preliminary Study as part of this dissertation included responses from both genders in data collection.

Lastly, in relation to consumer responses that involve emotions, a review of emotions research in marketing between 2002 and 2013 revealed that, despite the importance of emotions as predictors of human behavior, very little research has been dedicated to their study (Gaur, Herjanto, & Makkar, 2014). During the period under review, only 2.37% of available research articles were related to emotions. Furthermore, the study of emotions is hindered by the absence of research, specifically on the positive emotions that can be experienced through product interactions (Desmet, 2012). Some of the reasons for the lack of research on emotions include the complexity of the topic, as well as disagreement among authors over the definitions and operationalization of emotions (Gaur et al., 2014). In order to address this gap, the present study considers consumers' emotional responses to product form, and specifically positive emotions.

### **Research Design: Purpose and Objectives**

In order to address the abovementioned research gaps, the overall purpose of this dissertation is to examine the effects of specific aesthetic properties of apparel products on consumer responses. Emphasis will be placed on typicality and novelty, as they are the main properties influencing preference as examined by the Most Advanced Yet Acceptable (MAYA) principle. Five objectives were developed to help achieve the purpose. The first objective is to explore the MAYA principle relative to three categories of apparel products (pants, jackets, and shirts). The rest of the objectives further examine the MAYA principle for only one of these categories. Thus, the second objective is to examine the effects of typicality and novelty on consumer responses, as measured in terms of aesthetic preference. The third objective is to identify the moderating role of usage situation in the relationship between the aesthetic properties (typicality and novelty) and aesthetic preference. The fourth objective is to examine the relationship between aesthetic preference and positive emotions. The fifth and final objective additionally examines the mediating role of aesthetic preference between the product form and positive emotions.

As will be discussed in full within Chapter III, the research design addresses the purpose in two phases: (1) Preliminary Study and (2) Main Study. Phase I: Preliminary Study focuses on selecting the proper stimuli for exploring the MAYA principle in the three apparel categories. Phase II: Main Study expands upon the understanding of the

MAYA principle by examining one category of apparel in depth. Both phases are briefly explained in the following sections.

### **Phase I: Preliminary Study**

Selection of proper stimuli for the Preliminary Study required an initial understanding of the property of typicality in relation to the consumer's perception of this property. To this end, the initial goal of Phase I was to explore and identify the prototypes that consumers have in their minds regarding the three categories of pants, jackets, and shirts. Based on these prototypes, the goal was to select stimuli for each of the categories (sets of product pictures per category) in accordance with the typicality and novelty of product form, as well as to assess respondents' perceived typicality, perceived novelty, and their influence on aesthetic preference relative to these products. Based on these assessments, the final goal was to generate a reduced set of seven product pictures per each of the three categories of apparel (total of 21 pictures) for use as stimuli.

Drawing from the MAYA principle (Hekkert et al., 2003) and the preference-for-prototypes theory (Whitfield & Slatter, 1979), the main objective of the Preliminary Study was to explore the MAYA principle in the three categories of apparel (pants, jackets, and shirts) by using the selected stimuli. In other words, to test the relationship between the properties of typicality and novelty, as well as aesthetic preference. Thus, the Preliminary Study assessed the relative importance of perceived typicality vs. perceived novelty in explaining aesthetic preference per category. In addition, the most appropriate stimuli (pictures and category) were selected for Phase II, the Main Study.



## **Phase II: Main Study**

As will be explained in Chapter II, the Main Study involved the integration of several conceptual frameworks, including the framework of consumer response to product form (Bloch, 1995), the aesthetic properties of products (Hekkert & Leder, 2008), appraisal theory (Desmet, 2003; Scherer, Schorr, & Johnstone, 2001), positive emotions evoked by products (Demir, Desmet, & Hekkert, 2009; Desmet, 2003, 2012), the preference-for-prototypes theory (Whitfield & Slatter, 1979), and the MAYA principle (Hekkert et al., 2003). Based on what was learned in the Preliminary Study, the Main Study aimed to further examine the effects of typicality and novelty on aesthetic preference in a specific apparel category, and to examine the effect of aesthetic preference on the positive emotions evoked by the product form. Finally, Phase II involved an examination of the moderating influence of usage situation as well as the mediation role of aesthetic preference.

### **Scope and Significance**

The study of consumer responses to the visual properties of typicality and novelty in apparel products is important from both an academic and a managerial perspective. In this section, both are briefly discussed and will be elaborated upon in later chapters.

### **Theoretical Contributions**

The dissertation will offer several contributions to the academic literature. First, this empirical study will test theory in order to examine a specific phenomenon. More precisely, this dissertation tests the MAYA principle by drawing from different

frameworks and theories (e.g., Bloch, 1995; Whitfield & Slatter, 1979), in order to contribute to the further understanding of this principle relative to products that have yet to be tested. For example, the Preliminary Study extends the understanding of the prototypical mental images consumers have with respect to certain categories of apparel. Likewise, both the Preliminary Study and the Main Study extend the understanding of the visual aesthetic properties of typicality and novelty by explaining their influences on aesthetic preference. Moreover, the Main Study explains the emotional reactions to typicality and novelty while examining the moderating effect of usage situation on the experiences consumers have with apparel products. In brief, this dissertation contributes to the literature by testing theory, expanding understanding of the aesthetic property of typicality for consumers, and extending understanding of the MAYA principle in apparel products as well as the effects of typicality and novelty on consumer responses.

Second, this dissertation research draws from theoretical foundations across several different fields. For instance, the aesthetic properties of products (Hekkert & Leder, 2008) from the field of product design are employed in order to address the lack of description of product form in the framework of consumer responses to product form (Bloch, 1995) from marketing. Finally, by drawing on appraisal theory (Desmet, 2003; Scherer et al., 2001) and the positive emotions evoked by products (Demir et al., 2009; Desmet, 2003, 2012), this dissertation is among the first studies to apply findings from product design to research in consumer behavior. Findings help to further elaborate upon

similarities between existing frameworks from different fields and point to the ways marketing can be enriched by the inclusion of product design research.

### **Managerial Contributions**

This research offers practical value to managers in several ways. For example, when comparing consumers who buy apparel in brick-and-mortar stores with those who buy online, online consumers are mainly guided by the visual and written descriptions of the product, while offline consumers in retail stores have the option to touch and try on the clothes they want to buy. The online environment does not offer consumers the possibility of interaction with the product through other senses, such as touch. Consequently, vision is the most relevant sense for the consumer during the online product aesthetic experience. That is, as Radford and Bloch (2011) point out, “Before consumers can judge the competitive newness of a product based on its functionality, they first encounter its visual form” (p. 208). Consequently, findings of this dissertation allow for a better understanding of how the product form influences consumer responses. Moreover, positive psychological responses trigger approach responses (Bitner, 1992; Bloch, 1995); therefore, an understanding of these emotional effects can shed light on how products can be better advertised and promoted to consumers. Lastly, as usage situation is relevant to apparel products, brand managers can gain insight into how it can be used to their advantage not only in the design of a new product, but in its commercialization.

Apparel product designers can also benefit from this research. As this dissertation specifically focuses on establishing the most commercially viable products based on the MAYA principle, findings shed light on how this principle varies relative to different categories of apparel. Furthermore, a better understanding of the prototypical images that consumers have about certain categories of apparel provides useful information to brands that are considering seeking consumer input when incorporating typicality in product designs. All of this is useful when designing new collections, not only for defining the ideal typicality/novelty proportion per product, but also for incorporating this principle into a collection as a whole, particularly for companies/brands seeking to achieve more efficient communication with consumers through their products.

### **Definitions of Key Terms**

The following table provides the definitions of the terms used throughout the dissertation.

Table 2. Definition of Key Terms

Key Term	Definition
<b>Aesthetic Experience</b>	A consequence of how we perceive a stimulus visually due to the importance of the visual system in our experience of the world (Hekkert, 2006, p. 162). This experience evokes the notion of beauty (Jacobsen, 2006; Vartanian, 2014).
<b>Aesthetic Property</b>	Visual characteristic or pattern that relates to the appearance of the product (Hekkert & Leder, 2008).
<b>Aesthetics</b>	Concerned with the study of the visual qualities people are attracted to and make evaluative judgments about (DeLong, 1998).
<b>Apparel</b>	Actual garment constructed from fabric (Kaiser, 1997).
<b>Appraisal</b>	Cognitive processes of evaluation (Roseman & Smith, 2001) that determine the overall significance of the stimulus event for the organism (Scherer, 2001).
<b>Appraisal Theory</b>	Theory that states that emotions are triggered by cognitive processes or evaluations (appraisals) of events and situations (Roseman & Smith, 2001).
<b>Behavior</b>	The associations between stimuli and responses (Berlyne, 1971).
<b>Categorization</b>	Classification of different stimuli as equivalent (Whitfield & Slatter, 1979).
<b>Concern</b>	More or less stable preference for certain states of the world (Frijda, 1986) such as goal, attitude, or standard (Desmet, 2003).
<b>Consumer Response</b>	The reaction a person has to a product based on his or her perception of the object (Veryzer, 1993).
<b>Emotion</b>	“The felt tendency toward anything intuitively appraised as good (beneficial), or away from anything intuitively appraised as bad (harmful)” (Arnold, 1960, p. 182).
<b>Empirical aesthetics</b>	A classification of the study of aesthetics that is concerned with the interest of behavioral sciences in aesthetics and derives conclusions from observation and controlled observation (Berlyne, 1974).

Key Term	Definition
<b>MAYA Principle</b>	The Most Advanced Yet Acceptable principle determines the most commercially viable aesthetic for a design by stating that humans prefer a balance mixed of both familiarity and novelty (Lidwell et al., 2010).
<b>Novelty</b>	A property of the stimulus (Berlyne, 1971) and a characteristic of an object that consists of a combination of new and previously experienced elements (Hung & Chen, 2012).
<b>Product</b>	“An object, service, activity, person, place, organization, or idea. Each product has its own benefits, styling, quality, brand name, and packaging that gives it its own identity and distinguishing characteristics” (Imber & Toffler, 2000, p. 447). For product aesthetics, a product is an object (Fiore et al., 1996a).
<b>Product Design</b>	The design related “to the form characteristics of a product that provide utilitarian, hedonic, and semiotic benefits to the user” (Bloch, 2011, p. 378). Product design can refer to the design process as well as the object of design (Luchs & Swan, 2011).
<b>Product Form</b>	Relates to the visual aspects of the product and the number of elements that are chosen and blended as a whole by the design team to achieve a product and which provide utilitarian, hedonic, and semiotic benefits to the user (Bloch, 1995).
<b>Prototype</b>	The best example in a category of similar stimuli (Whitfield & Slatter, 1979). For example, Hung and Chen (2012) found that a “typical chair,” or chair prototype, has four legs, a flat seat, a vertical back, and generally no arms.
<b>Prototypicality</b>	Having the typical qualities of the best example of a category (Whitfield & Slatter, 1979). The same as typicality (Hekkert et al., 2003).
<b>Response</b>	Outcome or reaction directly linked to the stimuli (Berlyne, 1971).
<b>Stimuli</b>	Some condition causing a sense organ to be excited (Berlyne, 1971).
<b>Typicality</b>	A synonym of prototypicality. A product representing the

Key Term	Definition
	goodness of example, which means that the product is the best prototypical example within a category or the most similar product to the prototype (Hekkert et al., 2003).
<b>Usage Situation</b>	The occasion for which an apparel item is purchased and refers to the setting in which consumption will occur (Moye & Kincade, 2002).

### Outline of the Dissertation

Chapter I provided a background for the topic. The importance of product aesthetics for marketing research was discussed. The research purpose and objectives were outlined. Implications were also briefly discussed and key terms defined. The next chapter provides a review of the literature specific to the theoretical foundation and major concepts important to the study. A set of testable hypotheses are also presented. Chapter III introduces the research methodology, including a description of the Phase I (Preliminary Study) and Phase II (Main Study), along with the discussion of the results of Phase I. Next, Chapter IV presents the results of Phase II. Finally, Chapter V includes the discussion of the results of Phase II as well as for the overall dissertation. Implications, limitations, and future research are also discussed in the last chapter.

## CHAPTER II

### LITERATURE REVIEW

This chapter provides a review of literature pertinent to the dissertation and includes the following sections: (1) *Review of the Theoretical Study of Aesthetics*, (2) *Theoretical Framework*, (3) *Application of Key Concepts*, (4) *Conceptual Model and Hypotheses Development*, and (5) *Summary*. The first section provides a background of the topic and considers some of the most representative authors and theoretical sources by field. Based on this discussion, the most suitable theoretical framework for guiding the dissertation is then selected and explained in the second section. Additional theoretical considerations for the analysis of certain components of the selected framework, specifically product form and consumer response, are also included. The third section of the chapter introduces the specific key concepts that will be used in the operationalization of the research design. The fourth section presents the conceptual model and the hypotheses development. Finally, a chapter summary is provided.

#### **Review of the Theoretical Study of Aesthetics**

One of the challenges within the empirical approach to aesthetics is the fact that the phenomenon is often approached from a variety of perspectives and fields. For the most part, primary contributions come from the discipline of psychology, as applied to different fields, such as art, product design, marketing, and consumer behavior, as well as more specific fields such as clothing and textiles. Other fields have studied aesthetics in



addition to this list. However, the boundaries between the fields are not clear and there is constant overlap among them to the extent that some authors even call for the creation of an interdisciplinary “aesthetic science” (Palmer et al., 2013).

In this section, a background of the topic is provided which includes consideration of some of the most representative studies on aesthetics by field. To guide the discussion, a summary of the most influential authors and chronological publications by field is presented in Table 3. These publications are considered to be seminal, highly cited, representative of the field, and/or the author has been publicly recognized for the contributions to the topic. Each source is also classified in accordance to the type of object that is discussed (e.g., artwork). Publications are identified by the author(s), year of publication, and the journal or book, and whether the source is theoretical in nature, or if a model is included. The latter point is important, in that according to Chinn and Kramer’s (2004) view of theory, a theory is a conceptual system or framework invented to serve some purpose, such as to illuminate a given phenomenon. A theoretical or conceptual framework can additionally include a *model*, which is defined as “a symbolic representation of an empiric experience in the form of words, pictorial or graphic diagrams...” (Chinn & Kramer, 2004, p. 60).

Table 3. Most Relevant Academic Sources on Aesthetics

Specific Field(s)	Object	Author (Year)	Journal or Book	Type of Theoretical Source / Model
Psychology of arts	Artwork	Berlyne (1971)	Book	N/A*
		Berlyne (1974)	Book	N/A
		Martindale and Moore (1988)	<i>Journal of Experimental Psychology</i>	N/A
		Joy and Sherry (2003)	<i>Journal of Consumer Research</i>	N/A
		Leder, Belke, Oeberst, and Augustin (2004)	<i>British Journal of Psychology</i>	Framework-SOA** / Model p. 492
		Jacobsen (2006)	<i>Leonardo</i>	Framework / Model p. 156
		Leder and Nadal (2014)	<i>British Journal of Psychology</i>	Framework-SOA / Model p. 448
		Tinio and Smith (2014)	Book (with chapters by Vartanian, Cupchik, Hekkert, etc.)	SOA / No model
Product design	General products	Hekkert et al. (2003)	<i>British Journal of Psychology</i>	N/A
		Crilly, Moultrie, and Clarkson (2004)	<i>Design Studies</i>	Framework-SOA / Model p. 569
		Hekkert (2006)	<i>Psychology Science</i>	SOA / No model
		Desmet and Hekkert (2007)	<i>International Journal of Design</i>	Framework / Model p. 60
		Hekkert and Leder (2008)	Book chapter	Framework / No model

\* N/A = Not Applicable; \*\* SOA = State of the Art

Table 3. Most Relevant Academic Sources on Aesthetics (continued)

Specific Field(s)	Object	Author (Year)	Journal or Book	Type of Theoretical Source / Model
Management, Marketing, Consumer behavior	General products	Veryzer (1993)	<i>Advances in Consumer Research</i>	N/A
		Bloch (1995)	<i>Journal of Marketing</i>	Framework-SOA / Model p. 17
		Bloch, Brunel, and Arnold (2003)	<i>Journal of Consumer Research</i>	N/A
		Noble and Kumar (2010)	<i>Journal of Product Innovation Management</i>	Framework-SOA / Model p. 644
		Luchs and Swan (2011)	<i>Journal of Product Innovation Management</i>	SOA / No Model
		Bloch (2011)	<i>Journal of Product Innovation Management</i>	N/A
		Ravasi and Stigliani (2012)	<i>International Journal of Management Reviews</i>	SOA / No Model

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N/A = Not Applicable. SOA = State of the Art

Table 3. Most Relevant Academic Sources on Aesthetics (continued)

Specific Field(s)	Object	Author (Year)	Journal or Book	Type of Theoretical Source / Model
Management, Marketing, Consumer behavior	Clothing and textile products	DeLong and Larntz (1980)	<i>Home Economics Research Journal</i>	Framework / Model p. 283
		DeLong, Minshall, and Larntz (1986)	<i>Clothing and Textiles Research Journal</i>	N/A
		DeLong and Fiore (1994)	Monograph (ITAA)	N/A
		Fiore et al. (1996a)	<i>Clothing and Textiles Research Journal</i>	Framework-SOA / No Model
		Fiore et al. (1996b)	<i>Clothing and Textiles Research Journal</i>	Framework-SOA / No Model
		Fiore et al. (1996c)	<i>Clothing and Textiles Research Journal</i>	Framework-SOA / No Model
		Cox and Cox (2002)	<i>Journal of the Academy Marketing Science</i>	N/A

N/A = Not Applicable. SOA = State of the Art

It is unquestionable that the origin of aesthetics is the field of art. Specifically, the psychology of art is identified as the first field to study the topic, with other fields building on what has been done. As Martin (1994) explains, when defining the concept of aesthetics, even the dictionary begins with the study of art: “The philosophical study of art, of our reactions to it, and of similar reactions to things that are not works of art” (p. 15). Indeed, it makes sense that humans began studying aesthetics via art. As stated by Berlyne (1971), the origins of art are connected to the supernatural, magic, and religion; art has been connected with abstract essences such as the Plato’s World of Ideas, and the conception of a work of art has been compared to the work of divine creation. Therefore, the category most extensively studied with respect to aesthetic response is art (e.g., painting) (Berlyne, 1971, 1974; Joy & Sherry, 2003). Psychology of art then, has proven useful for explaining the complexity of the aesthetic experience for individuals as they perceive a work of art. However, individuals have aesthetic experiences when they perceive objects other than artwork, in as much as, according to Berlyne (1974), “everything in life has its aesthetic side” (p. 1).

In general, two contrasting traditions underlie scholarly research in psychological aesthetics and the arts: (1) the interpretative Gestalt psychology, and (2) the classical experimental (informational theory) (Cupchik, 2014). While the Gestalt theorists argue that visual shapes possess a structural unity, the classical perspective focuses on specific properties of stimuli as parts of the whole (Cupchik, 2014). For the purposes of this dissertation, the classical tradition will be the tradition drawn upon. The most recognized authors of the classical tradition are Gustav Theodor Fechner and Daniel Ellis Berlyne.

Fechner's work, published in Leipzig in 1876, marks the beginning of the empirical psychology of aesthetics, named "experimental aesthetics," which is considered the second-oldest branch of experimental psychology (Jacobsen, 2006, p. 155). Numerous academics in all fields also cite Berlyne (1971, 1974) from the University of Toronto, as his early works defined the "new experimental aesthetics" (p. vii). After Berlyne, Colin Martindale greatly contributed to the psychology of arts by further developing, testing, and sometimes even refuting Berlyne's theories (e.g., Martindale, Moore, & Borkum, 1990) (Vartanian, 2014). Presently, Helmut Leder is one of the most cited authors in the field of the psychology of arts as it relates to empirical research in aesthetics. His interests primarily lie in artwork as well as other types of objects, such as designed products (e.g., Hekkert & Leder, 2008).

Academics in the psychological study of the arts have mainly been interested in aesthetic preference. Among the theoretical sources in psychology of art included in Table 3, the *Model of Aesthetic Experience* by Leder, Belke, Oeberst, and Augustin (2004) (see Figure 1), and its updated version (Leder & Nadal, 2014) (see Figure 2), are probably the most relevant academic sources. The model proposes that an individual's evaluative judgments of art objects are associated with his or her responses to the properties of those objects. This complex model represents the information-processing stage model of the aesthetic processing of artwork. It considers all main components such as the aesthetic object, aesthetic outcomes, individual characteristics, and contextual influences. Despite the importance of this framework, Leder's (2014) model seems most appropriate for objects classified as artwork.

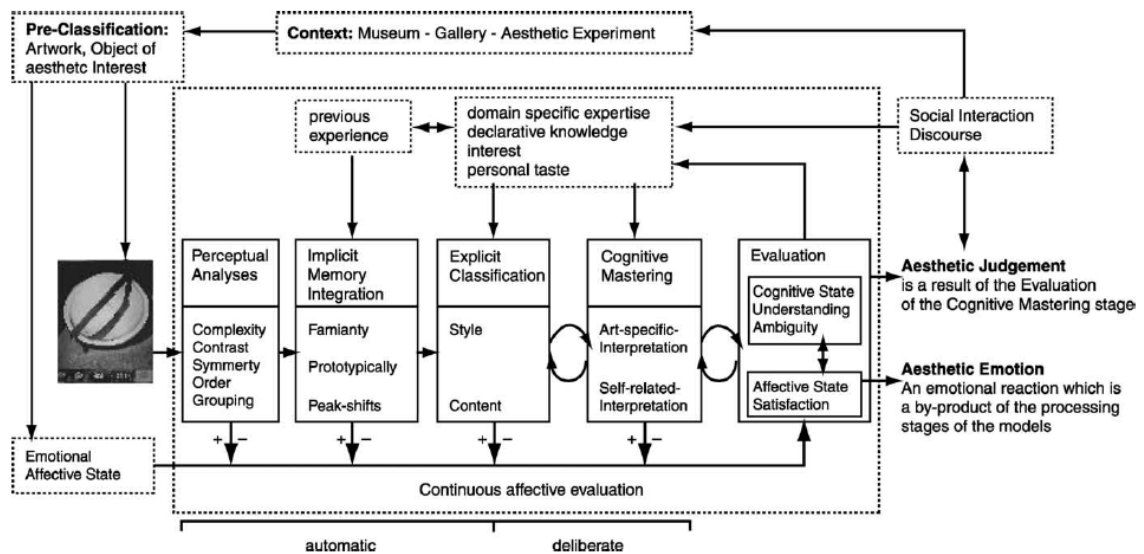


Figure 1. Model of Aesthetic Experience. Adapted from “A model of aesthetic appreciation and aesthetic judgments,” by H. Leder, B. Belke, A., & D. Augustin, 2004, *British Journal of Psychology*, 95, p. 492. Reprinted with permission from John Wiley & Sons, Inc., © 2004.

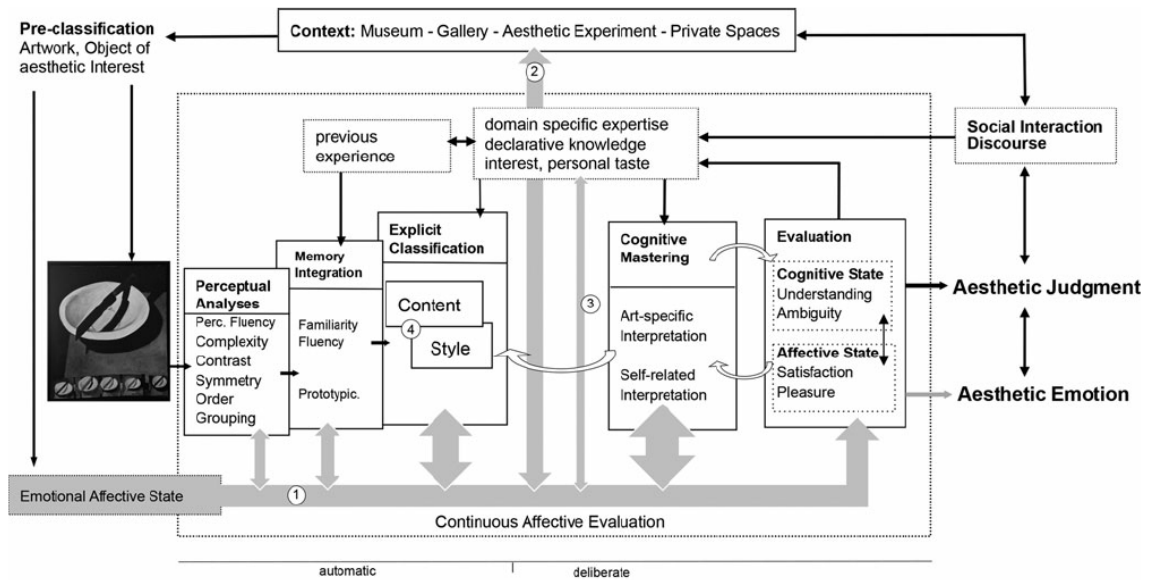


Figure 2. Model of Aesthetic Experiences (adapted from Leder et al., 2004). Adapted from “Ten Years of a Model of Aesthetic Appreciation and Aesthetic Judgments: The Aesthetic Episode - Developments and Challenges in Empirical Aesthetics,” by H. Leder & M. Nadal, 2014, *British Journal of Psychology*, 105, p. 448. Reprinted with permission from John Wiley & Sons, Inc., © 2014.

In regards to empirical sources on artwork, authors apply a wide variety of methodologies and type of stimuli (e.g., music, works of art). For example, a quantitative study by Kuchinke, Trapp, Jacobs, and Leder (2009) examined the effects of aesthetic emotions on art appreciation. The authors conducted experiments to consider the time it took respondents to recognize the objects. Shorter processing was linked to the highest preference for the object. Their findings connect affective responses with the product properties of familiarity and unity (Hekkert & Leder, 2008). A frequently cited qualitative study on the aesthetic experience of art is the paper published by Joy and Sherry (2003) in the *Journal of Consumer Research*. The authors analyzed the consumption stories of 30 museum visitors in order to understand how people move



through the museum and feel, touch, hear, smell, and taste art. Their findings point to how museum visitors become consumers of works of art and the aesthetic object becomes a product to experience, at least visually.

Despite the apparent differences between works of art and designed products, there are also many similarities. This is particularly the case when research on aesthetics considers designed apparel classified as wearable art (e.g., Bryant & Hoffman, 1994). In fact, most authors in marketing and even academics in the field of clothing and textiles cite papers dedicated to the aesthetic appreciation of visual arts. In other words, they continue building further knowledge based on the findings from the psychology of art. By way of illustration, Cox and Cox (2002) utilized definitions and hypotheses from Berlyne (1970) in their experiment that tested the effects of stimulus complexity on consumers' aesthetic preferences of apparel products.

Aesthetics and the attractiveness of product designs have also been of interest to product designers and engineers. From product engineering, one of the most important conceptual sources is the *Framework for Consumer Response to the Visual Domain in Product Design* by Crilly, Moultrie, and Clarkson (2004) (see Figure 3). Their highly-cited framework with model explores consumer response to the visual domain in product design. One of the main contributions of the authors' study is the conceptualization of cognition, which includes not only the aesthetic impression (e.g., perception of attractiveness) but also two types of responses related to meaning. For the authors, meaning is classified into "semantic interpretation" and "symbolic association." The former relates to what the product is seen to indicate about itself, while the latter is about

what it is seen to symbolize about its owner. In addition to its emphasis on meaning, Crilly et al.'s (2004) comprehensive model is complex and includes more than 16 different components in its structure, suggesting challenges for testing via a quantitative approach.

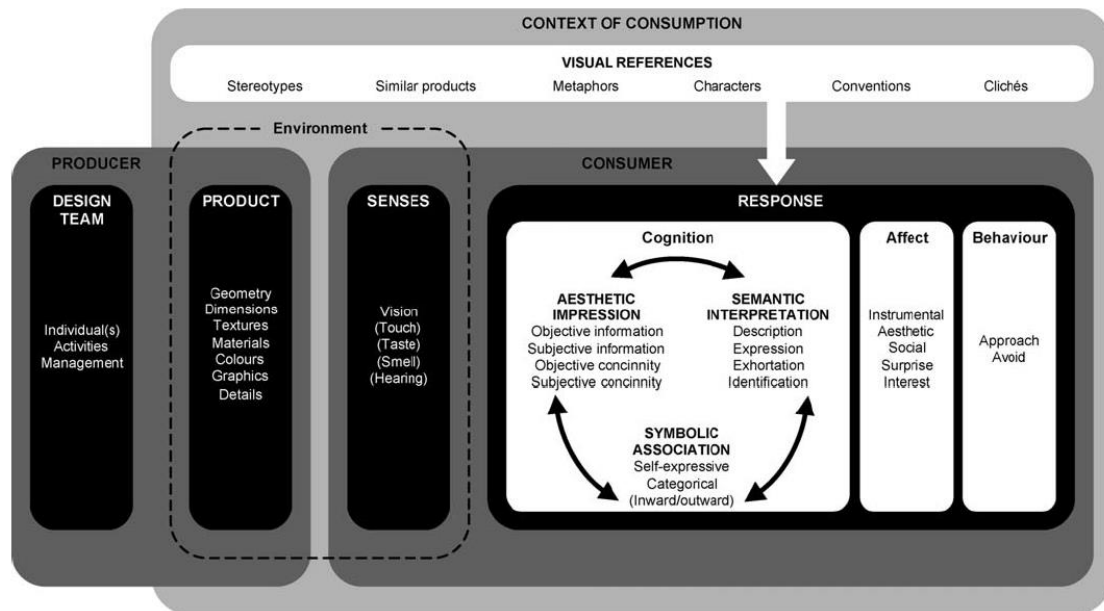


Figure 3. Framework for Consumer Response to the Visual Domain in Product Design. Adapted from “Seeing Things: Consumer Response to the Visual Domain in Product Design,” by N. Crilly, J. Moultrie, & P. Clarkson, 2004, *Design Studies*, 25, p. 569. Reprinted with permission from Elsevier, © 2004.

Among authors in the field of product design, Paul Hekkert is possibly the most prolific aesthetics researcher. He is currently a professor and the Head of Industrial Design at Delf University of Technology, The Netherlands. Hekkert's research focuses on product experience and the aesthetic aspects of this experience from a visual to cross-sensory focus. His theoretical contributions lie in the conceptual understanding of the properties of aesthetic objects and how they impact human experience and behavior.

Hekkert has co-authored studies on product aesthetics with Leder (e.g., Hekkert & Leder, 2008) and other influential authors such as Pieter Desmet (e.g., Desmet & Hekkert, 2007). Desmet is also prominent, and emphasizes concepts such as concern, product experience, and product emotions, which are rarely considered in research on aesthetics in other fields, including marketing. Working together, Desmet and Hekkert (2007) proposed a theoretical source for their *Framework of Product Experience* that focuses on the psychological experiences of product aesthetics (seen in Figure 4). These experiences are classified as relating to the aesthetic aspects of the product or “aesthetic experience,” the meaning triggered by the product or “experience of meaning,” and the emotional reactions to the product or “emotional experience.” Despite the relevance of this framework, it is limited in scope to just psychological responses, and therefore does not explicitly consider other influences that are important for marketers, such as situational factors of the social setting.

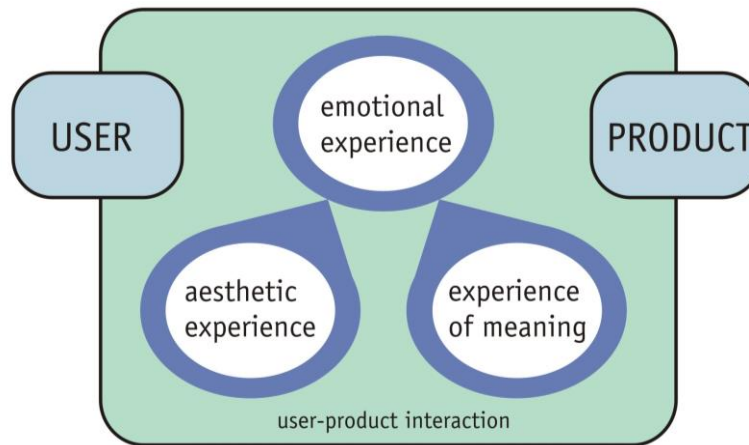


Figure 4. Framework for Product Experience. Adapted from “Framework of Product Experience,” by P. Desmet and P. Hekkert, 2007, *International Journal of Design*, 1, p. 60. Reprinted with permission from P. Desmet, © 2007.

Among scholars in marketing who place importance on product design, Peter H. Bloch seems to be the most representative as it relates to aesthetics. A professor at the University of Missouri, Bloch has been influential and heavily cited for his theoretical contributions regarding the relation of product design to marketing (e.g., Bloch, 2011) and consumer behavior (e.g., Bloch et al., 2003). Bloch has published his research in top journals such as the *Journal of Consumer Research*, *Journal of Retailing*, and *Journal of The Academy of Marketing Science*, among many others. Luchs and Swan (2011) even stated that, “research on product design within the field of marketing has broadened since Bloch’s (1995) article” (p. 340).

Based on Yadav (2010), the theory development strategy used by Bloch in his *Model of Consumer Responses to Product Form* (Figure 5) was to creatively integrate “bodies of knowledge from one or more substantive areas to generate new insights and research opportunities” (p. 6). Bloch’s contribution is not only proven by the heavy

citations, but the integration of knowledge from different fields. He based the model on numerous disciplines, including engineering, art psychology, and ethology, as well as marketing and consumer behavior. More specifically, elements from cognitive psychology, from the stimulus-organism-response framework (Woodworth, 1928), experimental aesthetics (Berlyne, 1974; Leder et al., 2004), and atmospherics (Bitner, 1992) are seen. In this way, Bloch applied what is known about product aesthetics and developed a rationale and structure to study that phenomenon within the field of marketing and consumer behavior. Moreover, his publication resulted in an increase in research in product design within the discipline of marketing, as evident in the *Journal of Marketing*.

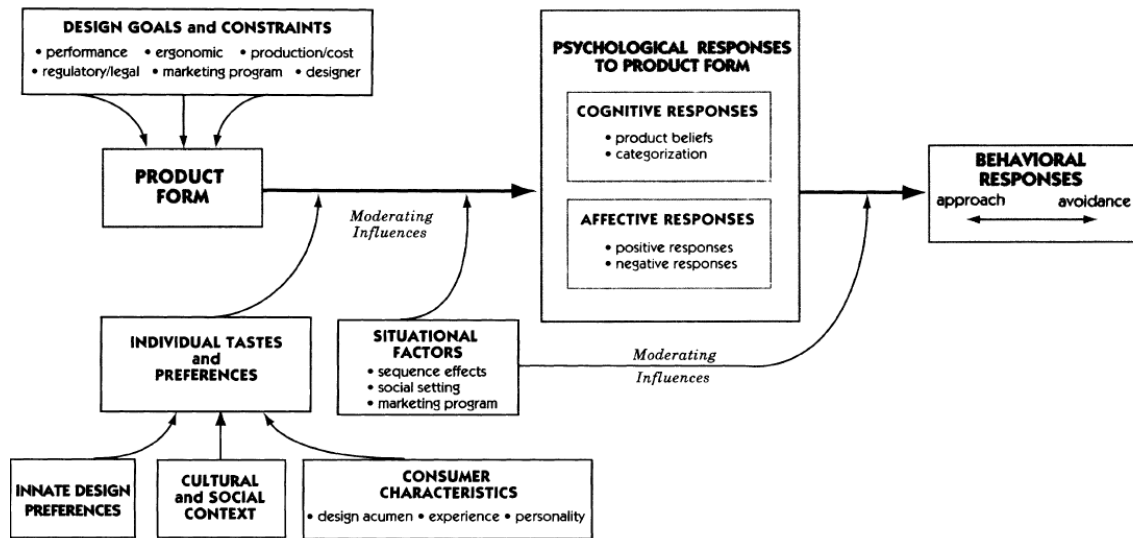


Figure 5. A Model of Consumer Responses to Product Form. Adapted from “Seeking the ideal form: Product design and consumer response,” by P. H. Bloch, 1995, *Journal of Marketing*, 59, p. 17. Reprinted with permission from the American Marketing Association, © 1995.

There are other relevant works in management specific to product innovation, such as Noble and Kumar’s (2010) *Framework for the Creation of Design Value in New Consumer Products* (see Figure 6). This framework integrates the design dimensions within a broader model that ties initial design goals and their effects on psychological and behavioral consumer responses. The focus is on the design team and designer influences rather than consumer responses; therefore, its contribution lies in the conceptually proposed connection between marketing and new product development management.

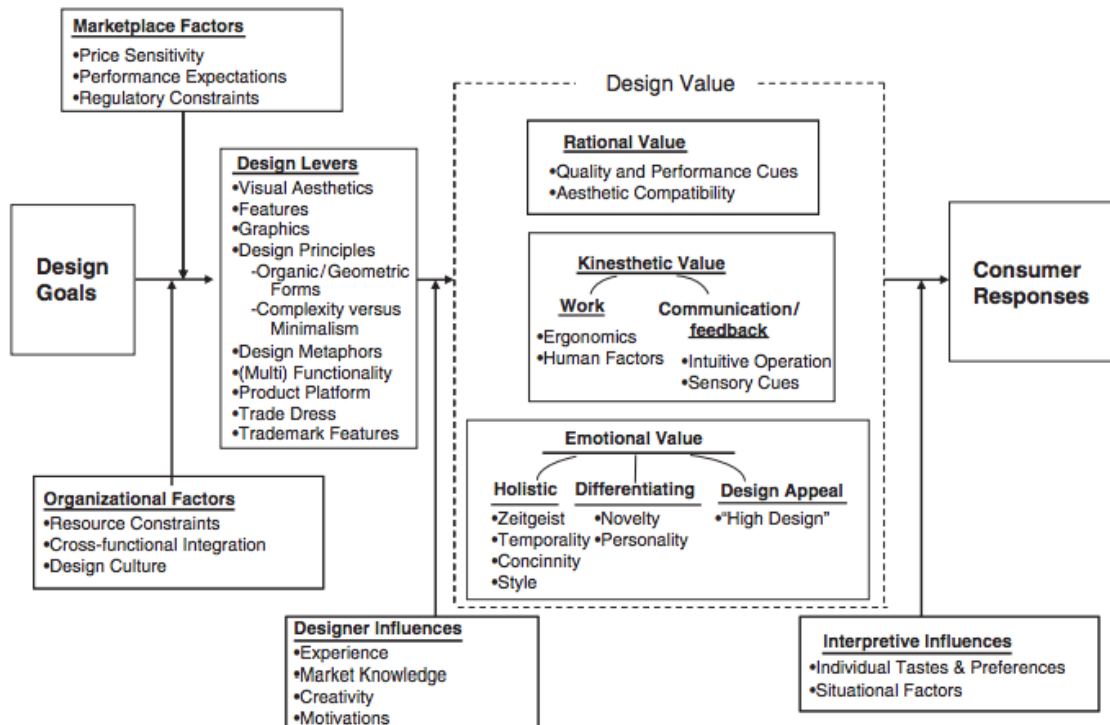


Figure 6. Framework for the Creation of Design Value in New Consumer Products. Adapted from “Exploring the Appeal of Product Design: A Grounded, Value-based Model of Key Design Elements and Relationships,” by C. H. Noble & M. Kumar, 2010, *Journal of Product Innovation Management*, 27, p. 644. Reprinted with permission from John Wiley & Sons, Inc., © 2010.

The importance of product aesthetics has also been dominant within the apparel category (Cox & Cox, 2002). With respect to aesthetics, DeLong and Fiore are probably the most representative authors in the academic field of clothing and textiles. Since the 1970s, Marilyn R. DeLong has had an extensive record of publications as professor at The University of Minnesota, followed by Anne Marie Fiore who is a professor at Iowa State University. DeLong and Fiore’s most relevant work has been published in the *Clothing and Textiles Research Journal*. Together, they edited a special International Textile and Apparel Association monograph on aesthetics (DeLong & Fiore, 1994). This

publication includes contributions from a variety of methods and different perspectives such as anthropology, consumer behavior, consumer textiles, design, history, philosophy, semiotics, and social psychology.

Fiore, along with authors Moreno and Kimle offer two rigorous state of the arts related to aesthetics and the object (1996b) and the appreciation process and the appreciator (1996c). However, these theoretical papers do not include a model for guiding the operationalization of quantitative research. When considering the field of clothing and textiles, other authors, such as DeLong and Larntz (1980), do propose a framework with model. For example, *Visual Perceptual Response of Observer to Clothed Body Form* (Figure 7) focuses on the observation of a clothed body form. In this work, the authors analyzed evaluative responses to clothed bodies. Although this framework is useful for approaching aesthetics through clothing, as will be discussed further in Chapter III, the methodology of this dissertation does not take the body into account.



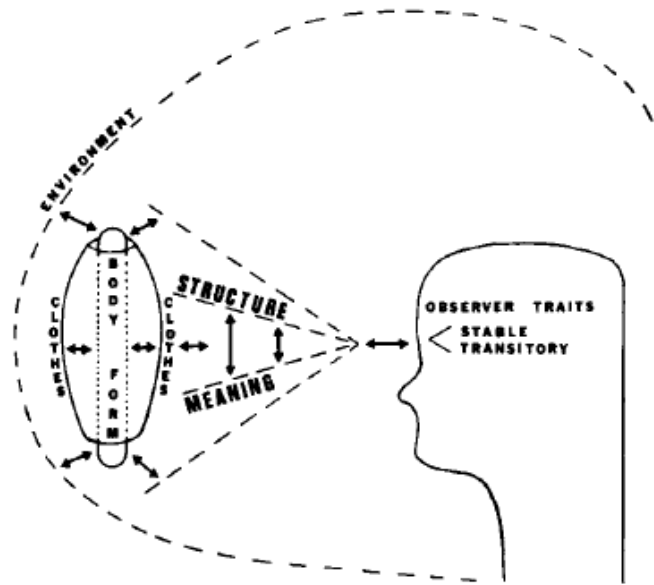


Figure 7. Visual Perceptual Response of Observer to Clothed Body Form. Adapted from “Measuring Visual Response to Clothing,” by M. E. DeLong & K. Larntz, 1980, *Home Economics Research Journal*, 8, p. 283. Reprinted with permission from John Wiley & Sons, Inc., © 1980.

It is important to note that aesthetics research on apparel products has additional challenges in comparison to that using other types of products that are less symbolic, gendered, or not as influenced by cycles of fashion (e.g., lamps). For example, experiments related to appearance must consider the inclusion of the body form when defining stimuli (e.g., DeLong & Larntz, 1980). Likewise, product exposure has been shown to influence trendiness and aesthetic appeal (Blijlevens, Mugge, & Schoormans, 2013).

There is a great deal of overlap between the fields studying the aesthetic phenomenon, as can be seen in the brief discussion presented above. In regards to similarities among academic fields, most empirical research on aesthetics has utilized

experiments. A wide range of product stimuli have been included in the experiments, such as kitchenware (Blijlevens, Carbon, Mugge, & Schoormans, 2012a; Veryzer, 1993), video games (Goode, Dahl, & Moreau, 2013), cleaning appliances (Goode et al., 2013; Radford & Bloch, 2011), wine packages (Orth & Malkewitz, 2012), cubist paintings (Kuchinke et al., 2009), brands of bottled water (van Rompay & Pruyn, 2011), and many others. Sample sizes in all fields also varied, from 60 up to more than 2,000 respondents, and most are mainly—and not surprisingly—student samples. Female as well as male participants have been considered.

When addressing differences between fields, one primary difference is the perspective by which the analysis of the perception process is conceived. For example, academics focused on aesthetics of the arts usually analyze the phenomenon via the evaluative responses to the object, such as the cognitive state of understanding of a work of art or the social interactions among museum visitors (Leder et al., 2004). Authors from product design (e.g., Crilly et al., 2004) and marketing (e.g., Bloch, 1995), on the other hand, give more emphasis to psychological and behavioral consumer responses to products (e.g., positive affective responses that influence product attitudes).

To better illustrate the previous idea, two articles are contrasted. One article is from psychology of the arts and the other is from marketing. The selected article from empirical aesthetics of the arts was published in the *Scandinavian Journal of Psychology* by Cupchik and Berlyne (1979). The authors explored certain aesthetic properties such as complexity and uncertainty of visual stimuli in reproductions of paintings and artificial patterns. They found that subjects were particularly sensitive to unity and order after only

a single glance and to diversity and complexity after multiple glances. As the authors clarify, “while subjects preferred the more complex high arousal paintings after multiple fixations, they tended to avoid them when only a single glance was available” (p. 103).

The example article from marketing was published in the *Journal of the Academy of Marketing Science* by Cox and Cox (2002). The authors conducted experiments similar to those of Cupchik and Berlyne (1979), but used simple and complex female dress designs instead of paintings or patterns. Their findings indicated that preferences for visually complex product designs tend to increase with repeated exposure, while the opposite effect occurred for visually simple product designs. Despite the differences in the perspective and type of stimuli utilized in the experiments of these two studies (Cox & Cox, 2002; Cupchik & Berlyne, 1979), there are many similarities. Nevertheless, the managerial implications may be different in both cases. Implications from the first article could be useful to curators designing a museum exhibition, such as hanging complex, high arousal paintings in secluded and special places where museum visitors have to stay fixated on the painting for the preference to increase. In contrast, implications from the second study would be useful to fashion brand marketers, such as incorporating repeated exposure in commercial design testing (Cox & Cox, 2002). However, articles on psychology of the arts typically only include theoretical implications and offer few recommendations from the managerial perspective.

In conclusion, this section of the chapter presented an overview of the theoretical study of aesthetics from different fields, such as psychology of art, product design, marketing, and clothing and textiles. The theoretical sources, including associated

models, were discussed. Based on this review of the literature, Bloch's (1995) model (see Figure 5 on page 46) was selected as the most appropriate overarching framework for guiding this dissertation, as will be discussed next.

### **Theoretical Framework**

Based on the previous discussion, this section of the chapter focuses on presenting the overall theoretical framework that is employed within the dissertation. Thus, Bloch's (1995) model and its main components will be discussed first, followed by discussion of additional theoretical considerations relevant to the analysis of the components of product form and consumer response.

#### **Framework of Consumer Responses to Product Form**

In Bloch's *Framework of Consumer Responses to Product Form* (1995), specific visual properties of the product form (i.e., stimuli), engender cognitive and affective reactions (i.e., psychological responses) within the organism (i.e., consumer). It is the cognitive (e.g., categorization) and affective responses (e.g., fall in love with the product) that generate behavioral responses (e.g., seeking information about the product) (Bloch, 1995). Along with direct relationships between the stimulus, organism, and response (S-O-R), Bloch's (1995) model also includes the moderating influences of consumer characteristics (e.g., ethnicity), cultural factors (e.g., culture), and situational factors (e.g., marketing mix factors like price) between the stimulus and the response. Thus, consumer characteristics, cultural factors, and situational factors are expected to have an influence on the psychological responses that a consumer experiences after perceiving the visual stimulus. For instance, research conducted by Orth and Malkewitz (2012) considers

product form, cognitive responses, and situational factors when studying how the typicality, clarity, and information content relate to the accuracy of individual judgments about a brand's quality or personality. Findings indicate that higher accuracy in design-based judgements is positively associated with purchase intention and corresponds with greater ease and speed of judgment formation.

According to Bloch (1995), the basic structure of the consumer's aesthetic experience of products includes the following four main components: (1) product form, (2) consumer responses, (3) consumer characteristics, and (4) the environment. Each of these are discussed in turn.

### *Product Form*

As previously stated, product form refers to the visual aspects and elements that are chosen and blended as a whole by the design team to create a product (Bloch, 1995). Based on Hekker and Leder (2008), product form has three main aesthetic properties: (1) psychophysical properties, (2) organizational properties, and (3) meaningful properties. First, the *psychophysical properties* are the formal qualities of the object that can be quantified, such as color, texture, shape, and size. Color is the psychophysical property that has received the most attention by academics (Hekkert & Leder, 2008). Second, *organizational properties* relate to the order, balance, harmony, good proportion, and symmetry of the object (Hekkert & Leder, 2008). As Hekkert and Leder (2008) write, "these principles are used to make a design coherent and orderly and, therefore, pleasant to look at" (p. 262). Complexity and variety are also organizational properties. Hekkert and Leder (2008) base these properties on the findings of Berlyne (1971) who stated that

patterns are preferred for their ability to generate arousal. The authors indicate that visual patterns with low arousal potential could be experienced as “boring,” while patterns with high arousal potential could be too difficult to grasp and therefore be considered as unpleasant (p. 263). Hekkert and Leder (2008) also state that people look for unity in variety because of the “maximum effect for minimum means,” which is a general principle that is economically driven (Boselie & Leeuwenberg, 1985) as cited in Hekkert & Leder, 2008, p. 265). In other words, humans prefer objects that are easy to observe and contain the fewest elements possible.

Third, *meaningful properties* include the concepts of familiarity, prototypicality (also referred as typicality), and novelty, and include properties that make a product seem familiar and therefore are easier to be processed. At the same time, meaningful properties also include objects that are original and novel, as the brain “derives pleasure from processing new and unfamiliar objects” (Hekkert & Leder, 2008, p. 269). Lastly, meaningful properties may also relate to internal or external associations that the brain makes with observed products. For example, when evaluating products, a consumer compares his or her self-concept, or ideas about oneself, with the product concept, which is the image perception an individual has about a product (Sirgy, 1982). That is, the brain compares the perception of the product with the internal perception of the self. In the case of familiarity and typicality, the individual compares the object with external associations. For example, during the product categorization process, the brain makes an association between the observed product and other products from the same category (Whitfield & Slatter, 1979). Although empirical research on organizational and

meaningful properties has mainly focused on complexity, novelty, and prototypicality, Berlyne (1971, 1974) indicates that complexity has received the most attention in experimental aesthetics.

### *Consumer Responses*

Consumer responses can be classified as psychological or behavioral (Bloch, 1995). Psychological responses are further divided into cognitive, affective, and semantic responses (Bloch, 2011; Leder & Nadal, 2014). *Cognitive responses* relate to evaluations or judgments by the consumer when observing the aesthetic properties of the product (e.g., aesthetic preference). Numerous studies have focused on measuring cognitive responses, such as the attractiveness of a product (e.g., Giese, Malkewitz, Orth, & Henderson, 2014). For example, DeLong, Minshall, and Larntz (1986) evaluated sweaters by using paired adjectives such as “like to own-not like to own,” “like-dislike,” and “attractive-unattractive.” The second type of psychological response is the *affective response*. According to Hekkert and Leder (2008), when the consumer observes the aesthetic properties of the product, there are different types of response related to affect, arousal, and pleasure (e.g., emotions); as well as other responses related to emotions and the psychophysiological responses of the consumer that explain the emotions. For instance, Kuchinke et al. (2009) examined the effects of emotions in art appreciation by measuring pupillary responses. Findings indicate that higher pupil dilation is associated with easy-to-process stimuli and higher preference. The third psychological response is the *semantic response*. This type of response relates to the meaning that is derived by the observation of the aesthetic properties of the product. In the field of clothing and textiles,

Damhorst (1990) reviewed research on dress as a means of nonverbal communication when considering body form. The author concluded that dress transmits multiple and multidimensional messages (e.g., status).

According to Bloch, the second type of response is the *behavioral response*. This type of consumer response relates to approach-avoidance responses, such as seeking information about a product or avoiding a store after observing a window display (Bloch, 1995). Behavioral response is the result of perception and action, and requires a link that initiates action. This link is actually a psychological activity that leads to action based on an attraction toward the object or a feeling of being repelled from it (Arnold, 1960). Similarly, Mehrabian and Russell (1974) suggested that individuals react to places with behaviors of approach and avoidance, while Bitner (1992) concluded that these behaviors are mediated by a person's internal responses to the place. Arnold and Reynolds (2012) further posited that consumers seek hedonic experiences to satisfy approach motivations and that avoidance motivations are responsible for undesirable retail shopping behaviors. For example, a study by Fiore, Jin, and Kim (2005) examined consumers' approach responses to an interactive online store by measuring constructs including willingness to purchase and willingness to patronize. It should be noted that most of the academic work on approach and avoidance behaviors is done in relation to retail environments and little attention has been given to other types of aesthetic experiences, such as those with products. However, Arnold (1960) offered an approach to exploring these behaviors through emotion, stating, "the intuitive appraisal of the situation initiates an *action tendency that is felt as emotion*, expressed in various bodily changes, and that eventually



may lead to overt action” (p. 177). As a result, Arnold suggests that the study of emotions is the key for understanding behavioral intentions. However, Neisser (1976) points out that emotions “are connected with the anticipation of behavior rather than its execution” (as cited in Strongman, 2003, p. 75).

### *Consumer Characteristics*

Social and psychological factors affect an individual’s aesthetic ability (Fiore et al., 1996c). This implies that the individual receiving the stimuli filters the way these stimuli are processed in accordance with certain innate characteristics. These characteristics have been identified as individual tastes and preferences, innate design preferences, and consumer characteristics (Bloch, 1995). Hekkert and Leder (2008) also recognize taste as an influencer of aesthetic preferences as well as other characteristics, such as sensitivity or receptivity to stimuli, knowledge, and experience. Crilly et al. (2004) explored personal characteristics such as age, gender, experience, and personality as influencing the experiences consumers have with products. Ultimately, Desmet and Hekkert (2007) clarify that different people respond differently to a given product. The authors position the influence of individual and cultural differences as important, as one’s experience with a product is not a property of the product itself, but the outcome of a human-product interaction.

### *The Environment*

In regards to the environment, Bloch (1995) considers that the cultural and social contexts as well as the situational factors influence aesthetic preferences relative to products. Situational factors are classified as sequence effects (e.g., repetitive exposure),

social setting (e.g., usage situations), or related marketing program (e.g., brand names). All of these environmental factors equate to Leder et al.'s (2004) "context," Noble and Kumar's (2010) "marketplace factors," and DeLong and Larntz's (1980) "environment." Desmet and Hekkert (2007) also acknowledge the external structural level of culture as probably influencing the experience that an individual has with a product. As will be discussed later in this chapter, for the purposes of this dissertation, only the situational factor of usage situation are considered.

### **Additional Theoretical Considerations: Product Form**

When addressing the component of product form in Bloch's (1995) model, specifically the meaningful properties of typicality and novelty, the following are theoretical considerations that will be used to operationalize the dissertation. Initially, the preference-for-prototype theory will be introduced, as it focuses on typicality. Then, the MAYA principle will be explained relative to the concepts of typicality and novelty.

#### *The Preference-for-Prototypes Theory*

The *preference-for-prototypes theory*, also called *prototype theory*, states that categorization and prototypicality (i.e., typicality) influence product choice (Whitfield & Slatter, 1979). According to the authors, categorization involves the classification of stimuli as equivalent (i.e., similar). Among those stimuli, the best example of the category is called a "prototype." This representative product of the category can also be called an "exemplar," "best case" (DeLong et al., 1986, p. 17), or the "typical" product (Hung & Chen, 2012). Typicality then relates to how a category member shares a resemblance with other category members and mainly the prototype (Whitfield & Slatter,

1979). Whitfield and Slatter (1979) conducted experiments with items of furniture and found that the categorization process, as well as typicality, are both influential when determining preference for product design. Similarly, Hekkert et al. (2003) explain that humans, especially adults, prefer stimuli that are familiar and equivalent to something known, or closer to the best goodness of example. This preference allows individuals to feel comfortable around familiar stimuli, as it is easy to classify the familiar among multiple stimuli.

Hekkert (2006) indicates that the preference for familiar things is adaptive since it leads to safe choices instead of risking the unknown. Likewise, Palmer, Schloss, and Sammartino (2013) indicate that the prototype theory is useful in explaining visual preferences because individuals may prefer prototypical examples of categories to nonprototypical ones. Researchers have sought to explain why this happens. Some have focused on the perceiver's processing dynamics, stating that the more fluently a perceiver processes an object, the more positive the aesthetic response (Reber, Schwarz, & Winkielman, 2004). In other words, products that are closer to the prototype require less processing and therefore may be preferred. However, Palmer et al. (2013) argue that "prototype theory, by itself, does not clarify why prototypes should be preferred" (p. 22), pointing to why other scholars have explored the influence of product appearance on consumer choice and how products similar to the prototype may be preferred along with other product characteristics like meaning, ergonomic information, and so on (Creusen & Schoormans, 2005).

### *The Most Advanced, Yet Acceptable (MAYA) Principle*

Hekkert et al. (2003) applied the *preference-for-prototypes theory* positing that humans, especially adults, prefer stimuli that are familiar and equivalent to something that is known, or even closer to the prototype or “goodness of example.” Again, preference allows individuals to feel comfortable around familiar stimuli, as they are easy to classify among multiple stimuli. However, Hekkert et al. (2003) clarified that younger people, especially children, usually prefer the opposite. That is, children prefer what is novel and what is different, as it helps them in the process of learning new things. Hence, Hekkert et al. (2003) and Hekkert (2006) stated that the MAYA principle is based on evolutionary psychology as it integrates the preference-for-prototypes with the need for novelty, both of which are actually opposites. MAYA suggests that the two apparently opposing characteristics are important for determining the most commercially viable aesthetic for a product. Leder (2011) referred to this principle as “something old, something new” (p. 45). Moreover, Hekkert and Leder (2008) identified typicality and novelty as the most relevant meaningful properties of products when determining commercial preference.

Leder (2011) writes, “Although trends drive certain design decisions, scientists have identified fundamental properties of the mind that consistently dictate which products people tend to like or dislike” (p. 43). MAYA therefore is related to the psychological inclination of humans that Berlyne (1971) called “avoidance of extremes” (p. 123). As Hekkert et al. (2003) and Hekkert (2006) explain, consumers want something that is innovative, but not to the level that they might not be able to recognize

it. In other words, novelty should not jeopardize typicality, and vice versa. Hekkert posits that the most desirable products are the ones that achieve a correct balance between novelty and typicality. Thus, the most desirable products are novel; yet, they can be still be categorized with similar stimuli and be compared to the goodness-of-example. Lidwell et al. (2010) included the MAYA principle in discussing the most relevant universal principles of design in their attempt to explain the motivations behind why individuals are attracted to certain characteristics of designs. Crilly et al. (2004) also discussed the importance of stereotypes (i.e., prototypes) when understanding consumer response to visual product design. They argued that the perception of novelty is influenced by stereotypes, while both typicality and novelty contribute to the formation of a positive aesthetic response.

As the search for beauty involves the avoidance of extremes, an object will be viewed as pleasant if it is closer to the mean (Berlyne, 1971). Hekkert (2014) further explains that usually there are two opposing needs—safety and accomplishment—affecting aesthetic preferences, and that humans perceive beauty when there is the right balance between these forces. He posited three levels of aesthetic processing: perceptual, cognitive, and social. At each level, individuals seek balance between their safety needs and accomplishment needs. At the perceptual level, individuals balance unity versus variety. At the cognitive level, typicality versus novelty is balanced, and at the social level, individuals try to balance connectedness versus uniqueness. Thus, the MAYA principle reflects the cognitive level of aesthetic processing.

In testing the MAYA principle, Hekkert et al. (2003) conducted experiments using different products such as sanders, telephones, teakettles, and medium-size cars. Other researchers have employed experiments to test the MAYA principle relative to electric concept vehicles (Diels et al., 2013), car/driver environments (Tractinsky et al., 2011), and chairs (Hung & Chen, 2012). For instance, Diels et al. (2013) found that novel vehicle designs were preferred as long as the novelty did not affect typicality. These authors even suggested restrained design as a possible strategy for generating a more generalized commercial appeal among sustainable car designs. Similar to Hekkert et al.'s (2003) findings, Tractinsky et al. (2011) found that typicality and novelty of driver environment designs were negatively correlated, and both contributed to explaining variance in aesthetic evaluations. Likewise, Hung and Chen (2012) found that the style of chairs perceived as the most beautiful were those with a moderate level of novelty.

It is important to recognize that the MAYA principle is not the only two-factor theory that has been proposed to predict aesthetic value. For example, in 1933, Birkhoff proposed a theory that relates the two interacting factors of complexity and order. Complexity calls for an effort of attention and feeling of tension, while order is related to associations that are evoked by properties such as symmetry, repetition, and sequence (Berlyne, 1971). Purcell (1984) conducted experiments linking goodness of example (i.e., typicality) and interest (operationalized as complexity) with the preference for types of houses. The least preferred houses were extremely simple with non-traditional materials and features, while the most preferred were houses using traditional materials, conventional building forms with complex but well-organized detailing. These findings

indicate that stimuli that are simultaneously complex and perceptually well-organized are evaluated as intrinsically interesting and attractive (Purcell, 1984).

### **Additional Theoretical Considerations: Consumer Response**

When addressing the component of consumer response, specifically psychological response, Bloch's (1995) model is limited. The following theoretical considerations help to support the conceptualization and operationalization of the consumer response dimension of the aesthetic experience. First, appraisal theory is presented to clarify the relationship between cognitive and affective responses. The goal is to theoretically provide a logic behind the operationalization of constructs related to cognition and emotion. Then, positive emotions are discussed, as they are the type of affective responses that are the focus of this study.

#### *Appraisal Theory*

According to Niedenthal, Krauth-Gruber, and Ric (2006), the major theories of emotions in psychology are: (1) evolutionary theories, (2) cognitive appraisal theories, and (3) social constructionist theories. The focus of this dissertation is the second major theory of emotions, cognitive appraisal, which is also known as the cognitive theory of emotion (Plutchik, 1980). The underlying assumption of this theory is that "emotions are elicited by evaluations (*appraisals*) of events and situations" (Roseman & Smith, 2001, p. 3). Appraisals are defined as *cognitive processes of evaluation*. As Scherer (2001) explains, the appraisal process is about "determining the overall *significance* of the stimulus event for the organism" (p. 369). According to appraisal theory, appraisals are triggers of emotions, but what is an appraisal?

Arnold's (1960) seminal work is recognized as the root of modern appraisal theory, positing that an appraisal is an intuitive and involuntary assessment of the here and now. According to Strongman (2003), the concept of appraisal took hold within cognitive theory due to Arnold's work. Schorr (2001) states that what Arnold defined as "intuitive appraisal" is the determinant of something considered as good or bad, which, in turn, precedes instinct actions and emotion elicitation. Based on cognitive psychology, Plutchik (1980) describes cognitions (i.e., appraisals) as interpretations that humans make of the events that occur around them, and are synonymous with thinking. Thus, cognitions are conscious or unconscious evaluations that also include functions such as perceiving, conceptualizing, and remembering.

Appraisal theory links appraisals with emotions, but what is an emotion? Richins (1997) stressed the importance of being able to characterize emotions in consumer research and provided an overview of the disagreement among researchers alongside discussion of the challenge of operationalizing emotions. Despite the elusiveness of a common definition of emotion (Lazarus, 1991), the definition used in this dissertation is provided by Arnold (1960) as: "*the felt tendency toward anything intuitively appraised as good (beneficial), or away from anything intuitively appraised as bad (harmful). This attraction or aversion is accompanied by a pattern of physiological changes organized toward approach or withdrawal. The pattern differs for different emotions*" (p. 182). Frijda, Kuipers, and Schure (1989), in reflecting on Arnold's (1960) definition, clarify that emotions are felt action tendencies or impulses in which the different action tendencies are what characterize the experience and differentiate it from mere feelings of



pleasantness/unpleasantness. As the authors state, “action readiness is what links experience with behavior... action readiness is defined as the individual’s readiness or unreadiness to engage in interaction with the environment” (Frijda et al., 1989, p. 213). This concept is implicit to the objectives of this dissertation because emotions are indicators of the action tendencies consumers have when engaging in an aesthetic experience.

Richins (1997) further argues that emotions are context-specific; therefore, consumption emotions may differ in character from emotions experienced in other contexts. In contrast, consumption emotions, including emotions generated by advertising, are likely to be low in intensity (Richins, 1997). Nevertheless, Desmet (2008) posits that any perceived event has the potential to elicit an emotion. An event can be perceiving the product, to the extent that “seeing” can be a strong emotional stimulus, in that, “perceiving the product is the most straightforward stimulus event” (Desmet, 2008, p. 390). Likewise, Leder (2011) suggests that an object’s visual impact is strongest at the moment of purchase.

It is important to clarify that because consumption emotions (i.e., emotions experienced during anticipatory consumption, product acquisition, and postpurchase and use of product) are particular to the context in which a consumer is interacting with a product (Richins, 1997), the focus of this dissertation is on the emotions generated during the buying process stage, or what Richins calls “anticipatory consumption.” That is, the focus of this dissertation is on consumers that are browsing and searching for a product, and specifically in an online environment. Thus, the context of interest for the affective

responses considered in this dissertation is the consumer's interaction with the product prior to (or without involving) purchase and/or ownership.

Alongside the importance of context, the literature tends to focus on arousal rather than directly addressing emotions. Berlyne in particular had a tendency to do this in most of his work. For instance, Izard (1977) states, "Berlyne recognized the possibility that different types of arousal may correspond to different feelings and emotions ("psychological states")" (p. 199). Berlyne (1971) explained that because the word "emotion" was not very commonly used in his time; he used other terms, such as *drive* or *arousal* (p. 62). Berlyne (1971) clarified that arousal is an activation that is measured by the changes in electrical activity in the brain, and stated, "An emotional state [i.e., emotion] or, more generally, a motivational state has a certain intensity (arousal or activation level) and a certain direction or coloring, which implies a tendency to engage in a particular broad class of behavior" (p. 71). For the purposes of this dissertation, the emotion is assumed to be the type of arousal generated by the aesthetic experience. The valence will be the direction (i.e., positive or negative) of the arousal and the intensity will be associated with strength. Arousal is therefore not treated as a separate construct, but as a characteristic or quality of the emotion that is generated by the aesthetic experience. As Plutchik (1980) points out, there are some distinctions between arousal theories of emotion and cognitive theories, and those distinctions are related to the degree to which attention is focused on the perception or interpretation of an event in contrast to the autonomic nervous system arousal associated with the event. Due to the rather

tenuous distinction, cognitive rather than arousal theories of emotion are applied in this dissertation.

When reviewing the cognitive theory of emotion, relations between cognition and emotions prompt certain assumptions. Note that the assumptions or postulates that directly relate to this dissertation are presented and the ones that are not related, such as those that consider stimuli that may be evaluated as dangerous, are excluded. Three of Plutchik's (1980) postulates that are relevant to this dissertation are: (1) the existence of any emotion presupposes the prior occurrence of an evaluation; however, not all evaluations produce emotions; (2) evaluations may be based upon information obtained from external or internal stimuli; and (3) evaluations are concerned with whether a stimulus is good or bad, beneficial or harmful, productive of pleasure or productive of pain, or unexpected.

According to Roseman and Smith (2001), the most common assumptions of appraisal theory are: (1) emotions are differentiated by appraisals; (2) all situations for which the same appraisal pattern is assigned will evoke the same emotion; and (3) appraisals precede and elicit emotions. The first assumption suggests that different emotions manifest in different ways, such as facial expressions and action tendencies. These emotions are produced by different evaluations of events. The second assumption indicates that, regardless of differences in characteristics of situations, if the evaluations of these situations are similar, then the emotions generated by these different situations will be similar. In other words, "it is the evaluation of events, rather than events per se, that elicit the emotion" (Roseman & Smith, 2001, p. 6). The third assumption posits that

“emotions are presumed to be elicited by *current* appraisals” (p. 7), which means that if an individual is asked to perceive (i.e., experience through the senses), imagine or remember something, the emotions generated will be determined by the way the individual appraises the situation in the “now.”

It is important to note that appraisal theory is not a “monolithic entity” (i.e., uniform), and therefore, there are different perspectives among various appraisal theorists (Roseman & Smith, 2001, p. 11). Furthermore, Lazarus (1991) contends that “the rules relating to aesthetic emotions remain to be formulated” (p. 821). As a result, theories within the cognitive approach have taken a number of viewpoints, including theoretical discussions about the nature of the relationship between emotion and cognition (Strongman, 2003). For instance, one viewpoint has emerged from product design, in that Desmet’s (2003) work employs appraisal theory in understanding emotional responses to consumer products. Desmet supports most appraisal theories, in that he posits events as evaluated in relation to a person’s goals, needs, or concerns, in a clear manner, and in spite of the complexity of the theories on emotion and appraisal. Within his models and explanations, the author interprets the assumptions of appraisal theory and proposes relationships between cognitive and emotional responses to products. That is why Desmet’s contributions are not restricted to product design, and his conceptualizations, as well as appraisal theory, have been used in various types of research, from product design to marketing. For instance, based on appraisal theory, Desmet, Porcelijn, and van Dijk (2007) applied the concept of designing for a “wow-experience” in mobile telephones. A wow-experience relates to consumers having a highly emotional experience with exciting

products. Franzak and Makarem (2014) integrated theoretical work across design and marketing using Desmet's (2003) work to build a conceptual model for connecting design benefits, emotional responses, and brand engagement.

When connecting appraisal theory with product design, Desmet (2003) establishes a basic model of product emotions that includes four main parameters in the process that causes emotions: (1) appraisal, (2) concern, (3) product, and (4) emotion (see Figure 8 for example). The first three parameters of the model determine if a product elicits an emotion, and if so, which emotion is evoked. The first parameter, *appraisal*, was defined above. The second parameter, *concern*, is defined by Frijda (1986) as a more or less stable preference for certain states of the world. Based on Frijda (1986), Desmet (2003) states that concerns are hidden in emotions and act like points of reference in the appraisal process. Therefore, in Desmet's model, a concern is a goal, attitude, or standard. Desmet (2003) provides a simple example: "Why do I feel attracted to an umbrella? Because it matches my concern for staying dry" (p. 6). The third parameter of product emotions, *product*, relates to the stimuli and object of appraisal. Lastly, the fourth parameter, *emotions*, uses the same definition by Arnold (1960) as presented above. However, Desmet (2003) additionally distinguishes between emotion and mood. The model refers to the former, which is limited and temporary and directed towards an object, instead of the latter which is relatively long-term and not restricted to a particular object but instead is directed towards an overall surrounding.

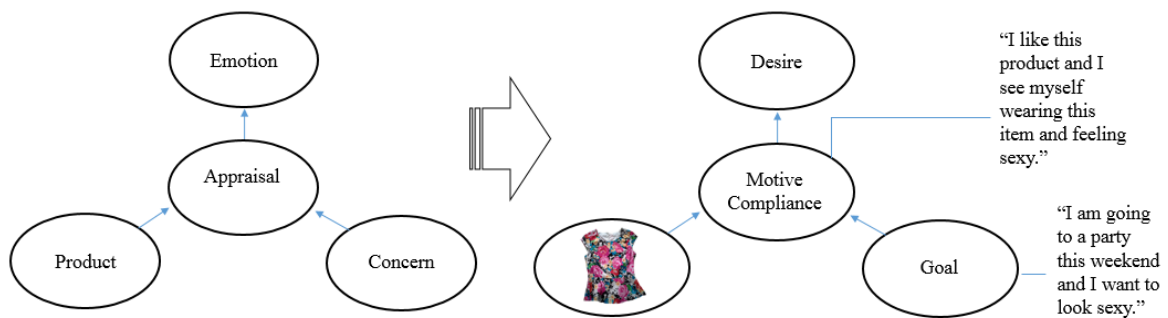


Figure 8. Model of Product Emotions (left) with Example (right). Adapted (left) from “Framework of Product Experience,” by P. Desmet and P. Hekkert, 2007, *International Journal of Design*, 1, p. 62 with permission from P. Desmet, © 2007. Adapted (right) from “A Multilayered Model of Product Emotions,” by P. Desmet, 2003, *The Design Journal*, 6, p. 9 with permissions from P. Desmet and Taylor & Francis, © 2003.

Desmet (2003) defines different types of product emotions in accordance with the type of evaluation involved (i.e., appraisals): (1) surprise, (2) instrumental, (3) aesthetic, (4) social, and (5) interest. The first type, *surprise*, is the result of how an appraisal of novelty in a product will lead to the product emotion of surprise. With respect to the second type, *instrumental* product emotions, Desmet explains how consumers believe products can help them achieve their goals. That is, when consumers see a product, they anticipate the experience of using and owning the product. A product that facilitates goal accomplishment or motive compliance will elicit emotions like desire, whereas a product that does not will generate disappointment. Figure 8 includes an example of instrumental product emotions. The example considers a shirt as the product and an appraisal of that product (“I like this product...”), which is influenced by the concern or goal of the consumer (“I am going to a party this weekend and I want to feel sexy”). That is, the evaluation of the shirt (i.e., appraisal) is influenced by the goal (i.e., concern) and the

emotion of desire is then generated. The third type of product emotions, *aesthetic* product emotions, is related to an appraisal of intrinsic pleasantness and generates either attraction or disgust. The fourth type, *social* product emotions, relates to social standards and norms that consumers apply to appraise products in terms of legitimacy. If the product is appraised as legitimate, it will trigger admiration. If it is not appraised as legitimate, indignation is triggered. The fifth type is the *interest* product emotions and implies an appraisal of challenge and a promise that includes emotions like fascination or boredom.

Thus far, the discussion of appraisal theory has emphasized the relationships between cognition and emotions. Yet, a deeper examination of emotions is needed in order to better understand and justify the focus on positive emotions employed in this dissertation.

#### *Positive Emotions Evoked by the Appraisal of Products*

Arnold (1960) classifies emotions according to their direction toward (positive) or away (negative) from a given object, and based on whether the object is appraised as beneficial or harmful. While positive emotions are distinguished as tending toward a good object, negative emotions are distinguished as tending away from harmful objects (Arnold, 1960). Equally, products may evoke a variety of emotions, including positive (e.g., fascination) and negative (e.g., irritation) (Desmet, 2012). Moreover, Bloch (1995) argues that positive affective responses (e.g., emotions) generate approach behavioral responses while negative affective responses are generally linked to avoidance behaviors. Negative emotions are generally directly linked to survival, while positive emotions are

linked to psychological well-being and physical health, but are not easily explained from an evolutionary perspective (Fredrickson, 2003).

Numerous studies have included both positive and negative emotions (e.g., Gaur et al., 2014). Specific works such as Desmet's (2003), suggest that product designs trigger positive and negative emotions like pleasant surprise/unpleasant surprise, satisfaction/disappointment, attraction/disgust, admiration/indignation, and fascination-inspiration/boredom. Further research on appraisal patterns of emotions (Demir et al., 2009) indicates that the most frequently reported positive and negative emotions evoked by products are happiness/joy, contentment/satisfaction, anger/irritation, and disappointment/dissatisfaction. For instance, the authors' findings indicate that with the emotions of contentment/satisfaction, motive consistency is present as well as the expectation confirmation component, which takes into account expectations of the outcome of an event. Nevertheless, Westbrook and Oliver (1991) found that with respect to consumption emotions, 74% of the participants in their study frequently experienced positive emotions, while the occurrence of negative emotions was very infrequent. Respondents generally experienced the positive affects of interest, joy, and pleasant surprise more frequently than the negative affects.

There are multiple ways to identify and measure the positive and negative emotions evoked by products (Richins, 1997), such as Plutchik's circumplex (Plutchik, 2003) and the Geneva Emotion Wheel (Scherer, 2005). Some of these methods introduce a great deal of complexity into the operationalization of research on emotions, especially negative ones (Fredrickson, 2003). This is in part because positive and negative feelings



are not necessarily symmetrical in their effects (Isen, 1999). Differences between positive and negative emotions are also reflected in how the literature on emotion is written. For example, Izard (1977) dedicated specific chapters to explain specific emotions such as interest, joy, and surprise; while separating definitions and explanations of negative emotions like anger, disgust, contempt, and fear, among others. Similarly, Arnold (1960) discussed negative and positive emotions in separate chapters while stressing that positive emotions can make it easier for the individual to follow a self-ideal, which refers to the best version of the self that can be achieved by a particular individual.

Only positive emotions evoked by products that are genuine to the study of emotions within an appraisal theory perspective (e.g., Desmet, 2003, 2012; Demir et al., 2009) are considered in the present study. Measurement reasons are not the only reasons behind the decision to focus on positive emotions. Positive emotions can have a behavioral impact, including purchase intention (Bitner, 1992; Bloch, 1995) and care of products as part of the product attachment experience (Mugge, Schoormans & Schifferstein, 2005). Furthermore, Desmet (2012) states, “products that evoke positive emotions are bought more often, used more often, and are more pleasurable to use” (p. 1). In other words, positive affective responses lead to behavioral responses of approaching the product (Bloch, 1995), which is usually the main goal of marketers. Isen (1999) further clarifies that the “mild positive affect,” that is explained as the subtle happy feelings that frequently occur in everyday life, has a marked influence on social behavior (e.g., interpersonal interaction, social categorization) and thought processes (e.g., memory, learning, problem solving). The key is that mild positive affect (e.g.,

fascination) should occur without interrupting the ongoing activity while influencing motivations for certain kinds of activities (Isen, 1999), such as reading information about a product.

Due to the importance of positive emotions, authors such as Desmet have even dedicated research specifically to examining them. For instance, in an investigation of product emotions, Desmet (2012) identified 25 positive emotions in human-product interactions in order to explore the conditions under which individuals may experience them in relation to products. Table 4 presents the list of the 25 identified positive emotions. The first column indicates the main category or emotion type, while the second column indicates the main emotion words and associated emotion words that help explain the main category. For example, the emotion type of “empathy” includes the emotion words of “sympathy,” “kindness,” and “respect.” Specifically, the emotion word of “sympathy,” is further associated with other emotion words such as “compassion,” “empathy,” and “pity.” Based on this typology of emotions and their identified sources (Desmet, 2012), the four emotions that can be directly related to the buying process stage of searching for a product in an online environment are: pleasant surprise, fascination, desire, and joy (indicated with an asterisk in Table 4). Pleasant surprise, fascination, and desire are also those emotions involved in what constitutes a “wow-experience” (Desmet et al., 2007, p. 141). These four emotions will be explained, and their selection further justified in the section following the table.

Table 4. General Typology of 25 Positive Emotions

<b>Empathy</b>	<b>Sympathy:</b> compassion, empathy, pity <b>Kindness:</b> caring, friendly, tenderness, warm <b>Respect:</b> appreciation, approval
<b>Affection</b>	<b>Love:</b> affection, intimacy, romance, infatuation <b>Admiration:</b> impressed, esteem <b>Dreaminess:</b> pensive, contemplative
<b>Aspiration</b>	<b>Lust:</b> passion, sensual, horny, sexy <b>Desire*:</b> attraction, yearn, crave <b>Worship:</b> adore, devotion, reverence
<b>Enjoyment</b>	<b>Euphoria:</b> ecstasy, elation, exhilaration, jubilation <b>Joy*:</b> happy, pleasure, delight, cheerful <b>Amusement:</b> entertained, gaiety, humorous, glee
<b>Optimism</b>	<b>Hope:</b> optimistic, encouraged, wishful <b>Anticipation:</b> eager, expectant
<b>Animation</b>	<b>Surprise*:</b> amazement, astonished, startled, dazzled <b>Energized:</b> exuberant, zest, excitement, stimulation
<b>Assurance</b>	<b>Courage:</b> brave, heartened <b>Pride:</b> triumphant, self-satisfaction, smug <b>Confidence:</b> assurance, secure, trust
<b>Interest</b>	<b>Inspiration:</b> enthusiasm, determination, challenged, zeal <b>Enchantment:</b> awe, charmed, moved, touched <b>Fascination*:</b> curious, attentive, interest, engrossed
<b>Gratification</b>	<b>Relief:</b> reassured, soothed, gratitude <b>Relaxation:</b> comfortable, carefree, serene, tranquility <b>Satisfaction:</b> gratified, pleased, contentment, fulfilment

\* Emotions related to the buying process stage of searching for a product in an online environment. Adapted from “Faces of Product Pleasure 25 Positive Emotions in Human-Product Interactions,” by P. M. A. Desmet, 2012, *International Journal of Design*, 6, p. 4.

## Theoretical Model

In order to integrate the literature reviewed in this chapter and highlight its application in this dissertation, Figure 9 proposes a *Theoretical Model of Cognitive and Affective Responses to Product Form*. In developing this model, Bloch's (1995) model was taken into consideration as the overarching structure. The aesthetic properties of products explained by Hekkert and Leder (2008) provided further explanation of the properties (e.g., typicality, novelty) that are considered in the product form and the MAYA principle. Appraisal theory (e.g., Desmet, 2003; Scherer et al., 2001) proposed the logic behind the order of constructs related to appraisal or cognition (e.g., aesthetic preference) and emotion (e.g., positive emotions), as well as the concern or goal (e.g., usage situation). The latter was also classified as a situational factor of the social setting (Bloch, 1995) that influences the cognitive response as a moderator. Lastly, the literature related to positive emotions evoked by products (e.g., Desmet, 2003, 2012; Demir et al., 2009) guided the selection of the most appropriate emotions to measure as affective responses (e.g., pleasant surprise).

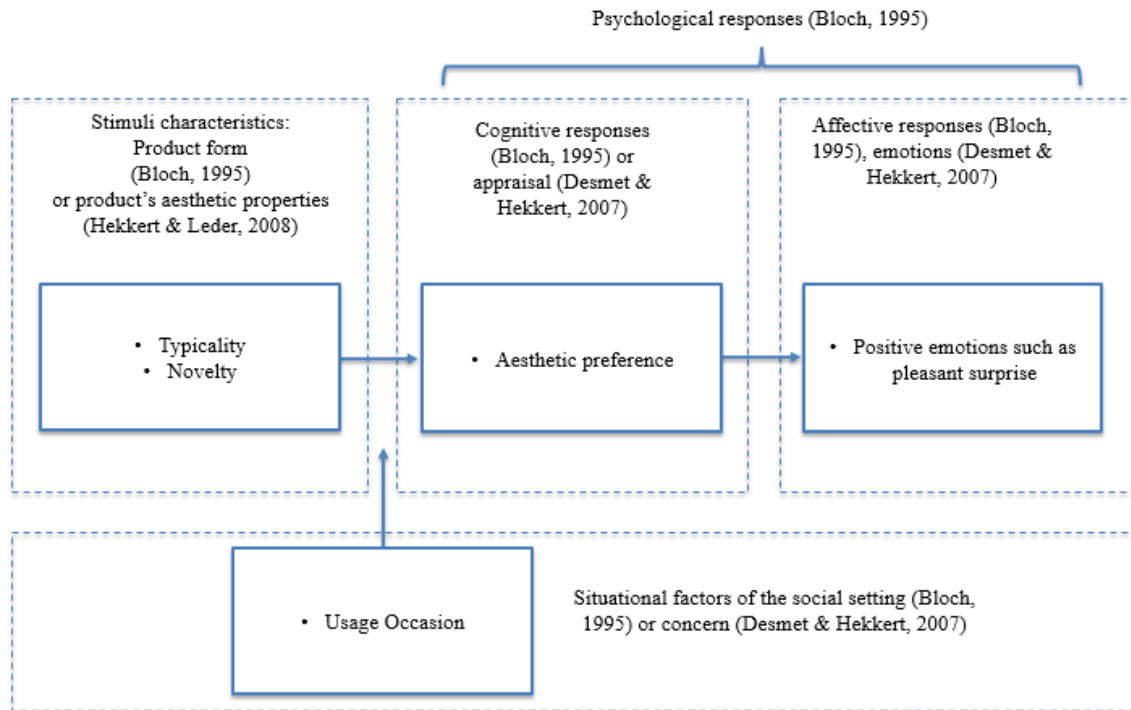


Figure 9. A Theoretical Model of Cognitive and Affective Responses to Product Form

The theoretical model in Figure 9 proposes a logic for how product aesthetics are experienced by an individual in accordance with the theoretical frameworks, principles, and theories considered in the literature review. That is, when an individual perceives a product, there are different components to consider in this experience. Thus, the theoretical model presents a product that has a product form (Bloch, 1995) with certain aesthetic properties (Hekkert & Leder, 2008) that act as stimuli to the individual. Given certain situational factors (Bloch, 1995), i.e., usage situation, the consumer will appraise the product as good or bad (e.g., Desmet, 2003; Scherer et al., 2001), which means that the consumer makes an interpretation or cognitive response to evaluate the object (Bloch, 1995) in relation to some concern or goal (Desmet & Hekkert, 2007). This interpretation,

in turn, will cause affective responses (Bloch, 1995) or emotion elicitation, such as positive emotions (e.g., Demir et al., 2009; Desmet, 2003, 2012).

### **Application of Key Concepts**

This section includes definitions and discussion of the key concepts integral to this dissertation. Within this section, there are four subsections that relate to the components of the model as depicted in Figure 9: (1) *Typicality versus Novelty*, (2) *Aesthetic Preference*, (3) *Usage Situation*, and (4) *Affective Response*.

#### **Typicality versus Novelty**

Hekkert and Leder (2008) define *prototypicality* or *typicality* as synonyms that relate to people recognizing things and classifying them into matching prototypes. The authors explain “familiarity” as the idea that humans prefer objects that seem familiar somehow because repetition makes it easier for stimuli to be processed. Thus, familiarity is a defining variable of typicality. Familiarity relates to “repetition” and can be exploited as patterns that can be recognized “as representations of known objects or as modifications of something that has been encountered before” (Berlyne, 1971, p. 168). Familiarity and prototypicality are therefore built through experience (Leder et al., 2004). For example, Hirschman’s (1986) research on aesthetics and advertising defines familiarity as something “viewed before” (p. 29). Berlyne (1971) associates familiarity with “expectedness” (p. 106) and “resemblances” in structure (p. 108). However, it should be noted that, based on definitions of familiarity, there is a difference between familiarity and typicality, despite their usage as synonymous (e.g., Lidwell et al., 2010). Familiarity relates to something encountered in the past, while typicality relates directly

to a similarity and therefore familiarity with the best example of the category, known as the *prototype* (Whitfield & Slatter, 1979).

Rosch (1977) concluded that the prototype “exhibits the largest number of attributes in common with all other members of the category” (as cited in Purcell, 1984, p. 191). As previously defined, the concept of prototype relates to the clearest case or best example of a category (Vartanian, 2014; Whitfield & Slatter, 1979). Typicality then is defined as “the degree to which an object is representative of a category” (Blijlevens et al., 2012a, p. 44), as “goodness-of-example” (Hekkert et al., 2003; Whitfield & Slatter, 1979), or as “goodness of fit” (Fiore et al., 1996c). For instance, when considering typicality of a store, Babin and Babin (2001) defined typicality as “the degree to which an environment matches its prototype” (p. 89). For the purpose of this dissertation, the working definition of typicality is *the degree to which a product matches its prototype*. Consequently, the closer the product is to its prototype, the higher the typicality exhibited by the product.

Some of the most important research in cognitive psychology conducted in the 1970s advanced the understanding of categorization and the concept of a prototype, resulting in the idea of prototypicality as a determinant of aesthetic preference (Vartanian, 2014). Since then, this aesthetic property has received much attention. Multiple studies have included typicality or familiarity as the only aesthetic property considered relative to products (Blijlevens, Gemser, & Mugge, 2012b; DeLong et al., 1986; Lim & Olshavsky, 1988) and retail environments (Babin & Babin, 2001). For instance, DeLong et al. (1986) explore the category-based processing strategies used by

consumers when evaluating an apparel product and conclude that consumer response is based on a summary of product property configurations previously experienced. Kumar and Garg (2010) examined response to DVD players and suggested that the interaction between typicality and harmony affects appraisals of pleasantness. Lastly, Babin and Babin (2001) suggested that when it comes to service encounters, typical store designs serve a utilitarian/functional purpose, while atypical designs may be preferable for encounters that are more emotional in nature.

While typicality relates to familiarity and being close to the prototype, *novelty* is about the individual “noting relations of similarity or dissimilarity between something that is present now and something that has been encountered in the past” (Berlyne, 1971, p. 69). Berlyne (1971) classifies novelty as either absolute or relative. Whereas absolute novelty is when a stimulus is unlike anything else encountered before, relative novelty is related to previously experienced elements that are relatively familiar or in unprecedented combinations. Moreover, for Berlyne (1971), a stimulus is rated more novel the more it differs from what has been experienced. When addressing novelty, the focus of this dissertation is relative novelty, as consumers are usually highly familiar with apparel products.

Novelty has received a great deal of attention in research. Berlyne (1970) clarifies that novelty is a subjective evaluation of a property of the stimulus. Other scholars have explored dimensions influencing this subjective evaluation of novelty in products (e.g., Hung & Chen, 2012; Radford & Bloch, 2011). For example, when it comes to trendiness (or modernity), complexity, and emotion, trendiness is the dimension found to have the



greatest influence on novelty (Hung & Chen, 2012). Trendiness is “the degree to which a product design follows the up-to-date styles and fashion in the market,” therefore, it is a concept closely related to novelty (Blijlevens et al., 2013, p. 55).

The subjective evaluation of novelty is also associated with newness. In fact, Hekkert (2014) uses “new” as equivalent to novel. Newness perceptions are defined in terms of how “unique, different, innovative, creative, or novel a consumer perceives a product to be” (Goode et al., 2013, p. 194). Newness also reflects a comparison of the current product with previous versions in the same or proximal categories; therefore, the products that differ most within the category will be perceived as newer (Radford & Bloch, 2011). Because designs of new apparel products are not always different from previous ones, novelty will be used throughout this dissertation, and is defined as a *product that is perceived as unique, original, different, and unfamiliar. A novel product can have a relative novelty in that the object consists of a combination of both new and previously experienced elements.*

When considering the concepts of typicality and novelty, it is easy to think of them as opposites of the same aesthetic property. Nevertheless, the two aesthetic properties are in fact different. Hekkert et al. (2003) explained this difference by presenting the example of the table lamp designed by Philippe Starck called “Miss Sissi.” This lamp has a typical form that can be considered novel because of its synthetic material. To further explain this point, Hung and Chen (2012) decided to measure typicality and novelty as two ends of a continuum and not as different properties as Hekkert et al. (2003) did. Despite interesting findings, Hung and Chen (2012) concluded

that “the bipolar typicality/novelty scale might not be adequate for distinguishing between stimuli that are indeed of medium novelty, stimuli that are both typical and novel, and stimuli that are neither typical nor novel. To deal with such ambiguity, it is necessary to treat typicality and novelty as independent factors” (p. 88). Consequently, both properties are treated as separate constructs within the dissertation.

### **Aesthetic Preference**

Despite the usage of certain objective measures in aesthetics, as Kozblet and Kaufman (2014) point out, “most empirical aesthetics research involves constructs that are largely (or entirely) subjective in nature,” (p. 96) including aesthetic preference, which is the liking of an aesthetic artifact. The construct of *aesthetic preference* implies an evaluation; therefore, it can be classified as an appraisal, as defined earlier. Based on the definition of appraisal offered by Scherer (2001), an aesthetic evaluation is a process of information that generates knowledge with respect to implications of well-being (e.g., “is this product good or bad for me?”) and assigns a significance to the stimulus (e.g., “I like it a lot”). As an illustration, when evaluating consumer responses to aesthetic properties, Kumar and Garg (2010) utilized the appraisal of pleasantness, and tested whether consumers considered DVD players to be pleasant and if they liked the product. Fiore et al. (1996c) also positioned aesthetic preference as closely related to liking and attractiveness, while Hekkert (2014) related an aesthetically pleasant product as pleasing to the sensory system.

Aesthetic preference has frequently been referred to as “aesthetic appraisal” (e.g., Hekkert & Wieringen, 1990; Hirschman, 1986) or “aesthetic appeal” (e.g., Pol, 2013),

particularly in experimental research. Moreover, Desmet (2003) discussed aesthetic product emotions and referred to “appealingness” when explaining evaluations of liking (i.e., appraisal) and that appealingness is a synonym of aesthetic preference. Other scholars have used a variety of other terms to refer to aesthetic preference, such as pleasantness (Berlyne, 1971), appraisal or pleasantness (Kumar & Garg, 2010), attractiveness (Giese et al., 2014), liking (Cox & Cox, 2002), like/dislike (Veryzer, 1993), and aesthetic preference or preference ratings (Frith & Nias, 1974).

Alongside using different terms, researchers are not always explicit in their definitions or in how they operationalize the construct. That is the case of Hekkert et al. (2003), which does not specify a definition of aesthetic preference but includes its operationalization by using the adjective pair of ugly/beautiful. Hirschman (1986) used an aesthetic/emotional scale that is defined as an aesthetic response that involves emotion and evaluative reactions to an object. The scale includes five adjective pairs: attractive/not attractive, desirable/not desirable, arousing/not arousing, and beautiful/not beautiful. Despite differences, research in general has presented aesthetic preference as a type of aesthetic judgement that is usually associated with the adjectives “beautiful” and “ugly” (Jacobsen et al., 2004, p. 1257). Therefore, authors (e.g., Berlyne, 1971; Cox & Cox, 2002; Hekkert et al., 2003; Hirschman, 1986) measuring aesthetic preference usually refer to the concept as related to beauty or its synonyms of attractive, pleasant, appealing, and so on. For the purposes of this research and based on the abovementioned discussion, the working definition of aesthetic preference in this dissertation is *evaluations of liking a product that usually generate associations with beauty.*

## Usage Situation

In general, a consumer situation (i.e., usage situation) is defined as a situation that comprises a point in time and space as well as a complete sequence in behavior or behavioral pattern (Belk, 1975). Consumers usually tailor their purchases to specific occasions (Solomon, 2013). Moreover, Belk (1975) argued that a situation makes for part of the environment influencing the organism's response to a stimuli. For instance, the consumption situation determines the consumer's *ad hoc* needs (i.e., consumer's needs concerned with a particular end or purpose) in the adoption process (Wenben, 1991). That is, a consumer is more likely to adopt a new product because the perceived advantages or product benefits meet the needs of the usage situation. Belk (1975) specified the following four situational characteristics that represent the general features of a situation and which apply to usage situations: (1) physical surroundings, (2) temporal perspective, (3) task definition, and (4) antecedent states. *Physical surroundings* include geographical and institutional location, decor, or other material surrounding the stimulus object. That is, this feature responds to the question of "where" the consumption will take place. *Temporal perspective* relates to time of day or season of the year and the temporality of the situation (present, past or future). This feature responds to the question of "when." *Task definition* includes an intent or requirement to select or shop for; the task may reflect different buyer and user roles anticipated by the individual (e.g., the purchase is a gift or for personal use). This feature responds to the question of "who," and "what for." Finally, *antecedent states* characterize the states that the individual brings to a

situation, such as momentary moods (e.g., acute anxiety) or momentary conditions (e.g., fatigue). This feature responds the question of “how.”

One relevant consumer situation is apparel product usage (d'Astous & Chnaoui, 2002). Specifically for apparel products, usage situation has been found to influence purchase decisions (d'Astous & Chnaoui, 2002; Moye & Kincade, 2002). For example, d'Astous and Chnaoui (2002) propose that usage situations can be something like deciding to purchase a sports garment to wear to a sports event or a leisure activity like going outdoors. Moye and Kincade (2002) further propose that usage situation for apparel items can include deciding to purchase a dress to wear to a formal social event, a family gathering, or to wear to work or a community activity. Based on Moye and Kincade's (2002) definition, *usage situation* is defined within this dissertation as *the occasion for which an apparel item is being purchased and refers to the setting where the wearing may occur*.

### **Affective Response**

As previously discussed, in this study only positive emotions are considered as affective responses. Thus, pleasant surprise, fascination, desire, and joy are defined and discussed here.

#### *Pleasant Surprise*

Desmet (2012) defines *surprise* and its manifestations in human-product interaction as “experienced in response to a sudden event that was unexpected or is unusual because it violates an expectation or belief. In the case of pleasant surprise, the unexpected event is desirable or pleasurable” (p. 9). This author presents surprise as an

amazement evoked by products that surpass implicit or explicit expectations, which are usually based on previous experiences with the same or similar products. Desmet (2012) further defines surprise as “to be pleased by something that happened suddenly, and was unexpected and unusual” (p. 4) and also associates this emotion with being astonished, startled, and dazzled. Hence, surprise is a result of an increase in stimulation (Izard, 1977). Pleasant surprise is an emotion involved in what constitutes a wow-experience (Desmet et al., 2007, p. 141) and included as one of the “fundamental emotions” (Izard, 1977; Niedenthal et al., 2006). Desmet (2003) explains surprise when he defines the perception of products that relate to the “surprise product emotions” as when a product (or feature) is appraised as novel. The response will be *pleasant surprise* when it is a sudden and unexpected match with any concern, or an *unpleasant surprise* when it is a mismatch. Desmet (2012) indicates that pleasant surprise is experienced when individuals react to novel or unexpected functions of the product, products that are not what they appear to be, or by unexpected use of materials in a product. Izard (1977) associates surprisingness with exploratory behavior. Similarly, Plutchik (1980) indicates that feelings of being “surprised,” “amazed,” and “astonished” are associated with the impulse actions of “to stop activity,” “to explore or search,” and “to welcome or be with” (p. 357). As has been noted, the emotion of pleasant surprise implies an action tendency of moving towards the product and being attentive (Izard, 1977; Plutchik, 1980).

It is important to note that pleasant or positive surprise has also been referenced as “delight” in the services literature (Oliver, Rust, & Varki, 1997). Other researchers in services, such as Alexander (2012), define delight as the emotion with opposite valance

to disgust. Delight is defined as consisting of a mixture of joy and surprise that is explained as a “highly aroused pleasantness” in accordance with the theory of emotion (Oliver et al., 1997). In the present study, the term “pleasant surprise” is preferred over “delight.”

### *Fascination*

Desmet (2012) defines *fascination* and its manifestations in human-product interaction as “the experience of an urge to explore or investigate something. This emotion is driven by an eagerness to increase one’s understanding of the object of fascination, and it stimulates focused attention and explorative behavior” (p. 9). The author acknowledges different reasons for this emotion, such as an individual encountering a novel product or the expertise of the craftsmanship implied in the perceived complexity of a product.

Desmet (2012) associates fascination with being curious, attentive, interested, and engrossed. Fascination is another emotion involved in what constitutes a “wow-experience” (Desmet et al., 2007, p. 141). The emotions of feeling “curious” and “interested” are both associated with the impulses to action of “to explore or search” and “to welcome or be with” (Plutchik, 1980, p. 358). Desmet (2003) includes fascination as the type of product emotions he calls “interest product emotions.” Products that do not involve a challenge (e.g., products that look very familiar) will elicit boredom, while products that invite further exploration will elicit fascination and inspiration. Desmet’s (2012) findings indicate that fascination is experienced when either the product, the designer, or the brand evokes fascination. It also occurs when the individual views a

novel product for the first time, as well as when he or she is fascinated by the craftsmanship of the product, the complexity or richness of the product, or by the company that produced the product. Izard (1977) regards fascination as interest-and-excitement and includes this emotion in his list of fundamental emotions. Early works of Berlyne (1950) considered interest as synonymous with curiosity, and defined curiosity as a “simple impulse to know, instinctively governing and sustaining the attention, and evoking those bodily movements which will enable us to gain fuller acquaintance with the object” (as cited in Izard, 1977, p. 197). The emotion of fascination implies an action tendency to approach the product and be curious and interested in exploring. Likewise, the emotion of desire also urges the consumer to explore.

### *Desire*

Desmet (2012) defines *desire* in human-product interaction as an experience of “strong attraction to enjoy or own something” (p. 4). Although desire is similar to lust, “it differs in the sense that the involved attraction is not necessarily erotic or sexual” (Desmet, 2012, p. 10). The author explains that consumers can desire to own a product, use a product, or the activity that will be facilitated by using a product. Sometimes, desire even relates to what is not allowed because of practical, moral, legal, or safety issues (e.g., the product is too expensive). Desmet (2012) further associates this emotion with attraction, yearning, and craving.

Like fascination and pleasant surprise, desire is an emotion involved in what constitutes a “wow-experience” (Desmet et al., 2007, p. 141). Desmet (2003) includes desire in the “instrumental product emotions,” as part of the appraisal process that is



based on a motive compliance (as seen in Figure 9 on page 77). If the product is congruent with the concern of the consumer, then the product will be appraised as appealing and the elicited emotion will be desire. Desmet's (2012) findings further indicate that desire is evoked in wanting to own the product when the individual sees a desirable product or when the desirable product is out of reach. His findings also reveal that desire can be experienced when the individual wants to use the product, sees the effect of using the product, or there is desire to interact with the product. To summarize, the emotion of desire implies an action tendency toward the product in order to want to own it and therefore buy it, which is the main goal of marketers when launching new products.

### *Joy*

Desmet (2012) defines *joy* and its manifestations in human-product interaction as “the experience of being pleased about (or taking pleasure in) something or some desirable event. People can experience joy when a product is pleasurable to use, fulfils its function well, or facilitates a joyful activity. In addition, a product can also represent or remind someone of a (past) joyful activity” (p. 10). Berlyne (1971) states that pleasure or enjoyment are the main functions of the aesthetic experience, in as much as joy is related to being pleased about something or some desirable event. Joy is associated with words like happy, pleasure, delight, and cheerful (Desmet, 2012). Joy is also included in the list of fundamental emotions (Izard, 1977; Niedenthal et al., 2006), and is one of the most frequently reported by respondents in human-product interactions (Demir et al., 2009; Desmet, 2012).

The emotions of feeling “delighted,” “joyful,” and “happy” are all associated with the impulses to action of to “embrace or mate” and to “welcome or be with” (Plutchik, 1980, p. 358). Demir et al. (2009) indicate that, in experiencing happiness/joy, the central component for the appraisal is motive consistency, which means that the situation is appraised as consistent with what the person wants. That is, consumers will experience happiness/joy when they have a match between their wants and what the product offers. For example, if a female consumer is looking for a novel product that makes her look modern and fashionable, when she sees a product and evaluates it as such, she will experience joy because there is motive consistency. Because joy is about enjoyment (Berlyne, 1971), joy can also be generated when the consumer finds motive consistency because the product reinforces the image of the self held by the consumer. Levy (1959) states that a product will be enjoyed when “it joins with, meshes with, adds to, or reinforces the way the consumer thinks about himself [*sic*]” (p. 119).

Desmet’s (2012) findings also indicate that joy is evoked when the product represents or reminds one of a joyful activity, as well as when using (or looking) at the product provides sensory pleasure. The feeling of joy gives consumers the confidence and personal significance of feeling that they are capable of coping with the problems and pleasures of living; it provides a sense of harmony and unity with the object of joy, and it also gives consumers momentary self-contentment (Izard, 1977). Joy “facilitates and increases social responsiveness” and is usually expressed through a smile (Izard, 1977, p. 244). In sum, the emotion of joy implies an action tendency to be interested in the product and become social.

## Conceptual Model and Hypotheses Development

Despite the complexity of the aesthetic phenomenon as experienced by humans (Desmet & Hekkert, 2007), certain components can be identified as constant within that experience (Bloch, 1995). Based on the theoretical framework and discussion of key concepts, the conceptual model for the Main Study is illustrated below in Figure 10. Proposed relationships between constructs are derived from the conceptual model and then indicated in the hypotheses (H1-H8). Each hypothesis and its rationale is discussed in detail following the explanation of the figure.

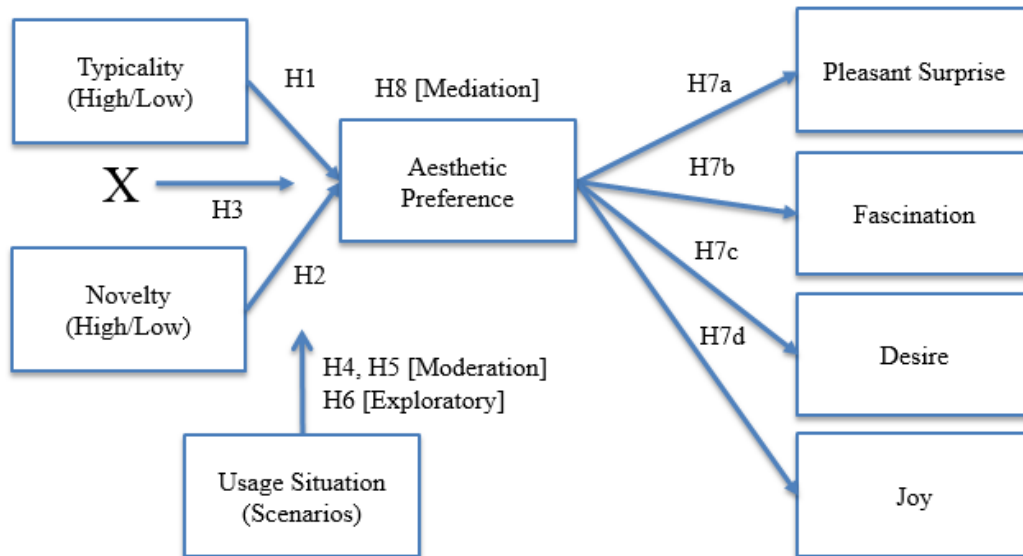


Figure 10. Conceptual Model for the Main Study

As mentioned above, in spite of the complexity of the aesthetic phenomenon, several aspects of the experience can be isolated and examined more fully. These aspects were highlighted in the extant literature review as well as illustrated in the theoretical model proposed in Figure 9 (page 77) and include: stimuli characteristics (e.g., typicality and novelty), psychological responses (e.g., cognitive and affective responses), and situational factors of the social setting (e.g., usage situation). Combined, they facilitate the conceptualization of the process that describes the consumer response to product form examined in this study.

Based on the gaps in the literature, the model proposed in Figure 10 was developed to examine the relationships between the various components of the aesthetic experience that were identified in the theoretical model. The components relate to specific constructs and how they are linked in the conceptual model. Thus, the conceptual model postulates that the aesthetic experience, which is the consequence of how the consumer perceives stimuli visually (Hekkert, 2016), is activated by the visual perception of the stimuli. Based on the literature review, the stimuli characteristics activating the aesthetic experience can be described in terms of aesthetic properties (Hekkert & Leder, 2008) of the product form (Bloch, 1995). Specifically, Figure 10 allows for the examination and testing of the impact that the aesthetic properties of typicality and novelty have on the aesthetic preference for products. Thus, the aesthetic experience engenders responses or outcomes that are directly related to the stimuli (Berlyne, 1971). The model focuses on the consumer responses to the product form that are classified as psychological responses (Bloch, 1995).

For the psychological responses, the model considers two types of responses. The first, cognitive responses (Bloch, 1995) or appraisal (Desmet & Hekkert, 2007) are measured in terms of the aesthetic preference. The second, affective responses (Bloch, 1995) or emotions (Desmet & Hekkert, 2007) include the measurement of positive emotions (Desmet, 2012) that are evoked by the product form in terms of pleasant surprise, fascination, desire, and joy. As part of the situational factors of the social setting (Bloch, 1995) or concern (Desmet & Hekkert, 2007), the model also considers the moderating effect of the usage situation. The latter represents the construct explored in this dissertation that may modify the consumer response to product form. Lastly, the model illustrates that the aesthetic preference mediates the relationships between the aesthetic properties of the product form and the affective response, as measured in terms of positive emotions.

### **Hypotheses Development for the Main Study**

#### *Hypothesis 1: Main Effect of Typicality on Consumers' Aesthetic Preferences*

Based on the theory of preference-for-prototypes (Whitfield & Slatter, 1979), product forms that are closer to the goodness-of-example are likely to be preferred. In fact, DeLong et al. (1986) conclude that for apparel, product property configurations that have been previously experienced influence consumer response. Moreover, individuals prefer stimuli that are familiar, comfortable, easy to classify, and equivalent to things that are known, such as prototypes (Hekkert et al., 2003). Aesthetic preferences are affected by familiarity, and specifically typicality (Leder et al., 2004). According to Vartanian (2014), “prototypical stimuli are [likely to be] processed more fluently (i.e., with greater

speed and efficiency) than nonprototypical stimuli” (p. 19). Thus, similar products act as a visual reference that facilitates the information processing by the consumer (Crilly et al., 2004). In as much as “the preference ratings indicated that subjects generally preferred the simplest designs” (Frith & Nias, 1974, p. 163), it can be inferred that consumers prefer products that are closer to the prototype and evaluated as simpler in comparison to those that are more novel.

Additionally, typicality is a driver of aesthetic preference (Vartanian, 2014; Whitfield & Slatter, 1979). Similarly, Blijlevens et al. (2012b) found that typicality has a positive effect on aesthetic appraisal. Previous experiments with stimuli consisting of cubist paintings also found that aesthetic preference shows a significant linear relation to typicality (Hekkert & Wieringen, 1990). While some authors found positive relationships between typicality and aesthetic preference, others, such as Blijlevens et al. (2012a) reported that typicality has a negative effect on aesthetic appraisal. Likewise, typical products may not pose a challenge to the consumer (Desmet, 2003) and therefore will be evaluated as aesthetically unappealing. Despite certain contradictions, most research points to typicality having a positive relationship with aesthetic preference (e.g., Blijlevens et al., 2012b; Hekkert & Wieringen, 1990; Vartanian, 2014; Whitfield & Slatter, 1979). Therefore, it is expected that:

**H1:** Products perceived as more typical will have a greater impact on consumers’ aesthetic preferences as compared to products perceived as less typical.

### *Hypothesis 2: Main Effect of Novelty on Consumers' Aesthetic Preferences*

While some people prefer typicality because it relates to what is familiar, others may prefer novelty as it signals something that is different (Hekkert et al., 2003).

Individuals have an internal drive or motivating force to seek out what is novel, new, or unfamiliar as a means of self-preservation and a function to improve problem-solving skills (Hirschman, 1980). Consequently, novel products are usually perceived as involving a challenge and tending to elicit further exploration (Desmet, 2003). In fact, novelty is a determinant of aesthetic preference (Berlyne, 1971). That is, consumers tend to prefer novel products as higher levels of product newness have been found to engender more positive aesthetic evaluations (Radford & Bloch, 2011). This explains why novelty in products has been positively linked to product sales (Cooper & Kleinschmidt, 1987) and is key for achieving corporate prosperity (Cooper, 2011; Cooper & Kleinschmidt, 1990). Specifically for apparel, product novelty is influential during purchase (Dhurup, 2014). Thus, it is likely that consumers prefer products that are perceived as original, unfamiliar, and novel. That is, higher levels of novelty in the product will likely be related to higher levels of aesthetic preference for that product. Therefore, it is proposed that:

**H2:** Products perceived as more novel will have a greater impact on consumers' aesthetic preferences as compared to products perceived as less novel.

### *Hypothesis 3: Two-way Interaction Between Typicality and Novelty*

Hekkert et al. (2003) examined the MAYA principle and confirmed typicality and novelty as predictors of aesthetic preference that are negatively correlated. Berlyne (1971) further clarified that “the arousing effect of novelty can be curbed or undone by introducing patterns that resemble what has been experienced before” (p. 168). Likewise, product designs that deviate from the prototype (low in typicality and high in novelty) are appraised aesthetically as more positive (Blijlevens et al., 2012a). Hung and Cheng (2012) even classified products by simultaneously considering typicality and novelty, in that a product that is low in novelty is “typical,” while an atypical product is “unique.” Moreover, as trendiness is a dimension of novelty (Hung & Cheng, 2012), trendy products (i.e., high product novelty) are viewed as more aesthetically appealing as they deviate more from the prototype (i.e., low product typicality) (Blijlevens et al., 2013). However, there are limits to this idea, in that if “a consumer cannot affix a category label to a new product with certainty, as can happen with innovative aesthetics, a product’s newness will be underappreciated and product evaluations will suffer” (Goode et al., 2013, p. 192). That is, consumers appreciate products that are novel with a level of typicality that will allow the classification of products within a certain category, which, in turn, reinforces the MAYA principle. All of these findings suggest that the aesthetic properties of typicality and novelty are related. Thus, both predictors of typicality and novelty likely interact when consumers evaluate the aesthetics of products. Therefore, it can be hypothesized that:



**H3:** There will be an effect of a two-way interaction between typicality and novelty on aesthetic preference. That is, products perceived as more novel but less typical will have a greater impact on consumers' aesthetic preferences as compared to products perceived as less novel and less typical. In addition, products perceived as more novel and more typical will have a greater impact on consumers' aesthetic preferences as compared to products perceived as less novel but more typical.

*Hypothesis 4: The Moderator Role of Usage Situation Between Typicality and Aesthetic Preference*

Specific to the context of apparel, Solomon (2013) states, "clothing choices are often heavily influenced by the situation in which we need to wear them" (p. 337). Based on appraisal theory (Desmet, 2003), it is imperative to consider usage situation as a concern, in that the usage situation becomes a "goal" for consumers. For example, if the usage situation is a future social setting involving a formal work environment, then the consumer's goal when looking for apparel would be to look professional and find clothes that fit the norms and dress code of the organization. Thus, it is expected that for this usage situation consumers may prefer an item of apparel that offers higher levels of typicality and lower levels of novelty. Desmet (2003) clarifies that standards like social norms influence our appraisal of products. In other words, consumers will take into consideration the social norms involved in the usage situation. In doing so, social norms influence consumers' decisions regarding whether a typical or novel product is more suitable, or a combination of both. In this case, one of the aesthetic properties, i.e., typicality, will be first taken into consideration. Thus, a highly typical product will be

considered as the more traditional option and therefore, more suitable for usage situations such as those considering usage within work environments. In contrast, if the usage situation is going to a non-professional oriented scenario (e.g., party), then consumers are likely expected to wear something that is non-traditional (i.e., low in typicality).

If the usage situation is the neutral scenario, where no information is given to consumers in regards to the goal of the particular purchase, then the logic for decision making will likely be based on the MAYA principle. That is, it is expected that when a consumer has no usage situation information, he or she will prefer an item of apparel that offers higher levels of typicality as well as higher levels of novelty. In other words, the product will be preferred or evaluated with higher levels of aesthetic preference when the product has a traditional or most typical shape with certain originality to the design. When considering only typicality, consumers in the neutral scenario will likely prefer products that are highly typical when compared to products that are low in typicality. Based on the logic of typicality relative to the different usage situation scenarios, it is expected that,

**H4:** There will be a moderating role of usage situation between typicality and aesthetic preference. That is, products perceived as more typical and that will be used for professional oriented and/or neutral scenarios will have a greater impact on consumers' aesthetic preferences as compared to products perceived as less typical that will be used for a non-professional oriented scenario. In addition, products perceived as less typical and that will be used for a non-professional oriented scenario will have a greater impact on consumers' aesthetic preferences as compared to

products perceived as less typical and that will be used for professional oriented and neutral scenarios.

*Hypothesis 5: The Moderator Role of Usage Situation Between Novelty and Aesthetic Preference*

If the usage situation involves a non-professional oriented scenario, then it is likely that the consumers' goal when looking for apparel is to look fashionable and appropriate in order to fit the norms and dress code of public socializing places. Therefore, when considering only the aesthetic property of novelty in the stimuli, it is expected that a consumer going to a non-professional oriented scenario may prefer an item of apparel that offers higher levels of novelty when compared to the item that presents lesser novelty. For the case of a consumer in the neutral scenario, it is expected that he or she will also prefer the item of apparel with higher levels of novelty, which is contrary to a professional oriented scenario, where he or she may prefer lower levels of novelty. Based on this logic, the hypothesis is the following,

**H5:** There will be a moderator role of usage situation between novelty and aesthetic preference. That is, products perceived as more novel and that will be used for non-professional oriented and/or neutral scenarios will have a greater impact on consumers' aesthetic preferences relative to products perceived as more novel but that will be used for a professional oriented scenario. In addition, products perceived as less novel that will be used for a professional oriented scenario will have a greater impact on consumers' aesthetic preferences relative to products perceived as less novel but that will be used for non-professional oriented and neutral scenarios.

#### *Hypothesis 6: Three-way Interaction Between Typicality, Novelty, and Usage Situation*

Based on the abovementioned discussion of hypotheses 4 and 5, the concern, which is the usage situation, acts as a moderator between the perception of typicality and novelty on aesthetic preference. That is, the typicality, novelty, and usage situation present a three-way interaction effect because consumers will consider both typicality and novelty simultaneously during the decision-making process that involves a usage situation. Based on this logic, it is proposed that,

**(Exploratory Hypothesis) H6:** There will be a three-way interaction between typicality, novelty, and usage situation.

#### *Hypothesis 7: Relationship Between Aesthetic Preference and Positive Emotions*

Desmet (2003, 2012) indicates that pleasant surprise can be generated by products appraised as novel because the new elements in the design are perceived as unexpected. Similarly, Berlyne (1971) associates novelty with surprisingness and attention. Novelty is a variable that explains stimulus selection (Berlyne, 1960; Izard, 1977). This means that higher levels of novelty are expected to be associated with higher levels of pleasant surprise. To a certain extent, it can also be stated that in terms of typicality, the more dissimilar the product is to the prototype (i.e., atypical), the greater the generation of pleasant surprise. On the contrary, because typical products are perceived as familiar (Strongman, 2003), it can be also assumed that products that are closer to the prototype (high in typicality and low in novelty) will generate lower levels of surprise than novel products.

As the definition of the emotion of fascination involves feeling the need for exploration (Desmet, 2012), it seems likely that novel products trigger the emotion of fascination more often than products that are closer to the prototype. According to the appraisal theory (Desmet, 2003; Scherer et al., 2001), higher levels of novelty in a product will generate appraisals which lead to emotions involving an urge to explore information about the product. Hekkert et al. (2003) further clarify that humans may prefer a product that is novel and different as this helps in the learning of new things. This explains why products that involve a challenge, like novel products, will elicit further exploration or fascination (Desmet, 2003). In fact, novelty has been associated with approach behaviors of exploration, as the novelty seeking tendency in humans represents an innate search for information (Hirschman, 1980). Izard (1977) also connects behavior with novelty, in that organisms tend to seek stimulation through novelty and change. More importantly, novelty is one of the principal activators of interest, in that it instigates curiosity and the urge to explore. Exploratory behavior, like attention, is also determined by novelty (Berlyne, 1960, 1967; Izard, 1977). Further, it has been proven that exposure to novel stimuli primes subsequent exploratory behavior (Spassova & Isen, 2012).

In regards to desire, Pol (2013) empirically examines how high-aesthetic product designs elicit instantaneous desire (i.e., a sudden urge to possess an aesthetically appealing product) via aesthetic appeal. In a similar way, high novelty implies products with high level of aesthetics and therefore these products will stimulate desire. As desire is associated with a strong attraction to own the product (Desmet, 2012) as well as the

spontaneous urge to buy that is experienced in impulse buying (Rook, 1987), it can be assumed that novel and unique products will be more likely to trigger emotions of desire than products that show high similarity with the prototype.

When exploring the determinants of joy, Izard (1977) explains that joy is a byproduct of a perception, thought, or action. As typicality is linked to preference (Whitfield & Slatter, 1979) and the elicitation of positive reactions (i.e., positive emotions) (Vartanian, 2014), joy may follow the recognition of the “familiar” as becoming “comfortable” (Izard, 1977, p. 243). Thus, increasing familiarity with the product may trigger the feeling of joy. Leder (2011) calls this the “comfort zone” because our aesthetic judgements are influenced by the beauty perceived in the prototype, as prototypes are closer to the average and therefore pleasing (p. 44). This logic suggests that higher levels of familiarity (i.e., high typicality) will trigger higher levels of aesthetic preference than lower levels of familiarity in products (i.e., high novelty), and therefore generate higher levels of the emotion of joy.

The emotions of pleasant surprise, fascination, desire, and joy have been found to be present in human-product interactions (Desmet, 2012), and are therefore likely to be experienced by consumers during online shopping. Despite the different reasons behind the generation of each of these emotions, it can be concluded that different levels of product typicality as well as novelty will affect consumers’ aesthetic preferences, and in turn, affect positive emotions. As appraisal theory focuses on the appraisal (Roseman & Smith, 2001), which in this case is the aesthetic preference, it is expected that higher

levels of aesthetic preference will generate higher levels of each emotion. Consequently, the following hypothesis is proposed,

**H7:** Consumers' aesthetic preferences will be related to positive emotions as measured in terms of (a) pleasant surprise, (b) fascination, (c) desire, and (d) joy.

*Hypothesis 8: Mediating Role of Aesthetic Preference*

Appraisal theory suggests that an appraisal starts the emotion process. That is, the appraisal initiates the other psychological responses that comprise the emotional state (Lazarus, 1991; Roseman & Smith, 2001). Strongman (2003) agrees that the involuntary assessment process of appraisal considers memory, in that anything new is evaluated in terms of past experiences. Thus, when products are evaluated, the consumer considers previously experienced product shapes that are similar as well as new product elements that can be recognized as novel. In accordance with appraisal theory, if the evaluation of the product is congruent with the concern of the consumer, or "goal-compatibility" (Frijda & Zeelenberg, 2001, p. 146), then the product will be appraised as appealing and elicit positive emotions (Desmet, 2003). That is, if there is motive compliance (Desmet, 2003) between the goals of the consumer in accordance with the usage situation and the characteristics of the observed product, then the product will be appraised as beautiful, and consequently will elicit positive emotions. Based on this logic, and the abovementioned discussion of preference for typicality as well as novelty, it is hypothesized that both aesthetic properties will exert positive influences on aesthetic preference ratings, and, in turn, will prompt positive emotions in the consumer, such as pleasant surprise, fascination, desire, and joy. Thus, the appraisal (e.g., aesthetic

preference) is the mediator between the stimuli and its properties (e.g., typicality and novelty) and the emotions generated (e.g., joy). Based on this logic, it is hypothesized that,

**H8:** Consumers' aesthetic preferences will mediate the relationship between aesthetic properties (typicality and novelty) and positive emotions.

### **Summary**

In this chapter, the theoretical frameworks as well as key concepts important to the literature and employed in the development of the conceptual foundation and hypotheses for this dissertation were described. Concepts such as typicality, novelty, aesthetic preference, usage situation, and specific positive emotions were discussed. In the next chapter, the methodology for the dissertation is presented.



### CHAPTER III

#### METHODOLOGY

As presented in Chapter I, the overall purpose of this dissertation is to examine the effects of specific aesthetic properties of apparel products on consumer responses. Emphasis is placed on typicality and novelty, as they are the main properties influencing preference as examined by the Most Advanced Yet Acceptable (MAYA) principle. Five objectives were developed to help achieve the purpose. The first objective is to explore the MAYA principle relative to three categories of apparel products (pants, jackets, and shirts). The rest of the objectives further examine the MAYA principle for only one of these categories. Thus, the second objective is to examine the effects of typicality and novelty on consumer responses, as measured in terms of aesthetic preference. The third objective is to identify the moderating role of usage situation in the relationship between the aesthetic properties (typicality and novelty) and aesthetic preference. The fourth objective is to examine the relationship between aesthetic preference and positive emotions. The fifth and last objective will additionally examine the mediating role of aesthetic preference between the product form and positive emotions.

In order to achieve these objectives, this chapter is divided into three sections: (1) *Phase I: Preliminary Study*, (2) *Phase II: Main Study*, and (3) *Summary*. The first two sections explain the two phases of the research design. Both phases are discussed in terms of objectives, procedure, selection of stimuli, instruments, and analysis. Discussion of

manipulations and manipulation checks are included when relevant. The Preliminary Study section includes the discussion of results and analysis. Last, the third section provides a summary of the chapter. Figure 11 presents a visual summary of each phase and its respective steps. The institutional review board (IRB) was contacted before the execution of Phases I and II and determined that the study did not require IRB approval (see Appendix A on page 309).

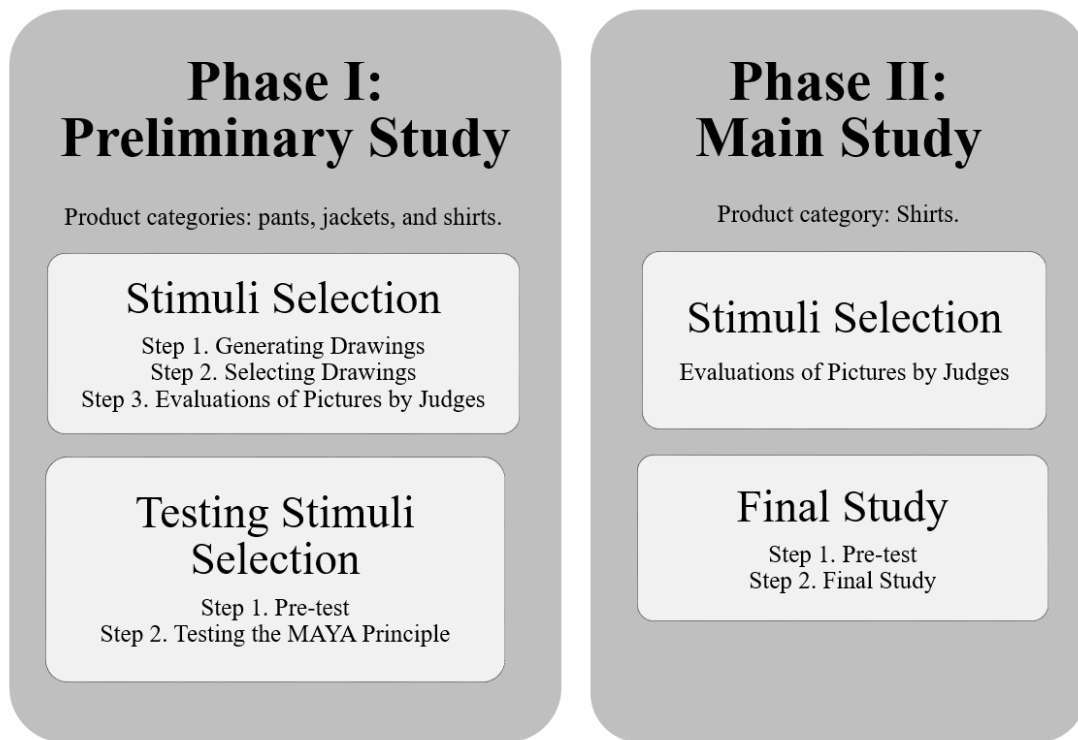


Figure 11. Phases of the Dissertation

## **Phase I: Preliminary Study**

This section is divided in three parts: (1) *Stimuli Selection*, (2) *Testing Stimuli Selection*, and (3) *Discussion of Results: Phase I*. The initial parts correspond to the two steps of the research design of the Preliminary Study. As seen in the objectives presented in Chapter I for the Preliminary Study, the first step focused on selecting the proper stimuli, while the second step explored the MAYA principle in the three apparel categories by using a student sample. The overall results of the Preliminary Study are discussed at the third and last part of this section.

### **Stimuli Selection**

As discussed in Chapter I, the selection of proper stimuli for the Preliminary Study required an initial understanding of the property of typicality in relation to the consumer's perception of this property. To this end, the initial goal of Phase I was to explore and identify the prototypes that consumers have in their minds regarding the three categories of pants, jackets, and shirts. Based on these prototypes, the goal was to select stimuli for each of the categories (sets of product pictures per category) in accordance with the typicality and novelty of product form, as well as to assess respondents' perceived typicality, perceived novelty, and their influence on aesthetic preference relative to these products.

In order to achieve the objectives for the selection of stimuli, and before determining the prototypes, the literature was reviewed for assessing how stimuli are utilized in experimental research on aesthetics in general. The idea was to first determine the type of stimuli to be used in this dissertation. Based on this review, the research was

classified by whether apparel or non-apparel products were used. In studies using apparel products, stimuli primarily took the form of drawings (also called “silhouettes” or “simplified product form representations of products”) (e.g., Cox & Cox, 2002; DeLong, Kim, & Larntz, 1993; Eckman, 1997; Holbrook, 1986; Wang, Chen & Chen, 2006; Yoo, 2003), while other studies used photographs (e.g., DeLong & Larntz, 1980; Hirschman, 1986; Rahman, 2012). For non-apparel products, researchers primarily used stimuli consisting of photographs (e.g., Bloch et al., 2003; Giese et al., 2014; Hekkert et al., 2003; Hung & Chen, 2012; Tractinsky et al., 2011), while drawings were used mainly for designs of products that have not yet been produced, such as electric concept vehicles (Diels et al., 2013). Overall, research on the topic has relied on both drawings and pictures, while drawings have been used more often in research on apparel. Because consumers searching for apparel products online generally encounter pictures of the final product rather than drawings, as will be discussed later, the Preliminary Study as well as the Main Study used pictures of products as stimuli. However, as will be discussed next, drawings were used in the initial steps of the Stimuli Selection for the purpose of determining the prototype for each category.

Along with type of stimuli, the quantity of stimuli utilized in experimental research on product aesthetics is also important to consider. For research on aesthetics focusing on apparel, researchers have utilized, for example, five headless female mannequins with skirt outfits (DeLong & Larntz, 1980); six fashion drawings of simple and complex female designs (black and white) (Cox & Cox, 2002); six pictures of women with different ensembles of daywear (DeLong & Minshall, 1988); seven pictures

of jeans (Rahman, 2012); twelve sets of a constant jacket silhouette varying proportionally in components of lapel, yoke, and pocket details (DeLong, Kim, & Larntz, 1993); fourteen product photographs from magazines (Hirschman, 1986), among others. For the non-apparel studies, researchers have used two toasters with high/low level of design aesthetics (Bloch et al., 2003); nine images of electric concept vehicles (Diels et al., 2013); nineteen sanders, fourteen telephones, or fourteen teakettles (Hekkert et al., 2003); twelve interior driver environments (Tractinsky et al., 2011); twelve wine bottles with high/moderate attractiveness (Giese et al., 2014); and eighty-eight chair photos (Hung & Chen, 2012), among many others. Consequently, most researchers have used between 2 and 88 different stimuli per category. As will be explained later in this chapter, the Preliminary Study used between 21 (seven per category) and 60 stimuli (20 per category), while the Main Study used between four and 21 stimuli.

After clarifying the type and quantity of stimuli to be used, the process of selecting stimuli was divided into three steps: (1) *generating drawings*, (2) *selecting drawings*, and (3) *evaluation of pictures by judges*. In the first step, drawings were generated of the different prototypes that consumers have in their minds. Then, based on the collected drawings, the second step involved selection of the prototype for each apparel category. In the third and last step, pictures were selected based on those prototypes and then rated by judges in order to generate a reduced set of pictures per category. The stimuli selection process, as well as results, are discussed in detail in the following sections. Each section includes a summary of the procedure, respondent characteristics, and results.

### *Step One: Generating Drawings*

The initial goal of selecting stimuli was to identify the prototype for each apparel category. Based on the definition of typicality (as discussed in Chapter II), it is important to understand the *prototype* that consumers have in their minds when thinking about a product. In other words, what does a typical pant look like? What does a typical shirt look like? What does a typical jacket look like? Following the procedure suggested by Hung and Chen (2012) for determining prototypes, students were asked to create a drawing based on each of the following three questions: (1) *What image comes first to mind when you hear the word “pants”?* (2) *What image comes first to mind when you hear the word “jacket”?* (3) *What image comes first to mind when you hear the word “shirt”?* For the activity, the students were given a form for releasing the rights to use the students’ drawings for any academic purposes (Appendix B on page 311), three white sheets (one per drawing), a front view body silhouette for sketching using a standard size from *The Spec Manual* (Bryant & DeMers, 2006) (Appendix C on page 312), and a survey that included brief demographic questions (Appendix D on page 313).

### Respondent Characteristics

Data were collected in January 2016 at the University of North Carolina at Greensboro from students majoring in the Consumer, Apparel, and Retail Studies undergraduate program with a concentration in Apparel Design. Participants were enrolled in the *APD 310: Portfolio Development for Apparel Design* class; therefore, it was assumed that they were able to draw. Demographic characteristics of the respondents are summarized in Table 5. The activity was completed by 16 participants, all of whom

provided usable responses. The sample was comprised of females with ages ranging from 20 to 50, and a mean age of 25 years. Participants were evenly distributed between Black or African American (n = 7, 43.80%) and White (n = 7, 43.80%). The majority of participants were Juniors (n = 10, 62.50%).

Table 5. Respondent Characteristics (n = 16) -- Generating Drawings

<b>Respondent Characteristics</b>	<b>Frequency</b>	<b>%</b>	<b>Mode</b>	<b>SD</b>
<b>Demographics</b>				
<i>Gender</i>			Female	0
Male	0	0		
Female	16	100.00		
<i>Age</i>			20	8.40
20-25 years old	14	87.70		
26-41 years old	0	0		
42-50 years old	2	12.60		
<i>Ethnicity</i>			Black or African American & White	1.21
American Indian	0	0		
Asian-American	0	0		
Asia or Pacific Islander	1	6.30		
Black or African American	7	43.80		
Hispanic or Latino	0	0		
White	7	43.80		
Other	1	6.30		
<i>Year of School</i>			Junior	.50
Freshman	0	0		
Sophomore	0	0		
Junior	10	62.50		
Seniors	6	37.50		

## Results

Data collected consisted of a total of 48 drawings (16 drawings per category). These drawings are presented in Tables 6, 7, and 8, and include pants, jackets, and shirts, respectively.

Table 6. Typical Pant Drawings -- Generating Drawings

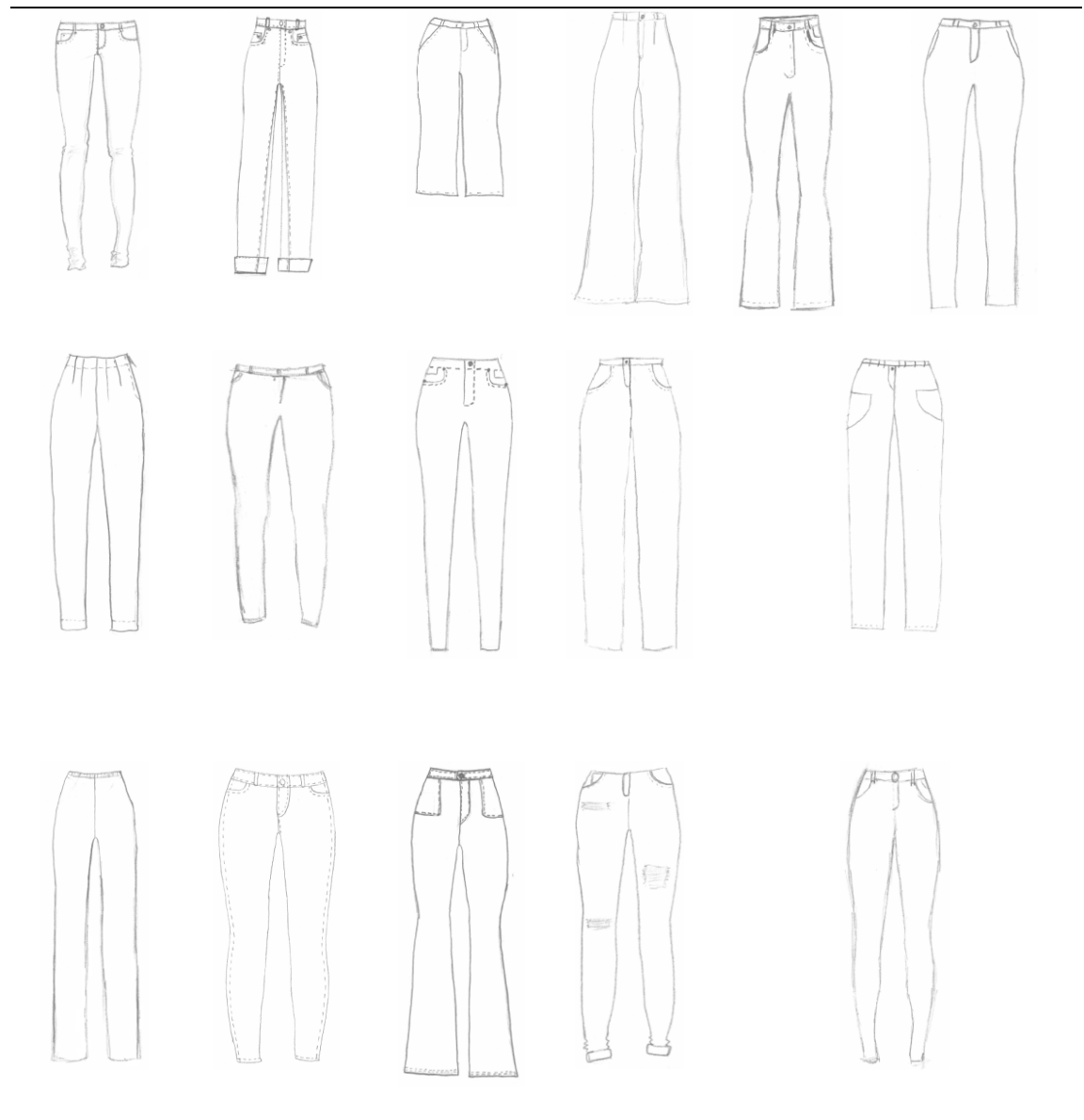




Table 7. Typical Jacket Drawings -- Generating Drawings





Table 8. Typical Shirt Drawings -- Generating Drawings



After the drawings were collected, each set (per category) was reviewed to identify the most relevant components present in most of the drawings, as well as the different classifications per component. Classifications per component were identified and then counted across drawings. For example, when analyzing pant drawings, the fly appeared to be a relevant component in the construction of the pant. Based on how it appeared in each drawing, the fly component was used to classify each pant as “with fly” or with “no fly.” Drawings were grouped together in accordance with this classification and frequencies were calculated (as seen in Table 9). That is, the fly was relevant to the 16 pant drawings, which were then classified as pants “with fly” (14) and pants with “no fly” (2). The same content analysis process was followed for each component identified in the three categories.

Table 9. Example of Content Analysis per Component in the Pant Drawings --  
Generating Drawings

Comp.*	Classification	Drawings	Freq.**
<i>Fly</i>	With fly		14 pants
	No fly		2 pants

\* Comp. = Component; \*\* Freq. = Frequency.

Summary of results of the content analyses are presented in Tables 10, 11, and 12, for pants, jackets, and shirts, respectively. Table 10 includes pant drawings with a total of six components identified: (1) leg style, (2) pockets, (3) fly, (4) waistband, (5) waist height, and (6) stitching. Each component is further classified. For example, the first component of “leg style,” can be further classified into three types: (1) skinny, (2)

straight, and (3) boot cut. Of the 16 pant drawings, 7 were skinny (43.70%), 5 straight (31.20%), and 4 boot cut (25.00%).

Table 10. Content Analysis of Pant Drawings (n = 16) -- Generating Drawings

<b>Pant components</b>	<b>Classification</b>	<b>Frequency</b>	<b>%</b>	<b>Chosen Mode for the Prototype</b>
<i>Leg style</i>				Skinny
	Skinny	7	43.70	
	Straight	5	31.20	
	Boot cut	4	25.00	
<i>Pockets</i>				Rounded pockets
	Rounded pockets	10	62.50	
	Patched pockets	2	12.50	
	No pockets	4	25.00	
<i>Fly</i>				With fly
	With fly	14	87.50	
	No fly	2	12.50	
<i>Waistband</i>				With waistband
	With waistband	14	87.50	
	No waistband	2	12.50	
<i>Waist height</i>				High waist
	Low-medium waist	4	25.00	
	Medium waist	3	18.70	
	High waist	8	50.00	
<i>Stitching</i>				No stitching
	Visible stitching	3	18.70	
	No stitching	13	81.20	

Table 11. Content Analysis of Jacket Drawings (n = 16) -- Generating Drawings

<b>Jacket Components</b>	<b>Classification</b>	<b>Frequency</b>	<b>%</b>	<b>Chosen Mode for the Prototype</b>
<i>Lapels</i> ( <i>jacket collar</i> )	With hood	1	6.20	Standard lapels and mandarin collar
	Wide lapels	2	12.50	
	Standard lapels	5	31.50	
	No lapels high neck	1	6.20	
	Mandarin collar	5	31.20	
	Short lapels	2	12.50	
<i>Buttons</i>				With buttons
	No buttons	6	37.50	
	With buttons	10	62.50	
<i>Pockets</i>				No pockets
	No pockets	7	43.70	
	Breast pocket	1	6.20	
	Besom pockets	2	12.50	
	Hoody pockets	1	6.20	
	Patch pockets	1	6.20	
	Flat pockets	4	25.00	
<i>Length</i>				Waist length
	Short length	4	25.00	
	Waist length	10	62.50	
	Thigh length	2	12.50	

Table 12. Content Analysis of Shirt Drawings (n = 16) -- Generating Drawings












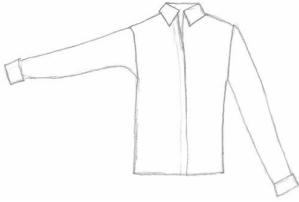



Shirt Components	Classification	Frequency	%	Chosen Mode for the Prototype
<i>Button placket</i>	With button	3	18.70	No button placket
	placket	13	81.20	
	No button placket			
<i>Neck</i>	Round	9	56.20	Round
	V neck	4	25.00	
	With collar	3	18.70	
<i>Sleeve</i>	No sleeve	1	6.20	Short sleeve
	Short sleeve	10	62.50	
	Long sleeve	5	31.20	

Based on the content analyses of the drawings, the most typical products per category are described as follows:

- The most typical pants tended to include a skinny leg style, rounded pockets, fly, waistband, high waist, and no visible stitching.
- The most typical jackets tended to have long sleeves, no pockets, were waist length, and the buttons were visible. The jackets included either standard lapels or a mandarin collar.
- The most typical shirts included no button placket, short sleeves, and a round neck.

Based on the findings from the drawings, five drawings per category were selected as the most typical of all drawings in each category (see Table 13).

Table 13. Most Typical Drawings of Pants, Jackets, and Shirts -- Generating Drawings

Drawing No.	Pants	Jackets	Shirts*
Most typical drawing #1			
Most typical drawing #2			
Most typical drawing #3			
Most typical drawing #4			
Most typical drawing #5			

\*Note: Students tended to draw more t-shirts instead of button-down shirts so both types of drawings were included.



### *Step Two: Selecting Drawings*

After identifying the most typical drawings of pants, jackets, and shirts, a survey was developed for selecting the prototype for each category (Appendix E on page 314). Thus, for each of the three categories of apparel products, the five most common drawings (as seen in Table 9 on page 116) were shown in the survey and respondents were asked to select the one drawing they believed was the most similar to the prototype that they have in their minds. Respondents were also asked to provide the following demographic information: (a) gender, (b) age, (c) major, (d) ethnicity, (e) year in school, and (f) personal monthly income. All items were assessed through categorical scales, except age, which was assessed through a ratio scale. Before distributing the survey, three doctoral students and an assistant professor provided feedback regarding the clarity of the instructions and the selected drawings as prototypes. Changes were addressed in the survey in accordance with the feedback received.

### Respondent Characteristics

Data were collected in February 2016 from students at the University of North Carolina at Greensboro from the *CRS 481: Contemporary Professional Issues in Consumer, Apparel, and Retail Studies* class in the Consumer, Apparel, and Retail Studies undergraduate program. Demographic characteristics of the respondents are summarized in Table 14. The survey was completed by 41 participants, all provided usable responses. The majority of the sample was comprised of 40 females (97.60%) with ages ranging from 19 to 36, and a mean age of 22.6 years. The greatest number of participants were White (n = 22, 53.70%), followed by Black or African American (n =

15, 36.60%). All participants were Seniors (n = 41, 100.00%). Most respondents indicated a monthly income of \$300-\$499 (n = 14, 34.10%) and \$500-\$749 (n = 11, 26.80%).

Table 14. Respondent Characteristics (n = 41) -- Selecting Drawings

<b>Respondent Characteristics</b>	<b>Frequency</b>	<b>%</b>	<b>Mode</b>	<b>SD</b>
<b>Demographics</b>				
<i>Gender</i>			Female	.10
Male	1	2.40		
Female	40	97.60		
<i>Age</i>			21 years	3.30
19-24 years old	38	92.70		
32-36 years old	3	7.20		
<i>Ethnicity</i>			White	1.10
American Indian	0	0		
Asian-American	1	2.40		
Asia or Pacific Islander	0	0		
Black or African	15	36.60		
American	0	0		
Hispanic or Latino	22	53.70		
White	3	7.30		
Other			Seniors	0
<i>Year of School</i>	0	0		
Freshman	0	0		
Sophomore	0	0		
Junior	41	100.00		
Seniors			\$300-\$499	1.40
<i>Monthly income</i>	5	12.20		
Under \$300	14	34.10		
\$300-\$499	11	26.80		
\$500-\$749	4	9.80		
\$750-\$999	4	9.80		
\$1000-\$1299	3	7.30		
\$1300 or more				

## Results

A summary of the responses is indicated in Table 15. For the pant prototype, the highest percentage of participants selected most typical pant drawing #1 (n = 17, 41.50%), followed by most typical pant drawing #4 (n = 11, 26.80%). For the jacket prototype, the majority of respondents selected most typical jacket drawing #3 (n = 21, 51.20%), followed by most typical jacket drawing #5 (n = 11, 26.80%). For the shirt prototype, the highest percentage of respondents selected most typical shirt drawing #2 (n = 20, 48.80%), followed by most typical shirt drawing #3 (n = 13, 31.70%).




Table 15. Summary of Results per Drawing Selected (n = 41) -- Selecting Drawings

Category and Drawings*	Frequency	%	Mode	SD
<i>Pants</i>			Most	1.40
Most typical drawing #1	17	41.50	typical	
Most typical drawing #2	3	7.30	drawing #1	
Most typical drawing #3	8	19.50		
Most typical drawing #4	11	26.80		
Most typical drawing #5	2	4.90		
<i>Jackets</i>			Most	1.00
Most typical drawing #1	1	2.40	typical	
Most typical drawing #2	3	7.30	drawing #3	
Most typical drawing #3	21	51.20		
Most typical drawing #4	5	12.20		
Most typical drawing #5	11	26.80		
<i>Shirts</i>			Most	1.00
Most typical drawing #1	3	7.30	typical	
Most typical drawing #2	20	48.80	drawing #2	
Most typical drawing #3	13	31.70		
Most typical drawing #4	1	2.40		
Most typical drawing #5	4	9.80		

\* Drawings can be seen in Table 9 on page 116.

Based on students' responses, Table 16 presents the final drawings that were selected as the best representation of each prototype per category. For the particular case of shirts (as seen in Table 13 on page 120 and Table 15 on page 123), students in general tended to draw and select the t-shirt product form instead of the button-down form as the shirt prototype. In the case of pants, it is interesting to observe that some students also tended to draw and select jeans as the product form instead of pants. In fact, the most typical pant drawing #4 that looks like a jean was the second most popular option, with 26.80% of responses, when selecting the pant prototype. These findings may be explained by the student sample, which is accustomed to wearing t-shirts and jeans much of the time. Results may therefore differ with a non-student sample.

Table 16. Selected Prototypes of Pants, Shirts, and Jackets -- Selecting Drawings

<b>Pant Prototype</b>	<b>Jacket Prototype</b>	<b>Shirt Prototype</b>
Most typical pant drawing #1	Most typical jacket drawing #3	Most typical shirt drawing #2
		

### *Step Three: Evaluation of Pictures by Judges*

After generating drawings of the most typical pants, jackets, and shirts, and selecting the respective product prototypes, the next goal was to select product photographs for the three categories of apparel products (sets of product pictures per category) in accordance with the different levels of typicality and novelty of product form. The idea was to choose stimuli that would eventually be used for operationalizing the Main Study, which are examples perceived by consumers as belonging to the following four possible scenarios representing different levels of typicality and novelty: (1) low typicality/low novelty, (2) low typicality/high novelty, (3) high typicality/low novelty, and (4) high typicality/high novelty.

Following the stimuli selection procedure used by Radford and Bloch (2011), a preliminary set of 20 apparel products per category (pants, jackets, and shirts) for a total of 60 products were selected from available photographs online. Pictures were chosen in light of the prototype drawings selected and presented in Table 16 (page 124). Pictures that were both different from and similar to the prototype were selected. Following item selection procedures used by Whitfield and Slatter (1979), the criteria governing the selection of these photographs were: (a) products were complete; (b) similar colors and avoiding prints; (c) orientation and perspective of pictures were compatible; (d) the product was not exhibited on a mannequin or body form (exhibition of clothes in 2D, not 3D); (e) the products included different levels of novelty and typicality; (f) products were selected from different websites and brands with high and low novelty and various prices.

The 60 selected product pictures were then evaluated by three expert judges in order to reduce the set of 20 products per category to 10. Based on the recommendations of Freeman, Son, and McRoberts (2015), judges or expert raters were comprised of individuals familiar with the domain of fashion design, including faculty members and designers with industry-recognized accomplishments. All judges had at least a Bachelor's degree directly related to apparel design or merchandising, and design experience of at least five years.

Appendix F (see page 316) includes the survey used to assess the stimuli by judges. Before distributing the survey, three doctoral students provided feedback regarding the clarity of the instructions. Changes were made accordingly and an example was included. The survey started with a set of questions to confirm the expertise of the judge, such as: *Was your undergraduate degree related to apparel design? How many years of experience in apparel design do you have?* To rate each one of the 60 pictures (20 per category), judges were asked to assess perceived typicality with a single-item scale adopted from Radford and Bloch (2011). The scale included “looks very different from the prototype” (0), “looks somewhat similar to the prototype” (1), and “looks very much like the prototype” (2). To assess perceived novelty, a single-item scale was also adopted from Radford and Bloch (2011). The scale included “does not look novel at all” (0), “looks somewhat novel” (1), and “looks very novel” (2). To assess attractiveness, a single-item scale was also adopted from Radford and Bloch (2011). The scale included “unattractive” (0), “somewhat attractive” (1), and “highly attractive” (2). Table 17 summarizes the major constructs that were employed for the evaluation by judges.

Table 17. Measurement Scales -- Evaluation of Pictures by Judges

<b>Construct</b>	<b>Source</b>	<b>Number of Items</b>	<b>Scale Type / Item</b>	<b>Rating Scale</b>
Perceived Typicality	Radford and Bloch (2011)	1	Semantic differential / Please rate this product	(0) Looks very different from the prototype (1) Looks somewhat similar to the prototype (2) Looks very much like the prototype
Perceived Novelty	Radford and Bloch (2011)	1	Semantic differential / Please rate this product	(0) Does not look novel at all (1) Looks somewhat novel (2) Looks very novel
Attractiveness	Radford and Bloch (2011)	1	Semantic differential / Please rate this product	(0) Unattractive (1) Somewhat attractive (2) Highly attractive

#### Respondent Characteristics

Data were collected in January 2016 from three individuals that fulfilled the requirements for being judges/expert raters (see Table 18). Completed surveys included all usable responses. The sample was comprised of 3 females with an undergraduate degree related to apparel design. Two judges had a Master's degree and one judge had a PhD, all of which were related to apparel design. All judges had at least 5 years of experience in apparel design, with one judge having 10 years, and another 24 years of experience. The majority were faculty members.

Table 18. Respondent Characteristics (n = 3) -- Evaluation of Pictures by Judges

<b>Respondent Characteristics</b>	<b>Freq.*</b>	<b>%</b>	<b>Mode</b>
<b>Demographics</b>			
<i>Gender</i>			Female
Male	0	0	
Female	3	100.00	
<i>Education</i>			Undergraduate related to apparel design
Undergraduate related to apparel design	3	100.00	
Master's program related to apparel design	2	66.60	
PhD related to apparel design	1	33.33	
<i>Experience in apparel design</i>			At least 5 years
5 Years	1	33.33	
10 years	1	33.33	
24 Years	1	33.33	
<i>Profession</i>			Professor
Undergraduate Professor	2	66.67	
Freelance Apparel Designer	1	33.33	

\*Freq. = Frequency

## Results

After collecting data from the judges, the next step was to select pictures to employ in the analysis. Based on the recommendation that stimuli with similar attractiveness ratings should be selected (Radford & Bloch, 2011), the analysis only employed those pictures that received the highest attractiveness ratings. As the judges rated pictures using scale values between 0 and 2, the mean attractiveness for pant pictures was .82, for jackets 1.13, and for shirts .97. Therefore, pictures rated as most attractive included pant pictures with  $\text{Mean}_{\text{Attractiveness}} \geq .67$ , and jacket and shirt pictures with  $\text{Mean}_{\text{Attractiveness}} \geq 1$ . The values of .67 and 1 were selected because they allowed at least 13 of the most attractive pictures per category to be employed in the analysis.



Per Radford and Bloch's (2011) recommendations, the analysis of the judges' ratings was conducted visually. That is, the most attractive pictures per category were positioned in a graph, with novelty on one axis and typicality on the other (see Figures 12, 13 and 14, for the visualization of pants, jackets, and shirts, respectively). Based on the resulting product-picture distribution, a reduced set of 10 pictures per category was selected. These sets are indicated in the figures by ovals.

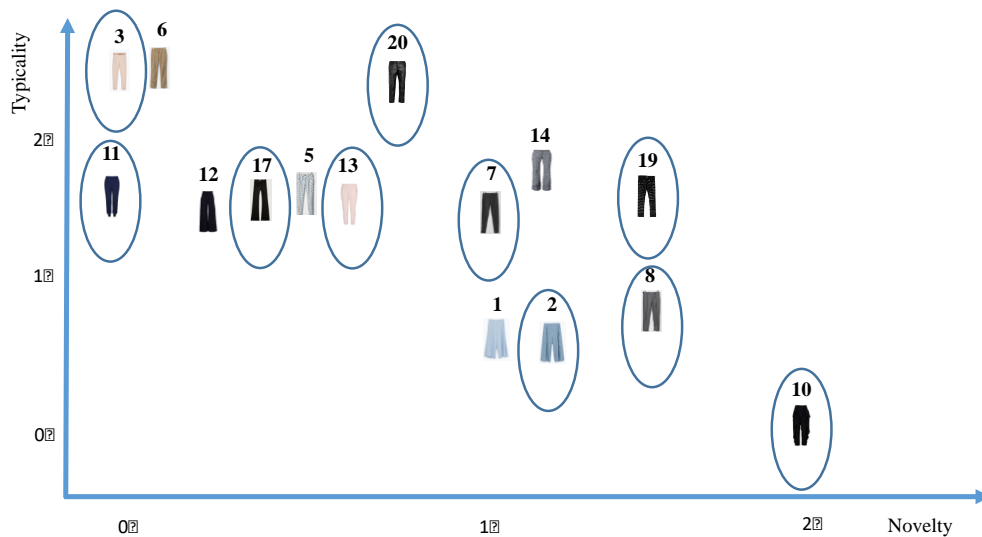


Figure 12. Ratings of Typicality and Novelty for Most Attractive Pants -- Evaluation of Pictures by Judges

Notes: The ovals indicate the reduced 10-picture set selected.

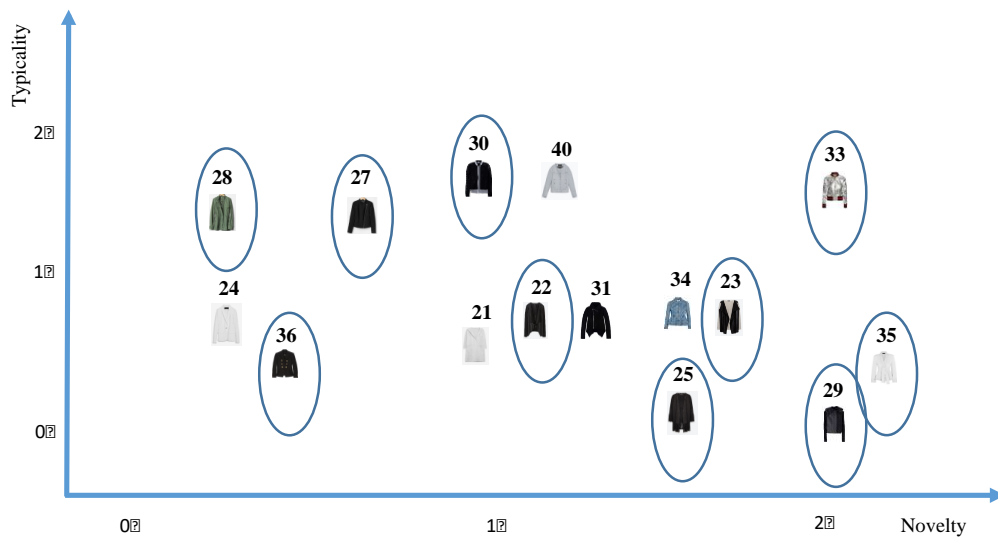


Figure 13. Ratings of Typicality and Novelty for Most Attractive Jackets -- Evaluation of Pictures by Judges

Notes: The ovals indicate the reduced 10-picture set selected.

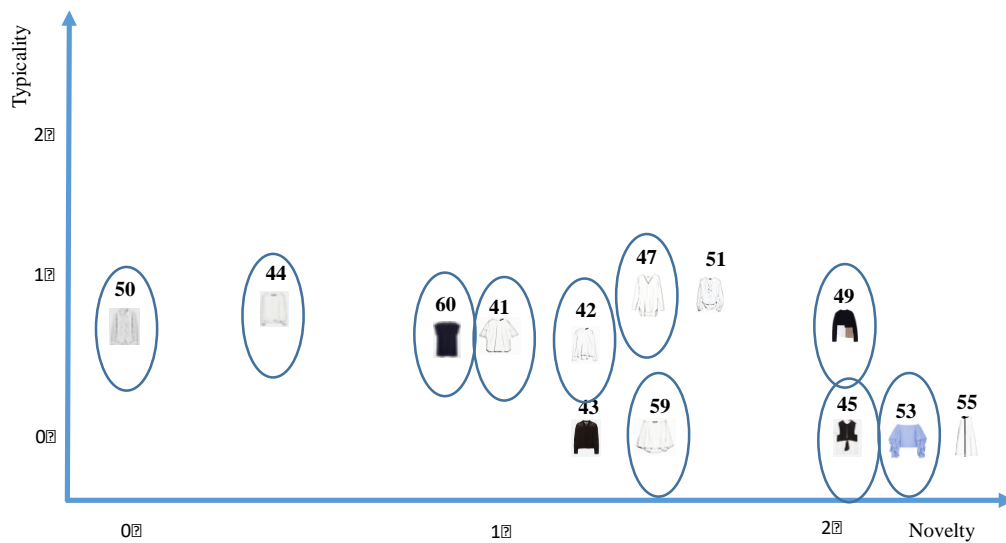


Figure 14. Ratings of Typicality and Novelty for Most Attractive Shirts -- Evaluation of Pictures by Judges

Notes: The ovals indicate the reduced 10-picture set selected.

As seen in the analysis of the most attractive pants (Figure 12), only one high novelty pant (picture #10 with a novelty of 2) was retained for analysis. Other pictures that were rated as high in novelty but low in attractiveness by the judges were not included in the analysis. In Figure 12, pictures #12, #17, #5, and #13 form a cluster because these pictures have similar ratings. Two of the four were retained for the reduced set. Other clusters of pictures were identified: (1) pictures #3 and #6; (2) pictures #7 and #14; and (3) pictures #1 and #2. Only one picture per cluster was retained for the final set. The other pictures retained were those that had unique ratings, such as pictures #20, #11, and #10, allowing for a variety of typicality and novelty in the reduced set of pictures. When choosing which picture to select from a group of pictures, the picture with the highest attractiveness was chosen first. Though in some cases, the picture of best quality or the least formal option was selected. The same procedure was followed for selecting the reduced set of jackets and shirts.

As seen in the analysis of the most attractive jackets (Figure 13), most of the selected jacket pictures for the analysis were not rated as having high typicality. Only picture #32 was rated  $\text{Mean}_{\text{Typicality}} = 1.67$ , which was the highest typicality of all jackets. However, picture #32 was rated as low in attractiveness; therefore, it was not included in the analysis. A few clusters can be identified: (1) pictures #24 and #36; (2) pictures #21, #22, and #31; and (3) pictures #30 and #40. Out of these groups, only one picture was retained.

As seen in the analysis of the most attractive shirts (Figure 14), judges rated all shirt pictures with a maximum mean typicality of 1. A few clusters can be identified: (1)

pictures #60 and #41; (2) pictures #47 and #51; (3) pictures #43 and #59; and (4) pictures #45, #53, and #55. Out of most of these groups, only one picture was kept for the reduced set of pictures.

The reduced 10-picture set per category was selected based on the judges' ratings and then modified for consistency (Radford & Bloch, 2011; Whitfield & Slatter, 1979). These pictures are indicated with ovals in Figures 12, 13, and 14. Photoshop was used to modify the pictures based on the following: image size was standardized in all pictures; brand names were removed; colors of fabrics were converted into white or black, or black and white contrasts; gray colors were avoided as much as possible; textures were diffused when possible; white products were modified to look clearer; backgrounds were made all white; and hangers were erased. Appendices G, H, and I (pages 319, 320, and 321) display these reduced 10-picture sets of pants, jackets, and shirts, respectively, with examples of each before and after Photoshop was applied.

### **Testing Stimuli Selection**

As presented in Chapter I, the main objective of the Preliminary Study was to explore the MAYA principle in the three categories of apparel (pants, jackets, and shirts) by using the selected stimuli. Thus, the Preliminary Study assessed per category the relative importance of perceived typicality and perceived novelty in explaining aesthetic preference. The final goal was to select the most appropriate stimuli (pictures and category) for Phase II, the Main Study.

To achieve the objectives of the Preliminary Study, a class experiment was conducted and consisted of asking students to rate product pictures in accordance to

typicality, novelty, and aesthetic preference. First, each stimulus was shown via computer projector for 3 seconds to familiarize participants with stimuli sets consisting of pictures of apparel products in the three categories of pants, jackets, and shirts. Second, participants were again presented with the images, for 20 seconds per picture, and were asked to rate each picture (see Appendix J on page 322 for the instrument used for rating the pictures). Instructions on how to fill the survey were shown to students via the classroom projector prior to beginning the experiment (see Appendix K on page 326).

The survey that students completed included three sections: (1) evaluation of pictures, (2) demographic information, and (3) additional items (see Appendix J on page 322). To assess perceived typicality (i.e., typicality), Section 1 included a semantic differential single-item scale adopted from Hekkert et al. (2003). The scale ranged from “Poor example” (1) to “Good example of the category” (7). To assess perceived novelty (i.e., novelty), a semantic differential single-item scale was also adopted from Hekkert et al. (2003). The scale ranged from “Not original” (1) to “Original” (7). To assess aesthetic preference, a semantic differential single-item scale was also adopted from Hekkert et al. (2003). The scale ranged from “Ugly” (1) to “Beautiful” (7). Table 19 summarizes the major constructs that were employed in the first section of the survey.

Table 19. Measurement Scales -- Testing Stimuli Selection

Construct	Source	Number of Items	Scale Type / Item	Rating Scale
Perceived Typicality	Hekkert et al. (2003)	1	Semantic differential / Please rate this product	(1) Poor example (7) Good example of the category
Perceived Novelty	Hekkert et al. (2003)	1	Semantic differential / Please rate this product	(1) Not original (7) Original
Aesthetic Preference	Hekkert et al. (2003)	1	Semantic differential / Please rate this product	(1) Ugly (7) Beautiful

Section 2 of the survey asked the following demographic information: (a) gender, (b) age, (c) major, (d) ethnicity, (e) year in school, and (f) personal monthly income. All items were assessed through categorical scales, except age, which was assessed through a ratio scale. Section 3 of the survey included two items assessing the clarity of instructions and the effort invested in the task. The first item asked, *Do you agree that the experiment instructions were clear to understand?* Answers ranged from “Strongly disagree” (1) to “Strongly agree” (7). The second item, based on Zhuang (2010), asked, *How much effort did you put into rating the pictures?* Answers ranged from “a little” (1) to “a tremendous amount” (7).

In regards to Testing Stimuli Selection, it is important to note two points. First, the survey was initially designed using scales that the judges used in the Stimuli Selection

process (see Table 17 on page 127). However, when three doctoral students and two undergraduate students were asked to review the survey, they indicated that the term “prototype” should be avoided with a student sample. Therefore, the scale items were replaced by those used by Hekkert et al. (2003) (see Table 19) with 7-point Likert-type scales. Second, instructions for the experiment were initially designed as Hekkert et al. (2003) recommend and included technical definitions of novelty and typicality. Based on feedback regarding the clarity of the instructions, changes were made accordingly and examples were included.

The process for testing the stimuli was divided into two steps: (1) pre-test and (2) testing the MAYA principle. The first step involved pretesting the survey and instructions for the class experiment and selecting the final picture set used as stimuli in the second step for testing the MAYA principle. The following sections include details of the procedure executed for each step, as well as respective respondent characteristics and results. Last, the overall results of the Preliminary Study are discussed.

#### *Step One: Pre-Test*

A pre-test was initially performed which included 10 pictures per category and a total of 30 pictures. These 10-picture sets were previously selected based on the judges’ ratings and can be seen in Appendices F, G, and H, for pants, jackets, and shirts, respectively (see pages 316, 319, and 320). Pre-test data were collected in February 2016 from students at the University of North Carolina at Greensboro in the *CRS 255: Consumer Behavior in Apparel and Related Industries* class in the Consumer, Apparel, and Retail Studies undergraduate program. Students were given extra credit for

participating in the experiment. The pre-test survey was completed by 48 participants, with 46 usable responses. The majority of the sample was comprised of 42 females (91.30%) with ages ranging from 18 to 30, and a mean age of 20 years. The greatest number of participants were Black or African American (n = 21, 45.70%). Participants were in different years of school, with equal number of Freshman (n = 14, 30.40%), Sophomore (n = 14, 30.40%), and Juniors (n = 14, 30.40%). Most respondents indicated a monthly income of \$300-\$499 (n = 26, 56.50%). The pre-test data were analyzed and the means of typicality and novelty per picture are illustrated per category in Figures 15, 15, and 16.

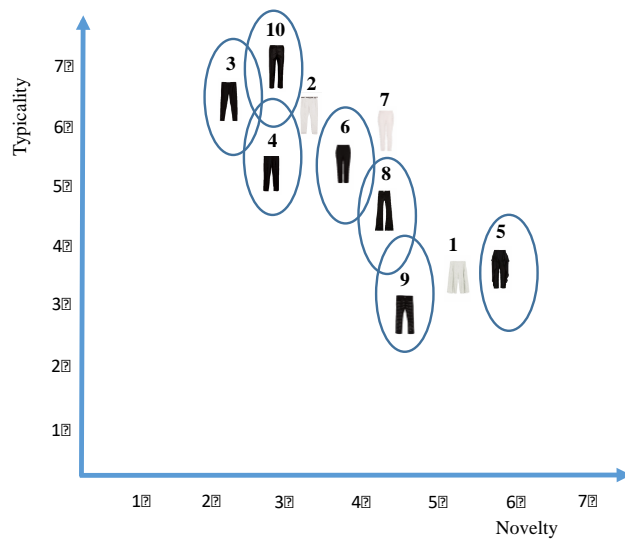


Figure 15. Ratings of Typicality and Novelty for Pants -- Pre-Test Preliminary Study  
Notes: Ovals indicate the final set.



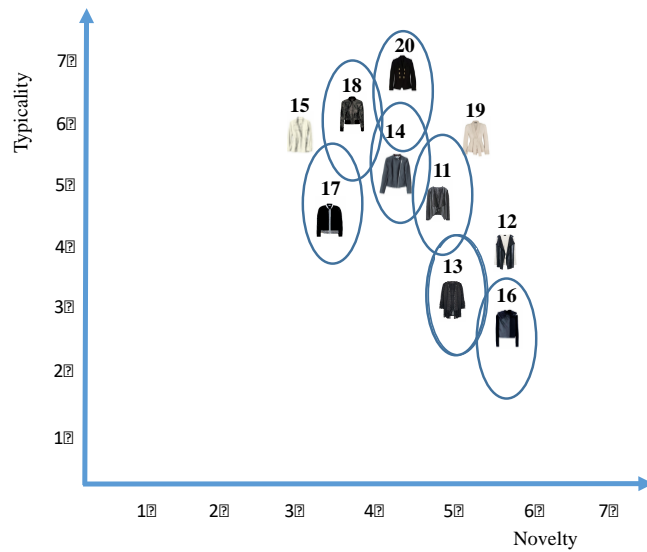


Figure 16. Ratings of Typicality and Novelty for Jackets -- Pre-Test Preliminary Study  
Note: Ovals indicate the final set.

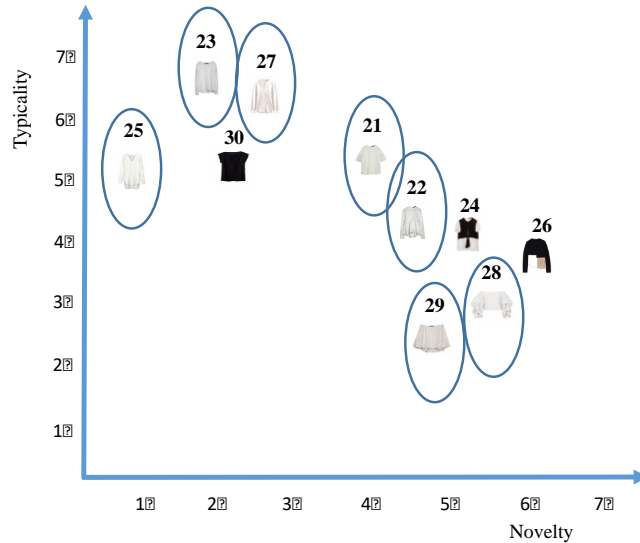


Figure 17. Ratings of Typicality and Novelty for Shirts -- Pre-Test Preliminary Study  
Notes: Ovals indicate the final set.

Based on pre-test data and figures above, pant and shirt pictures revealed a more wide spread distribution, while jackets a narrower spread. Graphs also indicate that

higher levels of novelty imply lower levels of typicality, and that higher levels of typicality imply lower levels of novelty. However, it is important to note that Figures 15, 16, 17 do not display pictures reporting all extreme values when rated. As mentioned in the previous step, wherein the judges evaluated pictures, the goal was to select pictures representing the four levels of typicality/novelty: (1) low/low, (2) low/high, (3) high/low, and (4) high/high. However, when each figure (Figures 15, 16, 17) is divided into four quadrants, the lower left quadrant and upper right quadrant are nearly empty in all figures, as most pictures lie within the upper left (high typicality/low novelty) and lower right quadrants (low typicality/high novelty). The only exception is for jackets, wherein the upper right quadrant (high typicality /high novelty) includes several images. This means that for all categories, respondents did not simultaneously rate pictures as low novelty/low typicality. In other words, respondents did not rate something in each scenario, leaving two scenarios or quadrants almost blank.

The lack of pictures falling in all quadrants may be explained by the reduced picture sets and all of the modifications done to the pictures using Photoshop. As the experiment controlled for color and texture of the fabrics in the pictures, it also controlled for the possibility of some extreme ratings. Therefore, regardless of the effort to select varied stimuli, the pictures did not ultimately address the four possible scenarios. The following example explains how the perception of the properties changed because of the Photoshop modifications. The jacket picture #33 in Figure 13 on page 130 was rated by judges as having high typicality and high novelty. After the modification in Photoshop, students' ratings classified the same jacket as high typicality and low novelty (see the

modified jacket in picture #18 in Figure 16 on page 137). The jacket was originally a metallic leather-like material, but the modifications to control for factors like color and texture removed those characteristics that seemed to make the product highly novel. Thus, the jacket has a traditional or typical shape (high typicality), while the novelty was tied to the fabric texture and color. The practice of comparing judges' and students' ratings to provide an explanation is supported by Freeman et al.'s (2015) study.

A paired-sample t-test was also used to identify whether there were significant differences in ratings of preference based on color (black vs. white). No significant differences were found in preference due to color in the category of pants ( $M_{\text{White}} = 4.63$  vs.  $M_{\text{Black}} = 4.01$ ,  $t\text{-value} = 1.20$ ,  $p$  (2-tailed) = .26) or jackets ( $M_{\text{White}} = 4.93$  vs.  $M_{\text{Black}} = 4.71$ ,  $t\text{-value} = .47$ ,  $p = .64$ ). However, significant differences were found in shirts ( $M_{\text{White}} = 4.67$  vs.  $M_{\text{Black}} = 3.53$ ,  $t\text{-value} = 4.09$ ,  $p < .05$ ). Consequently, the final sets of pictures did not include those with different colors. This was done to control for the possibility of an effect of color. As a result, the pant pictures in white were removed and only black pants were left. For the jackets, the white and white-and-black jackets were deleted and only the black jackets remained. And finally for the shirts, the black or white-and-black shirts were deleted and only the white shirts were retained in the final set of seven items. Based on a recommendation of one of the judges, Photoshop was used again to further modify the images in the final sets of seven pictures per category (e.g., allow more details to be shown in the garments). Appendix L (see page 327) includes the final 7-picture set per category that were used in the Preliminary Study after the Photoshop modifications.

### *Step Two: Testing the MAYA Principle*

Data were collected in February 2016 from students at the University of North Carolina at Greensboro from a total of four classes in the Bryan School of Business and Economics. Two classes, *CRS 321: Social Psychology of Dress* and *RCS 361: Fundamentals of Retail Buying and Merchandising*, were selected from the Consumer, Apparel, and Retail Studies undergraduate program. Two classes, *STH 401: Hotel and Travel Services Marketing* and *STH 200: Introduction to Sustainable Development*, were selected from the Sustainable Tourism and Hospitality Management undergraduate program. Most students were given extra credit for participating in the class experiment. Students were asked to complete the survey rating 21 pictures in total and seven pictures per category as stimuli (see survey in Appendix J on page 322 and the final 7-picture set per category in Appendix L on page 327).

### Respondent Characteristics

Demographic characteristics of the respondents are summarized in Table 20. The survey was completed by 65 students from *CRS 321*, 23 students from *CRS 361*, 36 students from *STH 401*, and 33 students from *STH 200*. In total, 157 participants completed the survey, with 138 usable responses. The majority of the sample was comprised of 104 females (75.40%) with ages ranging from 18 to 50, and a mean age of 21 years. The greatest number of participants were White ( $n = 60$ , 43.50%). Participants were in different years of school, with the majority being Sophomores ( $n = 50$ , 36.20%). Most respondents indicated a monthly income of less than \$300 ( $n = 71$ , 51.40%).

Table 20. Respondent Characteristics (n = 138) -- Testing the MAYA Principle

<b>Respondent Characteristics</b>	<b>Frequency</b>	<b>%</b>	<b>Mode</b>	<b>SD</b>
<b>Demographics</b>				
<i>Gender</i>			Female	.43
Male	34	24.60		
Female	104	75.40		
<i>Age</i>			18-20 years old	4.18
18-20 years old	76	55.00		
21-24 years old	52	37.70		
25-30 years old	1	0.70		
More than 30 years old	5	3.50		
Missing	2	1.40	White	
<i>Ethnicity</i>				1.36
American Indian	2	1.40		
Asian-American	6	4.20		
Asia or Pacific Islander	4	2.80		
Black or African American	46	33.30		
Hispanic or Latino	7	5.10		
White	60	43.50		
Other	10	7.20		
Missing	3	2.20	Sophomore	
<i>Year in School</i>				.93
Freshman	16	11.60		
Sophomore	50	36.20		
Junior	5	32.60		
Seniors	27	19.60	Under \$300	
<i>Monthly income</i>				1.34
Under \$300	71	51.40		
\$300-\$499	21	15.20		
\$500-\$749	24	17.40		
\$750-\$999	6	4.30		
\$1000-\$1299	4	2.90		
\$1300 or more	5	3.60		
Missing	7	5.10		

## Results

Data were analyzed to examine whether the students' typicality and novelty rating scores were consistent with those of the judges. Based on the judges' initial mean evaluations of typicality and novelty of individual product pictures per category, each picture was assigned a value of 1 (high), 2 (medium), or 3 (low) for typicality and the same for novelty. The value of 1 corresponded to the 30% lowest range of the judges' ratings. The value of 2 corresponded to the middle 40% of the judges' ratings, while the value of 3 corresponded to the highest 30% of the judges' ratings. Students' ratings were grouped using one-way ANOVAs across the high/medium/low picture categories. Findings indicate that the students' ratings were positively associated with the judges' levels for both typicality and novelty in all categories. For instance, results of the students' ratings for pants were positively associated with the judges' levels for both typicality ( $M_1 = 4.38 < M_2 = 5.15 < M_3 = 5.52$ ,  $F_{(2, 987)} = 25.10$ ,  $p < .01$ ) and novelty ( $M_1 = 3.58 < M_2 = 3.76 < M_3 = 4.91$ ,  $F_{(2, 986)} = 60.87$ ,  $p < .01$ ).

Additional items in the survey were also assessed. Students reported that the instructions were clear ( $M = 5.33$ ,  $SD = 1.33$ ) and that they put an important amount of effort into rating the pictures ( $M = 6.12$ ,  $SD = 1.20$ ), thereby confirming that instructions were perceived as clear and that the task of rating the pictures required high concentration. When talking to students after the experiments, the property of typicality seemed to be initially easy to grasp as a concept. However, when students had to rate the pictures, they encountered challenges and had to stay focused. A few students were possibly confused given the questionnaires that were left almost blank.

Reliability testing of the data took the form of Intraclass Correlation Coefficients (ICC) (Shrout & Fleiss, 1979) for assessing rater reliability. ICC was calculated on the mean ratings per category for typicality, novelty, and aesthetic preference (see Table 21). Mean results for each category, as well as the overall mean for all categories showed reliable results. ICC values for all categories varied from the lowest  $ICC_{(2,138)} = .88$  for the aesthetic preference ratings of shirts to the highest  $ICC_{(2,138)} = .99$  for the typicality of shirts.

Table 21. Reliability: Intraclass Correlation Coefficients (ICC) of Average Scale Scores - Testing the MAYA Principle

Category	ICC Typicality	ICC Novelty	ICC Aesthetic Preference
Pants	.99	.97	.96
Jackets	.99	.96	.95
Shirts	.99	.98	.88
All	.99	.97	.95

After reliability tests were confirmed, correlation analyses were performed. Contrary to results indicated by Hekkert et al. (2003), the mean typicality and the mean novelty did not show negative correlations for any of the three apparel categories (see Table 22). Instead, the Pearson Product-Moment correlations were low in value and positive and reported .14 for pants, .05 for jackets, .11 for shirts, and .11 for all categories; none of which reached statistical significance ( $p \geq .05$ ). Table 22 includes Pearson correlations between the mean typicality and the mean aesthetic preference scores ( $r = .20$  for pants,  $r = .29$  for jackets,  $r = .29$  for shirts, and  $r = .30$  for all

categories), all of which were significant ( $p < .05$ ). However, only Pearson correlations between the mean novelty and the mean aesthetic preference scores for shirts and all categories ( $r = .31$ , and  $r = .20$ , respectively) were significant ( $p < .05$ ). Pearson correlations between the mean novelty and the mean aesthetic preference scores for pants and jackets ( $r = .13$ ,  $r = .14$ , respectively) were not significant ( $p \geq .05$ ). Despite the low correlations, Table 22 also includes calculations of partial coefficients for parceling out the common variance between typicality and novelty. For example, when calculating the partial correlation between typicality and aesthetic preference, the test controlled for novelty. As suggested by Hekkert et al. (2003), partial correlations were calculated as the logic of the MAYA principle states that both aesthetic properties (typicality and novelty) influence each other. However, partial correlations are very similar to those of the original correlations. For example, results between the mean typicality and the mean aesthetic preference for pants resulted in a correlation of .20 that is nearly as low as the partial correlation of .18. As most partial correlations are higher than the original correlations, it can be said that neither typicality nor novelty functioned as suppressor variables.



Table 22. Pearson Correlations and Partial Correlations between Rating Scale Scores -- Testing the MAYA Principle

Category	Typicality— Novelty	Typicality— Aesthetic Preference		Novelty— Aesthetic Preference	
	Correlation	Original correlation	Partial correlation	Original correlation	Partial correlation
Pants	.14	.20*	.18	.13	.10
Jackets	.05	.29**	.28	.14	.13
Shirts	.11	.29**	.27	.31**	.29
All categories	.11	.30**	.28	.20*	.17

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

Due to the unexpected positive Pearson product-moment correlations between the mean typicality and the mean novelty in all categories (seen in Table 22), correlation results were further analyzed by individual pictures per category (see Table 23). Out of 21 pictures, only one (pant picture #1) reported a significant correlation at the 0.05 level. Out of all 21 product pictures, 14 pictures (66.66% of total products) showed negative correlation between the mean typicality and the mean novelty. That is, the lower the perceived level of typicality, the higher the perceived level of novelty. Conversely, the highest perceived levels of novelty reported the lowest levels of typicality. For example, pant picture #3 reported a mean typicality of 3.16 and a mean novelty of 5.77, for a -.08 correlation.

Table 23. Means, Standard Deviations (*SD*), and Correlations of Scale Scores -- Testing the MAYA Principle

Category	Picture	Typicality		Novelty		Aesthetic Preference		(Scenario) Typicality/Novelty	Typicality – Novelty
		Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>		Correlation
Pants	Picture #1	5.68	1.27	3.63	1.65	4.34	1.34	(3)High/Low	<b>-.19*</b>
	Picture #2	5.92	1.09	3.35	1.44	4.04	1.47	(3)High/Low	<b>-.01</b>
	<b>Picture #3</b>	<b>3.16</b>	1.51	<b>5.77</b>	1.55	3.69	<u>2.01</u>	<b>(2)Low/High</b>	<b>-.08</b>
	<b>Picture #4</b>	<b>6.26</b>	1.08	<b>3.04</b>	<u>1.80</u>	4.72	1.43	<b>(3)High/Low</b>	<b>-.12</b>
	Picture #5	4.92	1.53	4.06	1.62	3.48	1.68	(4)High/High	.01
	Picture #6	3.58	1.76	5.36	1.69	2.72	1.78	(2)Low/High	.14
	Picture #7	5.55	1.38	4.17	1.48	4.70	1.43	(4)High/High	<b>-.08</b>
	All Pictures	5.01	.84	4.20	.79	3.95	.90		.14
Jackets	Picture #1	3.88	1.41	5.27	1.34	4.44	1.73	(2)Low/High	<b>-.02</b>
	Picture #2	3.44	1.72	5.72	1.52	4.47	1.92	(2)Low/High	.06
	Picture #3	5.80	1.05	4.62	1.55	5.44	1.42	(4)High/High	.05
	<b>Picture #4</b>	<b>3.20</b>	1.70	<b>5.88</b>	1.63	3.35	1.79	<b>(2)Low/High</b>	<b>-.00</b>
	Picture #5	5.90	1.31	4.07	<u>1.79</u>	4.67	1.50	(4)High/High	<b>-.14</b>
	Picture #6	5.72	1.31	4.50	1.47	4.05	1.95	(4)High/High	<b>-.06</b>
	<b>Picture #7</b>	<b>5.94</b>	1.18	<b>4.02</b>	<u>1.80</u>	5.28	1.47	<b>(4)High/High</b>	.04
	All Pictures	4.84	.89	4.90	.98	4.52	.90		.05

\* Correlation is significant at the 0.05 level (2-tailed).

Lowest and highest mean scores on typicality and novelty, as well as negative correlations, are in **bold**. Highest levels of *SD* are underlined.

Table 23. Means, Standard Deviations (*SD*), and Correlations of Scale Scores -- Testing the MAYA Principle (continued)

Category	Picture	Typicality		Novelty		Aesthetic Preference		(Scenario) Typicality/ Novelty	Typicality – Novelty
		Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>		Correlation
Shirts	Picture #1	5.17	1.60	3.96	1.90	3.96	1.70	(3)High/Low	<b>-.08</b>
	Picture #2	4.86	1.51	4.35	1.61	4.51	1.75	(4)High/High	.08
	<b>Picture #3</b>	<b>6.04</b>	1.21	<b>2.79</b>	1.87	4.48	1.61	<b>(3)High/Low</b>	<b>-.03</b>
	Picture #4	5.20	1.40	4.43	1.50	5.02	1.55	(4)High/High	.01
	<b>Picture #5</b>	<b>6.33</b>	1.19	<b>2.80</b>	<u>2.11</u>	4.88	1.50	<b>(3)High/Low</b>	<b>-.09</b>
	<b>Picture #6</b>	<b>2.64</b>	<u>1.78</u>	<b>5.87</b>	<u>1.88</u>	3.99	<u>2.10</u>	<b>(2)Low/High</b>	<b>-.03</b>
	<b>Picture #7</b>	<b>2.17</b>	1.45	<b>5.39</b>	<u>1.86</u>	3.93	<u>2.04</u>	(2)Low/High	<b>-.01</b>
	All Pictures	4.76	<u>1.57</u>	4.23	.88	4.40	1.07		.11
All Categories	All Pictures	4.87	.90	4.45	.72	4.30	.79		.11

\* Correlation is significant at the 0.05 level (2-tailed).

Lowest and highest mean scores on typicality and novelty, as well as negative correlations, are in **bold**. Highest levels of *SD* are underlined.

Table 23 also indicates that shirt pictures reported the highest levels of standard deviation in the mean novelty ratings (see underlined values). That is, students have more consistent novelty evaluations for pants and jackets, while the subjective evaluation of novelty for shirts varies more and is less consistent than those of pants and jackets. When analyzing the variation in novelty ratings, it is important to understand that differences in product exposure influence the types of product form consumers are most familiar with (Blijlevens et al., 2013). That is, it is expected that there will be variation in the novelty ratings.

Based on the standard deviation of the overall mean of the typicality in all categories in Table 23, shirts ( $SD = 1.57$ ) register the highest standard deviation above pants ( $SD = .84$ ) and jackets ( $SD = .89$ ). This means that students' ratings on typicality differ more when evaluating shirts than when evaluating pants or jackets. This can be explained by what was learned in the initial steps of the Stimuli Selection and the prototype drawings selected for shirts. The category with the most variation in the most typical drawings was the shirt, as some students selected a t-shirt rather than a button-down shirt when thinking about the most typical shirt.

The data analysis illustrated in Table 23 includes extreme mean ratings of typicality and novelty in bold and confirm pre-test results in regards to how the pictures were classified by students. The column in Table 23 called “(Scenario) Typicality/Novelty,” indicates the classification of pictures based on low (ratings  $\leq 4.0$ ) and high (ratings  $> 4.01$ ) levels of typicality and novelty. For the classification, the value 4 was chosen as it is the middle value in the 1-7 rating scales of typicality and novelty. Based

on this classification, there are pictures rated in scenario #2, #3, and #4. For example, pant picture #3 was rated with a typicality of 3.16, which is much lower than the mean typicality of 5.01 for all pants. The mean value of 3.16 is the lowest typicality value in all ratings of pant pictures. Pant picture #3 was also rated with a novelty of 5.77, which is the highest novelty value in the rating of pant pictures and is also higher than the mean value of 4.20 for the novelty of all pants. Therefore, pant picture #3 can be classified as low typicality/high novelty (scenario #2). Nevertheless, there are no pant, jacket, or shirt pictures that were rated by students as low typicality/low novelty (scenario #1).

Consequently, the stimuli generated for Testing the MAYA Principle, especially the stimuli with the most extreme ratings by students (see values in bold in Table 23), were similar to that of Hung and Chen's (2012) test of the MAYA principle using chairs as stimuli. These authors operationalized the aesthetic property of novelty as varying from "typical" to "unique," or the equivalent of "high typicality/low novelty" to "low typicality/high novelty" used in this dissertation. Because the Main Study focuses on operationalizing the aesthetic properties of typicality and novelty separately, further modification of stimuli is needed in order to generate pictures for each of the four possible scenarios.

As seen in Chapter II, Hypotheses 1 and 2 proposed for the main study of the dissertation were initially tested for each of the categories with data collected in the Testing the MAYA Principle step. Based on Hekkert et al. (2003), multiple regression was conducted to test the main effect of typicality on consumers' aesthetic preferences (H1) and the main effect of novelty on consumers' aesthetic preferences (H2). Both

hypotheses were tested for (a) pants, (b) jackets, and (c) shirts. It is important to clarify that multiple regression does not allow for testing a two-way interaction between typicality and novelty on aesthetic preference (H3). However, H3 is tested in Phase II, the Main Study. For Testing the MAYA Principle, a series of multiple regressions were performed to test H1(a, b, and c) and H2(a, b, and c). For the multiple regressions, the independent variables of typicality and novelty were treated as continuous, as well as for the dependent variable of aesthetic preference. See Tables 24, 25, 26, and 27 for multiple regression results for pants, jackets, shirts, and all categories, respectively.

Table 24. Hypotheses Testing for H1a and H2a: Results of Multiple Regression for Pants -- Testing the MAYA Principle

<b>Independent Variable</b>	<b>Standardized Beta (<math>\beta</math>)</b>	<b><i>t</i>-value</b>	<b><i>p</i>-value</b>
Typicality	.19	2.23	.02*
Novelty	.10	1.23	.22
$R^2 = .053$ Adjusted $R^2 = .038$ $F_{(2,134)} = 3.71, p < .05$			

Dependent variable: Aesthetic Preference.

\*  $p < .05$

Table 25. Hypotheses Testing for H1b and H2b: Results of Multiple Regression for Jackets -- Testing the MAYA Principle

Independent Variable	Standardized Beta ( $\beta$ )	<i>t</i> -value	<i>p</i> -value
Typicality	.28	3.48	.00***
Novelty	.13	1.59	.11
$R^2 = .102$ Adjusted $R^2 = .089$ $F_{(2,135)} = 7.67, p < .01$			

Dependent variable: Aesthetic Preference.

\*\*\*  $p < .001$

Table 26. Hypotheses Testing for H1c and H2c: Results of Multiple Regression for Shirts -- Testing the MAYA Principle

Independent Variable	Standardized Beta ( $\beta$ )	<i>t</i> -value	<i>p</i> -value
Typicality	.26	3.32	.00***
Novelty	.27	3.51	.00***
$R^2 = .166$ Adjusted $R^2 = .153$ $F_{(2,134)} = 13.29, p < .01$			

Dependent variable: Aesthetic Preference.

\*\*\*  $p < .001$

Table 27. Hypotheses Testing for H1 and H2: Results of Multiple Regression for All Categories -- Testing the MAYA Principle

Independent Variable	Standardized Beta ( $\beta$ )	t-value	p-value
Typicality	.28	3.43	.00***
Novelty	.17	2.10	.03*
$R^2 = .119$ Adjusted $R^2 = .106$ $F_{(2,134)} = 9.06, p < .01$			

Dependent variable: Aesthetic Preference.

\*  $p < .05$

\*\*\*  $p < .001$

In Table 24, for H1a and H2a, the mean scores of pant pictures indicated that aesthetic preference was positively influenced by typicality ( $\beta = .19, p < .05$ ), but not by novelty ( $\beta = .10, p = .22$ ). Thus, H1a was supported and H2a was not supported. Similarly, for H1b and H2b (Table 25), the mean scores of jacket pictures indicated that aesthetic preference was influenced by typicality ( $\beta = .28, p < .01$ ), but not by novelty ( $\beta = .13, p = .11$ ). Thus, H1b was supported and H2b was not supported. For H1c and H2c (Table 26), the mean scores of shirt pictures indicated that aesthetic preference was influenced by typicality ( $\beta = .26, p < .01$ ) and novelty ( $\beta = .27, p < .05$ ). Thus, both H1c and H2c were supported. For all categories (Table 27), the mean scores of pictures showed that aesthetic preference was influenced by typicality ( $\beta = .28, p < .01$ ) and novelty ( $\beta = .17, p < .05$ ).

Results of multiple regressions also provide further explanation when analyzing variance. Based on the multiple regression results for each category (specifically the  $R^2$ ), the predictor variables (typicality and novelty) explained 5.3%, 10.2%, and 16.6% of the



variance in the aesthetic preference ratings of pants, jackets, and shirts, respectively.

These values appear to be very low in comparison to values between 56% and 70% found for sanders, telephones, and teakettles (Hekkert et al., 2003) and 66% for driver environments (Tractinsky et al., 2011). However, Testing the MAYA Principle results are more similar to those of Diels et al. (2013), reporting that the amount of variance in the preference ratings for electric concept vehicles can be explained by the two predictors with 23% of variance.

A summary of the hypotheses testing results is presented in Table 28 for pants, jackets, and shirts. It is concluded that the preference-for-prototypes theory helps to explain the results of pants and jackets, while the MAYA principle explains the results of shirts. In other words, typicality is more important than novelty for determining aesthetic preference with respect to the apparel categories of pants and jackets. However, the MAYA principle guides the aesthetic preference ratings of shirts in as much as respondents' ratings were determined by both typicality and novelty.

Table 28. Summary of Hypotheses Testing -- Testing the MAYA Principle

Category		Hypothesis	Result	Interpretation
Pants	H1a	Pants perceived as more typical will have a greater impact on consumers' aesthetic preferences as compared to pants perceived as less typical.	Supported	Preference-for-prototypes holds for pants.
	H2a	Pants perceived as more novel will have a greater impact on consumers' aesthetic preferences as compared to pants perceived as less novel.	Not supported	
Jackets	H1b	Jackets perceived as more typical will have a greater impact on consumers' aesthetic preferences as compared to jackets perceived as less typical.	Supported	Preference-for-prototypes holds for jackets.
	H2b	Jackets perceived as more novel will have a greater impact on consumers' aesthetic preferences as compared to jackets perceived as less novel.	Not supported	
Shirts	H1c	Shirts perceived as more typical will have a greater impact on consumers' aesthetic preferences as compared to shirts perceived as less typical.	Supported	The MAYA principle holds for shirts.
	H2c	Shirts perceived as more novel will have a greater impact on consumers' aesthetic preferences as compared to shirts perceived as less novel.	Supported	

Results of multiple regression, hypotheses testing, and analyses of variance suggest that shirts are the most appropriate category to utilize in Phase II of this dissertation. As discussed, the MAYA principle holds for shirts because both typicality and novelty are significant predictors of aesthetic preference. Typicality and novelty also explain the highest variance in the aesthetic preference ratings for shirts ( $R^2 = .166$ ) when compared to that for pants ( $R^2 = .053$ ), and jackets ( $R^2 = .102$ ). This means that both predictors (typicality and novelty) are influential in the preference for shirts; and therefore, it is worth examining the MAYA principle in this category of apparel in depth within future studies.

Lastly, post-hoc analyses in the Testing the MAYA Principle data were performed to additionally test for differences in aesthetic preference ratings by gender. ANOVA results indicated that females report significantly higher aesthetic preference ratings than males for pants ( $M_{\text{Female}} = 4.08$  vs.  $M_{\text{Male}} = 3.57$ ,  $p < .01$ ), shirts ( $M_{\text{Female}} = 4.58$  vs.  $M_{\text{Male}} = 3.85$ ,  $p < .01$ ), and all categories ( $M_{\text{Female}} = 4.42$  vs.  $M_{\text{Male}} = 3.93$ ,  $p < .01$ ). However, aesthetic preference for jackets did not indicate significant differences by gender ( $M_{\text{Female}} = 4.58$  vs.  $M_{\text{Male}} = 4.36$ ,  $p = .22$ ). Because these results were based on unequal sample sizes by gender ( $n_{\text{Female}} = 104$  vs.  $n_{\text{Male}} = 34$ ), this issue was solved by initially checking the equality of variance by gender and then performing another ANOVA with equal sample sizes.

For verifying the equality of variance by gender, independent sample t-tests were performed. There was equality of variance by gender for pants ( $SD_{\text{Female}} = .87$  vs.  $SD_{\text{Male}} = .87$ ,  $p$  (2-tailed)  $< .00$ ), shirts ( $SD_{\text{Female}} = 1.01$  vs.  $SD_{\text{Male}} = 1.06$ ,  $p$  (2-tailed)  $< .00$ ), and

all categories ( $SD_{\text{Female}} = .76$  vs.  $SD_{\text{Male}} = .79$ ,  $p$  (2-tailed)  $< .00$ ). However, there was not equality of variance by gender for jackets ( $SD_{\text{Female}} = .89$  vs.  $SD_{\text{Male}} = .91$ ,  $p$  (2-tailed)  $= .22$ ). For solving the issue of unequal samples sizes by gender ( $n_{\text{Female}} = 104$  vs.  $n_{\text{Male}} = 34$ ), the female data were randomly sampled in SPSS in order to generate equal sample sizes ( $n_{\text{Female}} = 34$  vs.  $n_{\text{Male}} = 34$ ). ANOVA was performed again with the equal sample sizes (see Table 29). Results indicated that females report significantly higher aesthetic preference ratings than males for pants ( $M_{\text{Female}} = 3.97$  vs.  $M_{\text{Male}} = 3.57$ ,  $p < .05$ ), and shirts ( $M_{\text{Female}} = 4.39$  vs.  $M_{\text{Male}} = 3.85$ ,  $p < .05$ ). This result is supported by the results for pants and shirts that reported equality of variance by gender when analyzing data with unequal samples sizes. However, ANOVA with equal sample sizes additionally reported that aesthetic preference is not significantly different by gender for jackets ( $M_{\text{Female}} = 4.31$  vs.  $M_{\text{Male}} = 4.36$ ,  $p = .83$ ) and all categories ( $M_{\text{Female}} = 4.22$  vs.  $M_{\text{Male}} = 3.93$ ,  $p = .08$ ). In conclusion, ANOVAs with unequal and equal sample sizes reported similar results, in that females rated the aesthetic preference for product pictures significantly higher than males for the categories of pants and shirts, but not for jackets.

Table 29. Results of ANOVA with Equal Sample Sizes for Aesthetic Preference by Gender -- Testing the MAYA Principle

Category	Independent Variable	n	Mean	SD	Sum of Squares	df	F-value	p-value
Pants	Female	34	3.97	.66	2.76	1	4.55	.03*
	Male	34	3.57	.87				
Jackets	Female	34	4.31	.92	.036	1	.04	.83
	Male	34	4.36	.91				
Shirts	Female	34	4.39	.856	4.84	1	5.21	.02*
	Male	34	3.85	1.06				
All categories	Female	34	4.22	.59	1.49	1	3.05	.08
	Male	34	3.93	.79				

Dependent variable: Aesthetic Preference.

Note: Original female sample size ( $n_{\text{Female}} = 134$ ) was randomly selected in SPSS to make it equal to males.

\*  $p < .05$

## Discussion of Results: Phase I

Overall, the findings of the Preliminary Study are related to the two steps of Stimuli Selection and Testing Stimuli Selection. In the first step, Stimuli Selection, the selection of proper stimuli initially explored the property of typicality in relation to the consumer's perception of this property. To this end, drawings were generated and then selected in order to determine the prototypes consumers have in their minds regarding the categories of pants, jackets, and shirts. However, it was surprising to find that some students drew jeans as the pant prototype, as well as drew and selected t-shirts instead of button-down shirts as the shirt prototype. Findings are plausible, however as typicality is related to familiarity due to repetition (Berlyne, 1971) and built through experience (Leder et al., 2004). Because students are usually more exposed to jeans and t-shirts,

instead of pants and button-down shirts, their minds associate the categories of pants and shirts with those products that they are most familiar with. Hence, the following empirical question is raised: *Would a non-student sample select different prototypes?* This is explored in Phase II of this dissertation, as it implies that prototypes cannot be assumed and should be enquired directly from the consumer. Similarly, DeLong et al. (1986) investigated the category of sweaters and suggested that, “consumer response is based on a concept structured by a summary of property configurations previously experienced. As individuals are exposed to examples exhibiting different property configurations their concept structure may be modified” (p. 25).

Based on the selected pant, shirt, and jacket prototypes, the Stimuli Selection step selected product pictures as stimuli for the three categories of apparel products in accordance with the typicality and novelty of product form, as well as assessed respondents’ typicality, novelty, and aesthetic preference for those products. The procedure generated stimuli that was supposed to be classified by consumers into the four different typicality/novelty scenarios. Despite the wide range of products initially selected (60 products in total and 20 per category), findings indicated that consumers did not classify the reduced stimuli sets across all four typicality/novelty scenarios. This raises some methodological questions that are considered in Phase II of this dissertation, such as: *How might stimuli be generated that can be classified by consumers in each of the four typicality/novelty scenarios? How should the survey be designed so respondents evaluate the stimuli in all of the four typicality/novelty scenarios? How should fabric*

*color, texture, and prints be controlled for in the experiment, without eliminating the characteristics of a product that make it unique and novel?*

Findings also further indicate that respondents perceived the instructions for the Preliminary Study as clear. However, students also indicated a high amount of effort was needed in the evaluation of pictures. This raises other methodological questions: *How can the properties of typicality and novelty, specifically typicality, be explained simply, without confusing the respondent? How can they be explained while making sure that the four different typicality/novelty scenarios are understood?*

In the second step, Testing Stimuli Selection, the relationship between the properties of typicality, novelty, and aesthetic preference was examined. Thus, the relative importance of typicality and novelty in explaining aesthetic preference per category was assessed. Findings indicated unexpected positive Pearson product-moment correlations between the mean typicality and the mean novelty in all categories. However, when the correlations were calculated on individual pictures, a great majority of items reported having negative correlations between the mean typicality and the mean novelty in all categories. This means that for most products, lower levels of typicality implied higher levels of novelty. Findings additionally indicated that typicality is the primary predictor of aesthetic preference in pants and jackets, while both typicality and novelty are significant predictors of aesthetic preference in shirts. This finding implies that the preference-for-prototypes theory holds for pants and jackets, while the MAYA principle better explains the relationships between typicality, novelty, and aesthetic

preference for shirts. Consequently, Phase II further examines the MAYA principle in the category of shirts.

Findings also suggest that novelty is a property more influential in the preference of shirts than pants and jackets. There may be several reasons for this. One possibility is that the consumer may be looking for novelty in apparel but not in each category that they wear. For instance, the consumer may be indirectly considering the whole ensemble and how novelty may be expected from one or a few categories (e.g., shirts) but not from all of them. Such issues may be explored in future research, specifically qualitative studies on the topic.

Shirt results are similar to results for sanders, telephones, and teakettles in Hekkert et al.'s (2003) study, while pant and jacket results are similar to those of sweaters reported in DeLong et al.'s (1986) study. Shirt results are also similar to those of electric concept vehicles evaluated by design experts; however, pants and jacket results are more similar to those of electric concept vehicles evaluated by non-experts, in that non-experts prefer restrained design and have smaller tolerances for novelty (Diels et al., 2013). This similarity suggests that consumers have lower levels of tolerance for novelty in categories such as pants and jackets, while expecting higher levels of novelty in the category of shirts. Due to the high level of familiarity that consumers have with apparel items, respondents for the Preliminary Study were not classified based on expertise. However, future studies could consider specific consumer characteristic differences as measured in constructs such as Centrality to Visual Product Aesthetics (Bloch et al., 2003) or fashion involvement (Tigert, Ring, & King, 1976).



The Preliminary Study tested for differences in gender. Findings confirm that, generally, females reacted more positively to most of the female apparel pictures than males. This significant difference may be explained by the higher relevance of the stimuli to females than males due to the gendered nature of the stimuli. This finding is not surprising *per se*. What is interesting to analyze is that appraisal theory may be helpful to explain this because of motive consistency (refer to Figure 8 on page 70). It is expected that females have a positive motive consistency when evaluating the stimuli, as women are able to identify themselves with those stimuli, while possibly seeing themselves buying and/or wearing them. On the contrary, males are able to perceive the items' beauty, but the motive consistency is most probably not present, or is negative and counteracts the response. The result is a lower overall aesthetic evaluation of the stimuli as measured in the aesthetic preference scale by males as compared to females. This finding further supports the focus on females in Phase II in order to control for differences in gender. Moreover, in Phase II, emotions are measured, which have been found to differ in terms of women and men (Niedenthal et al., 2006).

To conclude with Phase I, the following Figure 18 presents a visual summary of the phase and each of the steps taken for its execution, including information such as data collection techniques, as well as type and number of stimuli and sample.

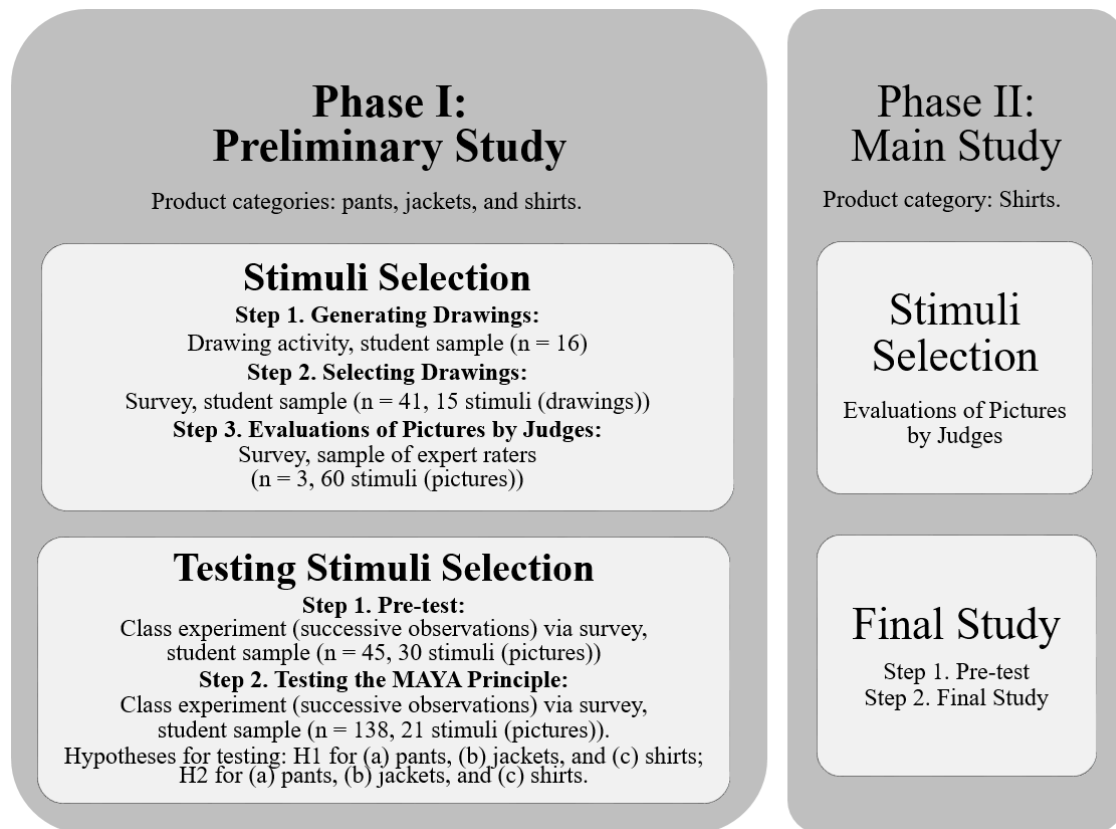


Figure 18. Visual Summary of Phase I

## Phase II: Main Study

Based on what was learned through conducting the Preliminary Study, the Main Study expands upon the understanding of the MAYA principle by examining one category of apparel in depth. The following procedure addresses this goal in two steps: (1) *Stimuli Selection* and (2) *Final Study*. In this section of the chapter, the process of generating stimuli will be described. Then, the procedure for exploring the MAYA principle in the selected apparel category is explained. As will be discussed, the two-step procedure addresses the empirical and methodological questions raised in the discussion of Preliminary Study results, as well as some of the recommendations proposed for future

studies. The second step also specifies the instrument, pre-test, and data analysis utilized in the Final Study.

### **Stimuli Selection**

The Stimuli Selection process permitted selection of the most appropriate apparel category and stimuli for the main study. Based on findings of the Preliminary Study explained in the previous section of this chapter, the category of shirts was selected. The main reason is that it appears that the MAYA principle drives aesthetic preference for shirts, while the preference-for-prototype theory drives aesthetic preference for pants and jackets.

For selecting the appropriate stimuli, shirt pictures used for the Preliminary Study were selected and then further modified in Photoshop to generate the stimuli for each of the four typicality/novelty scenarios of low/low, low/high, high/low, and high/high. As an example, a picture classified by students in the Preliminary Study as belonging to scenario #3 (high typicality/low novelty) in Table 23 (page 146), was further modified in Photoshop to change its novelty from low to high by including color and/or novel prints. It was hoped that the picture initially rated as belonging to scenario #3 would then be classified as scenario #4. However, a challenging scenario to achieve was #1 (low typicality/low novelty), as this required an atypical or non-traditional shape that is simultaneously perceived as low in novelty. In this case, one possibility was to select a picture that was initially classified in scenario #2 (low typicality/high novelty) and then modify the picture's novelty in order to make the picture belong in scenario #1. This was possible only if the novelty was not directly associated with the atypical shape of the

product. Another possibility was to add new product pictures that are appropriate for scenario #1. The final goal was to generate at least two pictures per each of the four scenarios, and for total of at least eight shirt pictures. That is, two 4-picture sets of stimuli were generated.

After the stimuli were ready, a survey was distributed to the same judges who participated in the Preliminary Study. The goal was to evaluate the new 4-picture sets via a survey in MS Word. The survey, seen in Appendix M (page 328), includes three sections: (1) explanation of typicality and novelty with chairs, (2) selecting the shirt prototype, and (3) manipulation check for typicality and novelty. Section 1 starts with the explanations for classifying a chair in the four typicality/novelty scenarios. Because the Preliminary Study findings indicate that a student sample identified t-shirts as the most typical shape for “shirts,” Section 2 includes the five most typical shirt drawings (pre-selected in the Preliminary Study and initially presented in Table 13 on page 120) in order for the judges to select the one drawing that represents the most typical shirt in their minds. After the selection of the shirt prototype, survey Section 3 includes the manipulation checks for the stimuli by asking the judges to classify all pictures in relation to their levels of typicality and novelty. These subjective evaluations use a matrix-table answer option as seen in Appendix M (page 328). For filling in the table, the judge was asked to allocate each of the eight pictures into only one of the four typicality/novelty scenarios. Based on the highest agreements, the best 4-picture set (one picture per scenario) was used as stimuli for the Final Study.

## **Final Study**

The final study was a 2 (novelty: low vs. high) x 2 (typicality: low vs. high) x 3 (usage situation scenarios: professional oriented vs. non-professional oriented vs. neutral) between-subjects experimental design. Respondents were randomly assigned to one of the twelve experimental conditions as seen in Table 30. The goal was to collect at least 30 responses per experimental condition and a total minimum of 360 usable responses. The study was conducted via a survey (see Appendix N on page 336) created in Qualtrics, which is an online survey administration tool. Its distribution was done via TurkPrime, a crowdsourcing Internet marketplace administered by Amazon. Because the Preliminary Study found significant differences by gender in most apparel categories, including shirts, respondents in the Final Study were limited to females currently living in the U.S. Respondents were paid an incentive between 20 and 60 cents for completing the survey. Full-time students or part-time students without employment were filtered from answering the survey, as the goal was to collect a non-student sample with the purchase capacity to acquire the products presented in the survey.

Table 30. Experimental Conditions -- Final Study

Experiment Condition	Typicality	Novelty	Usage Situation	Number of Respondents Recommended
1	High	High	Professional	30
2	Low	Low	Professional	30
3	High	Low	Professional	30
4	Low	High	Professional	30
5	High	High	Non-Professional	30
6	Low	Low	Non-Professional	30
7	High	Low	Non-Professional	30
8	Low	High	Non-Professional	30
9	High	High	Neutral	30
10	Low	Low	Neutral	30
11	High	Low	Neutral	30
12	Low	High	Neutral	30
Total				360

As indicated in Table 30, novelty, typicality, and usage situation were manipulated between subjects. Two levels were included for the treatment factors of novelty and typicality, while the treatment factor of usage situation had three levels. Novelty had two levels. Low novelty indicated that the product picture had low levels of originality and uniqueness in the product as perceived by judges and consumers. High novelty in an apparel product picture indicated the opposite. The second treatment factor, typicality, also had two levels. Low typicality indicated that the product picture was very atypical and different from the prototype and therefore was a poor example of the category. High typicality in an apparel product was the opposite.

The manipulation of the usage situations considered the situational characteristics previously discussed in Chapter II and described by Belk (1975) as representing the general features of a situation that apply to usage situations: (a) physical surroundings,

(b) temporal perspective, (c) task definition, and (d) antecedent states. Consequently, Table 31 presents how these four situational characteristics were taken into consideration in the creation of the scenarios of the usage situations depicted in Table 32. It is important to note that all scenarios have the same order of situational characteristics to control for order effect in the experiment design.

Table 31. Situational Characteristics of the Usage Situations -- Final Study

<b>Scenario</b>		<b>(a) Physical Surroundings (Where?)</b>	<b>(b) Temporal perspective (When?)</b>	<b>(c) Task Definition (Who? What for?)</b>	<b>(d) Antecedent States (How?)</b>
1	Professional oriented	Work. Regular day at new job*.	Near future	Purchase for personal use. The goal is to look professional and belong.	The respondent is browsing products online.
2	Non-professional oriented	Social gathering indoors in a public and popular place with friends. Night activity.	Near future	Purchase for personal use. The goal is to look sexy and stand out.	The respondent is browsing products online.
3	Neutral	No information.	Near future	Purchase for personal use.	The respondent is browsing products online.

\* The scenario asks to the respondent to think about a “new” job, as the respondent may already have a job that does not require a professional look. For example, the person is currently working from home.

Table 32. Usage Situation Scenarios -- Final Study

Scenario	Description of the Usage Situation
1 Professional oriented	You are very excited about your new job and you want to look as professional as you can. You find yourself browsing apparel products online. Your final goal is to purchase a product for your personal use in this work environment.
2 Non-professional oriented	You are very excited about a party you have been invited to for the upcoming Saturday night. You find yourself browsing apparel products online. Your final goal is to purchase a product for your personal use at this party.
3 Neutral	You find yourself browsing apparel products online. Your final goal is to purchase a product for your personal use.

The instrument employed in the Final Study is included in Appendix N (page 336). It is divided into six sections: (1) consent, (2) demographic information, (3) experiment, (4) explanation of typicality and novelty with chairs, (5) selecting the shirt prototype, and (6) manipulation check for typicality and novelty. Each of these sections is explained below.

The survey started with the consent form (IRB notice can be seen in Appendix A on page 309) in Section 1. Section 2 asked respondents for demographic information in terms of (a) gender, (b) zip code, (c) employment status, (d) age, (e) ethnicity, and (f) annual household income. All demographic items were assessed through categorical scales and filters were in place to discard answers not described in the sample profile. Then, Section 3 of the survey presented a new screen with the usage situation scenario that was randomly selected from professional oriented, non-professional oriented, or neutral scenarios (scenarios #1, #2, or #3). The screen also showed one picture randomly



selected from the four typicality/novelty scenarios. Next, the respondent was asked to answer the aesthetic preference scales and then the positive emotions scales, while the scenario text and the picture were still visible on the screen. By showing one stimuli and one usage situation scenario per respondent, independence of observations was guaranteed.

Section 4 of the survey provides an explanation for classifying a chair in the four typicality/novelty scenarios. Next, Section 5 showed the five most typical shirt drawings. Respondents were asked to select the one drawing that represented the most typical shirt in their minds. After the selection of the shirt prototype, Section 6 included the manipulation checks for the stimuli. Then, respondents were asked to rate the perceived typicality and novelty of the product picture. To assess typicality, a single-item scale was adopted from Radford and Bloch (2011). The scale includes “looks very different from the most typical shirt” (1) to “looks very much like the most typical shirt” (7). To assess novelty, a semantic differential single-item scale ranged from “Not novel” (1) to “Novel” (7). The wording of the manipulations is consistent with the instructions given to respondents when explaining those aesthetic properties. For instance, for the typicality scale, the survey includes the term “the most typical shirt” instead of “prototype.”

### *Instrument*

As for the measures used in the survey, a summary is presented in Table 33. The table indicates the main constructs used in the instrument design of the Final Study, the main source(s), the number of items in the scale, and the scale items. Following the table,

construct measures are explained individually along with some specific considerations for the measurement of emotions.

Table 33. Measurement Scales -- Final Study

<b>Construct</b>	<b>Source</b>	<b>Number of Items</b>	<b>Scale Type / Instruction</b>	<b>Items</b>	<b>Rating Scale</b>
Aesthetic Preference	Hirshman (1986) and Pol (2013)	4	Multiple item scale / Please rate the visual appearance of the product	1. Attractive 2. Appealing 3. Beautiful 4. I like this product	(1) Not at all (7) Very strongly
Pleasant Surprise	Richins (1997)	3	Multiple item scale / Please describe the way you felt when looking at the product	1. Surprised 2. Amazed 3. Astonished	(1) Not at all (7) Very strongly
Fascination	Desmet (2012)	3	Multiple item scale / Please describe the way you felt when looking at the product	1. Curious 2. Attentive 3. Interested	(1) Not at all (7) Very strongly
Desire	Pol (2013) and Desmet (2012)	3	Multiple item scale / Please describe the way you felt when looking at the product	1. Attracted 2. Wanting 3. Urged	(1) Not at all (7) Very strongly
Joy	Richins (1997)	3	Multiple item scale / Please describe the way you felt when looking at the product	1. Happy 2. Pleased 3. Joyful	(1) Not at all (7) Very strongly

### Aesthetic Preference

It is important to clarify that the Preliminary Study measured aesthetic preference using a single item as is common in product design studies (e.g., Hekkert et al., 2003). Several researchers indicate that the adjectives beautiful/ugly are the best descriptors of aesthetic preference (Augustin, Wagemans, & Carbon, 2012; Jacobsen et al., 2004). Because respondents evaluated numerous designs (e.g., judges evaluated 60 pictures) in the Preliminary Study, a single item measure was deemed most appropriate. In the Final Study, a more rigorous measure was used, as participants were asked to evaluate a single stimulus in the questionnaire. Therefore, four items were used to measure aesthetic preference and are adopted from Hirschman (1986) and Pol (2013). The scale ranged from “not at all” (1) to “very strongly” (7).

Hirschman (1986) used a 7-point answer scale and five adjective pairs: “Attractive/Not attractive,” “Desirable/Not desirable,” “Arousing/Not arousing,” “Beautiful/Not beautiful,” and “Makes me like this product/Does not.” The highest answer value (7) positioned the positive adjective (e.g., Attractive) while the lowest answer value (1) the negative (e.g., Not attractive). These items have been adapted and used in various experiments, such as those of Bloch et al. (2003) and Pol (2013), with acceptable levels of reliability and validity. The item “Desirable/Not desirable” was eliminated, as the emotion of “desire” is measured in one of the positive emotions in the study. Pol’s (2013) scale, adapted from Hirschman (1986), achieved satisfactory reliability and validity by asking participants to indicate the extent to which they perceived the product’s visual appearance with a three-item scale (e.g., “Attractive,”

“Appealing,” and “Beautiful”) ( $\alpha = .96$ ). The scales used by Pol ranged from “not at all” (1) to “extremely” (7).

After the scale of aesthetic preference, the survey includes items measuring selected positive emotions. However, before detailing the measurement of each selected emotion, general clarifications on emotion measurement must be considered.

### Considerations for Measuring Emotions

When Richins (1997) provided an overview of multiple measures of emotions in consumption, she stated that the PAD (pleasure-arousal-dominance) scale by Mehrabian and Russell (1974) has been used by marketing scholars but is not well suited for research interested in explaining the specific emotions being experienced by study participants (Richins, 1997). Regarding self-reported measures of emotions, Plutchik (1980) specifies that one of the most common and simple ways to measure emotional states in adults is by using adjective checklists. By asking something like “please describe the way you feel right now...,” the answer will include one word (i.e., happy) with a rating scale with options like “not at all,” “slightly,” “moderately,” “strongly,” and “very strongly” (Plutchik, 1980, p. 208). Additionally, Scherer (2005) suggests that emotions be considered as category terms because they can denote the central meaning of a fuzzy category (e.g., surprise) that is implied by a much larger number of established words (e.g., amaze\*, astonish\*, and surprise\*)<sup>1</sup>. In other words, the verbal reports considered as being part of the family of affective states (e.g., amaze\*, astonish\*, and surprise\*) can be taken as evidence for the presence of the central concept (e.g., surprise).

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<sup>1</sup> Scherer (2005) uses an asterisk (\*) to denote that a word can have different endings. For example, “amaze\*,” implies words such as amaze, amazed, and amazement.

Quigley, Lindquist, and Barrett (2014) add that self-report is the only valid way to assess subjective experience and indicate that most researchers basically present a set of adjectives and ask the participant to rate how well each word describes his or her immediate feeling state. As a result, in this dissertation the decision was made to use self-reports, in that the respondent were asked, *Please describe the way you feel when looking at the product*. The options for response offered a total of twelve items to measure the selected emotions. Three items measured each emotion (pleasant surprise, fascination, desire, and joy) as will be explained below.

The first three-item scale assessed “surprise” by adopting Richins’ (1997) scale, which indicated acceptable levels of reliability and validity (e.g., “Surprised,” “Amazed,” “Astonished”) ( $\alpha=.81$ ). Scherer (2005) also confirms that “amaze\*,” “astonish\*,” and “surprise\*” are pertinent words for measuring the fuzzy category identified by the central concept of “surprise” (p. 715). The scale ranged from “not at all” (1) to “very strongly” (7).

Given the lack of a direct scale for measuring “fascination,” the literature on positive emotions was used (e.g., Desmet, 2012). The emotion of fascination was measured by a three-item scale using the emotions words that best describe the fuzzy category identified by the central concept of fascination (e.g., “Curious,” “Attentive,” “Interested”). The scale ranged from “not at all” (1) to “very strongly” (7).

The three-item scale to assess “desire” was adopted from scales by Pol (2013) and Desmet (2012). Pol (2013) measured “instantaneous desire” using a two-item scale (e.g., “I wanted to have this product the moment I saw it,” “I felt an immediate urge to make

this product mine”) with satisfactory levels of reliability and validity ( $\alpha = .94$ ). Based on Desmet (2012), the scale items were also based on the emotion words that describe “desire” (e.g., “Attraction,” “Yearn,” “Crave”). The scale ranged from “not at all” (1) to “very strongly” (7).

Last, a three-item scale assessing “joy” was adopted from Richins’ (1997) scale that indicated acceptable levels of reliability and validity (e.g., “Happy,” “Pleased,” “Joyful”) ( $\alpha = .91$ ). The scale ranged from “not at all” (1) to “very strongly” (7).

#### *Pre-Test*

Before distributing the survey in Appendix N (see page 336), doctoral students and professors were asked to provide feedback regarding the readability and comprehension of the survey instructions, including the usage situation scenarios and questions, as well as the relevance to the respondents. After incorporating the feedback, a pre-test was also done by using the same survey as in Appendix N (see page 336). The pre-test goal was to collect at least 5 responses per scenario for a total of 60 responses in Qualtrics via TurkPrime. The objective was to check the manipulations such as the usage situation scenarios and the stimuli manipulations in a non-student sample.

#### *Data Analysis*

After the pre-test data were analyzed, and the final four picture set was confirmed to represent all four typicality/novelty scenarios, data for the Final Study were collected using the final survey (Appendix N on page 336). Data analysis began with organizing the data set. Data were cleaned and unusable responses were discarded. Frequency tables in SPSS were used to analyze sample characteristics and data were also tested for

normality. Then, descriptive statistics was used for calculating measures of central tendency on typicality, novelty, aesthetic preference, pleasant surprise, fascination, desire, and joy. Reliabilities and factor analysis were also generated per each of these constructs and for positive emotions as a whole. Data were checked in SPSS to identify significant outliers. Then, a factorial ANOVA was conducted by measuring typicality, novelty, and usage situation as categorical. The dependent variable of aesthetic preference was measured as continuous. The goal of the factorial ANOVA was to test the main effect of typicality on consumers' aesthetic preferences (H1), the main effect of novelty on consumers' aesthetic preferences (H2), and the two-way interaction between typicality and novelty (H3). The factorial ANOVA results also tested the two-way interaction between typicality and usage situation (H4), the two-way interaction between novelty and usage situation (H5), and the three-way interaction between typicality, novelty, and usage situation (H6). By analyzing the results of the hypotheses related to usage situation, the moderation effect of usage situation was determined. Because H1 and H2 were tested in the Preliminary Study, one of the main contributions of the Final Study was testing for the interaction effects described in H3-H6. The level of the main effects of typicality and novelty are two (low vs. high); therefore, post hoc tests (e.g., Tukey's) will not be performed as the levels of the main effects are fewer than three.

For testing the hypotheses related to the relationship between aesthetic preference and positive emotions (H7a, H7b, H7c, and H7d), a series of simple regressions were run between the independent variable of aesthetic preference and each of the dependent

variables of positive emotions. All variables (aesthetic preference and positive emotions) were measured as continuous.

For testing the mediating role of aesthetic preference (H8), a series of simple and multiple regressions were performed. The idea was to test if the higher the aesthetic preference, the stronger the relationship between typicality and each positive emotion. Similarly, the goal was also to determine if the higher the aesthetic preference, the stronger the relationship between novelty and each positive emotion. The final goal was to create path models and standardized regression coefficients depicting the role of aesthetic preference in mediating the effects of typicality, as well as novelty on positive emotions.

The following Figure 19 presents a visual summary of the Phase II and each of the steps taken for executing the phase, including information such as data collection techniques, as well as type and number of stimuli and sample.



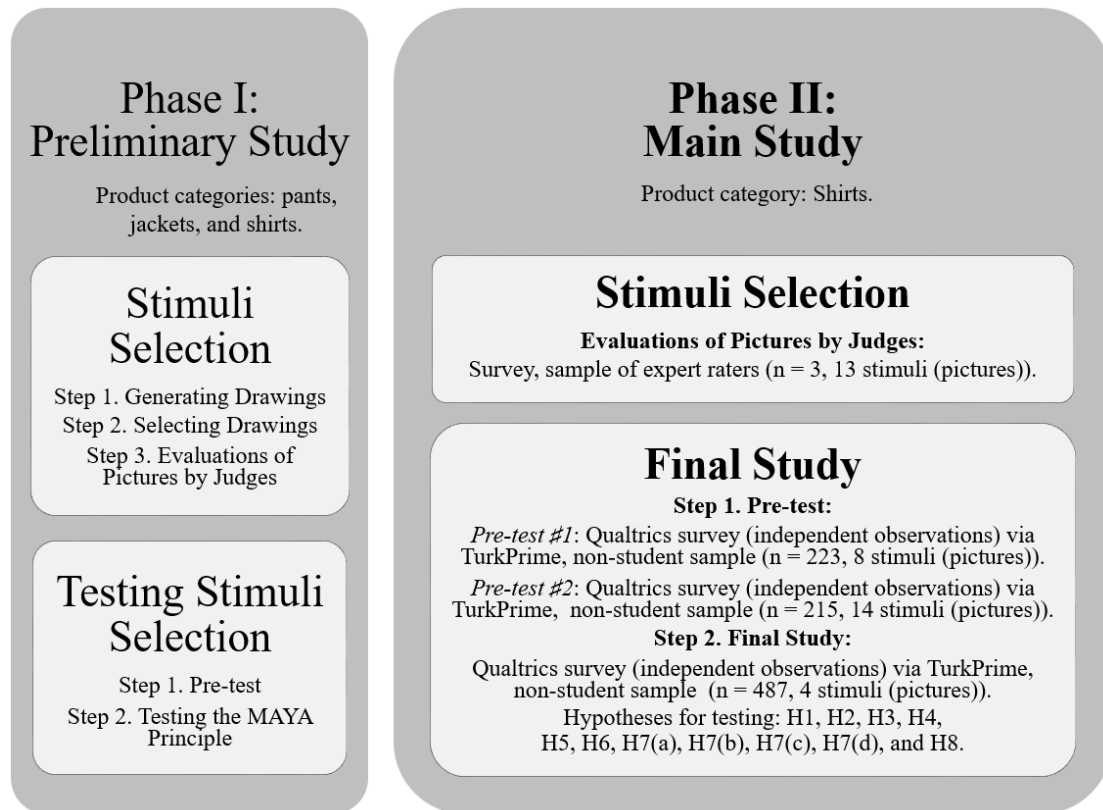


Figure 19. Visual Summary of Phase II

### Summary

This chapter described the research methodology developed to address the objectives of the two phases of the dissertation: (1) Preliminary Study, and (2) Main Study. A description of the design (i.e., procedures, instrument development, and selection of the stimuli) for both phases was included. Finally, results and analysis of Phase I: Preliminary Study were provided as a framework for developing Phase II: Main Study.

## CHAPTER IV

### RESULTS

Results of Phase II: Main Study of the dissertation are presented in the following two sections: (1) *Stimuli Selection* and (2) *Final Study*.

#### **Stimuli Selection**

To select the appropriate stimuli, shirt pictures used for the Preliminary Study were selected and then further modified in Photoshop in order to generate the stimuli for each of the four typicality/novelty scenarios. Typicality was manipulated in low (LT) and high (HT) levels. Similarly, novelty was manipulated in low (LN) and high (HN) levels. Thus, the scenarios for the stimuli (i.e., Cells 1 - 4) were: Cell 1 (LT/LN), Cell 2 (LT/HN), Cell 3 (HT/LN), and Cell 4 (HT/HN). Based on what was learned in Phase I: Preliminary Study regarding how respondents rated the typicality and novelty of various pictures, new pictures of shirts were included to provide additional options for the scenarios. The survey (see Appendix M on page 328) was distributed with a total of thirteen pictures (see Appendix O on page 341). The results of the data collected from the judges are presented in the next two subsections: (1) *Respondent Characteristics* and (2) *Results*.






## **Respondent Characteristics**

Data were collected in July 2016 with the same three judges used in the Preliminary Study. Completed surveys included all usable responses from two professors and one industry professional (see Table 18 on page 128 for respondent characteristics).

## **Results**

Based on the judges' responses in Section 2 of the survey (see Appendix M on page 328), Table 34 presents the drawings that were selected as the best representation of the shirt prototype. The Most Typical Drawing #3 was the silhouette evaluated by the judges as being closest to the shirt prototype (see bolded values in Table). Regarding survey Section 3, judges classified pictures in relation to their level of typicality and novelty by allocating each of the eight pictures into only one of the four typicality/novelty scenarios presented in a matrix-table answer option. The manipulation checks for the stimuli resulted in total agreement among judges for 4 pictures (out of 4) allocated to Cell 1 (LT/LN); 2 pictures (out of 4) allocated to Cell 2 (LT/HN); 2 pictures (out of 3) allocated to Cell 3 (HT/LN); and 2 pictures (out of 5) allocated to Cell 4 (HT/HN) (See Appendix O on page 341). The pictures that received the highest agreement levels were then used in the Pre-Test of the Final Study.

Table 34. Summary of Results per Shirt Drawing Selected (n = 3) -- Stimuli Selection for Final Study

Shirt Drawings	Frequency	%	Mode	SD
Most Typical Drawing #1 	0	0	Most Typical Drawing #3	1.15
Most Typical Drawing #2 	0	0		
Most Typical Drawing #3 	2	66.70		
Most Typical Drawing #4 	0	0		
Most Typical Drawing #5 	1	33.30		

## **Final Study**

The results of the Final Study are presented in the following subsections: (1) *Pre-Test Results*, (2) *Respondent Characteristics*, (3) *Preliminary Analysis*, (4) *Manipulation Checks*, (5) *Results of ANOVA and Regressions*, and (6) *Summary of Hypotheses Testing*.

### **Pre-Test Results**

Based on the responses of the three judges, a total of two pre-tests were conducted. Pre-test #1 included eight stimuli. Interestingly, a total of 250 responses were collected; all of which were incomplete. Upon further inspection, it appeared that the description in Section 4 of the survey (explanation of typicality and novelty in Appendix M on page 328) was too long, which might have caused most respondents to drop out of the survey once they reached that section. Consequently, this information was utilized to improve the survey design, in that the description of typicality and novelty in Section 4 was modified and shortened. The survey used in Pre-test #1 also included manipulation checks for typicality and novelty with a matrix-table answer option (see Section 3 in Appendix M on page 328; the aforementioned survey used with judges in the Selection of Stimuli). The initial goal of the matrix-table was to confirm that most respondents (> 80%) classified each picture as part of its respective Cell (1 - 4). However, inconsistent results on this point indicated a lack of agreement among respondents. That is, agreement regarding stimuli varied between 10% and 43% per cell. Thus, the use of this matrix-table was discarded for the Final Study. It may be that respondents guessed the cell of the matrix-table where the stimuli had to be allocated. Conversely, it is also possible that the three judges understood the matrix-table in Section 3, as they were familiar with the

terms and with academic scales. However, based on results, it is likely that the general respondent did not fully understand what to do with the matrix-table. Accordingly, the survey for the Final Study was modified to only include one single-item manipulation check for measuring the properties of typicality and novelty (see Section 6 in Appendix N on page 336). For example, in the typicality scale, the bipolar-item is: Looks very different from the most typical shirt / Looks very much like the most typical shirt.

Of the responses collected in Pre-test #1, 223 responses were complete enough to check the manipulations of *usage situation*. Twelve scenarios were used, and the 223 responses ranged from 12 to 25 responses per scenario. Usage situation was manipulated using three scenarios: (1) usage situation professional, (2) usage situation non-professional, and (3) usage situation neutral. Results revealed no significant differences in aesthetic preference across usage situations ( $M_{\text{Professional Usage Situation}} = 3.15 < M_{\text{Neutral Usage Situation}} = 3.19 < M_{\text{Non-professional Usage Situation}} = 3.39$ ,  $F_{(2,222)} = .51$ ,  $p = .21$ ). Specifically, the non-professional scenario reported the highest ratings in aesthetic preference among all usage situation scenarios, while the professional scenario reported the lowest.

Pre-test #2 tested 14 pictures (see Appendix P on page 342). A total of 215 completed responses were collected. Each picture was evaluated by a total number of respondents ranging between 10 and 34. The results of this pre-test can be seen in Table 35. The table includes the results of the pictures that were tested for each of the four cells consisting of different levels of typicality (low/high) and novelty (low/high). For each picture tested, the number of responses collected (sample size) and the mean scores of the manipulation checks for typicality and novelty are indicated. These mean scores were

compared with the goal level of the cell in order to determine whether the picture passed the manipulation check for that specific cell. Low levels were determined with mean values lower than the median of 3.50; while high values were means higher than or equal to the median. The median refers to the center value of the 7-point scale. As seen in Table 35, the results of pictures #1, #2, #3, and #13 are in bold as these pictures passed the manipulation checks. Therefore, picture #1 was selected as the best representation of Cell 1 (LT/LN), as the mean scores classify the picture as having a low level of typicality ( $M_{\text{Typicality}} = 3.10 < 3.50$ ) and a low level of novelty ( $M_{\text{Novelty}} = 2.40 < 3.50$ ). Picture #2 was selected to represent Cell 2 (LT/HN), as the mean scores resulted in a low level of typicality ( $M_{\text{Typicality}} = 1.30 < 3.50$ ) and a high level of novelty ( $M_{\text{Novelty}} = 6.40 > 3.50$ ). Picture #3 was selected to represent Cell 3 (HT/LN) with mean scores that resulted in high typicality ( $M_{\text{Typicality}} = 4.50 > 3.50$ ) and low novelty ( $M_{\text{Novelty}} = 2.70 < 3.50$ ). Finally, for Cell 4 (HT/HN), picture # 13 was selected with mean scores that resulted in high typicality ( $M_{\text{Typicality}} = 4.60 > 3.50$ ) and high novelty ( $M_{\text{Novelty}} = 4.50 > 3.50$ ).

Table 35. Results of Pre-Test #2 -- Final Study

Cell: Typicality Level/ Novelty Level	Picture # <sup>a</sup>	Sample Size	Pre-Test Manipulation Checks				Manipulation Passed? <sup>c</sup>
			Typicality		Novelty		
			Mean	Level	Mean	Level	
<i>Cell 1: Low/Low</i>	<b>1</b>	<b>17</b>	<b>3.10</b>	<b>Low</b>	<b>2.40</b>	<b>Low</b>	✓
<i>Cell 2: Low/High</i>	<b>2</b>	<b>15</b>	<b>1.30</b>	<b>Low</b>	<b>6.40</b>	<b>High</b>	✓
<i>Cell 3: High/Low</i>	<b>3</b>	<b>17</b>	<b>4.50</b>	<b>High</b>	<b>2.70</b>	<b>Low</b>	✓
<i>Cell 4: High/High</i>	4	16	2.50	Low	5.50	High	X
	5	14	2.50	Low	6.50	High	X
	6	17	3.90 <sup>b</sup>	High <sup>b</sup>	3.70 <sup>b</sup>	High <sup>b</sup>	X
	7	13	3.08	Low	4.75	High	X
	8	16	2.80	Low	4.10	High	X
	9	34	4.70	High	2.64	Low	X
	10	11	4.50	High	3.40	Low	X
	11	11	5.54	High	2.63	Low	X
	12	10	3.00	Low	4.50	High	X
	<b>13</b>	<b>13</b>	<b>4.60</b>	<b>High</b>	<b>4.50</b>	<b>High</b>	✓
14	11	3.20	Low	3.09	Low	X	

<sup>a</sup> Pictures can be seen in Appendix P on page 342.

<sup>b</sup> Mean rating very close to the middle point of scale of 3.50 (median).

<sup>c</sup> ✓ = Yes, X = No.

Pre-test data were analyzed to determine whether the TurkPrime respondents' typicality and novelty rating scores were consistent with the classification provided by the judges. As seen in Table 36, the *pre-test level* columns include typicality and novelty levels based on the ratings made by TurkPrime respondents for the pictures used in Pre-test #2. The *judges' level* columns include typicality and novelty classifications of those pictures as indicated by the judges. Pictures #1, #2, #3, and #13 are also in bold in this table, as these pictures passed the manipulation checks. Based on the comparison of



pictures, there is agreement among TurkPrime respondents and judges that picture #1 be allocated to Cell 1 (LT/LN), picture #2 be allocated to Cell 2 (LT/HN), and picture #3 be allocated to Cell 3 (HT/LN). However, classifications of pictures #4, #5, and #7 did not reach agreement for Cell 4 (HT/HN). This makes sense, as the pre-test for the selection of the stimuli of cells 1, 2, and 3 only required the test of a single picture per cell, whereas selection of the stimulus for Cell 4 (HT/HN) required numerous trials and a total of 11 pictures were tested. Therefore, a stimulus that was simultaneously perceived as high in typicality and high in novelty was the most challenging to find, and after several trials, picture #13 was successfully allocated to Cell 4 (HT/HN).

Table 36. Comparison Between Ratings from Pre-Test #2 and Judges -- Main Study

Picture # <sup>a</sup>	Typicality		Novelty		Agreement <sup>c</sup>
	Judges' Level <sup>b</sup>	Pre-Test Level	Judges' Level <sup>b</sup>	Pre-test Level	
<b>1</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>	✓
<b>2</b>	<b>Low</b>	<b>Low</b>	<b>High</b>	<b>High</b>	✓
<b>3</b>	<b>High</b>	<b>High</b>	<b>Low</b>	<b>Low</b>	✓
4	High	Low	Low	High	X
5	High	Low	High	High	X
6	N/A	High	N/A	High	N/A
7	High	Low	High	High	X
8	N/A	Low	N/A	High	N/A
9	N/A	High	N/A	Low	N/A
10	N/A	High	N/A	Low	N/A
11	N/A	High	N/A	Low	N/A
12	N/A	Low	N/A	High	N/A
<b>13</b>	<b>N/A</b>	<b>High</b>	<b>N/A</b>	<b>High</b>	<b>N/A</b>
14	N/A	Low	N/A	Low	N/A

<sup>a</sup> Pictures can be seen in Appendix P on page 342.

<sup>b</sup> Based on 66.67% or 100% agreement among judges.

<sup>c</sup> ✓ = Yes, X = No.

N/A: Not applicable. The picture was not rated by the judges as it was added for the pre-test.

## Respondent Characteristics

Data for the main survey for the Final Study (Appendix N on page 336) were collected from 951 participants. However, only 494 responses were deemed usable. As provided by TurkPrime, respondents that participated in the pre-tests were excluded from participating in the Final Study. Respondents that were males, students only, or out of work, were filtered out at the beginning of the survey. Only TurkPrime respondents that completed the 7-minute survey and provided a valid MTurk code were compensated between 30 and 50 cents. Discarded responses consisted of insincere responses and incomplete questionnaires. Insincere responses were double responses from males who

took the survey for a second time as females. This was obvious because both responses had the same TurkPrime worker id, which is a code provided by TurkPrime to each worker that completes a hit (i.e., survey link). Some TurkPrime male workers did contact the researcher to clarify that their female partners answered the survey after they were filtered out of it. Yet, it was difficult to establish when this was the case and whether it was true, therefore all double responses were discarded. Incomplete questionnaires were responses that did not contain the Mturk code that was generated by Qualtrics at the end of the survey, either because respondents were filtered at the beginning of the survey or dropped out of the survey before completion.

To verify univariate normality of the data set, a visual inspection of histograms and q-q plots was performed. When assessing skewness and kurtosis, values were considered acceptable. Results showed that both values were marginally between +1/-1 and were not greater than 2 x standard error (SE) (Hair, Black, Babin & Anderson 2013). That is, skewness value of .02 (SE = .11) is less than .02, while kurtosis value of -1.05 (SE = .22) is less than -.20. To verify the ANOVA assumption of no significant outliers, an additional screening was performed. Mahalanobis  $D^2$  measure at a significant level of .05 (Hair et al., 2013) identified seven unusual observations that were not retained for the final analysis. Table 37 displays the final sample ( $n = 487$ ) distributed by each of the twelve experimental scenarios. Because the survey design in Qualtrics randomized the allocation of one of the scenarios to each respondent in the Final Study, sample sizes were supposed to be similar in size. However, due to the discarded responses for the analysis (e.g., incomplete responses), there was variation in sample size per scenario,

which resulted in unequal sample sizes varying from 34 to 47 responses per scenario.

Final sample sizes per cell (cells 1 - 4) presented a more similar distribution and varied between 114 and 130 responses per cell.

Table 37. Usable Responses per Scenario -- Final Study

Scenario	Cell <sup>a</sup>	Manipulated Variables			Number of Usable Responses	%
		Typicality	Novelty	Usage Situation		
1	4	High	High	Professional	40	8.20
2	1	Low	Low	Professional	44	9.00
3	3	High	Low	Professional	44	9.00
4	2	Low	High	Professional	41	8.40
5	4	High	High	Non-professional	35	7.20
6	1	Low	Low	Non-professional	39	8.00
7	3	High	Low	Non-professional	45	9.20
8	2	Low	High	Non-professional	34	7.00
9	4	High	High	Neutral	41	8.40
10	1	Low	Low	Neutral	47	9.70
11	3	High	Low	Neutral	38	7.80
12	2	Low	High	Neutral	39	8.00
<i>Total</i>					<i>487</i>	<i>100.00</i>

<sup>a</sup> Cell 1 (LT/LN), Cell 2 (LT/HN), Cell 3 (HT/LN), and Cell 4 (HT/HN). Levels of typicality and novelty per cell can also be seen in the columns of the manipulated variables.

Demographic characteristics of the respondents are summarized in Table 38. The final sample consisted of all females. Ages ranged from 18 to 74 years old, with the majority between 26 and 45 years (n = 292, 60%), and a mean age of 36.73 years. Most were White (n = 367, 75.40%), followed by Black or African American (n = 55, 11.30%). The greatest number of participants specified being employed or self-employed (n = 341, 70%). In addition, the majority also indicated a yearly household income after taxes of between \$20,000 and \$74,999 (n = 312, 64%); while the yearly household income range

that was reported most often by respondents was between \$35,000 and \$54,999 ( $n = 116$ , 23.80%).

Table 38. Respondent Characteristics (n = 487) -- Final Study

<b>Demographics</b>	<b>Frequency</b>	<b>%</b>	<b>Mode</b>	<b>SD</b>
<i>Gender</i>			Female	0
Male*	0	0		
Female	487	100.00		
<i>Age</i>			26-35	11.93
18-25 years old	84	17.20		
26-35 years old	187	38.40		
36-45 years old	105	21.60		
46-55 years old	64	13.10		
56-65 years old	44	9.00		
66 years old or older	3	.60		
<i>Ethnicity</i>			White	1.12
American Indian	4	.80		
Asian-American	21	4.30		
Asian or Pacific Islander	7	1.40		
Black or African American	55	11.30		
Hispanic or Latino	28	5.70		
White	367	75.40		
Other	5	1.00		
<i>Employment Status</i> **			Employed or self-employed	N/A
Employed or self-employed	341	70.00		
Student only*	0	0		
Work and study	59	12.10		
Retired	16	3.30		
Unable to work	12	2.50		
Homemaker	68	14.00		
Out of work*	0	0		
<i>Yearly household income</i>			\$35,000-\$54,999	1.68
Under \$20000	66	13.60		
\$20,000-\$34,999	99	20.30		
\$35,000-\$54,999	116	23.80		
\$55,000-\$74,999	97	19.90		
\$75,000-\$ 104,999	58	11.90		
\$105,000-\$ 124,999	21	4.30		
\$125,000-\$ 154,999	18	3.70		
\$155,000 or more	11	2.30		
Missing	1	1		

\* The survey only included female respondents that had full or part-time employment.

\*\* Multiple choice question (SD not available).

## Preliminary Analysis

Prior to hypotheses testing, the reliabilities of all major constructs were initially assessed: aesthetic preference, pleasant surprise, fascination, desire, and joy. As indicated in Table 39, reliability measures ranged from .86 to .96. Therefore, all major constructs indicated an acceptable reliability value (Cronbach's  $\alpha$ ) of greater than .70 (Hair et al., 2013).

Table 39. Reliabilities of the Constructs -- Final Study

Construct	Number of Items	Reliability (Cronbach's $\alpha$ )
Aesthetic Preference	4	.96
Pleasant Surprise	3	.90
Fascination	3	.86
Desire	3	.92
Joy	3	.96

Next, discriminant validity of the constructs was assessed in order to ensure that the constructs that should be theoretically unrelated, were, in fact, unrelated. The confidence interval test is recommended to assess the discriminant validity of two factors (Anderson & Gerbing, 1988). This test involves calculating a confidence interval of plus or minus 2 standard errors (SE) around the correlation ( $r$ ) between the factors, and determining whether this interval includes 1.00. If it does not include 1.00, then discriminant validity is demonstrated. Table 40 includes Pearson correlation values for all major constructs. After calculating confidence intervals for all construct pairs, all intervals did not include 1.00, therefore, discriminant validity among all constructs was

demonstrated. For instance, the confidence interval (CI) between desire and joy was calculated based on the following values:  $r = .86$  and  $SE = .02$ , where  $CI = (.86 - 2 \times .02, .86 + 2 \times .02) = (.82, .90)$ . Discriminant validity between desire and joy exists, as the CI does not include 1.00.

Table 40. Pearson Correlations -- Final Study

Construct	Aesthetic Preference	Pleasant Surprise	Fascination	Desire	Joy
Aesthetic Preference	1				
Pleasant Surprise	.37**	1			
Fascination	.67**	.64**	1		
Desire	.83**	.57**	.80**	1	
Joy	.77**	.55**	.80**	.86**	1






\*\* Correlation is significant at the 0.01 level (2-tailed).

Last, survey data were used to determine the prototypes that were selected by the final sample. Based on results from Section 5 of the survey in the Final Study (see Appendix N on page 336), Table 41 indicates that respondents reported the Most Typical Drawing #4 as the mode for the shirt prototype. Most Typical Drawing #4 had the highest rating ( $n = 149$ , 30.60%), followed by Most Typical Drawing #2 ( $n = 121$ , 24.80%). When considering age ranges of the respondents, the table highlights the highest values. Most of the respondents aged 18 to 25 ( $n = 34$ , 22.80%) and aged 26 to 35 years ( $n = 73$ , 49%) chose the Most Typical Drawing #4 as the shirt prototype. However, the same number of respondents aged 36 to 45 years chose the Most Typical Drawing #2 ( $n = 30$ , 24.80%) and Most Typical Drawing #3 ( $n = 30$ , 24.80%) as the prototype. Respondents



aged 46 to 55 years chose the Most Typical Drawing #1 as the prototype (n = 17, 22.10%); while respondents 66 years or older chose the Most Typical Drawing #3 as the shirt prototype (n = 2, 1.70%).

Table 41. Summary of Results per Shirt Drawing Selected (n = 487) -- Final Study

Shirt Drawings	Age Group	Fr. <sup>a</sup>	%	Mode	SD <sup>b</sup>
	Most Typical Drawing #1	All ages	77	15.80	Most typical drawing #4
		18-25 years old	1	1.30	
		26-35 years old	29	37.70	
		36-45 years old	17	22.10	
		<b>46-55 years old</b>	<b>17</b>	<b>22.10</b>	
		56-65 years old	12	15.60	
		66 years old or older	1	1.30	
	Most Typical Drawing #2	All ages	121	24.80	
		18-25 years old	25	20.70	
		26-35 years old	50	41.30	
		<b>36-45 years old</b>	<b>30</b>	<b>24.80</b>	
		46-55 years old	10	8.30	
		56-65 years old	6	5.00	
		66 years old or older	0	0	
	Most Typical Drawing #3	All ages	98	20.10	
		18-25 years old	9	7.40	
		26-35 years old	16	13.20	
		<b>36-45 years old</b>	<b>30</b>	<b>24.80</b>	
		46-55 years old	19	15.70	
		<b>56-65 years old</b>	<b>22</b>	<b>18.20</b>	
		<b>66 years old or older</b>	<b>2</b>	<b>1.70</b>	
	Most Typical Drawing #4	All ages	<b>149</b>	<b>30.60</b>	
		<b>18-25 years old</b>	<b>34</b>	<b>22.80</b>	
		<b>26-35 years old</b>	<b>73</b>	<b>49.00</b>	
		36-45 years old	25	16.80	
		46-55 years old	14	9.40	
		56-65 years old	3	2.00	
		66 years old or older	0	0	
	Most Typical Drawing #5	All ages	42	8.60	
		18-25 years old	15	10.10	
		26-35 years old	19	12.80	
		36-45 years old	3	2.00	
		46-55 years old	4	2.70	
		56-65 years old	1	.70	
		66 years old or older	0	0	

<sup>a</sup> Fr. = Frequency.

<sup>b</sup> Standard deviation (*SD*) measures the dispersion of the prototype selected.

## **Manipulation Checks**

In addition to the manipulation checks conducted in the Pre-Test, manipulation checks of the experiment were performed again with the final sample. The goal was to confirm that the typicality and novelty levels of the stimuli were perceived by respondents as was initially intended. Based on the analysis in Table 42, manipulations were successful for Cells 1, 2, and 3. However, manipulation for Cell 4 (HT/HN) was successful for the novelty but not the typicality level. For instance, “level of rating” columns in Table 42 indicate that Cell 2 (LT/HN) was evaluated by respondents as low in typicality ( $M = 1.84 < 3.50$ ) and high in novelty ( $M = 5.86 > 3.50$ ). As specified in the “cell goal” column, the goal of the experiment design was to put a stimulus in Cell 2 (LT/HN) with low typicality and high novelty. Consequently, the stimulus selected for Cell 2 (LT/HN) was classified by respondents as having the same levels of typicality and novelty that were initially intended for that cell.

Table 42. Manipulation Checks (n = 487) -- Final Study

Cell	Typicality					Novelty					Manipulation Check Successful? <sup>a</sup>
	<i>Cell Goal</i>	M	N	SD	Level of Rating	<i>Cell Goal</i>	M	N	SD	Level of Rating	
1: LT/LN	<i>Low</i>	3.11	130	1.81	Low	<i>Low</i>	3.39	130	1.82	Low	Typicality ✓ Novelty ✓
2: LT/HN	<i>Low</i>	1.84	114	1.44	Low	<i>High</i>	5.86	114	1.56	High	Typicality ✓ Novelty ✓
3: HT/LN	<i>High</i>	4.47	127	2.10	High	<i>Low</i>	2.06	127	1.35	Low	Typicality ✓ Novelty ✓
4: HT/HN	<i>High</i>	3.31	116	1.73	Low	<i>High</i>	4.29	116	1.80	High	Typicality X Novelty ✓

<sup>a</sup> ✓ = Yes, X = No.

### Results of ANOVA and Regressions

A 2×2×3 ANOVA was conducted in SAS 94 by using the “proc glm” feature for the analysis of unbalanced data (The GLM Procedure, 2008). The categorical variables of typicality, novelty, and usage situation served as the independent variables in the analysis; while aesthetic preference was treated as the continuous dependent variable. Post hoc tests were not performed because there were fewer than three groups per main effect (Montgomery, 2013). As seen in Table 43, the overall F test is significant ( $F_{(11,486)}$

= 3.89,  $p < .001$ ), offering strong evidence that the means for the twelve scenarios are different.  $R^2$  defines the proportion of the total variance explained by the model, that in this case is 8.00%. The root mean square error (Root MSE) of 1.40 defines the standard deviation of an observation about the predicted value. Table 44 displays the results between all experimental factors. Those results include Type III sums of squares (Type III SS) for testing effects in unbalanced cases because they test a function of the underlying parameters that is independent of the number of observations per treatment combination (The GLM Procedure, 2008).

Table 43. Unbalanced ANOVA Results -- Final Study

	<b>df</b>	<b>Sum of Squares</b>	<b>Mean Square</b>	<b>F Value</b>	<b>Pr &gt; F</b>
Model	11	83.98	7.63	3.89	.00***
Error	475	932.72	1.96		
Corrected Total	486	1016.70			
$R^2 = .08$ Root MSE = 1.40 $M_{\text{Aesthetic Preference}} = 3.21$ ( $SD = 1.44$ )					

Dependent variable: Aesthetic Preference.

\*\*\* < .001

Table 44. ANOVA Results for Aesthetic Preference -- Final Study

	df	Type III SS	Mean Square	F Value	Pr > F
Typicality	1	.00	.00	.01	.94
Novelty	1	29.15	29.15	14.85	.00***
Usage Situation	1	9.23	4.61	2.35	.09
Typicality x Novelty	1	33.31	33.31	16.97	.00***
Typicality x Usage Situation	1	2.34	1.17	.60	.55
Novelty x Usage Situation	1	7.80	3.90	1.99	.13
Typicality x Novelty x Usage Situation	1	.72	.36	.19	.83

\*\*\* < .001

*Test of H1 and H2: Main Effects of Typicality and Novelty*

The first and second hypotheses in the Final Study relate to the main effects of typicality and novelty. The first hypothesis proposed that typicality had an effect on consumers' aesthetic preferences. That is, H1 proposed: *Products perceived as more typical will have greater impact on consumers' aesthetic preferences as compared to products perceived as less typical*. Contrary to what was expected, Table 44 indicates that the main effect of *typicality* was not significant ( $M_{\text{Low Typicality}} = 3.22$  ( $SD = 1.48$ ) vs.  $M_{\text{High Typicality}} = 3.19$  ( $SD = 1.40$ );  $F_{(1,486)} = .01$ ,  $p = .94$ ). Therefore, H1 was not supported (see Table 45 for means (M) and standard deviations (SD) of all treatment factors and cells).

Table 45. Descriptive Statistics on Aesthetic Preference -- Final Study

<b>Cell Typicality Level</b>	<b>Cell Novelty Level</b>	<b>Cell</b>	<b>Usage Situation</b>	<b>Mean</b>	<b>SD</b>	<b>n</b>
Low	Low		Professional	3.76	1.20	44
			Non-professional	3.66	1.35	39
			Neutral	3.69	1.15	47
			Total	3.70	1.22	130
	High	2	Professional	2.77	1.60	41
			Non-professional	2.84	1.78	34
			Neutral	2.44	1.32	39
			Total	2.68	1.57	114
	Total		Professional	3.28	1.48	85
			Non-professional	3.28	1.61	73
			Neutral	3.12	1.37	86
			Total	3.22	1.48	244
High	Low	3	Professional	3.40	1.27	44
			Non-professional	2.94	1.42	45
			Neutral	3.21	1.36	38
			Total	3.18	1.35	127
	High	4	Professional	3.53	1.47	40
			Non-professional	3.33	1.48	35
			Neutral	2.79	1.38	41
			Total	3.21	1.46	116
	Total		Professional	3.46	1.36	84
			Non-professional	3.11	1.45	80
			Neutral	2.99	1.37	79
			Total	3.19	1.40	243

Table 45. Descriptive Statistics on Aesthetic Preference -- Final Study (continued)

Cell Typicality Level	Cell Novelty Level	Cell	Usage Situation	Mean	SD	n
Total	Low		Professional	3.58	1.24	88
			Non-professional	3.27	1.42	84
			Neutral	3.47	1.26	85
			Total	3.44	1.31	257
	High		Professional	3.14	1.57	81
			Non-professional	3.09	1.64	69
			Neutral	2.62	1.35	80
			Total	2.95	1.53	230
	Total		Professional	3.37	1.42	169
			Non-professional	3.19	1.52	153
			Neutral	3.06	1.37	165
			Total	3.21	1.44	487

The second hypothesis tested the main effect of novelty on aesthetic preference. Thus, H2 suggested: *Products perceived as more novel will have greater impact on consumers' aesthetic preferences as compared to products perceived as less novel.* As expected, ANOVA results indicated that *novelty* is a significant main effect ( $M_{\text{Low Novelty}} = 3.44$  ( $SD = 1.31$ ) vs.  $M_{\text{High Novelty}} = 2.95$  ( $SD = 1.53$ );  $F_{(1,486)} = 14.85$ ,  $p < .001$ ), thereby supporting H2.

*Test of H3: Two-way Interaction Between Typicality and Novelty*

The third hypothesis (H3) proposed: *There will be an effect of a two-way interaction between typicality and novelty on aesthetic preference. That is, products perceived as more novel but less typical will have a greater impact on consumers' aesthetic preferences as compared to products perceived as less novel and less typical. In*



addition, products perceived as more novel and more typical will have a greater impact on consumers' aesthetic preferences as compared to products perceived as less novel but more typical. As expected, ANOVA results in Table 44 (page 198) revealed a significant *typicality x novelty* interaction on aesthetic preference ( $F_{(1,486)} = 16.97, p < .001$ ). H3 can be seen plotted in Figure 20, where the lines do not run parallel and instead intersect.

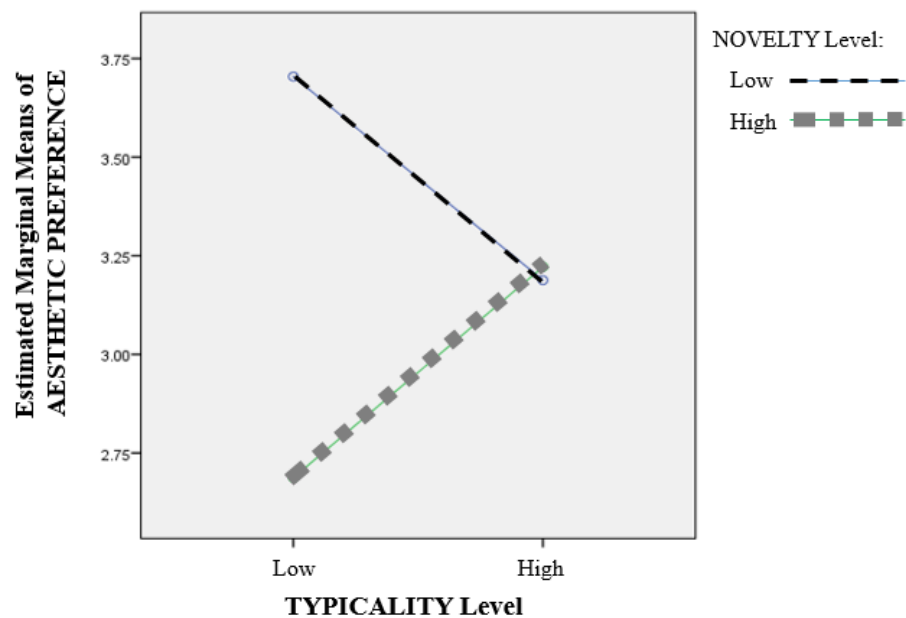


Figure 20. Profile Plot of the *Typicality x Novelty* Interaction -- Final Study

Despite the significance of H3, the direction of the aesthetic preference based on the different levels of typicality and novelty was partially confirmed. That is, the first part of the description of H3 indicated that products perceived as more novel but less typical have a greater impact on respondents' aesthetic preferences as compared to products

perceived as less novel and less typical. Conversely, descriptive results in Table 45 (page 199) indicate that products perceived as more novel but less typical (i.e., Cell 2: LT/HN) have a lower (vs. higher) impact on respondents' aesthetic preferences as compared to products perceived as less novel and less typical (i.e., Cell 1: LT/LN) ( $M_{\text{Cell2}} = 2.68$  ( $SD = 1.57$ ) vs.  $M_{\text{Cell1}} = 3.70$  ( $SD = 1.22$ )). Accordingly, the first part of H3 was not supported. However, results confirmed the second part of H3, which indicated that products perceived as more novel and more typical (i.e., Cell 4: HT/HN) have a greater impact on respondents' aesthetic preferences as compared to products perceived as less novel but more typical (i.e., Cell 3: HT/LN) ( $M_{\text{Cell4}} = 3.21$  ( $SD = 1.46$ ) vs.  $M_{\text{Cell3}} = 3.18$  ( $SD = 1.35$ )). Thus, H3 was partially supported.

*Test of H4 and H5: Usage Situation as Moderator*

The fourth hypothesis (H4) stated that: *There will be a moderating role of usage situation between typicality and aesthetic preference. That is, products perceived as more typical and that will be used for professional oriented and/or neutral scenarios will have a greater impact on consumers' aesthetic preferences as compared to products perceived as less typical that will be used for a non-professional oriented scenario. In addition, products perceived as less typical and that will be used for a non-professional oriented scenario will have a greater impact on consumers' aesthetic preferences as compared to products perceived as less typical and that will be used for professional oriented and neutral scenarios.* Contrary to expectations, Table 44 (page 198) indicates that the *typicality x usage situation* interaction is insignificant, suggesting that usage situation did

not interact with the effect of typicality as hypothesized ( $F_{(1,486)} = .60, p = .55$ ). Thus, H4 was not supported. This non-significant interaction can be seen plotted in Figure 21, where the lines are not parallel but do not intersect.

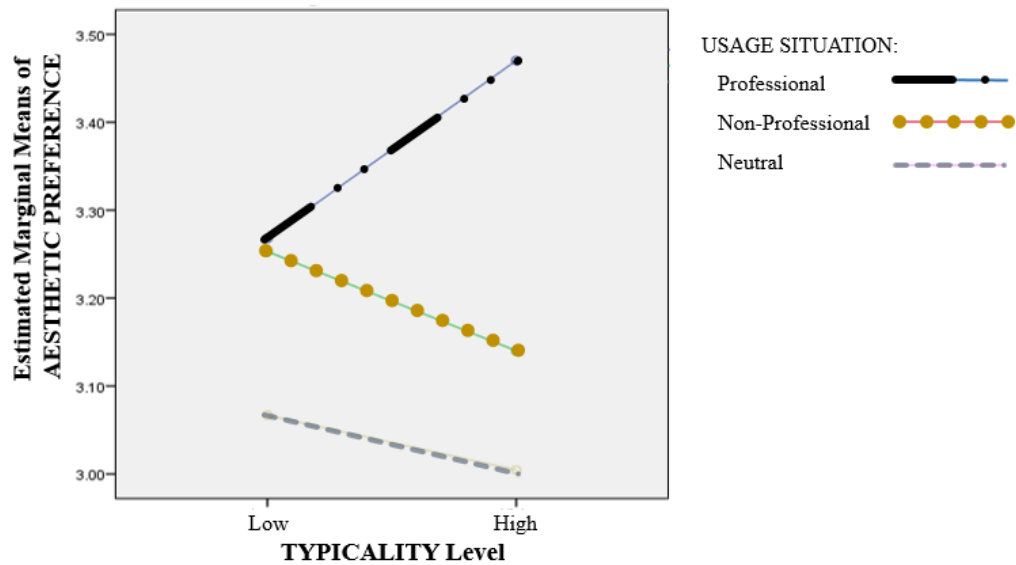


Figure 21. Profile Plot of the *Typicality x Usage Situation* Interaction -- Final Study

The fifth hypothesis proposed that: *There will be a moderator role of usage situation between novelty and aesthetic preference. That is, products perceived as more novel and that will be used for non-professional oriented and/or neutral scenarios will have a greater impact on consumers' aesthetic preferences relative to products perceived as more novel but that will be used for a professional oriented scenario. In addition, products perceived as less novel that will be used for a professional oriented scenario will have a greater impact on consumers' aesthetic preferences relative to products perceived as less novel but that will be used for non-professional oriented and neutral*

*scenarios*. Results revealed that the *novelty x usage situation* interaction is not significant ( $F_{(1,486)} = 1.99, p = .13$ ). Thus, similar to the H4 results, H5 was not supported. This non-significant interaction can be seen plotted in Figure 22, where the lines are not parallel but only two out of three lines intersect.

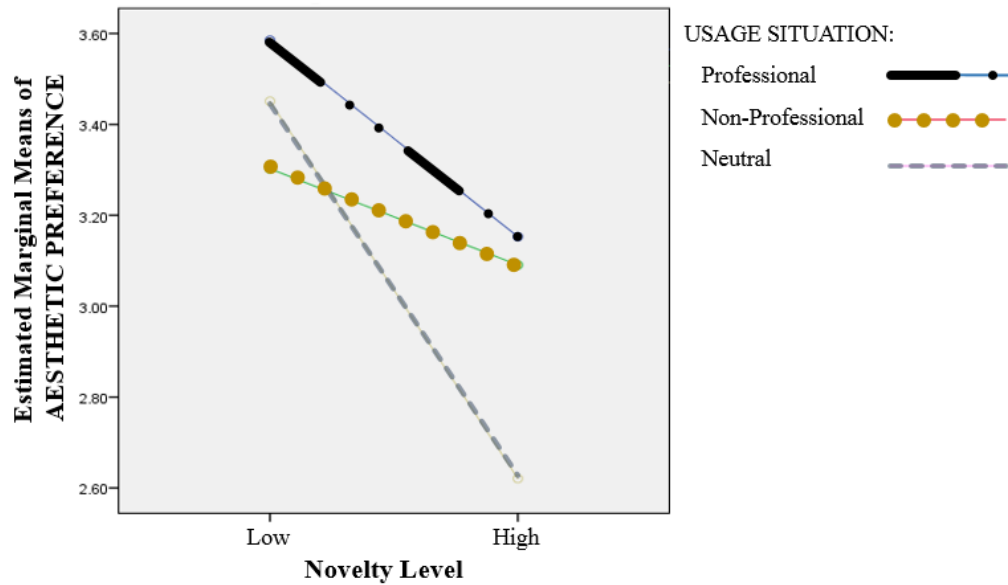


Figure 22. Profile Plot of the *Novelty x Usage Situation* Interaction -- Final Study

#### *Test of H6: Three-way Interaction Effects*

The sixth hypothesis (H6) proposed that: *There will be a three-way interaction between typicality, novelty, and usage situation*. Contrary to expectations, the *typicality x novelty x usage situation* interaction was not significant ( $F_{(1,486)} = .19, p = .83$ ). Thus, H6 was not supported. This three-dimensional and non-significant interaction can be seen plotted in Figures 23, 24, and 25. Each plot represents the *typicality x novelty* interaction by different types of usage situation (Professional, Non-professional, and Neutral). In the

first two plots (Figures 23 and 24) the lines are not parallel and intersect; while in the last plot (Figure 25) the lines are not parallel but do not intersect.

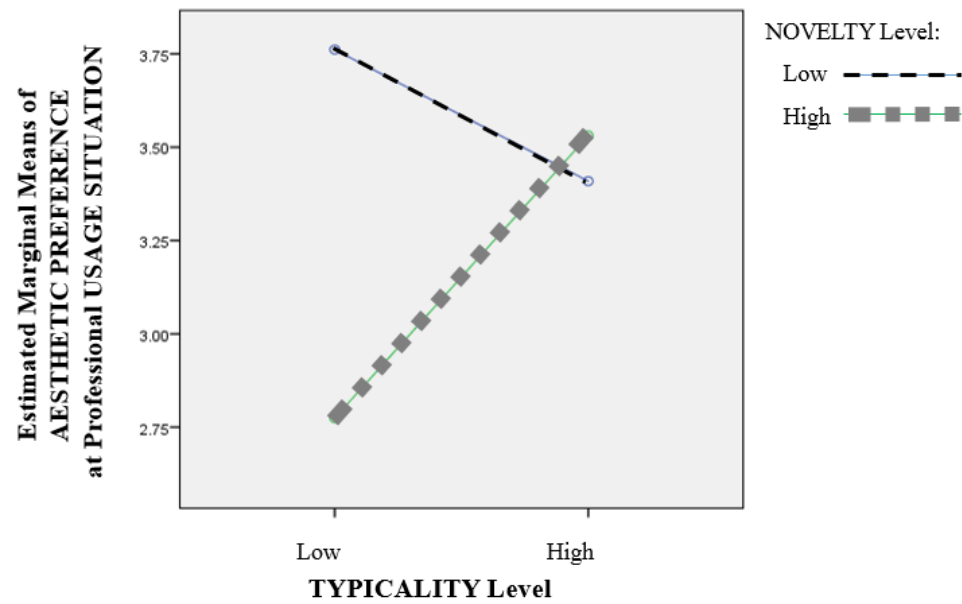


Figure 23. Profile Plot of the *Typicality x Novelty x Professional Usage Situation* Interaction -- Final Study

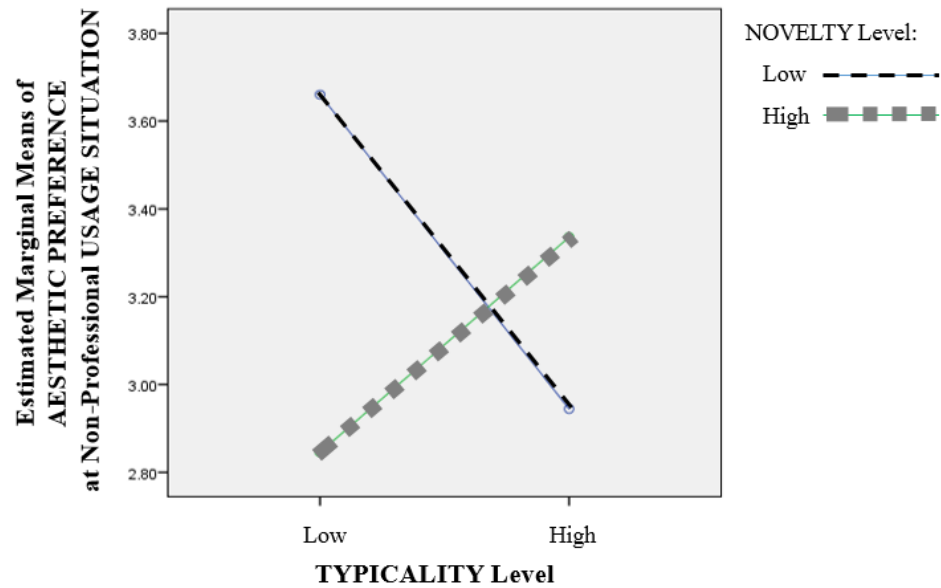


Figure 24. Profile Plot of the *Typicality x Novelty x Non-Professional Usage Situation* Interaction -- Final Study

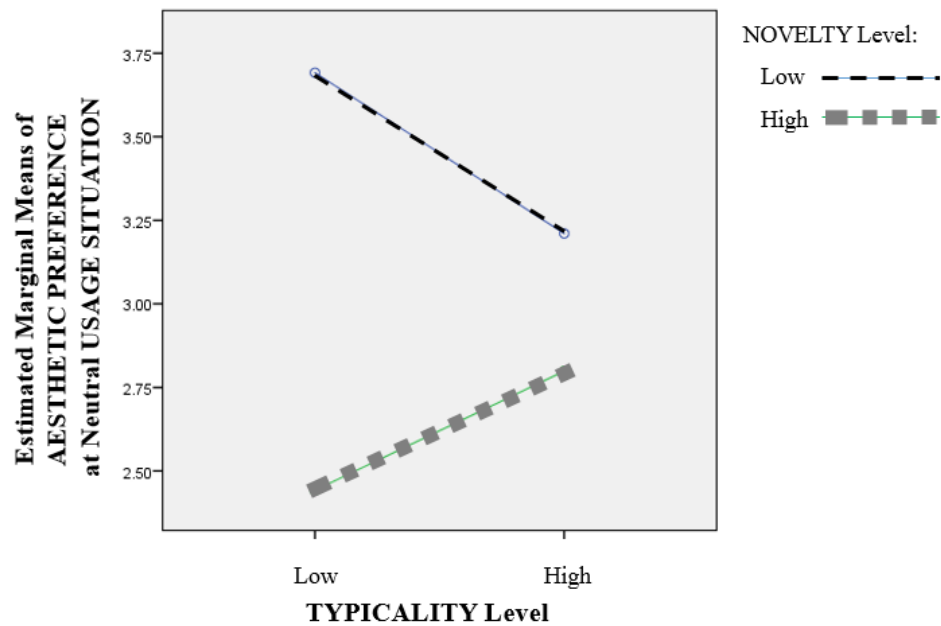


Figure 25. Profile Plot of the *Typicality x Novelty x Neutral Usage Situation* Interaction -- Final Study

*Test of H7: Relationship Between Aesthetic Preference and Positive Emotions*

The next hypothesis, H7 proposed that: *Consumers' aesthetic preferences will be related to positive emotions as measured in terms of (a) pleasant surprise, (b) fascination, (c) desire, and (d) joy.* A series of simple regressions were performed (see Tables 46, 47, 48, and 49). The independent variable per regression was aesthetic preference, while the dependent variable was each specific emotion (a, b, c, and d). Independent and dependent variables were treated as continuous. In Table 46, for testing H7a, results showed that *pleasant surprise* was positively influenced by aesthetic preference ( $F_{(1,486)} = 77.12, p < .001; \beta = .37, t\text{-value} = 8.78, p < .001$ ). Similarly, for testing H7b, results showed that *fascination* was positively influenced by aesthetic preference ( $F_{(1,486)} = 398.31, p < .001; \beta = .77, t\text{-value} = 19.96, p < .001$ ) (see Table 47). In testing H7c, results demonstrated that *desire* was positively influenced by aesthetic preference ( $F_{(2,134)} = 3.71, p < .001; \beta = .96, t\text{-value} = 33.00, p < .001$ ) (see Table 48). Lastly, in testing H7d, results revealed that *joy* was also positively influenced by aesthetic preference ( $F_{(1,486)} = 740.82, p < .001; \beta = .97, t\text{-value} = 27.22, p < .001$ ) (see Table 49). Therefore, H7a, H7b, H7c, and H7d were all supported.

Table 46. Hypotheses Testing for H7a: Results of Simple Regression -- Final Study

<b>Independent Variable</b>	<b>Standardized Beta (β)</b>	<b>t-value</b>	<b>p-value</b>
Aesthetic Preference	.37	8.78	.00***
$R^2 = .13$ Adjusted $R^2 = .13$ $F_{(1,486)} = 77.12, p < .001$			

Dependent variable: Pleasant surprise.

\*\*\*  $p < .001$

Table 47. Hypotheses Testing for H7b: Results of Simple Regression -- Final Study

<b>Independent Variable</b>	<b>Standardized Beta (β)</b>	<b>t-value</b>	<b>p-value</b>
Aesthetic Preference	.77	19.96	.00***
$R^2 = .04$ Adjusted $R^2 = .04$ $F_{(1,486)} = 398.31, p < .001$			

Dependent variable: Fascination.

\*\*\*  $p < .001$

Table 48. Hypotheses Testing for H7c: Results of Simple Regression -- Final Study

<b>Independent Variable</b>	<b>Standardized Beta (β)</b>	<b>t-value</b>	<b>p-value</b>
Aesthetic Preference	.96	33.00	.00***
$R^2 = .06$ Adjusted $R^2 = .06$ $F_{(2,134)} = 3.71, p < .001$			

Dependent variable: Desire.

\*\*\*  $p < .001$



Table 49. Hypotheses Testing for H7d: Results of Simple Regression -- Final Study

Independent Variable	Standardized Beta (β)	t-value	p-value
Aesthetic Preference	.97	27.22	.00***
$R^2 = .06$ Adjusted $R^2 = .06$ $F_{(1,486)} = 740.82, p < .001$			

Dependent variable: Joy.

\*\*\*  $p < .001$

As Pearson's correlation coefficients ( $r$ ) can also indicate an association between two metric variables (Hair et al., 2013), H7a-d can also be explained by the analysis of the  $r$  values between aesthetic preference and each of the positive emotions of pleasant surprise, fascination, desire, and joy. Based on the results previously presented in Table 40 (page 192), the coefficients of aesthetic preference in relation to positive emotions are:

$r_{\text{Aesthetic Preference} - \text{Pleasant Surprise}} = .37$ ,  $r_{\text{Aesthetic Preference} - \text{Fascination}} = .67$ ,  $r_{\text{Aesthetic Preference} - \text{Desire}} = .83$ , and  $r_{\text{Aesthetic Preference} - \text{Joy}} = .77$ . All values are significant at the 0.01 level (2-tailed).

As all of these correlations are positive, there is a positive relationship between aesthetic preference and all dimensions of positive emotion. Consequently, these coefficients support the findings of the abovementioned simple regressions performed to test H7 (see Tables 45, 46, 47, and 48).

#### *Test of H8: Aesthetic Preference as Mediator*

The last hypothesis, H8, proposed: *Consumers' aesthetic preferences will mediate the relationship between aesthetic properties (typicality and novelty) and positive emotions*. In order to test whether aesthetic preference acts as a mediator, regression analyses were proposed. Based on Baron and Kenny (1986) and Liao and Wang (2009),

the procedure of mediation must include several regressions. First, regressing the mediator (i.e., aesthetic preference) on the independent variable (i.e., typicality and novelty). Second, regressing the dependent variable (i.e., positive emotions) on the independent variable (i.e., typicality and novelty). Third, and last, regressing the dependent variable (i.e., positive emotions) on both the independent variable (i.e., typicality and novelty) and mediator (i.e., aesthetic preference). In running these regressions, the dependent variable was condensed into one to create a proxy called “positive emotions” (POE). This was based on the exploratory factor analyses for all emotions (pleasant surprise, fascination, desire, and joy) resulting in twelve items with a Cronbach's  $\alpha$  of .95 indicating the possibility of treating all emotions as a unidimensional construct.

For testing mediation, two path models were performed, one with each of the independent variables. One path model was proposed for typicality and another for novelty. Furthermore, in accordance with Baron and Kenny (1986), regression results must meet three conditions: (1) the independent variable (i.e., typicality and novelty) must significantly affect the mediator (i.e., aesthetic preference) in the first simple regression; (2) the independent variable (i.e., typicality and novelty) must be shown to significantly affect the dependent variable (i.e., positive emotions) in the second simple regression; and (3), the mediator (i.e., aesthetic preference) must significantly affect the dependent variable (i.e., positive emotions) in the third multiple regression. If these three conditions are met, then the effect of the independent variable on the dependent variable must be lower in the third condition than in the second condition.

Tables 50 and 51 illustrate the results of the two path models with all three conditions for each of the independent variables of typicality and novelty included, respectively. The first column in the tables indicates the mediator condition tested as well as the variables considered in each of the regressions. For instance, in Table 50, the first condition is tested via a simple regression that uses aesthetic preference (AP) as the dependent variable and typicality (TYP) as the independent variable. The first condition was not met for the predictor of typicality ( $F_{(1, 486)} = .04, p > .05$ ). However, both the second condition ( $F_{(1, 486)} = 13.00, p < .001$ ) and the third ( $F_{(1, 486)} = 362.63, p < .001$ ) were met. Because all conditions were not met, it is concluded that aesthetic preference did not mediate the relationship between typicality (TYP) and positive emotions (POE).

Table 50. Hypothesis Testing for H8: Path Analysis via Typicality -- Final Study

Conditions and Variables	$\beta$	$R^2$	Adjusted $R^2$	$p$	F
1. Regression of AP on TYP	-.01	.00	-.00	.82	.04
2. Regression of POE on TYP	-.16	.02	.02	.00***	13.00
3. Regression of POE on TYP and AP	-.15 .75	.60	.59	.00***	362.63

Note: AP = Aesthetic Preference, TYP = Typicality, POE = Positive Emotions.

\*\*\*  $p < .001$

Table 51. Hypothesis Testing for H8: Path Analysis via Novelty -- Final Study

Conditions and Variables	$\beta$	$R^2$	Adjusted $R^2$	$p$	F
1. Regression of AP on NOV	-.17	.03	.02	.00***	14.82
2. Regression of POE on NOV	.07	.00	.00	.11	2.56
3. Regression of POE on NOV and AP	.20 .79	.61	.61	.00***	392.49

Note: AP = Aesthetic Preference, NOV = Novelty, POE = Positive Emotions.

\*\*\*  $p < .001$

In testing the mediating role of aesthetic preference on the relationship between novelty and positive emotions, the first condition was met for the predictor of novelty ( $F_{(1, 486)} = 14.82, p < .001$ ) (see Table 51). However, the second condition was not met ( $F_{(1, 486)} = 2.56, p = .11$ ); while the third condition was met ( $F_{(1, 486)} = 392.49, p < .001$ ). As only the first condition was met, the second condition may hold when considering each of the specific emotions separately instead of all emotions treated as a unidimensional construct. Therefore, the second condition was further explored for each positive emotion separately via novelty as seen in Table 52.

Table 52. Hypothesis Testing for H8: Simple Regressions of Emotions via Novelty -- Final Study

Conditions and Variables	$\beta^a$	$R^2$	Adjusted $R^2$	$p$	F
2. Regression of SUR on NOV	.18	.03	.03	.00***	17.80
2. Regression of FAS on NOV	.10	.01	.00	.02*	5.10
2. Regression of DES on NOV	-.02	.00	-.00	.62	.24
2. Regression of JOY on NOV	.00	.00	-.00	.84	.03

Note: SUR = Pleasant Surprise, NOV = Novelty, FAS = Fascination, DES = Desire, JOY = Joy.

<sup>a</sup> Standardized Beta.

\*\*\*  $p < .001$

\*  $p < .05$

Results in Table 52 suggest that the second condition for the predictor of novelty was met for pleasant surprise ( $F_{(1, 486)} = 17.80, p < .001$ ) and fascination ( $F_{(1, 486)} = 5.10, p < .05$ ). In contrast, the second condition was not met for desire ( $F_{(1, 486)} = .24, p = .62$ ) and joy ( $F_{(1, 486)} = .03, p = .84$ ). Given that the results indicate that the second condition is met for the positive emotions relative to pleasant surprise and fascination, Tables 53 and 54 present the complete analysis of the three conditions of the mediator of aesthetic preference while considering the predictor of novelty and the dependent variables of pleasant surprise and fascination, respectively. In Table 53, the first ( $F_{(1, 486)} = 14.82, p < .001$ ), the second ( $F_{(1, 486)} = 17.80, p < .001$ ), and the third ( $F_{(1, 486)} = 61.48, p < .001$ ) conditions were met for the predictor of novelty when considering pleasant surprise. As all three conditions held, the last requirement was tested. However, the effect of novelty on pleasant surprise was not less in the third condition ( $\beta = .26$ ) than in the second ( $\beta = .18$ ). Thus, the last rule was not met when considering aesthetic preference as the mediator between novelty and pleasant surprise. In Table 54, the first condition ( $F_{(1, 486)} = 14.82, p < .001$ ), the second ( $F_{(1, 486)} = 5.10, p < .05$ ), as well as the third ( $F_{(1, 486)} = 241.78, p < .001$ ) were met for the predictor of novelty when considering fascination. As all three conditions held, the last requirement was tested. However, the effect of novelty on fascination was not less in the third condition ( $\beta = .22$ ) than in the second ( $\beta = .10$ ). Thus, the last rule was not met when considering aesthetic preference as the mediator between novelty and fascination. Overall, the mediator effect of aesthetic preference as proposed in H8 was not supported.

Table 53. Hypothesis Testing for H8: Regressions of Surprise via Novelty -- Final Study

Conditions and Variables	$\beta^a$	$R^2$	Adjusted $R^2$	$p$	F
1. Regression of AP on NOV	-.17	.03	.02	.00***	14.82
2. Regression of SUR on NOV	.18	.03	.03	.00***	17.80
3. Regression of SUR on NOV and AP	.26 .41	.20	.19	.00***	61.48

Note: AP = Aesthetic Preference, NOV = Novelty, SUR = Pleasant Surprise.

<sup>a</sup> Standardized Beta.

\*\*\*  $p < .001$

Table 54. Hypotheses Testing for H8: Regressions of Fascination via Novelty -- Final Study

Conditions and Variables	$\beta^a$	$R^2$	Adjusted $R^2$	$p$	F
1. Regression of AP on NOV	-.17	.03	.02	.00***	14.82
2. Regression of FAS on NOV	.10	.01	.00	.02*	5.10
3. Regression of FAS on NOV and AP	.22 .71	.5	.49	.00***	241.78

Note: AP = Aesthetic Preference, NOV = Novelty, FAS = Fascination.

<sup>a</sup> Standardized Beta.

\*\*\*  $p < .001$

\*  $p < .05$

### Summary of Hypotheses Testing

Table 55 presents a summary of the results of the hypotheses testing for the Final Study. Each numbered hypothesis is indicated in the first two columns of the table. Based on the results presented in this chapter, the third column of the table indicates whether the hypothesis was supported, partially supported, or not supported.

Table 55. Summary of Hypotheses Testing -- Final Study

	<b>Hypothesis</b>	<b>Result</b>
H1	Products perceived as more typical will have a greater impact on consumers' aesthetic preferences as compared to products perceived as less typical.	Not supported
H2	Products perceived as more novel will have a greater impact on consumers' aesthetic preferences as compared to products perceived as less novel.	Supported
H3	There will be an effect of a two-way interaction between typicality and novelty on aesthetic preference. That is, products perceived as more novel but less typical will have a greater impact on consumers' aesthetic preferences as compared to products perceived as less novel and less typical. In addition, products perceived as more novel and more typical will have a greater impact on consumers' aesthetic preferences as compared to products perceived as less novel but more typical.	Partially supported
H4	There will be a moderating role of usage situation between typicality and aesthetic preference. That is, products perceived as more typical and that will be used for professional oriented and/or neutral scenarios will have a greater impact on consumers' aesthetic preferences as compared to products perceived as less typical that will be used for a non-professional oriented scenario. In addition, products perceived as less typical and that will be used for a non-professional oriented scenario will have a greater impact on consumers' aesthetic preferences as compared to products perceived as less typical and that will be used for professional oriented and neutral scenarios.	Not supported
H5	There will be a moderator role of usage situation between novelty and aesthetic preference. That is, products perceived as more novel and that will be used for non-professional oriented and/or neutral scenarios will have a greater impact on consumers' aesthetic preferences relative to products perceived as more novel but that will be used for a professional oriented scenario. In addition, products perceived as less novel that will be used for a professional oriented scenario will have a greater impact on consumers' aesthetic preferences relative to products perceived as less novel but that will be used for non-professional oriented and neutral scenarios.	Not supported

Table 55. Summary of Hypotheses Testing -- Final Study (continued)

	<b>Hypothesis</b>	<b>Result</b>
H6	There will be a three-way interaction between typicality, novelty, and usage situation.	Not supported
H7	Consumers' aesthetic preferences will be related to positive emotions as measured in terms of (a) pleasant surprise, (b) fascination, (c) desire, and (d) joy.	Supported
H8	Consumers' aesthetic preferences will mediate the relationship between aesthetic properties (typicality and novelty) and positive emotions.	Not supported

### Summary

This chapter presented the results and analysis of Phase II: Main Study of the dissertation in two sections. In the first section, the results of the Stimuli Selection in which the stimuli were preselected for the main survey were discussed. In the second section the results of the Final Study of the dissertation, including the pre-test analysis, respondent characteristics, manipulation checks, and the results of the statistical analysis for hypotheses testing were discussed. In the next chapter, the results from Phase II as well as the overall dissertation are discussed.



## CHAPTER V

### DISCUSSION AND CONCLUSIONS

This chapter includes discussion of the results from Phase II: Main Study as well as the overall dissertation. Conclusions and implications are discussed, as are future research avenues. To this end, the chapter is divided into four sections: (1) *Discussion of Results: Phase II*, (2) *Discussion of Overall Results*, (3) *Conclusions and Implications*, and (4) *Limitations and Suggestions for Future Research*.

#### **Discussion of Results: Phase II**

The findings of Phase II (Main Study) are discussed in two steps: Stimuli Selection and Final Study. Stimuli Selection was designed to ensure pre-selection of the most appropriate pictures that represent all typicality/novelty scenarios (Cells 1 - 4) necessary for the Final Study. This pre-selection occurred through analyses of judges' ratings. Pre-selection was followed by a pre-test of the stimuli in order to check manipulations for the Final Study. Discussion of this selection of stimuli and the pre-test of the Final Study is presented in the next section, as it requires comparisons of results of Phases I and II. The second step of Phase II, i.e., the Final Study, aimed to further examine the effects of typicality and novelty on aesthetic preference relative to shirts. In addition, the effect of aesthetic preference on the positive emotions evoked by the product form, as well as the moderating influence of usage situation and the mediating






role of aesthetic preference were examined. The discussion of results of the Final Study that follows is organized by the specific objective and its related hypotheses.

### **Objective One: To Examine the Effects of Typicality and Novelty on Aesthetic Preference**

The first objective proposed for Phase II was to examine the main effects of typicality and novelty on consumer response, as measured in terms of aesthetic preference. Hypotheses 1, 2, and 3 were tested to address this objective (see Table 44 on page 198 for results of H1, H2, and H3, and Table 55 on page 215 for the summary of hypotheses testing). Contrary to expectations, ANOVA results suggested that the main effect of typicality did not impact aesthetic preference in a significant manner (H1). Although evidence from previous research (e.g., DeLong et al., 1986)—as well as from Phase I of this dissertation—indicated that consumers prefer product forms closer to the goodness-of-example (Whitfield & Slatter, 1979), Phase II results were not consistent with these prior studies.

There are two plausible explanations for the unexpected result of H1. The first relates to the divergent results of the prototypes selected by respondents. Table 56 (below) classifies the prototypes (previously seen in Table 41 on page 194). While 35.90% of respondents selected the Most Typical Drawings #1 and #3, which looked like button-down shirts, 64.00% of respondents selected the Most Typical Drawings #2, #4, and #5, which are prototypes that looked like t-shirts. Such results may imply that there was over agreement on what the most typical shirt looked like among respondents in the Final Study.

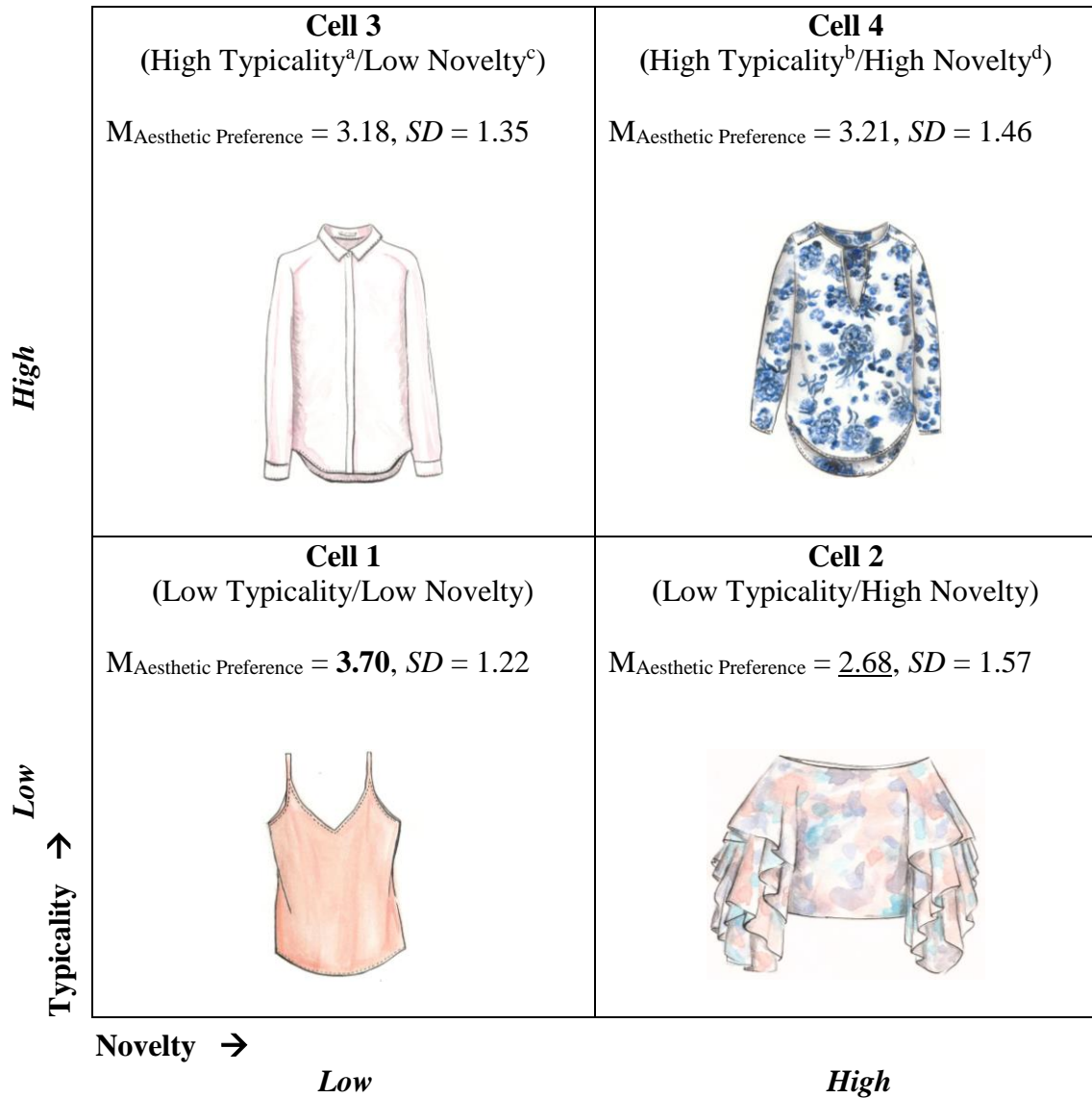
Table 56. Classification of Shirt Prototypes Selected -- Final Study

Shirt Drawings	Frequency Phase II: Final Study $n = 487$ , $SD = 1.23$	Groups
Most Typical Drawing #1 	15.80%	Prototypes looked like button-down shirts. 35.90%
Most Typical Drawing #3 	20.10%	
Most Typical Drawing #2 	24.80%	Prototypes looked like t-shirts. 64.00%
Most Typical Drawing #4 	30.60%	
Most Typical Drawing #5 	8.60%	

Because respondents had different ideas of what the most typical product looked like, such differences may have created variability in their perceptions of typicality of the stimuli. Consequently, this distortion, in turn, could have influenced the aesthetic preference results, which relates to the second explanation for the non-significant results for H1. ANOVA results in the Final Study utilized typicality as an independent variable that did not account for the real differences in the respondents' perceptions of typicality. Yet, it is important to clarify that this is a limitation of the research design because the factorial design utilized a fixed effects model (Montgomery, 2013) in which typicality was a fixed factor with two levels (low/high). Based on the manipulation checks during the pre-test, the factorial design assumed that all respondents in the main data collection would perceive the stimuli in the same way as the fixed levels that were set for each stimulus during the pre-test. In fact, this assumption was confirmed for stimuli in Cells 1, 2, and 3; however, not for Cell 4. As for the case of Cell 4 (HT/HN), the stimulus was selected to represent a high typicality level because respondents during the Pre-Test ( $n = 13$ ) reported a rated average of that stimulus as high in typicality ( $M_{\text{Typicality}} = 4.60 > 3.50$ ). However, results of the Final Study ( $n = 487$ ) indicated that the average rating of typicality for that stimulus was low ( $M_{\text{Typicality}} = 3.31 < 3.50$ ), instead of high. As such, this partially successful manipulation of the stimulus of Cell 4 (HT/HN) is likely to have also been generated by the divergent prototype results in the Final Study.

As expected, ANOVA results demonstrate the significant main effect of *novelty* (H2). That is, analyses revealed the significant influence of novelty on aesthetic preference for shirts. This finding is consistent with prior research that indicates novelty

or product newness is a determinant of aesthetic preference (Berlyne, 1971; Dhurup, 2014; Radford & Bloch, 2011). However, contrary to expectations, lower novelty levels seemed to cause the highest aesthetic preference ratings, instead of the highest levels of novelty. Figure 26 below includes the mean averages of aesthetic preference in accordance with the typicality/novelty level of each of the four cells of the experiment. The highest value of means ( $M$ ) is highlighted and the lowest is underlined. A post hoc analysis was performed to additionally test for differences in aesthetic preference mean scores by typicality/novelty scenario (Cells 1 - 4). Post hoc ANOVA results revealed that the means for aesthetic preference are significantly different per cell ( $F_{(3,486)} = 10.78, p < .001$ ). As seen in Figure 26, results confirm that lower novelty levels (left column in the figure) generated higher ratings on aesthetic preference. For instance, results indicate that ratings on aesthetic preference for Cell 1 (LT/LN) are higher than the aesthetic preference for Cell 2 (LT/HN), as well as Cell 4 (HT/HN) ( $M_{\text{Cell 1}} = 3.70 > M_{\text{Cell 2}} = 2.68; M_{\text{Cell 1}} = 3.70 > M_{\text{Cell 4}} = 3.21$ ). Results also indicate that ratings on aesthetic preference for Cell 3 (HT/LN) are higher than the aesthetic preference for Cell 2 (LT/HN) ( $M_{\text{Cell 3}} = 3.18 > M_{\text{Cell 2}} = 2.68$ ). There is an exception to this result when comparing ratings of Cell 3 (HT/LN) and Cell 4 (HT/HN). That is, Cell 4 (HT/HN) showed slightly higher ratings on aesthetic preference when compared to Cell 3 (HT/LN) ( $M_{\text{Cell 4}} = 3.21 > M_{\text{Cell 3}} = 3.18$ ). This result may be due to the fact that only extreme levels of novelty (low/high) were included in the experiment. It is also possible that the high levels of novelty were perceived as being too novel, especially the stimulus in Cell 3 (HT/LN), thereby making the low novelty options more appealing.



<sup>a</sup> Low Typicality: The product is different from the most typical product of the category.

<sup>b</sup> High Typicality: The product is very much like the most typical product of the category.

<sup>c</sup> High Novelty: The product is novel. The product is very original and is very unique.

<sup>d</sup> Low Novelty: The product is not novel. The product is not very original and not very unique.

Notes: Highest ratings are in **bold** and lowest are underlined. No copyrights for pictures. Pictures replaced with drawings. Please contact author for actual stimuli.

Figure 26. Aesthetic Preference by Typicality/Novelty Scenario (Cells 1 - 4) -- Final Study



As anticipated, ANOVA results and the profile plot in Figure 20 (page 201) indicated that the two-way interaction of typicality and novelty was significant (H3). Specifically, the *typicality x novelty* interaction supports the MAYA principle (Hekkert et al., 2003) as well as prior research testing the effects of typicality and novelty on aesthetic preference (Diels et al., 2013; Hekker et al., 2003; Hung & Chen, 2012; Martindale et al., 1988; Tractinsky et al., 2011). The most likely explanation for this result lies in the MAYA principle (Hekkert et al., 2003) and the definitions of typicality and novelty based on Hekkert (2006) and Berlyne (1971). Hekkert (2006) indicates that the preference for familiar objects, such as products with high typicality, is adaptive because it leads to safe choices instead of risking the unknown. Thus, the opposite is also logical. As novelty relates to what is dissimilar to what we have encountered in the past (Berlyne, 1971), novel stimuli could be perceived as riskier than familiar stimuli.

Despite the significance of H3, the direction of the hypothesis was partially confirmed. Contrary to what was expected, analysis revealed that the ideal direction of the first part of the hypothesis is the following: Products being perceived as less novel and less typical (i.e., Cell 1: LT/LN) have a greater impact on consumers' aesthetic preferences as compared to products being perceived as more novel but less typical (i.e., Cell 2: LT/HN). This direction can be verified through the aesthetic preference means indicated in Figure 26 ( $M_{\text{Cell 1}} = 3.70 > M_{\text{Cell 2}} = 2.68$ ). Based on Hekkert (2006) and Berlyne (1971), products perceived as less novel but less typical (Cell 1: LT/LN) are also likely to be perceived as less risky than products perceived as more novel but less typical (Cell 2: LT/HN). A probable reason may also be that when respondents evaluated the

stimulus in Cell 2 (LT/HN), both levels of typicality and novelty added up to the overall evaluation of the product in terms of novelty. That is, product aesthetic attributes of the stimulus in Cell 2 (LT/HN) that expressed both properties (typicality and novelty) did not counteract each other in terms of novelty. Instead, the opposite occurred. That is, the low typicality may partially explain the high novelty rating because the low typicality was achieved by utilizing a silhouette that was different from a button-down shirt, and therefore respondents perceived the silhouette as novel. In other words, the level of typicality added to the novelty rating of that product. Another product attribute that likely contributed to the high novelty rating is the fabric print of the stimulus in Cell 2 (LT/HN). Table 57 (below) presents a comparison between the novelty ratings reported during Phases I and II and the same silhouette used in the stimulus of Cell 2 (LT/HN) (see original novelty rating of shirt Picture #6 in Table 23 on page 146 and the novelty rating of Picture #2 in Table 35 on page 184). The picture used in Phase I had a solid color. Then, the same picture was used once again in Phase II but with a print added. Consequently, the stimulus of Cell 2 (LT/HN) with the print received a higher novelty rating in Phase II than it did in Phase I when there was no print ( $M_{\text{Novelty: Phase II}} = 6.40 > M_{\text{Novelty: Phase I}} = 5.87$ ).



Table 57. Example 1: Comparison of Novelty Ratings

Phase: Step	Picture	Novelty Mean ( <i>SD</i> )
Phase I: Testing the Maya Principle		$M = 5.87$ ( $SD = 1.88$ ) $5.87 > 3.5 \Rightarrow$ High level
Phase II: Final Study		$M = 6.40$ ( $SD = 1.24$ ) $6.40 > 3.5 \Rightarrow$ High level

Note: No copyrights for pictures. Pictures replaced with drawings. Please contact author for actual stimuli.

A contrary effect in terms of novelty was identified in the aesthetic preference ratings of Cell 1 (LT/LN). Despite the low novelty of Cell 1, the low typicality counteracted the novelty. That is, Cell 1 (LT/LN) was perceived as low in novelty, yet the low typicality that was achieved by utilizing a silhouette that was different from a button-down shirt increased the overall perception of novelty of the product. Thus, the stimulus was perceived as a whole as being not too familiar or dull. Consequently, the stimulus in Cell 1 (LT/LN) generated an overall evaluation of a product that is less risky than the stimulus in Cell 2 (LT/HN), yet not too familiar or boring, which in turn, is more preferred. In other words, the stimulus in Cell 1 (LT/LN) was perceived as a safer choice than the stimulus in Cell 2 (LT/HN).

Descriptive results of the Final Study further confirmed the direction that was initially proposed for the second part of H3: Products being perceived as more novel and

more typical (i.e., Cell 4: HT/HN) have a greater impact on consumers' aesthetic preferences as compared to products being perceived as less novel but more typical (i.e., Cell 3: HT/LN). That is, Cell 4 (HT/HN) generated a higher aesthetic preference than Cell 3 (HT/LN) that can be verified through the aesthetic preference means indicated in Figure 26 ( $M_{\text{Cell 4}} = 3.21 > M_{\text{Cell 3}} = 3.18$ ). High levels of typicality and novelty in Cell 4 (HT/HN) counteracted each other in order to generate a balanced perception of novelty, or a "moderate level of novelty" (Hung & Chen, 2012, p. 82). The high typicality of Cell 4 was achieved with a silhouette similar to a long-sleeved, loose fitting t-shirt. Despite the high novelty of the stimulus, the high typicality reduced the overall perception of novelty of the product as a whole, which in turn, generated the overall evaluation of a typical/novel product that is not too novel, and therefore not too risky. Based on Hekker et al.'s (2003) terminology, the typicality functioned as a "suppressor variable" with respect to the relation between novelty and aesthetic preference (p. 114).

The opposite was the case for Cell 3 (HT/LN). The high typicality stimulus was a silhouette that looked like a button-down shirt with low novelty because of the plain white color fabric and plain texture. Levels of typicality and novelty of Cell 3 interacted in order to generate a highly familiar overall perception of the stimuli. That is, the high typicality counteracted the low novelty and further lowered the overall perception of novelty of the product. Consequently, aesthetic attributes of both properties make the stimulus in Cell 3 (HT/LN) too familiar, and therefore boring or not very exciting when compared with Cell 4 (HT/HN).

Despite the fact that an explanation for H3 results stems from the MAYA principle (Hekker et al., 2003), partial confirmation on the direction of H3 reveals further insights into the principle. Indeed, results of the Final Study confirm that both factors; typicality and novelty, are jointly taken into account when explaining aesthetic preference for shirts (Hekker et al., 2003). However, as included in the abovementioned explanation, one of the stimuli's aesthetic properties do not always function as a "suppressor variable" with respect to the relation between the other property and aesthetic preference as proposed by Hekker et al. (2003, p. 114). In some cases (e.g., Cell 4: HT/HN), one property (e.g., typicality) functioned as a suppressor variable (i.e., inhibitor) with respect to the relation between the other property (e.g., novelty) and aesthetic preference. However, in other cases (e.g., Cell 2: LT/HN), one property (e.g., typicality) functioned as a catalyst (i.e., increasing) variable with respect to the relation between the other property (e.g., novelty) and aesthetic preference.

### **Objective Two: To Identify the Moderating Role of Usage Situation**

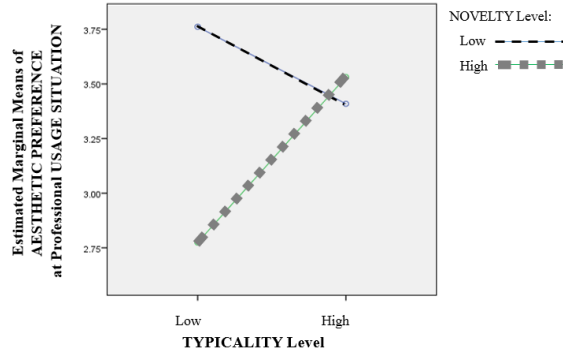
The second objective of Phase II was to identify the moderating role of usage situation on the relationship between the aesthetic properties (typicality and novelty) and aesthetic preference. Hypotheses 4, 5, and 6 were tested to address this objective (see Table 44 on page 198 for results of H4, H5, and H6; Table 55 on page 215 for the summary of hypotheses testing; and Figures 21, 22, 23, 24, and 25 on pages 203, 204, 205, and 206, respectively for the profile plots).

Analysis of the results did not support the moderating role of usage situation between typicality and aesthetic preference (H4) expressed in the *typicality x usage*

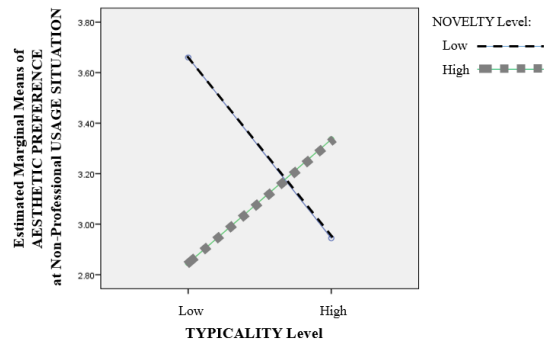
*situation* interaction. Likewise, results did not support the moderator role of usage situation between novelty and aesthetic preference (H5) expressed in the *novelty x usage situation* interaction. Results of H4 and H5 may be better explained by using the plots displayed in Figure 21 (*typicality x usage situation* interaction) and Figure 22 (*novelty x usage situation* interaction) (pages 203 and 204). In both plots, the lowest lines correspond to the neutral scenario of usage situation, followed by the lines corresponding to the non-professional and professional scenarios. When there is no usage situation presented to the respondent, the aesthetic preference ratings are lower than for the two scenarios that did include usage situations (i.e., professional and non-professional). On the flip side, in both plots, the highest line corresponds to the professional scenario, which has the highest ratings on aesthetic preference when compared to the other two usage situation scenarios. Despite the non-significant results, the *typicality x usage situation* interaction plot (Figure 21) illustrates that the steepest line is that of the professional scenario, suggesting that respondents in the professional scenario rated the aesthetic preference for low typicality shirts much lower as compared to high typicality shirts. This is an expected result, as high typicality stimuli included shirts closer to the prototype and therefore possibly considered more appropriate for a formal setting. However, the *novelty x usage situation* interaction plot (Figure 22) presents opposite results. The steepest line is that of the neutral scenario, suggesting that respondents preferred the low novelty shirt to the high novelty option. In general, all lines reveal a negative direction, in that lower levels of novelty generated higher ratings of aesthetic preference in comparison to higher levels of novelty.

Similar to H4 and H5, ANOVA results did not support the three-way interaction between *typicality*, *novelty*, and *usage situation* (H6). This finding may be broadly explained by using the plots of the *typicality x novelty* interaction per each of the three usage situations: (1) professional, (2) non-professional, and (3) neutral. These plots together represent a three-dimensional interaction, in which each plot illustrates a layer of the *typicality x novelty x usage situation* interaction. Figure 27 (below) replicates the plots to visualize a comparison among layers originally seen in Figure 23 on page 205 and Figures 24 and 25 on page 206. Despite the surprising non-significant results overall, when individual layers of the three-way interaction are observed, it is important to note that two out of the three plots present a significant interaction effect. Both plots for the professional (Figure 27a) and non-professional (Figure 27b) scenarios presented an interaction effect, in that lines cross within the plots. Only the neutral usage situation (Figure 27c) did not present an interaction, in that lines do not cross in the plot. However, lines are not parallel, which implies an interaction that is not significant. Overall, a *typicality x novelty* interaction effecting both usage situations (professional and non-professional scenarios) indicates that the MAYA principle applies to those usage situations. However, when there is an absence of usage situation, as in the case of the neutral scenario, a *typicality x novelty* interaction is not present and the MAYA principle only partially applies.

a) *Typicality x Novelty x Professional Usage Situation*



b) *Typicality x Novelty x Non-Professional Usage Situation*



c) *Typicality x Novelty x Neutral Usage Situation*

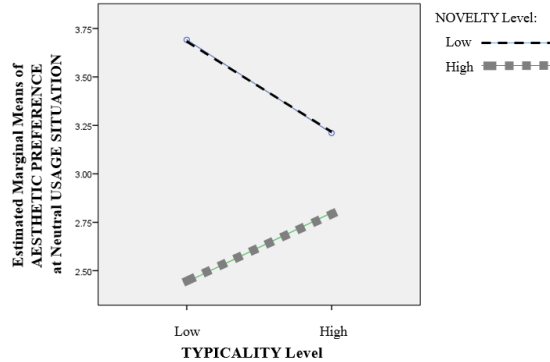


Figure 27. Comparison of Plots of the Three-way Interaction -- Final Study

Despite the similarity in the crossed lines of the plots in Figures 27a (*typicality x novelty x professional usage situation* interaction) and 27b (*typicality x novelty x non-professional usage situation* interaction), lines indicating aesthetic preference in those plots can provide partial support for the influence of usage situation. For instance, in the case of Cell 3 (HT/LN), which was a plain white button-down shirt, the line of aesthetic preference indicates higher evaluations for the professional than the non-professional scenario. This result is logical as it is likely that respondents looking to purchase a shirt for a work setting that is formal would prefer a plain white button-down shirt (Cell 3: HT/LN) over a stimulus such as the one presented in Cell 2 (LT/HN) that generated an overall perception of being too novel. In contrast, the same shirt in Cell 3 (HT/LN) generated low ratings in aesthetic preference for the non-professional scenario as something that is too typical and dull may not be the ideal choice for a party. Such explanations can be justified by the concept of motive consistency, which suggests that the situation is appraised as consistent with what the person wants (Demir et al., 2009). The usage situation (e.g., professional scenario) tends to create certain expectations in the consumer that can only be confirmed by finding the most appropriate stimulus for that situation, and, in turn, the respondent assigns a higher aesthetic preference to that item as compared to another item that does not match the expectation.

When analyzing the neutral scenario (*typicality x novelty x neutral usage situation* interaction, Figure 27c), it is important to note that the main differences in this scenario compared with the other scenarios in Figures 27a and 27b are the ratings of high novelty products. For example, the plotted line at the bottom of Figure 27c indicates that the

aesthetic preference ratings of the high novelty products shown in Cell 2 (LT/HN) and Cell 4 (HT/HN) rated lower for the neutral usage situation scenario than the professional or non-professional scenarios. Because there is no motive consistency (Demir et al., 2009), the expectation confirmation component is absent. Thus, an aesthetic evaluation without a usage situation tends to be lower as compared to when a usage situation is present.

Results of H4, H5, and H6 contradict previous studies that support the significant influence of occasion of use in purchase decisions (d'Astous & Chnaoui, 2002; Moye & Kincade, 2002). However, an interview with an international fashion consultant provided some plausible practical explanations for the non-significant results of the moderating role of usage situation. The person contacted was Claudia Benjumea (personal communication, February 3, 2017), who lives in New York City and trains buyers for large department stores and fashion brands. She initially explained that the occasion of use influences purchases, yet its importance is currently being debated in the fashion industry. She stated,

It all depends on the consumer. For example, the occasion of use is very important to the “traditional” consumer, so those consumers will always dress accordingly. Talbots is a good example of a brand aimed at traditional consumers... This brand is not only for adults; it is also targeted to younger people who are traditional in the way they dress because “lifestyle” has nothing to do with age.

Benjumea’s statement provides a possible explanation for the non-significant moderating role of usage situation. Thus, usage situation may be relevant in accordance with consumer *lifestyles* or social consumption patterns, which often serve as a basis for



market segmentation (Holt, 1997). Despite the high percentage of “traditional” consumers, there are other consumers who are not as traditional in terms of fashion taste (e.g., “neo-traditional”) or not traditional at all (e.g. “innovators”), and who do not usually consider usage situation in their selection of apparel items. It is possible that the present study may have encountered a significant role of usage situation among consumers who could be classified as traditional in terms of lifestyle. However, due to the research design, data collected in the present study cannot be interpreted based on this consumer characteristic. Moreover, this suggestion implies a connection with the concept of *aesthetic taste*. For instance, Berlyne (1971) posits the influence of individual differences, such as taste, in the preference of objects. Because taste is likely to vary across products (Hoyer & Stokburger-Sauer, 2012), findings of the present study may suggest that taste is relevant to aesthetic preference for fashion products. Future studies may consider individual characteristics related to lifestyle and taste.

Another possibility is that fashion trends may have started to blur boundaries between usage situations. Based on Desmet (2003), findings of this dissertation suggest that usage situation is not a strong standard or social norm influencing the appraisal of apparel products. Benjumea explains this by discussing JCrew as being among the first brands to propose the trend of “mixing the casual with the formal... In this way, the occasion of use is not so clear anymore and can be mixed” (personal communication, February 3, 2017). For instance, certain apparel items that previously were only appropriate for a casual occasion are now sometimes being used for formal occasions, and vice versa. Consequently, the same apparel product may be used for different usage

situations; and therefore, a specific usage situation may not significantly alter the aesthetic preference for an object. Furthermore, certain consumers may take into consideration the occasion of use in order to do just the opposite of what that situation entails. That is, their goal is to generate a perception of novelty in the way they dress. For instance, if an apparel item is worn in a context that is not usual for that item and against the norms of the social situation, then the item generates a sense of uniqueness and differentiation that is translated into a novel outfit. *Vogue* magazine provides us with several examples. For instance, Kanye West, the husband of socialite Kim Kardashian, wore ripped jeans for the red carpet of the Met Gala in 2016, which is a very formal event. In 2017, *Vogue* also photographed model Bella Hadid walking around New York City while wearing a bikini top partially seen underneath a sweatshirt.

Another plausible explanation for the results of H4, H5, and H6 may have to do with the selected stimuli. The stimuli for Phase II may have been neither too casual nor too formal. It is probable that experiments with stimuli classified as very appropriate for either formal or very appropriate for very casual occasions may produce different results. Nevertheless, it is important to clarify that this classification is also subjective and it is likely that some respondents considered the stimuli to be too casual or too formal for their tastes. Lastly, other possible explanations for the usage situation results may be the way the prompt for the neutral usage situation scenario was written (seen in Table 32 on page 168) and the heterogeneity of the sample.

### **Objective Three: To Examine the Relationship Between Aesthetic Preference and Positive Emotions**

The third objective of Phase II was to examine the relationship between aesthetic preference and positive emotions as measured in terms of pleasant surprise, fascination, desire, and joy. Hypotheses 7a, 7b, 7c, and 7d were tested to address this objective (see Tables 45, 46, 47, and 48 on pages 197 and 206 for simple regression results of H7a, H7b, H7c, and H7d, respectively; Table 40 on page 190 for correlation results related to H7; and Table 55 on page 215 for the summary of hypotheses testing). Analysis of results revealed that H7a, H7b, H7c, and H7d were all supported. That is, *pleasant surprise* (H7a), *fascination* (H7b), *desire* (H7c), and *joy* (H7d) were positively influenced by aesthetic preference. These findings indicate a positive relationship between aesthetic preference and positive emotions. Results are consistent with the definitions of each emotion (e.g., Desmet, 2003, 2012; Izard, 1977) and the logic proposed by appraisal theory (Roseman & Smith, 2001), further suggesting that higher levels of aesthetic preference are likely to generate higher levels of certain emotions. Table 58 (below) provides comparisons between simple regressions with correlation results for H7, which were all significant.

Table 58. Simple Regression vs. Correlation Results for H7 – Final Study

Relationship Between Constructs	Standardized Beta ( $\beta$ )	Pearson Correlation ( $r$ )
Aesthetic Preference—Pleasant Surprise	.37***	.37**
Aesthetic Preference—Fascination	.77***	.67**
Aesthetic Preference—Desire	.96***	.83**
Aesthetic Preference—Joy	.97***	.77**

\*\* Correlation is significant at the 0.01 level (2-tailed).





\*\*\* < .001

Pertaining to the simple regression results, the regression coefficient ( $\beta$ ) is a numerical value of the parameter estimate directly associated with the independent variable (i.e., aesthetic preference) that represents the amount of change in the dependent variable (i.e., positive emotion) based on a one-unit change in the independent variable (Hair et al., 2013). In the case of simple regression results for H7d, the  $\beta$  value of .97 represents the amount of change in joy for a one-unit change in aesthetic preference. Joy ( $\beta = .97$ ) and desire ( $\beta = .96$ ) are the emotions that reported the highest betas; therefore, they suggest a strong positive relationship between aesthetic preference and these two positive emotions. The lowest betas reported were of pleasant surprise ( $\beta = .37$ ), followed by fascination ( $\beta = .77$ ).

In regards to the correlation coefficients, positive and significant values indicate a presence of a positive relationship among constructs; while the closer the value of the Pearson's coefficient to 1.0, the stronger the relationship between those constructs (Hair et al., 2013). Thus, desire ( $r = .83$ ), followed by joy ( $r = .77$ ) are the emotions that report the highest correlation coefficients, thereby suggesting a strong positive relationship between aesthetic preference and these emotions. The lowest correlation coefficients

reported were for pleasant surprise ( $r = .37$ ), followed by fascination ( $r = .67$ ). Similar to the simple regression results, Pearson correlations indicate that pleasant surprise was the emotion that reported the lowest association with aesthetic preference during the experiment. Overall, correlation coefficients are somewhat similar to simple regression results.

A post hoc analysis is needed in relation to the mean scores of the different aesthetic preference and positive emotions per each of the typicality/novelty scenarios (Cells 1 - 4). Figure 28 (below) was created to visually summarize these results per cell and stimuli. Highest values of means (M) are highlighted and the lowest are underlined. Post hoc ANOVA results revealed that the means for emotions were significantly different per cell. That is, means for pleasant surprise ( $F_{(3,486)} = 11.54, p < .001$ ), fascination ( $F_{(3,486)} = 9.08, p < .001$ ), desire ( $F_{(3,486)} = 8.01, p < .001$ ), and joy ( $F_{(3,486)} = 5.93, p < .001$ ) were all significantly different per cell.

<p>High</p> <p>Low</p> <p>Typicality →</p>	<p><b>Cell 3</b> (High Typicality<sup>a</sup>/Low Novelty<sup>c</sup>)</p> <p><math>M_{\text{Aesthetic Preference}} = 3.18, SD = 1.35</math>  <math>M_{\text{Pleasant Surprise}} = \underline{1.77}, SD = 1.22</math>  <math>M_{\text{Fascination}} = \underline{2.54}, SD = 1.50</math>  <math>M_{\text{Desire}} = \underline{2.24}, SD = 1.50</math>  <math>M_{\text{Joy}} = \underline{2.53}, SD = 1.75</math></p> 	<p><b>Cell 4</b> (High Typicality<sup>b</sup>/High Novelty<sup>d</sup>)</p> <p><math>M_{\text{Aesthetic Preference}} = 3.21, SD = 1.46</math>  <math>M_{\text{Pleasant Surprise}} = 2.19, SD = 1.57</math>  <math>M_{\text{Fascination}} = 3.14, SD = 1.73</math>  <math>M_{\text{Desire}} = 2.80, SD = 1.77</math>  <math>M_{\text{Joy}} = 3.11, SD = 1.90</math></p> 
	<p><b>Cell 1</b> (Low Typicality/Low Novelty)</p> <p><math>M_{\text{Aesthetic Preference}} = \mathbf{3.70}, SD = 1.22</math>  <math>M_{\text{Pleasant Surprise}} = 2.14, SD = 1.42</math>  <math>M_{\text{Fascination}} = 3.43, SD = 1.48</math>  <math>M_{\text{Desire}} = \mathbf{3.18}, SD = 1.59</math>  <math>M_{\text{Joy}} = \mathbf{3.47}, SD = 1.67</math></p> 	<p><b>Cell 2</b> (Low Typicality/High Novelty)</p> <p><math>M_{\text{Aesthetic Preference}} = \underline{2.68}, SD = 1.57</math>  <math>M_{\text{Pleasant Surprise}} = \mathbf{2.84}, SD = 1.52</math>  <math>M_{\text{Fascination}} = \mathbf{3.53}, SD = 1.83</math>  <math>M_{\text{Desire}} = 2.47, SD = 1.71</math>  <math>M_{\text{Joy}} = 2.97, SD = 1.87</math></p> 
	<p>Novelty →</p> <p>Low</p> <p>High</p>	

<sup>a</sup> Low Typicality: The product is different from the most typical product of the category.

<sup>b</sup> High Typicality: The product is very much like the most typical product of the category.

<sup>c</sup> High Novelty: The product is novel. The product is very original and is very unique.

<sup>d</sup> Low Novelty: The product is not novel. The product is not very original and not very unique.

Notes: Highest ratings are in **bold** and lowest are underlined. No copyrights for pictures. Pictures replaced with drawings. Please contact author for actual stimuli.

Figure 28. Emotions by Typicality/Novelty Scenario (Cells 1 - 4) -- Final Study

As Figure 28 highlights, the highest values of positive emotions per cell were reported for Cell 1 (LT/LN) and Cell 2 (LT/HN). These results are consistent with the definitions of each of the positive emotions considered in the experiment. That is, Cell 1 (LT/LN), the lowest levels of typicality and novelty, generated the highest values of desire ( $M = 3.18$ ,  $SD = 1.59$ ) and joy ( $M = 3.47$ ,  $SD = 1.67$ ). Desmet (2012) describes desire as a strong attraction and joy as being pleased about an object. The highest ratings of desire and joy were reported for Cell 1 (LT/LN), which is a stimulus perceived as a whole as having a moderate level of typicality. Perhaps as the stimulus with low novelty, yet perceived as being not too dull or familiar, generated attraction as well as a sense of pleasantness. Therefore, the stimulus in Cell 1 (LT/LN) rated higher in desire and joy when compared to other stimuli that were perceived as riskier (i.e., Cell 2: LT/HN and Cell 4: HT/HN) or too familiar (Cell 3: HT/LN).

The stimulus in Cell 2 (LT/HN), low level of typicality with a high level of novelty, generated the highest ratings for pleasant surprise ( $M = 2.84$ ,  $SD = 1.52$ ) and fascination ( $M = 3.53$ ,  $SD = 1.83$ ). Desmet (2012) defines pleasant surprise as an emotion experienced in response to an object that is unusual, while fascination is described as an urge to explore. The highest ratings of these emotions were reported for Cell 2 (LT/HN), a stimulus that was perceived as a whole as being too novel or unusual. Consequently, that stimulus generated higher levels of pleasant surprise when compared to stimuli that were not perceived as novel (Cells 1, 3, and 4). Moreover, the unusual quality of the stimulus generated a need to explore the object (e.g., look at it), and therefore a higher rating for fascination.

In contrast, the lowest positive emotion levels reported per cell were all related to Cell 3 (HT/LN). As seen in Figure 28 above, the stimulus in Cell 3, consisting of a high level of typicality and a low level of novelty, generated the lowest ratings in pleasant surprise, fascination, desire, and joy. As the stimulus in Cell 3 (HT/LN) was evaluated as a whole as being too familiar and dull, it is predictable to find such low ratings on positive emotions, with the lowest rating being that of pleasant surprise, followed by desire, joy, and lastly, fascination ( $M_{\text{Pleasant Surprise}} = 1.77 < M_{\text{Desire}} = 2.24 < M_{\text{Joy}} = 2.53 < M_{\text{Fascination}} = 2.54$ ). Based on the definitions of Desmet (2012), the stimulus in Cell 3 (HT/LN) can be described as typical, familiar, normal, usual, and not exciting.

The definition of desire may further support this idea, especially because this construct was the emotion that had the highest correlation with aesthetic preference ( $r = .83, p$  (2-tailed)  $< .01$ ). Desire is experienced as a strong attraction to enjoy a certain product (Desmet, 2012). This positive emotion reported the lowest rating for Cell 3 (HT/HN) and the highest rating for Cell 1 (LT/HN) ( $M_{\text{Desire: Cell 3}} = 2.24 < M_{\text{Desire: Cell 1}} = 3.18$ ). If the abovementioned discussions already established that the stimulus in Cell 3 (HT/HN) was perceived as being more familiar and less exciting than stimulus in Cell 1 (LT/HN), then the attraction experienced by the individual with the product in Cell 3 is lower when compared to the attraction experienced with the product in Cell 1.

#### **Objective Four: To Examine the Mediating Role of Aesthetic Preference**

The fourth and last objective of Phase II was to examine the mediating role of aesthetic preference between the product form and positive emotions. Hypothesis 8 was tested to address this objective (see Tables 50, 51, 52, 53, and 54 on pages 209, 210, and



212 for regression analysis and Table 55 on page 215 for the summary of hypotheses testing). Results revealed that the mediator role of aesthetic preference proposed in H8 was not supported. This result was inconsistent with appraisal theory (Lazarus, 1991; Roseman & Smith, 2001) which argues that the appraisal, as measured in terms of aesthetic preference, initiates emotional states, such as those measured in the positive emotions of pleasant surprise, fascination, desire, and joy. Contrary to what was predicted in H8, all paths tested in the series of simple and multiple regressions confirm that the construct of aesthetic preference did not act as a mediator between the aesthetic properties of typicality and novelty and the various positive emotions considered in the study. First, the paths of aesthetic preference via typicality and positive emotions failed to meet all required conditions; therefore, typicality did not affect the mediating role of aesthetic preference. Second, the paths of aesthetic preference via novelty and positive emotions also failed to meet all required conditions; therefore, novelty did not affect the mediating role of aesthetic preference.

The rationale for H8 was founded on the notion of appraisal theory, which is a cognitive theory of emotions (Niedenthal et al., 2006; Zajonc, 1980). Zajonc (1980) explains that contemporary theories, such as appraisal theory, consider affect as postcognitive, in that it “occurs only after considerable cognitive operations have been accomplished” (p. 151). However, H8 findings may imply that non-cognitive, rather than cognitive, theories apply. That is, Roseman and Smith (2001) clarify that appraisal theories may be contrasted with other theories claiming that emotions can be elicited without an intervening process of evaluation. Proponents of non-cognitive theories in

general, such as Robinson (1995), defend the claim that judgments or appraisals are not part of the emotion-generating process. Indeed, results appear to contradict the notion proposed by cognitive theories and support the alternative idea that affective reactions can occur without cognitive encoding by means of affective reactions to stimuli being the very first reaction of the organism (i.e., consumer) (Zajonc, 1980). That is, there may be a direct link between the product form and positive emotions, which evades a path via aesthetic preference. Frijda (1986) argued that any object has the potential to elicit an emotion through the perceiving of that object in the act of seeing. For instance, Gronow (1993) states that “the charm of novelty offered by fashion is purely aesthetic pleasure” (p. 89). Thus, the reason for the H8 result may be that, apparel, as part of dress, has a complex relationship with identity (Entwistle, 2000), is used as means of communication (Damhorst, 1990), and possesses expressive characteristics as an object (Fiore et al., 1996b), all of which makes the object elicit a non-cognitive reaction in the perceiver that is focused on the enjoyment of the aesthetic experience.






### **Discussion of Overall Results**

To further examine the results of the dissertation, in this section, answers are offered for the six research questions that were raised during the analysis of results of Phase I as proposed in Chapter III. As these questions were addressed during the design and execution of Phase II, the following discussion address the questions by incorporating comparisons between findings of Phases I and II.

**Phase I, Question One: Would a Non-student Sample Select Different Prototypes than a Student Sample?**

To answer this question, it is important to review the findings in relation to the prototypes selected by respondents in both Phase I and II. Table 59 (below) was created to compare these results that were previously presented in Table 15 on page 123 and Table 41 on page 194. The highest percentages for each of the phases are in bold. For the shirt prototype, respondents in Phase I (student sample) selected the Most Typical Drawing #2, followed by the Most Typical Drawing #3. Respondents in Phase II (non-student sample) selected the Most Typical Drawing #4 as the shirt prototype, followed by the Most Typical Drawing #2. The highest values in Table 59 indicate that respondents from Phase I perceived the shirt prototype to be either a silhouette that looks like a t-shirt or a button-down shirt; while respondents from Phase II perceived the shirt prototype mainly as a t-shirt. Clearly, there was disagreement between the modes of the shirt prototype for Phase I vs. II. However, the Most Typical Drawing #2, a silhouette that looks like a t-shirt, was selected in both phases as the second choice prototype.

Table 59. Summary of Results per Shirt Drawing Selected – Phase I vs. II

Shirt Drawings	Frequency	
	Phase I: Selecting Drawings (Student Sample) n = 41, SD = 1.0	Phase II: Final Study (Non-Student Sample) n = 487, SD = 1.23
Most Typical Drawing #1 	7.30%	15.80%
Most Typical Drawing #2 	<b>48.80%</b>	24.80%
Most Typical Drawing #3 	31.70%	20.10%
Most Typical Drawing #4 	2.40%	<b>30.60%</b>
Most Typical Drawing #5 	9.80%	8.60%

Prototype results from Phase I were not surprising as students are usually more familiar with t-shirts (as shown in the Most Typical Drawings #2, #4 and #5) than button-down shirts (as shown in the Most Typical Drawings #1 and #3). However, prototype results from Phase II were indeed surprising, as the age range of respondents varied from 18 to 74 (mean age of 36.73 years), yet most respondents chose the t-shirt as the prototype ( $n = 270$ , 55.4%). However, similarities were found when analyzing Phase II results by age range. For instance, as with Phase I, respondents from Phase II aged between 36 and 45 years old chose the Most Typical Drawings #2 and #3 as the shirt prototype, with the former being a t-shirt and the latter a button-down shirt.

In response to the first research question, a non-student sample selected prototypes similar to those selected by a student sample. That is, both Phases I and II indicate that most respondents selected shirt prototypes that look like t-shirts. However, when analyzing results by age range, most of the older respondents ( $> 36$  years old) in Phase II tended to select shirt prototypes that look like button-down shirts; while most of the younger respondents ( $\leq 36$  years old) chose prototypes that look like t-shirts. Consequently, the main differences in the selection of the prototype may be due to the age of respondents. When aligned with the definition provided by Blijlevens et al. (2012a), stating that a prototype is “the degree to which an object is representative of a category” (p. 44), it is clear that younger and older consumers perceive a specific shirt as representative of the category to differing degrees.

Another explanation for the variety in prototypes selected by participants in Phases I and II may be found in the way fashion brands exhibit products online. That is,

many online fashion retailers display their products by using the terms “tops” and/or “bottoms.” The former covers different categories related to apparel products that can be worn on the top part of an outfit, while the latter refers to those categories that can be worn below the waist. For example, the website of Zara in the United States includes the category of products for women called “tops,” which includes tops, blouses, button-down shirts, tunics, and even t-shirts, among other options (see [www.zara.com](http://www.zara.com)). Consequently, despite the product detail differences between t-shirts vs. button-down shirts, consumers associate those categories within the same general category of shirts. Another example is the website of the Express brand in the United States (see [www.express.com](http://www.express.com)) that uses the term “bottoms” for women to include jeans, dress pants, casual pants, leggings, and even shorts. This may actually help to explain the drawings collected during the first step of Phase I: Generating Drawings. As explained in Chapter III, when students were asked to draw the most typical pant (all drawings seen in Table 6 on page 112), many drawings were silhouettes that looked more like jeans or leggings than pants. This suggests that for some consumers, both pants and jeans are associated with the category of “pants.”

In addition, it may be that how fashion retailers present their products online has influenced the “criteria for collective response patterns” and the coding system for fashion apparel (DeLong & Minshall, 1988, p. 13). As a result, online apparel merchandise classifications could have started to erase boundaries between certain categories and thereby made it simpler for the consumer to recognize an overarching category that encompasses all products to be worn on the top or bottom part of an ensemble. Such a proposition can be theoretically explained by the *taxonomy* or

*categorization theory*, wherein Rosch, Mervis, Gray, Johnson, and Boyes-Braem (1976) argued that individuals have a tendency to classify objects not only by *categories* but also *taxonomies*. The authors defined the former as a number of objects classified as equivalent, and the latter as a system by which categories are related to another by means of class inclusion. As the authors explained,

Categorizations which humans make of the concrete world are not arbitrary but highly determined. In taxonomies of concrete objects, there is one level of abstraction at which the most basic category cuts are made. Basic categories are those which carry the most information, possess the highest category cue validity, and are, thus, the most differentiated from one another (Rosch et al., 1976, p. 382).

Findings of this dissertation indicate that respondents relate to certain *basic categories* of apparel and in terms of a specific taxonomy. For instance, the basic categories of t-shirts and button-down shirts are related to the taxonomy of shirts, as the basic categories of jeans and pants are related to the taxonomy of pants. Again the differentiation among basic categories may be unclear to consumers due to the way online fashion retailers exhibit their basic categories (as in the Zara and Express examples provided earlier). In conclusion, certain consumers may select different prototypes in accordance with the way their perceptions have been determined in terms of the basic categories and taxonomies related to apparel products.

Additional considerations suggest that the divergence in prototype selection had an influence on the overall results. As expected, the MAYA principle holds for shirts in Phase I (H1c and H2c) and Phase II (H3). It is therefore important to analyze individual

effects of the aesthetic properties of the MAYA principle. Novelty was found to have a significant influence on the aesthetic preference ratings for shirts in Phase I (H2c) and Phase II (H2). Yet, typicality was found to have a significant influence on the aesthetic preference for shirts in Phase I (H1c), but not in Phase II (H1). Differing results regarding the effect of typicality on aesthetic preference can be justified by the divergence in the selection of prototypes, which, in turn, is likely to be a result of heterogeneous sampling.

Phase I utilized a student sample, which is a more homogeneous sample when compared to the non-student sample used in Phase II (see Tables 20 and 38 with the demographic information of the samples in Phases I and II, respectively, on pages 141 and 188). When contrasting both samples, 92.70% of the student sample was aged between 18 and 24 years and 90.40% of the non-student sample was aged between 18 and 55 years. In addition, only 17.20% of the sample in Phase II was between 18 and 25 years old. Demographic differences between the samples from Phases I and II are also consistent with prototypes selected in both Phases (see Table 59 on page 244). Respondents in Phase I indicated that the prototypes were the Most Typical Drawing #2 that looked like a t-shirt ( $n = 20$ , 48.80%), followed by the Most Typical Drawing #3 that looked like a button-down shirt ( $n = 13$ , 31.70%). Respondents in Phase II indicated that the prototypes were the Most Typical Drawings #2 and #4 that looked like t-shirts ( $n = 270$ , 46.40%), followed by the Most Typical Drawings #1 and #3 that looked like button-down shirts ( $n = 175$ , 35.90%).

Despite the fact that respondents from both phases chose t-shirts and button-down shirts as prototypes, respondents from Phase II reported a wider variety of prototypes



than respondents from Phase I. Such results are supported by the frequency of prototypes selected: Two drawings (with frequency percentages between 31.7 and 48.80%) achieved 80.50% of the prototype selection in Phase I, while four drawings (with frequency percentages between 15.80 and 30.60%) achieved 82.30% of the prototype selection in Phase II. An additional point of support is that the overall standard deviation in the prototype selection was higher in Phase II than Phase I ( $SD_{\text{Phase I}} = 1.00 < SD_{\text{Phase II}} = 1.23$ ), which means that the disparity in the selection of prototypes was higher in the second phase.

#### **Phase I, Question Two: How Might Stimuli be Generated that can be Classified by Consumers in Each of the Four Typicality/Novelty Scenarios?**

This methodological question was initially explored in Chapter III as part of the experimental designs of Phases I and II. Analysis of the stimuli used in Phase I initially led to the identification of certain aesthetic characteristics or product attributes that would explain the properties of typicality and novelty in shirts. This outcome supported the creation of the most appropriate stimuli for the four-typicality/novelty scenarios (Cells 1 - 4) in Phase II. In general, Phase I revealed that stimuli with high typicality usually had a silhouette similar to that of a t-shirt or a button-down shirt, plain and/or neutral colors, minimal fabric textures, no prints, and no asymmetrical features. As for novelty, a high level in this property was achieved by adding color, prints, and/or asymmetrical features based on current fashion trends. Similar to low typicality, high novelty was also achieved by choosing a very different silhouette from that of a t-shirt or a button-down shirt. This finding is similar to Tyagi and Whitfield's (2014) suggestions, in that various levels of

typicality can be used to measure novelty. Phase II then validated stimuli in Phase I in relation to product attributes that contribute to different levels of typicality and novelty for creating the most appropriate stimuli for Cells 1, 2, and 3. As seen in Tables 35 and 36 (pages 182 and 184), stimuli needed for cells 1, 2, and 3 was successfully manipulated in the first trial of the pre-test of Phase II. Yet, Phase I did not sufficiently explain how to generate a stimulus for Cell 4 (HT/HN). Consequently, the pre-test in Phase II was used to test several pictures in order to find the product that best represented being simultaneously high in typicality and novelty.

The first logical reason for the difficulty in finding the appropriate stimulus for Cell 4 (HT/HN) is that the judges reported a different shirt prototype than the one selected by the respondents in the Final Study. That is, judges selected the Most Typical Drawing #3 (a drawing that looks like a button-down shirt) as the shirt prototype (see Table 34, page 180); while respondents in the Final Study reported the Most Typical Drawing #4 as the shirt prototype, followed by the Most Typical Drawing #2. Both drawings selected as prototypes in the Final Study look like t-shirts (see Table 59 above). Various stimuli for Cell 4 (HT/HN) were proposed for the Final Study during the second pre-test and the selection of those pictures depended on the ratings and prototype selected by the judges. Table 60 (below) partially replicates results of the second pre-test of the Final Study seen in Table 35 on page 184 and shows all ratings of the several pictures tested for Cell 4 (HT/HN). Picture #4 looked like a long-sleeve t-shirt with a novel print; however, manipulations were not successful. The pre-test continued with pictures of silhouettes that looked like a button-down shirt so as to be perceived as having high

typicality (Pictures #5, #6, #7, #8, #9, #10, #11, #12, and #14). Due to unsuccessful manipulation checks of those pictures, the silhouette was changed to one that looked more like the long-sleeved t-shirt with a floral print in Picture #13. This stimulus allowed for successful manipulations.

Table 60. Results of Pre-Test #2 for Cell 4 (HT/HN) -- Final Study

Picture #	Picture <sup>a</sup>	Sample Size	Pre-Test Manipulation Checks				Manipulation Passed? <sup>b</sup>
			Typicality		Novelty		
			Mean	Level	Mean	Level	
4	Shirt pictures removed	16	2.50	Low	5.50	High	X
5		14	2.50	Low	6.50	High	X
6		17	3.90	High	3.70	High	X
7		13	3.08	Low	4.75	High	X
8		16	2.80	Low	4.10	High	X
9		34	4.70	High	2.64	Low	X
10		11	4.50	High	3.40	Low	X
11		11	5.54	High	2.63	Low	X
12		10	3.00	Low	4.50	High	X
13		13	4.60	High	4.50	High	✓
14		11	3.20	Low	3.09	Low	X

<sup>a</sup> Pictures can be better seen in Appendix P on page 342.

<sup>b</sup> ✓ = Yes, X = No.

Note: No copyrights for pictures. Pictures removed. Please contact author for actual stimuli.

The second possible reason for the difficulty in finding the right stimulus for Cell 4 (HT/HN) was that in some cases, high levels in one property (typicality or novelty) counteracted high levels of the other. The solution to this challenge during the pre-test was to find a stimulus for Cell 4 that was rated high in novelty without a counteracting effect on the perception of high typicality. In order to illustrate this idea, two pictures that did not pass manipulation checks for Cell 4 will be explained (see Table 60 above). The first example is Picture #5 which was selected for Cell 4 (HT/HN) of a silhouette that looks like a button-down shirt with a novel print. Despite the prototypical silhouette, the novel design guided respondents to rate the stimulus as high in novelty ( $M = 6.50 > 3.50$ ), but low in typicality ( $M = 2.50 < 3.50$ ). In this case, the novelty of the fabric counteracted the typical silhouette of the shirt. In contrast, Picture #11 was selected with a silhouette similar to a button-down shirt with a shiny silver fabric. Unexpectedly, respondents perceived the typicality as high ( $M = 5.54 > 3.50$ ); however, the novelty was rated low ( $M = 2.63 < 3.50$ ). In this case, the typical silhouette of the shirt counteracted the novelty of the fabric.

**Phase I, Question Three: How Should the Survey be Designed so Respondents Evaluate the Stimuli in all of the Four Typicality/Novelty Scenarios?**

This methodological question was addressed in Chapter III in the survey design of Phase II. Furthermore, as reported in Chapter IV, pre-test #1 data revealed that the best way to measure the perceived typicality and novelty of the stimuli was not to ask respondents to classify the stimuli in the four scenarios (cells 1 - 4), but to ask them to

rate each property via a single-item bipolar scale (i.e., not novel/novel) as seen in Section 6 of the Final Study survey (see Appendix N on page 336).


**Phase I, Question Four: How Should Fabric Color, Texture, and Prints be Controlled for in the Experiment, Without Eliminating the Characteristics of a Product that Make it Unique and Novel?**

The answer to this question was addressed in both Phases I and II. Phase I discussion was based on a review of the literature for assessing how stimuli are utilized in experimental research in aesthetics in general. Following Fiore et al.'s (1996b) suggestion, the decision was made to use real products (i.e., pictures) instead of two-dimensional stimuli (i.e., line drawings). The selected pictures were then controlled for certain product characteristics, such as color and texture. For instance, Phase I (Preliminary Study) only included shirts that were plain white and with neutralized texture. However, controlling for those characteristics in Phase I did not allow high ratings on the property of novelty, while creating what some (e.g., Diels et al., 2013; Hung & Chen, 2012) have identified as a ceiling effect.

As Phase II required stimuli with high levels of novelty, selected stimuli needed to include color, print, and texture in the fabrics. Consequently, Phase II did not control for these characteristics in the stimuli. For the sake of clarity, colors and prints chosen to produce a high rating in novelty were selected from product pictures belonging to the latest collections of various high novelty brands in accordance to the Pantone colors of the season. For instance, the high novelty stimulus selected for Cell 2 (LT/HN) had a print with shades of “serenity,” which was the 2016 Pantone color of the year. Despite

including prints, for example, a high rating in novelty was not guaranteed, such as the case of Picture #9 in the second pre-test that respondents rated low in novelty ( $M = 2.64 < 3.50$ ). Table 61 (below) presents the ratings given to Picture #9 during Pre-Test #2 originally seen in Table 35 on page 184. It may be that the checked print selected for that shirt was considered traditional and, therefore, perceived as low in novelty.

Table 61. Example 2: Ratings of Picture #9 -- Final Study

Phase: Step	Picture	Typicality Mean ( <i>SD</i> )	Novelty Mean ( <i>SD</i> )
Phase II: Stimuli Selection		$M = 4.73$ ( $SD = 1.78$ ) $4.73 > 3.5 \Rightarrow$ High level	$M = 2.64$ ( $SD = 1.45$ ) $2.64 < 3.5 \Rightarrow$ Low level

Note: No copyright for picture. Picture replaced with a drawing. Please contact author for actual stimulus.

**Phase I, Questions Five and Six: How Can the Properties of Typicality and Novelty, Specifically Typicality, Be Explained Simply, Without Confusing the Respondent? How Can the Aesthetic Properties be Explained While Making Sure that the Four Different Typicality/Novelty Scenarios are Understood by Respondents?**

In Phase I and II, different ways to explain the properties of typicality and novelty to respondents were employed in the experiments. In Phase I: Testing the MAYA Principle, each property was explained and a few examples were provided for how to rate those properties (survey instructions can be seen in Appendix K on page 326). Visual

analyses performed in the pre-test of Phase I may also give some clues as to how stimuli were classified in terms of the four-typicality/novelty scenarios. For example, Figure 12 (page 129) illustrates the visual analysis of the judges' classification of the 20 pictures of pants. Most pictures are located in the upper left section of the plot (high typicality/low novelty) and the lower right section of the plot (low typicality/high novelty). The upper right section (high typicality/high novelty) includes a few items; while the lower left section (low typicality/low novelty) is empty. When stimuli were modified in Photoshop and pre-tested with students, the visual analysis of pants seen in Figure 15 (page 136) indicates that stimuli were even more aligned with the lower right section (low typicality/high novelty) and the upper left section of the graph (high typicality/low novelty). This means that if stimuli in Phase I were to be classified as they were classified in Phase II, most stimuli from Phase I would be allocated to Cells 2 (LT/HN) and 3 (HT/LN).

Similar to other studies testing the MAYA principle, such as those of Diels et al. (2013) and Hung and Chen (2012), Phase I presented a floor and ceiling effect. The floor effect was identified because some low levels in the aesthetic properties were hardly achieved in the ratings of Phase I. That is, the measurements reached values that were above a certain minimum, acting as a floor. For instance, very few stimuli in Phase I could be classified as low in typicality and low in novelty (equivalent to Cell 1 in Phase II). The ceiling effect was identified because some high ratings were not achieved in Phase I. That is, the measurements reached values that were below a certain maximum, acting as a ceiling. For example, very few stimuli in Phase I could be classified as high in



typicality and high in novelty (equivalent to Cell 4 in Phase II). The main reason for this is the way that stimuli in Phase I were controlled for color and texture. Another possible reason is the way instructions were worded in the Preliminary Study in Phase I, as the examples in the instructions provided were from Cells 2 and 3, and not from all cells (1 - 4). Results from Phase I indicated ways that the instructions for Phase II could be improved so they would include examples for all cells (1 - 4). Thus, instructions were made longer to include an example for each cell. However, as explained in Chapter IV, the first pre-test in Phase II revealed that when respondents were given the long explanation, they dropped out of the survey. Instructions were then modified in order to minimize word count and make the explanation more visual. Therefore, the new instructions (see Section 4 of Appendix N on page 326) included a brief explanation of the properties, while providing visual examples for all cells at once in a matrix-table.

### **Conclusions and Implications**

Conclusions and implications of the dissertation are discussed relative to contributions to theory and practice in the following two sections: (1) *Theoretical Contributions*, and (2) *Managerial Contributions*.

#### **Theoretical Contributions**

Before the theoretical contributions are presented, in this section it is important to clarify the approach taken for this dissertation in terms of ontological, epistemological, and methodological perspectives. Founded on variations of naturalism and humanism in consumer research (Heath, 1992), the positivist approach to the dissertation can be classified as *liberal naturalism*. In this variation, the ontological perspective posits one

reality, relatively elementaristic, which exists with multiple explanations, not all of which are equally valid. The complex phenomenon of product aesthetics was broken down into simple and elemental units, with emphasis placed on the interaction of the parts. From an epistemological perspective, this dissertation is descriptive, explanatory, and causal. For example, the Main Study employs causality when exploring the effects of typicality and novelty on aesthetic preference relative to products. From a methodological perspective, most experimental design issues (e.g., manipulations, internal validity) can be applied to this dissertation; however, interpretation of the data was needed to describe the process, while generalizability was critical and supported conceptually and with replications (Health, 1992). For instance, Phases I and II of the dissertation replicated the testing of the MAYA principle by using different experimental designs, while industry-specific information was needed for some explanations, especially for unexpected results.

The main theoretical contribution of the dissertation results from the review of the theoretical study of aesthetics across different fields. An updated framework called *A Theoretical Model of Cognitive and Affective Responses to Product Form* (see Figure 9 on page 77) was proposed for operationalizing empirical research on product aesthetics. The proposed conceptual model utilized the *Model of Consumer Responses to Product Form* by Bloch (1995, p. 17) as the most appropriate overarching framework for developing a conceptual guide for quantitative studies focused on psychological consumer responses.

When addressing the component of product form indicated in Bloch's (1995) model, specifically the aesthetic properties related to a particular design principle such as

the MAYA principle, theoretical considerations were used to conceptually understand the relationships among the variables proposed in the experimental design. It was important to consider the specific aesthetic properties related to the principle of design under study, as well as the theories related to that principle. Thus, Hekkert and Leder (2008) provided further explanation of the properties of products (e.g., typicality and novelty) that were considered relative to the product form and based on the design principle. Consequently, in testing the MAYA principle, product form needed to exhibit the two aesthetic properties of typicality and novelty, along with the preference-for-prototypes theory. Due to further limitations in Bloch's (1995) model, additional theoretical considerations needed to be addressed to support the conceptualization of the consumer response dimension, specifically the psychological response. Consequently, appraisal theory (e.g., Desmet, 2003) provided the logic behind the order of constructs related to appraisal or cognition (e.g., aesthetic preference) and emotion (e.g., positive emotions), as well as the concerns or goals (e.g., usage situation). The latter factor of the environment (Bloch, 1995) was also considered to influence the cognitive response, thereby possibly acting as moderator.

By proposing the framework in Figure 9 (page 77), this dissertation goes beyond providing support for conceptualizing, as well as operationalizing, empirical research on product aesthetics, as it offers contributions to the academic literature by drawing from theories across several different fields. For instance, the aesthetic properties of products (Hekkert & Leder, 2008) as well as a principle of design (Lidwell et al., 2010) from the field of product design were employed in order to address the lack of description of

product form in the framework of consumer responses to product form within marketing (Bloch, 1995). Thus, findings of this study support the utilization of a design principle to measure product form as useful in answering the following questions that are not addressed by Bloch (1995): *Out of all product aesthetic properties, what properties should be measured in the product form? Why measure them?* Finally, by drawing on appraisal theory (Desmet, 2003; Scherer et al., 2001), this dissertation is among the first to offer conceptualization of how findings from product design relate to research in consumer behavior, and points to the ways marketing can be enriched by the inclusion of product design research.

In this dissertation, propositions of relations between variables that are verified via hypotheses testing are suggested, which allow for extending theory in various ways. First, the theory was tested via the MAYA principle within a particular context, specifically apparel products, thereby offering examination of a specific phenomenon that furthers understanding of a design principle relative to products that have yet to be tested. That is, this study explored the relationship between the aesthetic properties of typicality and novelty, and aesthetic preference for three types of apparel products. Thus, the relative importance of typicality and novelty in explaining aesthetic preference relative to pants, jackets, and shirts was assessed. Findings indicate that the preference-for-prototypes theory holds for pants and jackets, while the MAYA principle better explains the relationships between typicality, novelty, and aesthetic preference for shirts. Such findings suggest that novelty is a property that is more influential in preference relative to shirts than pants and jackets. In conclusion, the MAYA principle does not hold for all

categories of apparel. Using Diels et al.'s (2013) term, pants and jackets would likely generate higher sales if created through "restrained design," resulting in products that are simple or more similar to prototypical images because the designer was restrained from incorporating higher levels of novelty in the designs.

Second, findings in the category of shirts further extend understanding of the MAYA principle. Results go further than confirming what other studies (Hekker et al., 2003) have stated, such as that both factors; typicality and novelty, are jointly taken into account when explaining an individual's aesthetic preference for products. Findings revealed a new and relevant insight, in that factors do not always function as suppressor variables with respect to the relation between the other property and aesthetic preference, as proposed by Hekker et al. (2003). Findings revealed that in some cases (e.g., Cell 4: HT/HN), one property (e.g., typicality) functioned as a catalyst variable with respect to the relation between the other property (e.g., novelty) and aesthetic preference. Consequently, the properties of typicality and novelty interact, as these factors can function as suppressors (e.g., inhibiting, counteracting) as well as catalysts (e.g., increasing, igniting).

Another theoretical contribution of this dissertation lies in confirmation of the logic of the *Model of Product Emotions* proposed by Desmet (2003) (see Figure 8 on page 70). Results of this dissertation provide further explanation regarding the use of this theory. For instance, by testing for differences in aesthetic preference ratings by gender, the motive consistency proposed by the model of product emotions was helpful in

explaining why females reacted more positively than males to many of the apparel pictures.

Findings in the current study also provide insight into the relationships between variables, which can be considered a theoretical contribution (Whetten, 1989). This insight specifically pertains to the results of H4, H5, H6 (moderator role of usage situation), and H7 (effect of aesthetic preference on positive emotions) that confirm the logic behind appraisal theory as a cognitive theory of emotions (e.g., Desmet, 2003). Despite this confirmation, the non-significant results of H8 (mediation of aesthetic preference between product form and positive emotions) do not support the cognitive theory. Instead, an alternative explanation for those results may be found in non-cognitive theories (e.g., Robinson, 1995). Consequently, appraisal theory is useful for explaining some relationships proposed in this dissertation, while not as much for others. This finding suggests that there may not be a grand theory of emotions that can provide a single, general logic capable of explaining all types of emotional response. This, in turn, supports the notions related to appraisal theory, such as those presented by Roseman and Smith (2001), that “appraisals may be causes of emotions, components of emotions, and consequences of emotions” (p. 15).

Finally, findings confirm that the aesthetic properties considered in this dissertation are subjective, largely because they are not properties of things, but properties of how objects are perceived (Hekkert & Leder, 2008). Similar to novelty, typicality is context-dependent because consumer response is a summary of product property configurations previously experienced (DeLong et al., 1986). Consequently,

typicality is intrinsically dependent on the prototypes consumers have in their minds. That is, a state of cognitive consonance results when a product approximately matches the prototype (Zusne, 1986). Based on findings of this dissertation and the taxonomy or categorization theory (Rosch et al., 1976), the mental images of basic categories may vary in accordance with familiarity with those categories, similar categories associated, as well as related taxonomies. For instance, because students are frequently exposed to jeans and t-shirts versus pants and button-down shirts, their minds associate the basic categories of pants and shirts with those silhouettes that they are most familiar with. Furthermore, some of these prototypes for pants and shirts were likely to be derived from the taxonomies consumers associated with the basic categories. That is, because the fashion industry frequently presents basic categories of apparel as “tops” and “bottoms,” consumers then associate various categories (e.g., t-shirts, button-down shirts) of a taxonomy (e.g., tops) within one single basic category (e.g., shirts). Thus, consumers tend to consider the class or taxonomy when asked to think about a particular basic apparel category. Accordingly, when conceptually exploring mental images of basic categories, it is also important to consider other similar and related basic categories and taxonomies in order to understand the entire spectrum of possible prototypes.

In addition, findings of the dissertation point to additional theoretical and methodological implications. Based on a multi-level measure of typicality (Tyagi & Whitfield, 2014), the focus of this current study was given to the silhouette, which includes the basic parts of the product. Because “products are the sum of their parts, and so too is their typicality” (Tyagi & Whitfield, 2014, p. 401), a sum of typical parts

constitutes a product as a whole that is perceived as typical. Thus, a typical apparel product is comprised of parts that are considered typical. If an item of apparel has a typical silhouette with a modern and colorful fabric pattern, the item may be perceived to be a novel design as a whole, instead of a typical design. That is, inclusion of only one atypical part may produce a product that is perceived as a whole as being novel (Tyagi & Whitfield, 2014). It is also important to note that on theoretical and methodological levels, the term “atypical” relates simultaneously to novelty and typicality, yet atypical has been mainly associated with something novel. That is the case of the novelty scale (i.e., typical – unique) used by Hung and Chen (2012), in which the adjective “unique” becomes synonymous with “atypical.” In other words, typical is equal to high typicality and low novelty; while atypical is equal to low typicality and high novelty. It is important to clarify that findings in the current study indicate that not all levels of low typicality are perceived as being novel. Therefore, from a theoretical as well as a methodological perspective, “atypical” is more useful for conceptualizing as well as measuring novelty than it is for typicality. Nevertheless, because of the similarity in terms, and the measurement limitations, it is advisable to avoid the term “atypical” when measuring novelty or typicality, as it may lead to confusion among the respondents.

### **Managerial Contributions**

Findings offer managers, creative directors, and designers a better understanding of how the product form influences consumer response and shed light on how the MAYA principle varies relative to different apparel categories. Findings indicate that typicality is the primary predictor of aesthetic preference in pants and jackets, while both typicality



and novelty are significant predictors of aesthetic preference in shirts. Perhaps consumers look for novelty in apparel but not in each category that they wear. For instance, the consumer may be indirectly considering the whole ensemble and how novelty may be expected from one or a few categories (e.g., shirts) but not from all of them.

In addition to the relevance of typicality for academics, the fashion industry has implicitly relied on prototypical images for decades. For instance, many well-known fashion brands continue to include specific physical attributes or certain aesthetics in their products that are considered as iconic, such as the house checks of Burberry (tan, black, white, and red "House Check" tartan pattern) and the three stripes of Adidas (Deleon, 2012). The goal is to generate brand recognition when consumers observe products exhibiting those specific attributes, or what is called the "brand's stylistic code" (Corbellini & Saviolo, 2009, p. 175). Fashion brands have also included "basic" product assortments (also denoted as "classics") as part of their collections (Kaufman, 2016) to appeal to the consumer preference for typical products. Other brands have positioned signature products, such as the now classic "Aviator" shape of Ray-Ban glasses (Luxottica Group, 2016) in order to generate brand recognition through the use of familiar products associated with that brand. Despite these examples, very few studies have focused on decoding typicality in fashion products, and more specifically, apparel products. Consequently, a better understanding of the prototypical images that consumers have about certain categories of apparel can provide useful information to brands that are considering incorporating different degrees of typicality into product designs and collections.

When applying typicality at a practical level, it is important to consider the findings derived from decoding typicality in fashion items provided by this dissertation. Results reveal that the more heterogeneous the target market, the more prototypes are associated with certain basic categories. Thus, designers are advised to apply various prototypes when incorporating typicality into their designs, especially if the brand is targeted to a broader audience. By doing so, collections can appeal to different types of consumers and their divergent prototypical images of products. In other words, collections including typical designs based on different prototypes of a basic category could appeal to more consumers having divergent mental images of what the most typical product of that category looks like. In relation to everyday sales operations, consumer prototypes can be implied from historical data of sales in a specific target market. These prototypes can be adjusted in accordance with resulting sales, especially if the brand is entering a new market, in as much as prototypes can change over time.

Even though typicality is important to fashion brands, it is the aesthetic property of novelty that often receives the most attention. Based on the way an innovation diffuses (Rogers, 1962), novelty is subjective because it can be perceived differently in accordance with different contexts. Thus, fashion trends, which carry information about what is novel, may influence consumers differently based on context and repetition. Indeed, what is novel and innovative in apparel is usually determined by fashion trends (Davis, 1992) so the fashion industry has traditionally relied on companies, such as WGSN (<https://www.wgsn.com>) dedicated to predicting the trends of tomorrow. The goal of such companies is to better understand fashion trends and how novelty should be

incorporated into apparel designs. However, because fashion innovation is an active process where the consumer is the protagonist (Kawamura, 2005), novelty is nothing without the individual that adopts it. Therefore, an understanding of novelty, as well as typicality, is extremely important to fashion businesses.

In order to better translate dissertation findings in practical terms, overall results were shared with the aforementioned international fashion consultant, Claudia Benjumea. She stated the following (personal communication, February 3, 2017):

Fashion designers present trends in the catwalks with novel products. The MAYA principle is what brands apply when incorporating those catwalk designs into retail, especially for the mass market. Those items are then called “key items” or “must haves” of the season, which are items that are not too basic and not too fashionable. The critical mass of sales is in the key items. The collection then has basic items [high typicality], key items, and fashion items [high novelty].

Here again, conversation with an industry expert may shed light on the findings.

Benjumea validated the importance of the MAYA principle in the fashion industry. She explained that fashion collections are generally founded on three types of products: basics, key items, and fashion items. The highly typical products are called “basics,” while the items that are very novel are called “fashion items,” among other terms. The high fashion items are usually riskier for brands because when these items go out of season quickly, the brand must put them on sale. Design of “key items” or “must haves,” is based on the MAYA principle as applied to the high novelty products usually shown on the runways and fashion trade shows (e.g., New York Fashion Week). Bejaumea explained, “the key items are the ones that sell the best, they are the products with greater profitability. It's the best deal!” The so-called “best sellers” are pieces whose sales are

among the highest of a collection. These pieces can be basics, key items, or fashion items. Yet, it is probable that the best sellers are key items.

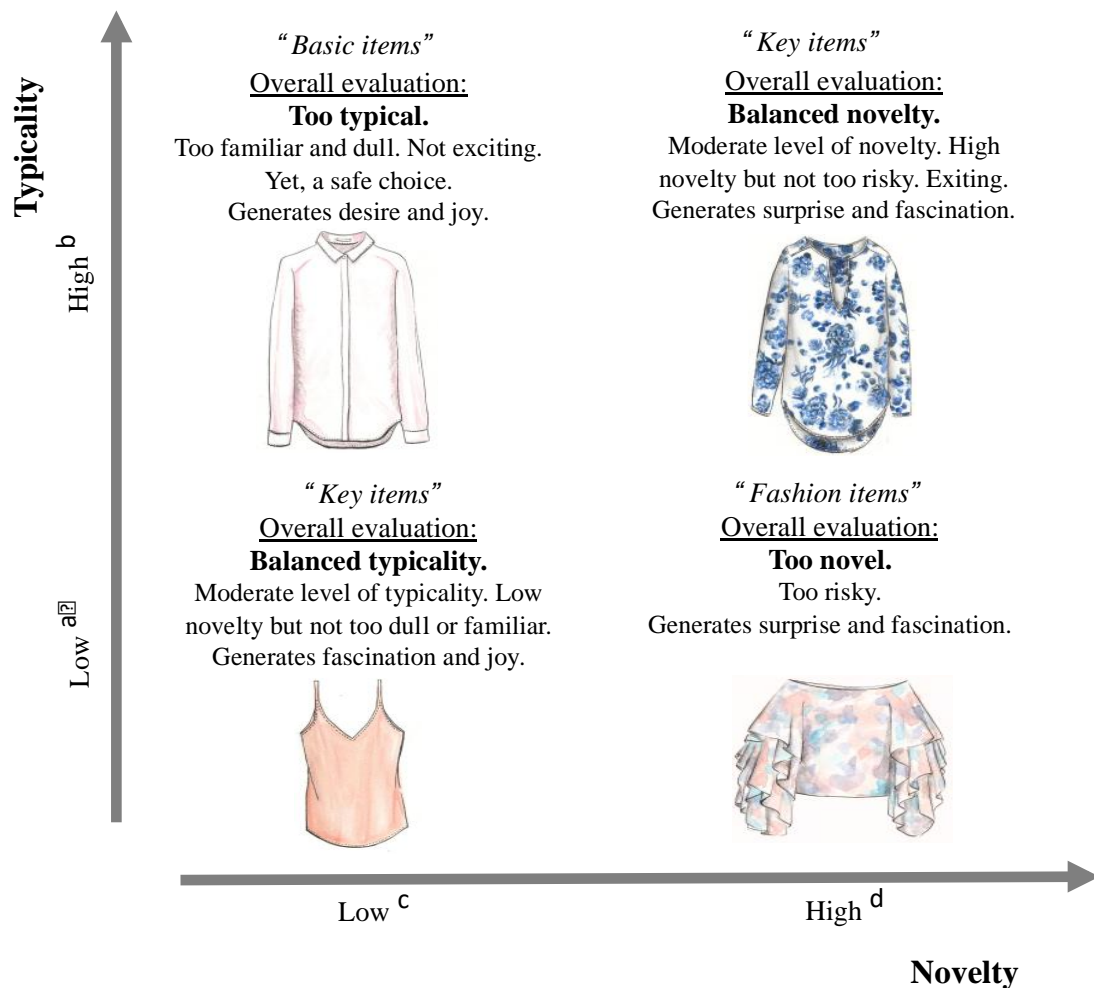
The proportion of basics, key items, and fashion items within a collection depends on the brand and the target consumer. Benjumea added that “the percentages assigned to basic, key, and fashion items in the collections depend on the brand. There is no single formula; the mix of products depends on the consumer and the market.” She explained this further by providing an example: Urban Outfitters mainly utilizes key items because more items at the stores are simultaneously typical and novel; yet, not too novel. Urban offers a perfect mix between key items and fashion items; while they also offer some basics. Benjumea stated that for fast fashion brands, key items are the highest percent of their mix of products.

Regarding basic products, Benjumea clarified that they represent challenges for brands. The issue with basic items is that they usually offer low profitability per unit because the goal is sales volume. Basics usually compete by low price. However, there are exceptions, such as Uniqlo and, as Benjumea elucidated, the e-commerce brand Everlane, which “makes basic items that are perceived as contemporary” (personal communication, February 3, 2017). It is like a paradox, the brand sells highly typical products (e.g., turtle neck shirts) that are communicated to the consumer by using the novel message of “radical transparency.” Then, the advertising/branding converts a basic product into a highly novel one. Benjumea’s statement is interesting as she explains how the fashion industry transforms a basic product and makes it novel. In the example of Everlane, basic products are perceived to be novel as a result of branding and advertising

efforts. It is relevant to clarify that the novelty added by Everlane is an influence external to the product and not inherent to it. That is, the novelty perception is not associated with specific product's aesthetic attributes, but to the meaning generated by the consumer, something that was not considered in this study. This meaning is a cognitive response to product appearance in relation to a symbolic association (Crilly et al., 2004), and therefore, the perception of novelty of that basic product is due to the component of the environment and the situational factors of the marketing program (Bloch, 1995). Such factors may be explored in future studies.

To provide illustration of the abovementioned discussion, Figures 29, 30, and 31 seek to translate dissertation findings into practical knowledge. In Figure 29, the various degrees of typicality (axis Y) and novelty (axis X) perceived in the apparel products used as stimuli in Phase II of this dissertation are visualized. Each reflects the terms used in the findings of the current study as well as in the fashion industry. For example, an item with low typicality and low novelty is an item perceived by consumers as having moderate typicality, which constitutes a key item in a collection. The types of innovation defined by Solomon (2013) may provide assistance in understanding the various degrees of novelty in accordance to the type of item. The author proposes three types of innovation: *continuous innovation*, which involves minor product changes so the product is perceived as new (e.g., adding a zipper pocket to a black pant design in a new collection); *dynamically continuous innovation*, referring to a more profound change in the existing product (e.g., changing design from a cut-out blouse to off-the-shoulder blouse); and *discontinuous innovation*, which is a more radical innovation (e.g., bras

replaced corsets in the 19<sup>th</sup> century). Low novelty in Figure 29 can refer to items of apparel with no innovation or the incorporation of continuous innovation. High novelty refers to items of apparel with dynamically continuous innovation as well as items with a low typicality and continuous innovation or dynamically continuous innovation. Low typicality often generates perceptions of high novelty.



<sup>a</sup> Low Typicality: The product is different from the most typical product of the category.

<sup>b</sup> High Typicality: The product is very much like the most typical product of the category.

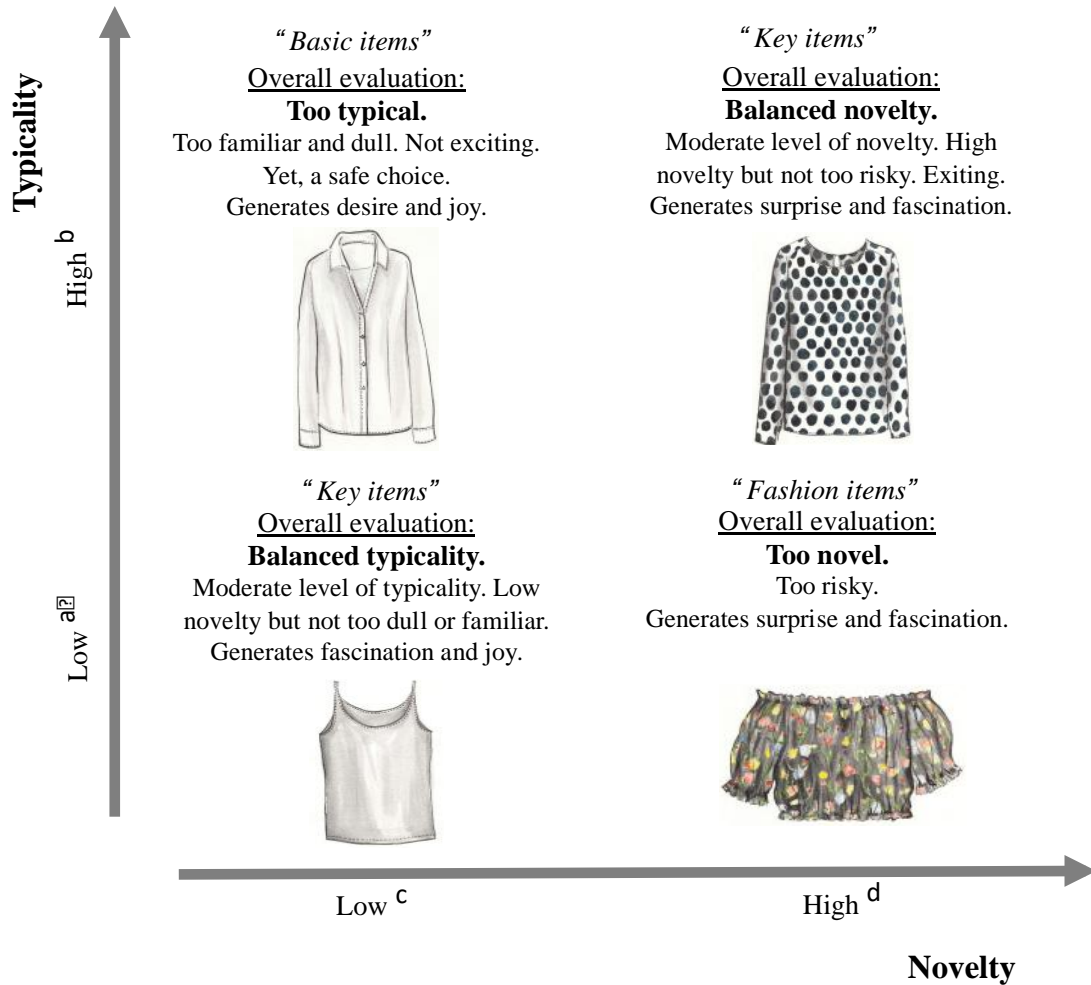
<sup>c</sup> High Novelty: The product is novel. The product is very original and is very unique.

<sup>d</sup> Low Novelty: The product is not novel. The product is not very original and not very unique.

Note: No copyrights for pictures. Pictures replaced with drawings. Please contact author for actual stimuli.

Figure 29. MAYA Principle Illustrated: Degrees of Perception (Phase II Stimuli)

As a practical example for managers, Figure 30 uses the same structure of Figure 29 but with products taken from the Spring 2017 collection of renowned international fast fashion retailer.



<sup>a</sup> Low Typicality: The product is different from the most typical product of the category.

<sup>b</sup> High Typicality: The product is very much like the most typical product of the category.

<sup>c</sup> High Novelty: The product is novel. The product is very original and is very unique.

<sup>d</sup> Low Novelty: The product is not novel. The product is not very original and not very unique.

Note: No copyrights for pictures. Pictures replaced with drawings. Please contact author for actual stimuli.

Figure 30. MAYA Principle Illustrated: Degrees of Perception (Fast Fashion Items)



Corbellini (2011) proposed a visual depiction in the form of a pyramid to explain how the product assortment of a collection needs to be allocated for a brand. The goal is for the collection to communicate the appropriate level of novelty associated with the brand. In the pyramid, the top section corresponds to the high fashion items with high levels of novelty. The middle section of the pyramid alludes to the items with a medium level of novelty (including what the author calls “carry overs,” which refers to designs from previous collections that are slightly changed), while the bottom is assigned to basic products with lower levels of novelty in the designs. The proportion among high fashion, middle, and basic levels depends on the brand’s stylistic code, which is a term previously defined in this dissertation that relates to the specific aesthetic attributes a brand should consistently communicate to the consumer.

Based on the pyramid proposed by Corbellini (2011), Figure 31 provides an example of how a collection may be designed by a fast fashion brand in accordance with the findings of this dissertation. A pyramid is proposed not for the overall brand but for each of the categories considered in this dissertation and in accordance with the terms used in Figure 29. Thus, percentages of basics, key items, and fashion items are different in accordance with the category of apparel. Furthermore, the key items in Figure 31 are further divided into two types: items with balanced typicality and items with balanced novelty. The figure proposes higher percentages of fashion items and key items in shirts than pants and jackets because consumers like more typical products when choosing the latter two categories. One recommendation for managers is that the proportion of balanced typicality items should be higher than the balanced novelty items for pants and

jackets. Conversely, shirts may have higher percentages of balanced novelty items than balanced typicality items. Percentages of basics are also lower for shirts than for pants and jackets as novelty plays a more important role in the selection of shirts.

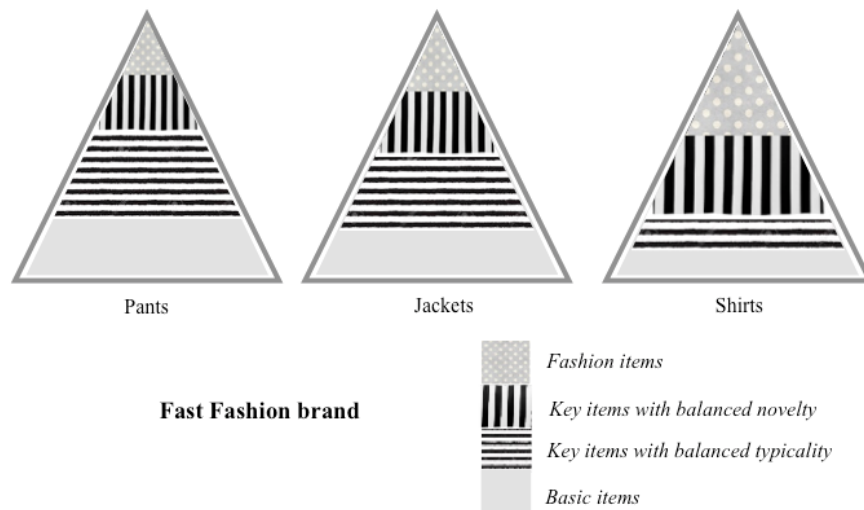


Figure 31. MAYA Principle Illustrated: Example of Collection Allocation

Another important point that needs to be taken into consideration when applying the results of this dissertation stems from generalizability. Due to the positivist approach of the research design, caution needs to be taken in interpretation and application of results. For instance, findings suggest that the majority of respondents indicated that typicality was the only aesthetic property influencing their aesthetic preference for pants and jackets. Furthermore, results revealed that there is no evidence that novelty is significantly influential in the aesthetic preference for pants and jackets (see hypotheses H1a, H2a, H1b, and H2b of Phase I on Table 28, page 154). However, these results cannot be generalized to the general population, as there may be a certain percentage of

consumers for whom novelty in fact influences their aesthetic evaluations of pants and jackets. According to Euromonitor's report, such consumers are on the rise and are usually called "extraordinary consumers" because they are looking for novelty in most of the products they use, especially fashion-related categories (Kasriel-Alexander, 2017), including pants and jackets. These extraordinary consumers have also been traditionally known as innovators, early adopters, and/or fashion leaders (Behling, 1992) based on the types of adopter categories proposed by the model of innovation adoption (Rogers, 1962; Rogers & Shoemaker, 1971).

Although some niche markets are on the rise, such as the "extraordinary consumers" (Kasriel-Alexander, 2017), it is safe to assume that this study's results may apply to the majority of consumers in the bell-shape curve of Rogers' model (i.e., early majority and late majority). Consequently, for understanding specific adopters that may be present in lower percentages—as compared to the majority of consumers, such as fashion leaders—classifying consumers (e.g., by types of fashion adopter categories) may be considered in future studies.

Based on the discussion of the moderating role of usage situation, managers and designers should be aware that occasion was found to influence the aesthetic evaluation of apparel, but not in a significant way. It is probable that distinctions among situational characteristics have been narrowing in recent times and not all consumers seem to be taking into consideration the social norms involved with certain environments and social settings when selecting apparel. Indeed, it is common practice for some brands to design mix-and-match styles in order to provide more flexibility in apparel items. Alongside

usage situation, positive emotions may also be relevant to managers. Findings revealed that the product perceived as having a moderate level of typicality generated the most desire and joy. The product perceived with a balanced novelty generated the highest ratings of pleasant surprise and fascination. Products that are perceived as having a balance between the properties of typicality and novelty, or so called “key items,” will be products that consumers prefer over the ones that are perceived as being too novel (“fashion items”) or too dull (“basics”). Consumers will not only like those balanced products more, but this liking will generate, in turn, a more positive emotional response than other types of products. Such findings may be relevant to support emotional branding, which is branding that builds strong bonds with consumers based on emotions. As such, building a relationship with a brand may be more widely effective for high involvement products (Rossiter & Bellman, 2012), such as apparel.

### **Limitations and Suggestions for Future Research**

Although this dissertation offers new insight into a wide variety of academic and practical issues, there are some limitations. First, while this study addresses an under researched product category in both the aesthetic response and product design literature, it does not take into consideration the designer or the process of creation of the aesthetic object (Fiore et al., 1996a), or general objects or events (Fiore et al., 1996b). Likewise, due to the scope, this study does not address product design activities (e.g., Ravasi & Stigiani, 2012), the spiritual components of the aesthetic experience (e.g., Fiore et al., 1996a), product placement within visual merchandising (e.g., Janiszewski, 1998), or certain aesthetic characteristics of the object that are not in line with the definition of

product form, such as usability (e.g., Poole & Ball, 2006). Second, other limitations relate to the research design. That is, the experimental scenario in Phase II does not take into consideration the characteristics, functionality, or aesthetics of the website that was hypothetically exhibiting the product pictures. Moreover, the experimental design did not account for consumer characteristics, social or cultural differences, or product information (Bloch, 1995), such as fabric description, price, etc.

As Fiore et al. (1996b) stated, “because many formal and expressive characteristics of the object contribute to aesthetic perception and preference of the object, the researcher must be attuned to issues of research design” (p. 101).

Consequently, it is important to identify the issues specifically related to experimental design in aesthetics research. There are indeed implicit limitations of the method used in Phase I. One limitation has to do with the selection and characteristics of the pictures. Stimuli selected only addressed part of the spectrum, in that most pictures were between highly typical to highly novel. For instance, despite efforts to include an appropriate range of stimuli that covered all possible levels of typicality and novelty, pictures with products that were simultaneously perceived as high in both typicality and novelty were not considered. In addition, when controlling for color and texture in the pictures used in Phase I: Testing the MAYA Principle, the experiment generated a floor and ceiling effect in that extreme ratings on the properties of novelty and typicality were not achieved. In fact, color and texture had an influence on those ratings. The same floor and ceiling effect in the selection of stimuli was experienced by other researchers testing the MAYA principle, including Diels et al. (2013) and Hung and Chen (2012).

Even though Phase II incorporated measures to avoid the limitations encountered during Phase I, there were also limitations of the method used in Phase II. One limitation comes in the form of the partially failed manipulation check of the stimulus in Cell 4 (HT/HN). That is, despite the fact that manipulations were successful during the pre-test for this picture (Table 35 on page 184), the typicality manipulation based on the data from the Final Study was unexpectedly unsuccessful (Table 42 on page 196). TurkPrime was used during both the pre-test and the Final Study. However, it is probable that the pre-test sample ( $n = 13$ ) was a more homogeneous data set in comparison to the Final Study sample ( $n = 487$ ). This heterogeneity of respondents generated a divergence in the prototypes that respondents have in their minds. In turn, divergent prototypes produced higher variability in typicality ratings during the Final Study as compared to the pre-test. Another limitation of Phase II is that the statistical analysis in the Final Study did not account for the variability of the real evaluation of typicality perceived by respondents. This is because the experiment was designed to consider fixed levels of typicality (low/high), which did not account for the real differences. Despite the fact that most of the manipulation checks were successful, the divergent prototype selections may have influenced results specifically in relation to the main effect of typicality that was surprisingly found to be non-significant (H1). In future research, additional analysis for testing the typicality effect on aesthetic preference may use data from the manipulation check of typicality to run a simple regression between the continuous and independent variable of typicality and the continuous and dependent variable of aesthetic preference. To further explore the divergence in prototypes and its effect on typicality, data can also

be grouped by age ranges. Thus, an ANOVA can be employed to test differences in typicality by age group.

Future research may replicate Phase I (Preliminary Study) by including other categories of female apparel, such as skirts, blouses, leggings, and so on. Apparel for males may also be explored. Other elements of certain components in Bloch's (1995) model can also be considered in future experimental research. For example, other elements of the marketing program (e.g., price, branding) from the component of the environment, or individual characteristics such as lifestyle, adoption categories, and taste could be considered. For instance, price, brand, and certain consumer characteristics (e.g., personality traits, such as risk aversion) may have a moderating influence on aesthetic preference. Consumer response may also explore symbolic associations (Crilly et al., 2004) of the consumer, such as those possibly generated by branding or celebrities. Furthermore, other design principles may be explored in fashion products, such as the *iconic representation* principle, which proposes the use of "pictorial images to make actions, objects, and concepts in a display easier to find, recognize, learn, and remember" (Lidwell et al., 2010, p. 132). For example, based on this principle, luxury bags using visible company logos (e.g., the original interlocking CC logo of Chanel) and/or having similar shapes to the most iconic products (e.g., Chanel's classic flap bag) are likely to generate higher preference among consumers when compared with other luxury bags displaying no visible logos and/or shapes that are different from the iconic products. Various types of experiments may also be employed to further explore the taxonomies and related categories in apparel, as well as their influence in the aesthetic property of

typicality. Based on Tyagi and Whitfield's (2014) study of typicality, the present study used a multi-level measure to separate apparel products into parts and utilized the silhouette—parts and shape—to generate various levels of typicality in the stimuli. Future experimental studies may further explore typicality by meticulously considering various shapes, colors, and textures of individual product parts, and explore how these attributes contribute to an overall evaluation of typicality.

An interpretative research approach may be appropriate to explore how the selection process of apparel relates to the MAYA principle by considering not only the selection of individual apparel items, but also decisions related to the whole ensemble. For instance, it may be worth exploring how consumers mix-and-match items in an outfit in accordance with the MAYA principle. Questions to explore may be: *What do consumers look for when selecting items for an outfit? Do consumers look for aesthetic balance in an outfit? Is there any logic behind selecting the items of an outfit? Would the MAYA principle explain that logic? How do consumers mix highly typical items (e.g., basics) with highly novel items (e.g., fashion items)? When mixing highly typical items (e.g., basics) with highly novel items (e.g., fashion items), what do consumers look for from the outfit? Would consumers balance the overall look, as proposed by the MAYA principle, and choose a more typical item to balance a highly novel item?* A qualitative approach may be also recommended for better understanding the product preferences of “extraordinary consumers” (Kasriel-Alexander, 2017). The focus may be given to understanding how the MAYA principle influences their aesthetic preference for products. Explorations may be based on question such as: *Would novelty influence their*



*aesthetic preference for the product? Would novelty influence aesthetic preference for all products? If not all, for which items is novelty unimportant? For which items is novelty most important? How would typicality influence product choice?*

In summary, in order to better predict product preference relative to apparel products, this dissertation explored the Most Advanced Yet Acceptable (MAYA) principle, a two-factor theory that proposes that individuals prefer products that are simultaneously perceived as familiar and new. This exploration involved the integration of several conceptual frameworks, including the framework of consumer response to product form (Bloch, 1995), the aesthetic properties of products (Hekkert & Leder, 2008), appraisal theory (Desmet, 2003; Scherer et al., 2001), positive emotions evoked by products (Demir et al., 2009; Desmet, 2003, 2012), the preference-for-prototypes theory (Whitfield & Slatter, 1979), and the MAYA principle (Hekkert et al., 2003). This integration resulted in the framework called *A Theoretical Model of Cognitive and Affective Responses to Product Form* that was proposed for conceptualizing and operationalizing empirical research on product aesthetics. The overall purpose of this dissertation was to examine the effects of aesthetic properties related to the MAYA principle, specifically typicality and novelty, on consumer response. To address this purpose, the methodology developed a series of experimental designs consisting of two phases. Phase I (student sample) explored the MAYA principle relative to three categories of apparel products (pants, jackets, and shirts). Phase II (non-student sample) further examined the MAYA principle relative to shirts, identified the moderating role of usage situation in the relationship between aesthetic properties and aesthetic preference,

and examined the relationship between aesthetic preference and positive emotions. Phase II additionally examined the mediating role of aesthetic preference between product form and positive emotions.

Overall, findings offer valuable insights regarding the MAYA principle as well as the properties of typicality and novelty. Results mainly revealed that while the preference-for-prototypes theory holds for pants and jackets, the MAYA principle better explains the relationships between typicality, novelty, and aesthetic preference for shirts. Therefore, the MAYA principle does not hold for all categories of apparel. Such results confirm that both factors, typicality and novelty, are jointly taken into account when explaining consumers' aesthetic preference for products. Findings further extend theory, as the properties of typicality and novelty interact, not only functioning as suppressors (inhibiting, counteracting) but also catalysts (increasing, igniting). In sum, findings of this dissertation offer several theoretical, methodological, and practical contributions to academics as well as fashion industry managers and designers to better understand two of the most important aesthetic properties related to apparel, and ultimately, ensure successful adoption of apparel products and fashion trends among consumers.

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## APPENDIX A

### IRB NOTICES

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**Melissa Beck** <mdbeck@uncg.edu>  
To: LINA CEBALLOS <lmceball@uncg.edu>

Fri, Dec 4, 2015 at 8:19 AM

Hi Lina,

Thank you for your email. In phase 2, are the stimuli still the pants, blouse, sweater, etc? If so, neither phase 1 nor phase 2 would require IRB approval.

Even though these phases do not require IRB approval, it would be best practice to obtain permission if you are going to use the student's drawings.

If you have any additional questions, please let me know.

Thank you,  
Melissa

[Quoted text hidden]

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**Melissa Beck, MHA, CIP**  
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**Melissa Beck** <mdbeck@uncg.edu>  
To: LINA CEBALLOS <lmceball@uncg.edu>

Fri, Dec 4, 2015 at 11:31 AM

Hi Lina,

Thanks for the clarification. Phase 2 still does not require IRB review. Since neither phase 1 or 2 require IRB review, you can develop the permission form to use their drawings. I would suggest being clear that they may be used in a publication, etc.

Thanks!  
Melissa

[Quoted text hidden]

**IRB Notice**

Inbox x



IRB &lt;ori@uncg.edu&gt;

7/7/16 ☆



to me, cifarrio, irbcorre, NJNELSON, K\_WATCHR ▾

To: Lina Ceballos Ochoa  
Cons, Apparel, and Ret Stds

From: UNCG IRB

Date: 7/07/2016

RE: Determination that Research or Research-Like Activity does not require IRB Approval

Study #: 16-0208

Study Title: CONSUMER RESPONSES TO VISUAL TYPICALITY AND NOVELTY OF PRODUCTS

This submission was reviewed by the above-referenced IRB. The IRB has determined that this submission does not constitute human subjects research as defined under federal regulations [45 CFR 46.102 (d or f)] and does not require IRB approval.

**Study Description:**

The MAYA principle, or the Most Advance Yet Acceptable principle, is introduced by Loewy (1951) as the logic that explain why humans actually prefer products that are perceived as typical as well as novel. This principle determines the most commercial viable aesthetics for a product design.

The main objective of the main study of the dissertation is to test the MAYA principle in the category of shirts through an experiment via survey. The goal is to examine the effects of typicality and novelty on consumer responses (e.g., aesthetic preference).

If your study protocol changes in such a way that this determination will no longer apply, you should contact the above IRB before making the changes.

CC:

Nancy Hodges, Cons, Apparel, and Ret Stds

Kittichai Watchravesringkan, Cons, Apparel, and Ret Stds

## APPENDIX B

### DRAWINGS RELEASE FORM

**Drawings Release Form**

By signing below, I hereby irrevocably grant and convey to The University of North Carolina at Greensboro (UNCG) all right, title and interest in of all the drawings done by me during the session with the PhD student Lina M. Ceballos. I further irrevocably grant to UNCG, unrestricted rights to use the above mentioned drawings for any academic purposes without limitation consistent with the mission of the University. I agree that all intellectual property rights to these drawings belong to UNCG. I voluntarily waive the right to inspect or approve such publications and waive my right to any royalties, proceeds or other benefits derived from such drawings. If I am an enrolled student older than eighteen (18) years of age. This release is effective on the date written below and will remain in effect indefinitely.

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Signature

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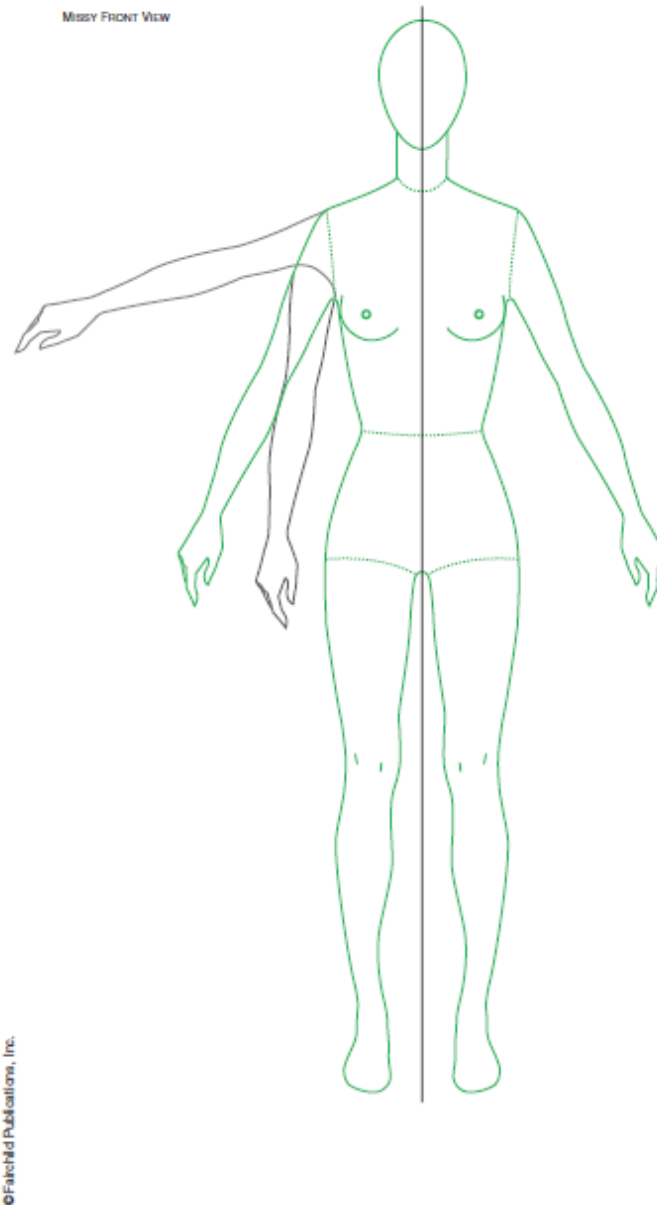
Print Name

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Date

APPENDIX C

BODY SILHOUETTE



Source: Bryant, M. W., & DeMers, D. (2006). The spec manual. New York, NY: Fairchild Publications, an imprint of Bloomsbury Publishing Inc.



## APPENDIX D

### DEMOGRAPHIC QUESTIONS FOR GENERATING DRAWINGS

#### **Demographic information**

1) What is your gender?    ☐ Female        ☐ Male

2) What is your age?    \_\_\_\_\_ Years old

3) What is your ethnicity?

☐ 1. American Indian

☐ 2. Asian-American

☐ 3. Asia or Pacific Islander

☐ 4. Black or African American

☐ 5. Hispanic or Latino

☐ 6. White

☐ 7. Other (Please specify: \_\_\_\_\_ )

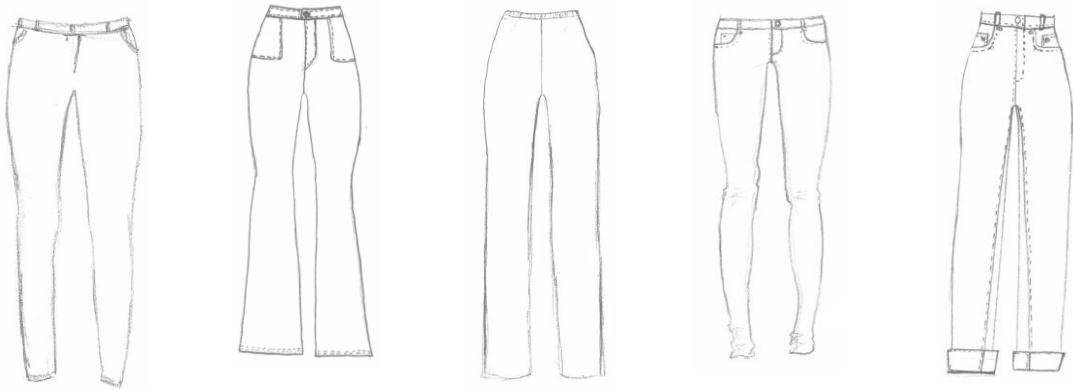
4) What is your year in school?

☐ Freshman   ☐ Sophomore        ☐ Junior        ☐ Senior

## APPENDIX E

### SURVEY FOR SELECTING DRAWINGS

***What image comes first to mind when you hear the word “PANTS”?*** Please answer by selecting with an X on only **ONE** of the following drawings. The drawing you select will be the most similar to the image you have in your mind about the most typical pant.



***What image comes first to mind when you hear the word “JACKET”?*** Please answer by selecting with an X on only **ONE** of the following drawings. The drawing you select will be the most similar to the image you have in your mind about the most typical jacket.



***What image comes first to mind when you hear the word “SHIRT”?*** Please answer by selecting with an X on only **ONE** of the following drawings. The drawing you select will be the most similar to the image you have in your mind about the most typical shirt.



**Demographic information**

- 1) What is your gender?    ☐ Female    ☐ Male
- 2) What is your age?    \_\_\_\_\_ Years old
- 3) What is your ethnicity?
  - ☐ 1. American Indian
  - ☐ 2. Asian-American
  - ☐ 3. Asia or Pacific Islander
  - ☐ 4. Black or African American
  - ☐ 5. Hispanic or Latino
  - ☐ 6. White
  - ☐ 7. Other (Please specify: \_\_\_\_\_ )
- 4) What is your year in school?
  - ☐ Freshman   ☐ Sophomore    ☐ Junior    ☐ Senior
- 5) What is your monthly income?
  - ☐ Under \$300
  - ☐ \$300-\$499
  - ☐ \$500-\$749
  - ☐ \$750-\$999
  - ☐ \$1000-\$1299
  - ☐ \$1300 or more

**Thank you for your time!**

## APPENDIX F

### SURVEY FOR JUDGES IN PRELIMINARY STUDY

#### INSTRUCTIONS

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The purpose of this survey is to evaluate pictures of apparel products.

As a researcher, I want to understand how YOU evaluate different apparel products. Specifically, the following characteristics:

- (1) **Typicality**: how similar is the design to the prototype.
- (2) **Novelty**: How original/unique/unfamiliar is the design.
- (3) **Attractiveness**: How appealing/beautiful/attractive is the design.

I will further explain these characteristics with the product category of chairs.

Let us say that in your opinion, the best example of the category of CHAIRS is this image (chair no. 1):



In other words, chair no. 1 represents the most typical CHAIR in your mind. Then, this chair no. 1 is your PROTOTYPE.

Now you are to evaluate this product picture (chair no. 2):



You would likely evaluate chair no. 2 as very low in **TYPICALITY** because it is far away from the PROTOTYPE. In other words, the picture shows a chair (chair no. 2) that is NOT similar to the prototype (chair no. 1). So you most likely think that chair no. 2 looks very different from the prototype.

You would also likely believe that chair no. 2 is very high in **NOVELTY** because the design looks original, unique and unfamiliar. Then, you would think it looks very novel.

Let us say that you also find it **ATTRACTIVE** because you think its design is beautiful and appealing. Therefore, you will grade chair no. 2 like this:

#### TYPICALITY

**(0) Looks very different from the prototype,**

- (1) Looks somewhat similar to the prototype,
- (2) Looks very much like the prototype.

#### NOVELTY

- (0) Does not look novel at all,
- (1) Looks somewhat novel,
- (2) Looks very novel.**

Note: No copyrights for pictures in this Appendix. All pictures replaced with illustrations. Contact author for actual stimuli.

## ATTRACTIVENESS

- (0) Unattractive,
- (1) Somewhat attractive,
- (2) Highly attractive.**

And this other picture (chair no. 3):



If you were to believe that chair no. 3 is very close to the prototype (chair no. 1), and is low in novelty, and not attractive, you will most likely grade chair no. 3 as follows:

## TYPICALITY

- (0) Looks very different from the prototype,
- (1) Looks somewhat similar to the prototype,
- (2) Looks very much like the prototype.**

## NOVELTY

### **(0) Does not look novel at all,**

- (1) Looks somewhat novel,
- (2) Looks very novel.

## ATTRACTIVENESS

### **(0) Unattractive,**

- (1) Somewhat attractive,
- (2) Highly attractive.

Now I am going to show you product pictures of three categories of apparel: pants, jackets, and shirts. There are 20 pictures per category and a total of 60 pictures. Next, you will evaluate each picture based on its (1) Typicality, (2) Novelty, and (3) Attractiveness. This will take you approximately 20 minutes.

Yet, before you start evaluating, I want to give you some information.

Based on drawings collected from 16 undergraduate students in the CARS Department during January 2016, the following drawings were selected by 41 other CARS students as the best drawings representing the prototype of the categories of pants, jackets, and shirts.

41.5% of the sample selected  
this drawing as the best  
**prototype for PANTS:**



51.2% of the sample selected  
this drawing as the best  
**prototype for JACKETS:**



48.8% of the sample selected  
this drawing as the best  
**prototype for SHIRTS:**



Now you are finally ready to begin! *Thank you for your support!*

## GENERAL QUESTIONS

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Was your undergraduate related to apparel design? \_\_\_\_ Yes \_\_\_\_ No \_\_\_\_ It does not apply

If you have a Masters, was your program related to apparel design?

\_\_\_\_ Yes \_\_\_\_ No \_\_\_\_ It does not apply

If you have a PhD, was your program related to apparel design?

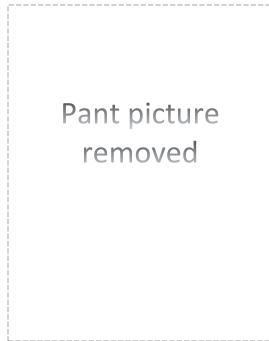
\_\_\_\_ Yes \_\_\_\_ No \_\_\_\_ It does not apply

How many years of experience in apparel design do you have? (Please count teaching and/or professional experience): \_\_\_\_\_ years

## EVALUATION OF PICTURES

---

Picture 1.



### TYPICALITY

- (0) Looks very different from the prototype,
- (1) Looks somewhat similar to the prototype,
- (2) Looks very much like the prototype.

### NOVELTY

- (0) Does not look novel at all,
- (1) Looks somewhat novel,
- (2) Looks very novel.

### ATTRACTIVENESS

- (0) Unattractive,
- (1) Somewhat attractive,
- (2) Highly attractive.

*<... The same was done for each of the 60 product pictures selected>*

## APPENDIX G

### REDUCED 10-PICTURE SET OF PANTS

<b>Pant Pictures before (picture above) and after (picture below) Photoshop</b>			
Picture #2	Picture #3	Picture #7	Picture #8
Pant picture removed	Pant picture removed	Pant picture removed	Pant picture removed
Pant picture removed	Pant picture removed	Pant picture removed	Pant picture removed
Picture #10	Picture #11	Picture #13	Picture #17
Pant picture removed	Pant picture removed	Pant picture removed	Pant picture removed
Pant picture removed	Pant picture removed	Pant picture removed	Pant picture removed
Picture #19	Picture #20		
Pant picture removed	Pant picture removed	Pant picture removed	
Pant picture removed	Pant picture removed	Pant picture removed	

Note: No copyrights for pictures. Pictures removed. Contact author for actual stimuli.

## APPENDIX H

### REDUCED 10-PICTURE SET OF JACKETS

<b>Jacket before (picture above) and after (picture below) Photoshop</b>			
Picture #22	Picture #23	Picture #25	Picture #27
Jacket picture removed	Jacket picture removed	Jacket picture removed	Jacket picture removed
Jacket picture removed	Jacket picture removed	Jacket picture removed	Jacket picture removed
Picture #28	Picture #29	Picture #30	Picture #33
Jacket picture removed	Jacket picture removed	Jacket picture removed	Jacket picture removed
Jacket picture removed	Jacket picture removed	Jacket picture removed	Jacket picture removed
Picture #35	Picture #36		
Jacket picture removed	Jacket picture removed		
Jacket picture removed	Jacket picture removed		

Note: No copyrights for pictures. Pictures removed. Contact author for actual stimuli.



# APPENDIX I

## REDUCED 10-PICTURE SET OF SHIRTS

<b>Shirt before (picture above) and after (picture below) Photoshop</b>			
Picture #41	Picture #42	Picture #44	Picture #45
Shirt picture removed	Shirt picture removed	Shirt picture removed	Shirt picture removed
Shirt picture removed	Shirt picture removed	Shirt picture removed	Shirt picture removed
Picture #47	Picture #49	Picture #50	Picture #53
Shirt picture removed	Shirt picture removed	Shirt picture removed	Shirt picture removed
Shirt picture removed	Shirt picture removed	Shirt picture removed	Shirt picture removed
Picture #59	Picture #60		
Shirt picture removed	Shirt picture removed		
Shirt picture removed	Shirt picture removed		

Note: No copyrights for pictures. Pictures removed. Contact author for actual stimuli.

## APPENDIX J

### SURVEY FOR TESTING THE MAYA PRINCIPLE

*Please do not start answering until instructed!*

#### (Section 1) EVALUATION OF PICTURES

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##### **PICTURE 1**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

##### **PICTURE 2**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

##### **PICTURE 3**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

##### **PICTURE 4**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

##### **PICTURE 5**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

##### **PICTURE 6**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

##### **PICTURE 7**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

##### **PICTURE 8**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

##### **PICTURE 9**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 10**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 11**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 12**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 13**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 14**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 15**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 16**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 17**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 18**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 19**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 20**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 21**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 22**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 23**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 24**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 25**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 26**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 27**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 28**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 29**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

**PICTURE 30**

Poor example \_\_\_\_\_ Good example of the category  
Not original \_\_\_\_\_ Original  
Ugly \_\_\_\_\_ Beautiful

(Section 2) DEMOGRAPHIC INFORMATION

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1) What is your gender?    ☐ Female    ☐ Male

2) What is your age?    \_\_\_\_\_ Years old

3) What is your ethnicity?

☐ 1. American Indian

☐ 2. Asian-American

☐ 3. Asia or Pacific Islander

☐ 4. Black or African American

☐ 5. Hispanic or Latino

☐ 6. White

☐ 7. Other (Please specify: \_\_\_\_\_ )

4) What is your year in school?

☐ Freshman    ☐ Sophomore    ☐ Junior    ☐ Seniors

5) What is your monthly income?

☐ Under \$300    ☐ \$300-\$499    ☐ \$500-\$749

☐ \$750-\$999    ☐ \$1000-\$1299    ☐ \$1300 or more

(Section 3) ADDITIONAL ITEMS

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1) Do you agree that the experiment instructions were clear to understand?

Strongly disagree    ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree

2) How much effort did you put into rating the pictures?

A little    ☐ ☐ ☐ ☐ ☐ ☐ ☐ A tremendous amount

*Thank you for your valuable support!*

## APPENDIX K

### EXPERIMENT INSTRUCTIONS FOR TESTING THE MAYA PRINCIPLE

#### INSTRUCTIONS

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The purpose of this study is to evaluate pictures of apparel products.

As a researcher, I want to understand how YOU evaluate different apparel products.

Specifically,

- 1) Which items are closer to the best example of a specific product category?
- 2) Which products are considered original/unique?
- 3) Which products are considered beautiful/attractive?

For example,

Let us say that in my opinion, the best example of the category of CHAIRS is this image:



> This chair represents the most typical CHAIR in my mind. This CHAIR is the best **EXAMPLE** of this specific product category.

Then, I would evaluate this picture:



Poor example   X   Good example of the category

Not original   X   Original

Ugly   X   Beautiful

And this other picture, I would evaluate:



Poor example   X   Good example of the category

Not original   X   Original

Ugly   X   Beautiful

Now I am going to show you different pictures of three categories of apparel.

I will show you 10 pictures of PANTS, 10 pictures of JACKETS, and 10 pictures of SHIRTS.

You will use the provided survey to rate them. This should take between 10 to 15 minutes.

First, I will show ALL the 30 pictures first for 3 seconds per picture.

Next, I will show each picture for 20 seconds. During this time YOU will evaluate each picture based on the following:

- 1) How similar it is to your example of the category,
- 2) How original it is, and
- 3) How beautiful it is.

---

Note: No copyrights for pictures. Pictures replaced with illustrations. Contact author for actual stimuli.

## APPENDIX L

### FINAL 7-PICTURE SET PER CATEGORY

Picture #1 - Pant	Picture #2 - Pant	Picture #3 - Pant	Picture #4 - Pant
Pant picture removed	Pant picture removed	Pant picture removed	Pant picture removed
Picture #5 - Pant	Picture #6 - Pant	Picture #7 - Pant	Picture #8 - Jacket
Pant picture removed	Pant picture removed	Pant picture removed	Pant picture removed
Picture #10 - Jacket	Picture #11 - Jacket	Picture #12 - Jacket	Picture #13 - Jacket
Pant picture removed	Pant picture removed	Pant picture removed	Pant picture removed
Picture #14 - Jacket	Picture #15 - Shirt	Picture #16 - Shirt	Picture #17 - Shirt
Pant picture removed	Pant picture removed	Pant picture removed	Pant picture removed
Picture #18 - Shirt	Picture #19 - Shirt	Picture #20 - Shirt	Picture #21 - Shirt
Pant picture removed	Pant picture removed	Pant picture removed	Pant picture removed

Note: No copyrights for pictures. Pictures removed. Contact author for actual stimuli.

## APPENDIX M

### SURVEY FOR JUDGES IN MAIN STUDY

#### (Section 1) EXPLANATION OF TYPICALITY AND NOVELTY WITH CHAIRS

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Please help us classify some pictures. But, before you do that, we first need you to understand how to evaluate a product by its design. Specifically, how to evaluate it in relation to the following two characteristics:

- (1) **TYPICALITY**: how similar is the design to the most typical product of the category.
- (2) **NOVELTY**: How original/unique/unfamiliar is the design.

These characteristics are further explained with the product category of “CHAIRS.”

Let us say that in your opinion, the most typical product of the category of CHAIRS is this image (chair A):



In other words, chair A represents the **MOST TYPICAL CHAIR** in your mind.

Note: No copyrights for pictures in this Appendix. All pictures replaced with illustrations. Contact author for actual stimuli.




Now, you are to evaluate this product picture (chair no. 1)



You would likely evaluate chair no. 1 as **LOW** in **TYPICALITY** because it looks different to the **MOST TYPICAL CHAIR**. For example, the most typical chair has no arms and chair no. 1 does. Then, you would think that the chair no. 1 is low in typicality.

You would also likely believe that chair no. 1 is **LOW** in **NOVELTY** because the design does **NOT** look original and unique. In fact, you may be familiar with these chairs because you have seen many like this. Then, you would think it looks **NOT NOVEL**.

Therefore, you will grade chair no. 1 in cell 1, like this:


<p><b>Cell 1:</b></p> <p><u><b>LOW TYPICALITY</b> of product:</u> The product is <b>DIFFERENT</b> from the most typical product of the category.</p> <p><u><b>LOW NOVELTY</b> of product:</u> The product is <b>NOT NOVEL</b>. The product is <b>NOT</b> very original and <b>NOT</b> very unique.</p> 	<p><b>Cell 2:</b></p> <p><u><b>LOW TYPICALITY</b> of product:</u> The product is <b>DIFFERENT</b> from the most typical product of the category.</p> <p><u><b>HIGH NOVELTY</b> of product:</u> The product is <b>NOVEL</b>. The product <b>IS</b> very original and <b>IS</b> very unique.</p>
<p><b>Cell 3:</b></p> <p><u><b>HIGH TYPICALITY</b> of product:</u> The product is <b>VERY MUCH LIKE</b> the most typical product of the category.</p> <p><u><b>LOW NOVELTY</b> of product:</u> The product is <b>NOT NOVEL</b>. The product is <b>NOT</b> very original and <b>NOT</b> very unique.</p>	<p><b>Cell 4:</b></p> <p><u><b>HIGH TYPICALITY</b> of product:</u> The product is <b>VERY MUCH LIKE</b> the most typical product of the category.</p> <p><u><b>HIGH NOVELTY</b> of product:</u> The product is <b>NOVEL</b>. The product <b>IS</b> very original and <b>IS</b> very unique.</p>

Now you are to evaluate this product picture (chair no. 2)



You would likely evaluate chair no. 2 as **LOW** in **TYPICALITY** because it looks very different to the **MOST TYPICAL CHAIR**. In other words, the picture shows a chair (chair no. 2) that is **NOT** similar to chair A. For example, the back of the chair no. 2 may look like fingers or a flower. Then, you would think that the chair no. 2 is low in typicality.

You would also likely believe that chair no. 2 is **HIGH** in **NOVELTY** because the design looks original, unique, and unfamiliar. Then, you would think it looks very novel. Therefore, you will grade chair no. 2 in cell 2, like this:


<p><b>Cell 1:</b></p> <p><u><b>LOW TYPICALITY</b> of product:</u> The product is <b>DIFFERENT</b> from the most typical product of the category.</p> <p><u><b>LOW NOVELTY</b> of product:</u> The product is <b>NOT NOVEL</b>. The product is <b>NOT</b> very original and <b>NOT</b> very unique.</p>	<p><b>Cell 2:</b></p> <p><u><b>LOW TYPICALITY</b> of product:</u> The product is <b>DIFFERENT</b> from the most typical product of the category.</p> <p><u><b>HIGH NOVELTY</b> of product:</u> The product is <b>NOVEL</b>. The product <b>IS</b> very original and <b>IS</b> very unique.</p> 
<p><b>Cell 3:</b></p> <p><u><b>HIGH TYPICALITY</b> of product:</u> The product is <b>VERY MUCH LIKE</b> the most typical product of the category.</p> <p><u><b>LOW NOVELTY</b> of product:</u> The product is <b>NOT NOVEL</b>. The product is <b>NOT</b> very original and <b>NOT</b> very unique.</p>	<p><b>Cell 4:</b></p> <p><u><b>HIGH TYPICALITY</b> of product:</u> The product is <b>VERY MUCH LIKE</b> the most typical product of the category.</p> <p><u><b>HIGH NOVELTY</b> of product:</u> The product is <b>NOVEL</b>. The product <b>IS</b> very original and <b>IS</b> very unique.</p>

Now you are presented with another picture (chair no. 3):



If you were to believe that chair no. 3 is very similar to the MOST TYPICAL CHAIR (chair A), then you would say that chair no. 3 is **HIGH** in **TYPICALITY**.

You may also say that chair no. 3 is **LOW** in **NOVELTY** because its design is not as original as you have seen many chairs like that. So you most likely classify chair no. 3 in cell 3:

<p><b>Cell 1:</b></p> <p><u>LOW TYPICALITY of product:</u> The product is DIFFERENT from the most typical product of the category.</p> <p><u>LOW NOVELTY of product:</u> The product is NOT NOVEL. The product is NOT very original and NOT very unique.</p>	<p><b>Cell 2:</b></p> <p><u>LOW TYPICALITY of product:</u> The product is DIFFERENT from the most typical product of the category.</p> <p><u>HIGH NOVELTY of product:</u> The product is NOVEL. The product IS very original and IS very unique.</p>
<p><b>Cell 3:</b></p> <p><u>HIGH TYPICALITY of product:</u> The product is VERY MUCH LIKE the most typical product of the category.</p> <p><u>LOW NOVELTY of product:</u> The product is NOT NOVEL. The product is NOT very original and NOT very unique.</p> 	<p><b>Cell 4:</b></p> <p><u>HIGH TYPICALITY of product:</u> The product is VERY MUCH LIKE the most typical product of the category.</p> <p><u>HIGH NOVELTY of product:</u> The product is NOVEL. The product IS very original and IS very unique.</p>


Lastly, you are presented with another picture (chair no. 4):



You would likely evaluate chair no. 4 as **HIGH** in **TYPICALITY** because its shape looks very similar to the **MOST TYPICAL CHAIR**. In other words, the picture shows a chair (chair no. 4) that **IS** similar to chair A. Then, you would think that the chair no. 4 is high in typicality.

You would also likely believe that chair no. 4 is **HIGH** in **NOVELTY** because the chair appears to be made of a synthetic material with a bronze color that makes it look different and novel somehow. Then, you would think it looks very novel.

Therefore, you will grade chair no. 4 in cell 4, like this:

<p><b>Cell 1:</b></p> <p><u>LOW TYPICALITY of product:</u> The product is DIFFERENT from the most typical product of the category.</p> <p><u>LOW NOVELTY of product:</u> The product is NOT NOVEL. The product is NOT very original and NOT very unique.</p>	<p><b>Cell 2:</b></p> <p><u>LOW TYPICALITY of product:</u> The product is DIFFERENT from the most typical product of the category.</p> <p><u>HIGH NOVELTY of product:</u> The product is NOVEL. The product IS very original and IS very unique.</p>
<p><b>Cell 3:</b></p> <p><u>HIGH TYPICALITY of product:</u> The product is VERY MUCH LIKE the most typical product of the category.</p> <p><u>LOW NOVELTY of product:</u> The product is NOT NOVEL. The product is NOT very original and NOT very unique.</p>	<p><b>Cell 4:</b></p> <p><u>HIGH TYPICALITY of product:</u> The product is VERY MUCH LIKE the most typical product of the category.</p> <p><u>HIGH NOVELTY of product:</u> The product is NOVEL. The product IS very original and IS very unique.</p> 

## (Section 2) SELECTING THE SHIRT PROTOTYPE

---

Now, instead of CHAIRS, let us think about the category of SHIRTS.

Please answer the following question:

***What image comes first to mind when you hear the word “SHIRT”?***

Please answer by selecting with an X on only **ONE** of the following drawings. The drawing you select will be the most similar to the image you have in your mind about the **MOST TYPICAL SHIRT**.



## (Section 3) MANIPULATION CHECK FOR TYPICALITY AND NOVELTY

---

Next, please take a look at each of these pictures:

<Pictures from typicality/novelty scenarios #1, #2, #3, and #4 here!>

Please rate the typicality and novelty of these eight pictures by answering the following question:





**In which cell below would you locate each picture?**

Please drag each SHIRT picture and locate it into the cell you think is most appropriate: Cell 1, 2, 3, or 4.

*In case you already forgot the explanations provided, the example with CHAIRS will be available for you in the next page for guiding your answer.*

<p><b>Cell 1:</b></p> <p><u>LOW TYPICALITY</u> of product: The product is DIFFERENT from the most typical product of the category.</p> <p><u>LOW NOVELTY</u> of product: The product is NOT NOVEL. The product is NOT very original and NOT very unique.</p>	<p><b>Cell 2:</b></p> <p><u>LOW TYPICALITY</u> of product: The product is DIFFERENT from the most typical product of the category.</p> <p><u>HIGH NOVELTY</u> of product: The product is NOVEL. The product IS very original and IS very unique.</p>
<p><b>Cell 3:</b></p> <p><u>HIGH TYPICALITY</u> of product: The product is VERY MUCH LIKE the most typical product of the category.</p> <p><u>LOW NOVELTY</u> of product: The product is NOT NOVEL. The product is NOT very original and NOT very unique.</p>	<p><b>Cell 4:</b></p> <p><u>HIGH TYPICALITY</u> of product: The product is VERY MUCH LIKE the most typical product of the category.</p> <p><u>HIGH NOVELTY</u> of product: The product is NOVEL. The product IS very original and IS very unique.</p>

Example with CHAIRS:

<p><b>Cell 1:</b></p> <p><u>LOW TYPICALITY</u> of product: The product is DIFFERENT from the most typical product of the category.</p> <p><u>LOW NOVELTY</u> of product: The product is NOT NOVEL. The product is NOT very original and NOT very unique.</p> 	<p><b>Cell 2:</b></p> <p><u>LOW TYPICALITY</u> of product: The product is DIFFERENT from the most typical product of the category.</p> <p><u>HIGH NOVELTY</u> of product: The product is NOVEL. The product IS very original and IS very unique.</p> 
<p><b>Cell 3:</b></p> <p><u>HIGH TYPICALITY</u> of product: The product is VERY MUCH LIKE the most typical product of the category.</p> <p><u>LOW NOVELTY</u> of product: The product is NOT NOVEL. The product is NOT very original and NOT very unique.</p> 	<p><b>Cell 4:</b></p> <p><u>HIGH TYPICALITY</u> of product: The product is VERY MUCH LIKE the most typical product of the category.</p> <p><u>HIGH NOVELTY</u> of product: The product is NOVEL. The product IS very original and IS very unique.</p> 

Note: No copyrights for pictures. Pictures replaced with illustrations. Contact author for actual stimuli.

*Thank you for your support!*

## APPENDIX N

### SURVEY FOR FINAL STUDY

#### (Section 1) CONSENT SECTION

---

Hi,

I am Lina M. Ceballos, a doctoral student in the Department of Consumer, Apparel and Retail Studies at the University of North Carolina at Greensboro. Under the guidance of the professors Dr. N. Hodges and Dr. K. Watchravesringkan (Dr. Tu), I am conducting a study investigating consumer responses to the visual typicality and novelty of products. You are invited to fill out this questionnaire which will take approximately 15-20 minutes to complete.

There are no risks or discomforts associated with this research. You may choose not to respond to any questions that makes you uncomfortable. There are no right or wrong answers. The results of this study will be used for academic purposes only. Choosing not to participate or withdrawing from the study will have no effect on your grades or status in the class from which you were recruited.

You must be 18 years or older to participate in this study. Your participation in this study is absolutely voluntary. You are free to withdraw your consent to be in this study at any time without penalty, but we hope you complete all parts of the survey since incomplete surveys cannot be used.

Confidentiality will be maintained at all times. All information obtained in this study is strictly confidential unless disclosure is required by law. Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing.

For your participation, you will be paid the amount stipulated in MTurk only if you are not filtered at the beginning of the survey and complete the questionnaire. However, the researcher reserves the right to reject work based on the quality of the survey data provided. There are no costs to you for participating in this study.

Thank you in advance for your participation. If you have questions concerning your rights as a research subject, you may contact The Office of Research Integrity at the University of North Carolina at Greensboro (336) 256-1482. You may also contact me at [lmceball@uncg.edu](mailto:lmceball@uncg.edu) or my advisors by email at [njnelson@uncg.edu](mailto:njnelson@uncg.edu) and/or [k\\_watchr@uncg.edu](mailto:k_watchr@uncg.edu).

Sincerely,  
Lina M. Ceballos

By clicking 'Yes' below, you agree that you have read and fully understand the contents above and are openly willing consent to take part in this study. By clicking 'Yes' below, you agree that you are 18 years or older and are agreeing to participate in this study.

☐ Yes

☐ No

#### (Section 2) DEMOGRAPHIC QUESTIONS

---

What is your gender? ☐ Female ☐ Male  
(Respondents who are male will be eliminated from the study)

Please enter your 5-digit ZIP code: \_\_\_\_\_



Employment Status: Are you currently...? (Please check ALL that apply)

- ☐ I am employed or self-employed (freelancer)
- ☐ I am ONLY a student
- ☐ I work AND I am a student
- ☐ I am retired
- ☐ I am unable to work
- ☐ I am a homemaker
- ☐ I am out of work
- ☐ Other (please specify \_\_\_\_\_)

(Respondents who were full-time students OR out of work were eliminated from the study)

What is your age? \_\_\_\_

What is your ethnicity?

- ☐ American Indian
- ☐ Asian-American
- ☐ Asia or Pacific Islander
- ☐ Black or African American
- ☐ Hispanic or Latino
- ☐ White / Caucasian
- ☐ Other

What was your household income before taxes last year?

- ☐ Under \$20,000
- ☐ \$20,000-\$34,999
- ☐ \$35,000-\$54,999
- ☐ \$55,000-\$74,999
- ☐ \$75,000-\$ 104,999
- ☐ \$105,000-\$ 124,999
- ☐ \$125,000-\$ 154,999
- ☐ \$155,000 or more

### (Section 3) EXPERIMENT

---

*<Here the usage situation scenario was selected by Qualtrics based on a random selection from scenarios Professional, Non-professional, and Neutral>*

<Picture #1, #2, #3,  
or #4 here!>

*<One picture was randomly selected by Qualtrics from one of the four typicality/novelty scenarios>*

Please rate the visual appearance of the product in the picture:

Attractive:	Not at all	_____	Very strongly
Appealing.	Not at all	_____	Very strongly
Beautiful.	Not at all	_____	Very strongly
I like this product.	Not at all	_____	Very strongly

Please describe the way you feel when looking at the product:

Surprised:	Not at all	_____	Very strongly
Amazed:	Not at all	_____	Very strongly
Astonished:	Not at all	_____	Very strongly
Curious:	Not at all	_____	Very strongly
Attentive:	Not at all	_____	Very strongly
Interested:	Not at all	_____	Very strongly
Attracted:	Not at all	_____	Very strongly
Wanting:	Not at all	_____	Very strongly
Urged:	Not at all	_____	Very strongly
Happy:	Not at all	_____	Very strongly
Pleased:	Not at all	_____	Very strongly
Joyful:	Not at all	_____	Very strongly

---

#### (Section 4) EXPLANATION OF TYPICALITY AND NOVELTY WITH CHAIRS

Now, we need you to understand how to evaluate a product by its design. Specifically, how to evaluate a product in relation to the following two characteristics:

- (1) **TYPICALITY**: how similar is the design to the most typical product of the category.
- (2) **NOVELTY**: How original/unique/unfamiliar is the design.





These characteristics are further explained with the product category of “CHAIRS.”

Let us say, that in your opinion, the most typical product of the category of CHAIRS is this image (chair A):



In other words, chair A represents the MOST TYPICAL CHAIR in your mind.

The following table includes how 4 CHAIRS would be classified in accordance to TYPICALITY and NOVELTY:

<p><b>Cell 1:</b></p> <p><u>LOW TYPICALITY of product:</u> The product is DIFFERENT from the most typical product of the category.</p> <p><u>LOW NOVELTY of product:</u> The product is NOT NOVEL. The product is NOT very original and NOT very unique.</p> 	<p><b>Cell 2:</b></p> <p><u>LOW TYPICALITY of product:</u> The product is DIFFERENT from the most typical product of the category.</p> <p><u>HIGH NOVELTY of product:</u> The product is NOVEL. The product IS very original and IS very unique.</p> 
<p><b>Cell 3:</b></p> <p><u>HIGH TYPICALITY of product:</u> The product is VERY MUCH LIKE the most typical product of the category.</p> <p><u>LOW NOVELTY of product:</u> The product is NOT NOVEL. The product is NOT very original and NOT very unique.</p> 	<p><b>Cell 4:</b></p> <p><u>HIGH TYPICALITY of product:</u> The product is VERY MUCH LIKE the most typical product of the category.</p> <p><u>HIGH NOVELTY of product:</u> The product is NOVEL. The product IS very original and IS very unique.</p> 

Note: No copyrights for pictures. Pictures replaced with illustration. Contact author for actual stimuli.

#### (Section 5) SELECTING THE SHIRT PROTOTYPE

---

Now, instead of CHAIRS, let us think about the category of SHIRTS.

Please answer the following question:

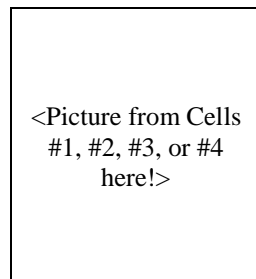
***What image comes first to mind when you hear the word “SHIRT”?*** Please answer by selecting only **ONE** of the following drawings. The drawing you select will be the most similar to the image you have in your mind about the **MOST TYPICAL SHIRT**.



#### (Section 6) MANIPULATION CHECKS FOR TYPICALITY AND NOVELTY

---

Next, you will be shown again the picture presented to you at the beginning of the survey. Please look at the picture again:



Please rate the visual appearance of the product:

Looks VERY DIFFERENT \_\_\_\_\_ Looks VERY MUCH LIKE  
from the most typical shirt the most typical shirt

Not novel \_\_\_\_\_ Novel

Thank you for completing the survey. Your confirmation code is: XXXXXXXX.  
Please indicate this code in TurkPrime for getting your compensation.  
Thank you!

## APPENDIX O

### STIMULI FOR JUDGES IN MAIN STUDY

Picture #1 – Shirt <sup>a</sup>	Picture #2 – Shirt <sup>b</sup>	Picture #3 – Shirt <sup>a</sup>	Picture #4 – Shirt <sup>b</sup>
<div style="border: 1px dashed gray; padding: 10px; width: 80px; margin: 0 auto;">                     Shirt picture removed                 </div>	<div style="border: 1px dashed gray; padding: 10px; width: 80px; margin: 0 auto;">                     Shirt picture removed                 </div>	<div style="border: 1px dashed gray; padding: 10px; width: 80px; margin: 0 auto;">                     Shirt picture removed                 </div>	<div style="border: 1px dashed gray; padding: 10px; width: 80px; margin: 0 auto;">                     Shirt picture removed                 </div>
Picture #5 - Shirt <sup>b</sup>	Picture #6 - Shirt <sup>a</sup>	Picture #7 - Shirt <sup>a</sup>	Picture #8 - Shirt <sup>b</sup>
<div style="border: 1px dashed gray; padding: 10px; width: 80px; margin: 0 auto;">                     Shirt picture removed                 </div>	<div style="border: 1px dashed gray; padding: 10px; width: 80px; margin: 0 auto;">                     Shirt picture removed                 </div>	<div style="border: 1px dashed gray; padding: 10px; width: 80px; margin: 0 auto;">                     Shirt picture removed                 </div>	<div style="border: 1px dashed gray; padding: 10px; width: 80px; margin: 0 auto;">                     Shirt picture removed                 </div>
Picture #9 - Shirt <sup>a</sup>	Picture #10 - Shirt <sup>a</sup>	Picture #11 - Shirt <sup>a</sup>	Picture #12 - Shirt <sup>b</sup>
<div style="border: 1px dashed gray; padding: 10px; width: 80px; margin: 0 auto;">                     Shirt picture removed                 </div>	<div style="border: 1px dashed gray; padding: 10px; width: 80px; margin: 0 auto;">                     Shirt picture removed                 </div>	<div style="border: 1px dashed gray; padding: 10px; width: 80px; margin: 0 auto;">                     Shirt picture removed                 </div>	<div style="border: 1px dashed gray; padding: 10px; width: 80px; margin: 0 auto;">                     Shirt picture removed                 </div>
Picture #13 - Shirt <sup>a</sup>			
<div style="border: 1px dashed gray; padding: 10px; width: 80px; margin: 0 auto;">                     Shirt picture removed                 </div>			

<sup>a</sup> Pictures that resulted in 100% agreement.

<sup>b</sup> Pictures that resulted in 66.67% agreement.

Note: No copyrights for pictures. Pictures removed. Contact author for actual stimuli.

## APPENDIX P

### STIMULI FOR PRE-TEST OF FINAL STUDY

Picture #1 - Shirt	Picture #2 - Shirt	Picture #3 - Shirt	Picture #4 - Shirt
Shirt picture removed	Shirt picture removed	Shirt picture removed	Shirt picture removed
Picture #5 - Shirt	Picture #6 - Shirt	Picture #7 - Shirt	Picture #8 - Shirt
Shirt picture removed	Shirt picture removed	Shirt picture removed	Shirt picture removed
Picture #9 - Shirt	Picture #10 - Shirt	Picture #11 - Shirt	Picture #12 - Shirt
Shirt picture removed	Shirt picture removed	Shirt picture removed	Shirt picture removed
Picture #13 - Shirt	Picture #14 - Shirt		
Shirt picture removed	Shirt picture removed		

Note: No copyrights for pictures. Pictures removed. Contact author for actual stimuli.