A CONSUMER PERSPECTIVE ON MASS CUSTOMIZATION

A Dissertation
Presented to
the Faculty of the Graduate School
University of Missouri-Columbia

In Partial Fulfillment
of the Requirements for the Degree

Doctor of Philosophy

by
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MAY 2006

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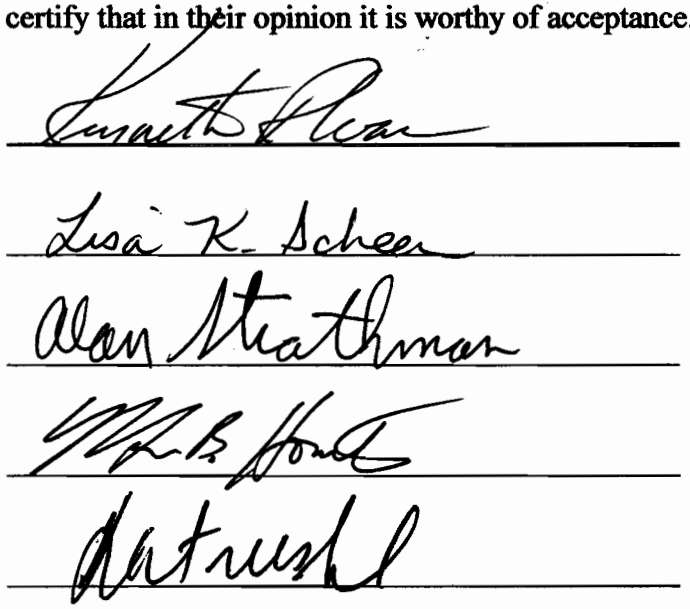

ACKNOWLEDGMENTS

Many individuals have contributed to the completion of this dissertation. I express my gratitude to my dissertation supervisors, Drs. Kenneth R. Evans and S. Ratneshwar, for their belief in the project and continued guidance and mentorship. My perspective on markets and consumers, has been greatly influenced by the generous scholarship of these individuals. I am grateful to my committee members Drs. Lisa K. Scheer and Mark B. Houston. Each contributed to this dissertation in a variety of ways resulting in a vastly improved manuscript. The enthusiasm they bring to their teaching and scholarship is contagious. My hope is to pursue my career with as much spirit and integrity as Drs. Scheer and Houston.

The relationships I formed with my fellow doctoral students have shaped my understanding of the world. I look forward to many years of sharing in each of their successes. Dr. M. Omar Shehryar has been my confidant and co-pilot through every stage of my academic career. My life is greatly enriched through my special friendship with Omar. My dear friends Andy and Kate Walker, brought peace and understanding to my years in graduate school. Andy's knowledge of all things social is surpassed only by his generosity. To Andy I am eternally grateful for mentoring me along the path to the "ancient and universal community of scholars."

This work could not have been completed without the support of my family. My parents, Tammie and Rex Hunt, instilled in me a curiosity about the world that fuels all of my scholarly pursuits. They gave me the opportunity to pursue my education and the values to continually seek knowledge. Throughout the dissertation process their unwavering support gave me confidence in my chosen path. Thank you Mom and Dad! Finally, my wife, Dr. Elizabeth M. Hunt, is my best friend and soul mate. Lisa brings to my life richness, fullness, and purpose. It is to Lisa that I dedicate this dissertation.

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ABSTRACT

This dissertation investigates individual differences in the perceived value of mass customized products. Specifically, I explore the influence of individual differences in need for optimization (NFO), centrality of visual product aesthetics (CVPA), and consumer need for uniqueness (CNFU) on perceived value of customized product alternatives for four product categories. The fundamental question addressed in this study is, do differences in trait levels of NFO, CNFU, and CVPA lead to differences in the perceived value of mass customized products? A conceptual model grounded in involvement theory, the functional theory of attitudes, and theories on the desirability of uniqueness is proposed and empirically tested. The empirical part of the dissertation consisted of two studies using survey methodology. Study one identified product categories appropriate for the mass customization context. Study two tested the hypotheses. Two hundred forty undergraduate business students participated in the main study. Generally, the data support significant relationships between the three individual differences and the perceived value of mass customized products. That is, individuals high in NFO, CVPA, and CNFU report higher perceived value for mass customized products than individuals low in those characteristics. Further, support is provided for the mediating role of involvement in the functional and symbolic benefits for a given product category. Results of the study extend consumer research on individual differences into a new domain of consumer behavior and hold implications for segmenting mass customization markets.

CHAPTER 1 – INTRODUCTION

This dissertation explores the relationship between three individual difference variables and the perceived value of mass customized product offers. Individual differences among consumers are an important way for marketers and consumer researchers to divide consumer markets and predict the behavior of consumers with respect to marketing stimuli (Haugtvedt, Petty, and Cacioppo 1992). For instance, studies of individual differences in need for cognition (Petty, Cacioppo and Scumann 1983) and self-monitoring (Snyder 1974) have long histories of research on the cognitive processing of advertisements and message persuasion, respectively (Haugtvedt, Petty, Cacioppo 1992). Research has not addressed how differences in individual characteristics influence pre-purchase attitudes toward mass customized goods.

Mass customized goods are goods produced to the design specifications of individual customers (Bendapudi and Leone 2003; Liechty, Venkatram, and Cohen 2001; Piller 2003). Understanding individual differences in attitudes toward mass customized goods is important for two reasons. First, mass customization programs are becoming an increasingly important way for manufacturers to meet individualized demand at near mass production efficiency. While the strategy of mass customization has been present in marketing for many years, (e.g. furniture manufacturers have a long history of offering mass customized goods), only recently have technological advances in production systems and in customer interface solutions allowed the strategy to be applied in broader categories of consumer products. These technological advances offer firms the potential for increased profits and reduced costs by substituting consumer labor for employee labor (Tseng and Piller 2003). Recognizing this opportunity, consumer products firms in a variety of product categories have launched mass customization

programs. For instance Nike ID, Lego, and Sears all have programs that allow consumers to customize products before committing to purchasing them. Additionally, an influx of venture capital is being channeled to fund new mass customization business models (Piller 2003). For instance, Zazzle is a company that sells only mass-customized products covering categories such as apparel, posters, greeting cards, and postage stamps. From the firm's perspective, mass customization programs can be thought of as a way to shift onto the consumer the responsibility for fine-tuning a product's positioning. Thus, with increasingly fragmented media, mass customization may prove to be an important marketing strategy (Firat and Venkatesh 1995; Firat, Dholakia, and Venkatesh 1995).

Second, while mass customization programs are becoming more prolific in consumer markets, some high-profile mass customization programs have failed. Levis, Inc., once considered a pioneer in mass customized apparel, has indefinitely suspended its "original spin" customization program. Procter and Gamble's reflect.com, a web-based business that offered customized cosmetics, at one time provided an example of how a large company could profit from offering mass customization solutions (Piller 2003). But after six years of operation, Reflect.com was shut down. So while mass customization programs may offer great potential for consumer product marketers, the strategy is not a sure thing. Identifying individual characteristics that drive attitudes toward mass customized goods may provide insight into market conditions in which mass customization programs will succeed and those in which they may fail.

Despite the proliferation among manufacturing firms of mass customization programs (Liechty, Venkatram and Cohen 2001), research has not sufficiently explored individual differences in attitudes toward mass customization. The fundamental question addressed in this

research is how differences in certain consumer traits influence the perceived value of a mass customized product. Drawing on involvement theory, the functional theory of attitudes, and theories on the desirability of uniqueness, a conceptual framework is proposed and empirically tested. The purpose of the framework and empirical study is to attempt to explain individual differences in perceived value of mass customized product offers compared to mass marketed alternatives for specific product categories.

The identifying characteristic of a mass customized product compared to a mass marketed alternative is the participation of the consumer in the selection and configuration of design features and product attributes. Participation occurs before acquiring a product through active interaction between the consumer and the firm. For instance, through a web-based interface, Nike customers can choose the color and fabric and personalize the logo of their shoes before committing to purchase. As such, mass customization can be considered a specific type of co-production. The majority of co-production research has focused on the co-production of consumer services (e.g. see Bendapudi and Leone 2003; Rodie and Kleine 2000; Bateson 1985; Czepiel 1990). However, given the advancement in production and interface technologies, mass customization may make the study of co-production in the domain of consumer goods equally as important.

Mass customization programs offer consumers a product solution that is more unique and give consumers control over functional and stylistic benefits they receive from mass customized products. With greater regularity and across an increasingly diverse group of product categories (Piller 2003), consumers are being offered the choice of purchasing standard, mass marketed goods or mass customized alternatives. Embedded within markets that offer both mass-customized products and standard, mass marketed products is a set of attitudes that supports a

comparison and evaluation of the value of owning a customized product to owning a mass marketed alternative. As such, this research addresses pre-purchase attitudes toward mass customized goods.

An underlying premise of this study is that when consumers evaluate various product alternatives, the degree to which consumers value mass customized compared to non-customized alternatives varies. Further, this variance can be explained, at least partially, by the degree to which individuals hold trait-like characteristics associated with the need to optimize the outcomes of events in their lives, the value placed on the visual aesthetic of goods, and the need to express their uniqueness with goods. The primary objective of the dissertation is to contribute to consumer behavior literature by offering an individual differences perspective on the perceived value of mass customized goods.

Chapter One has introduced the concept of mass customized goods and explained the relevance of empirically exploring how individual differences impact the value consumers assign to mass customized products. In Chapter Two, a review of relevant marketing and consumer behavior literature identifies three individual difference variables that may drive perceptions of value toward mass customized products. The literature review helps frame the context of the dissertation and supports a conceptual framework that guided the empirical investigation. Two studies using survey methodology identified product categories for the main study and tested the hypotheses presented in the framework. Chapter Three addresses the method and procedure employed in both the pilot study and the main study. Chapter Four provides a review of the results of the main study. Finally, the dissertation concludes with Chapter Five that presents a discussion of the theoretical and managerial implications of the research and potential directions to take future research on this topic.

CHAPTER 2 – LITERATURE REVIEW AND THEORETICAL FRAMEWORK

When purchasing mass customized goods, consumers determine the final configuration of features, thereby altering the aesthetic, symbolic, and performance-related benefits provided by the product (Addis and Holbrook 2001). As such, mass customization, from the consumer perspective, is an active form of value-production through which consumers acquire mass-produced goods that are more individualized than standard, off-the-shelf alternatives (Liechty, Venkatram and Cohen 2001). A variety of research has addressed consumer desire for individualized product solutions and consumers as active agents in the co-production of value in consumer goods. However, research has not specifically addressed individual differences that are associated with the perceived value of customized product solutions with respect to the functional, aesthetic, and symbolic aspect of goods. Nor has research identified the means through which these individual differences manifest in attitudes toward mass customized goods. To that end, Chapter Two is organized into three sections. The first section provides a review of literature that supports the idea that consumers desire individualized product solutions. This section reviews three individual difference variables that may drive desire for such individualized solutions via mass customized products. The second section reviews literature that conceptualizes consumers as active producers of value and illustrates the connection between active value production and the concept of consumer involvement. Chapter Two closes with a presentation of the conceptual framework and nine research hypotheses.

DESIRE FOR INDIVIDUALIZED PRODUCT SOLUTIONS

Mass customized goods allow consumers to specify the configuration of product attributes that ultimately shape both the performance-related utilitarian benefits and appearance-related symbolic benefits of a product. By specifying a product's assortment of attributes, consumers can more closely align a product's final configuration with their own desires for utilitarian and symbolic benefits. Some mass customization programs focus primarily on one aspect or the other—either allowing consumers to customize only performance-related attributes or only appearance-related attributes. For instance, Dell computers allows its customers great input into the performance-related attributes but no input on the aesthetic attributes. In contrast, Nike ID allows customer specification of stylistic attributes such as color and personalized logos, but it does not allow specification of performance-related attributes. Other mass customization programs allow consumers to specify both utilitarian and symbolic properties of products. Klein, a bicycle manufacturer, allows consumers to specify the color of their frame and the performance level of every component part on the bicycle.

By allowing consumers to specify performance and stylistic attributes, mass customized goods offer product solutions that are closely aligned with personal desires for both utilitarian and symbolic benefits. It is well established that consumers value solutions that are congruent with perceptions of their own needs and desires (Addis and Holbrook 2001). This idea, taken to the extreme, suggests that the value of a good cannot be fully realized until a consumer has aligned the properties of the good with his/her unique needs and desires. Ostergaard, Fitchett, and Christian (1999) articulate the desire for unique product solutions by suggesting that "even though individual consumers buy mass produced goods and consume them 'en masse', their longings and interests are not directed towards mass commodities but towards having, using and

interacting with distinct goods which they may call 'their own'." As such, mass customized product solutions can be seen as a means by which consumers can, prior to acquisition, align a product's utilitarian and symbolic benefits with their own needs and desires.

An underlying premise of this dissertation is that differences in specific individual characteristics will cause some consumers to value the individualized solutions offered by mass customized products more than other consumers. Literature from social psychology and consumer research suggests three individual difference characteristics, need for optimization (NFO), centrality of visual product aesthetic (CVPA), and consumer need for uniqueness (CNFU) that may be associated with preferences for the functional, aesthetic, and symbolic aspects of goods, respectively.

Need for Optimization

Consumers differ in the degree to which they attempt to optimize the objective outcomes of their decisions (Schwartz et al. 2002). Schwartz (2002) defines need for optimization (NFO) as an individual's tendency to strive to maximize the objective outcomes of events. NFO influences consumption related behavior. In consumption situations, high NFO consumers attempt to optimize the outcome of consumption decisions by focusing on the utilitarian benefits of products. That is, concern for the functional benefits of products such as how well they perform (e.g. ease of adjusting the height of a desk chair) are more important to high NFO consumers than is concern over more symbolic benefits (e.g. the image projected by a desk chair). The NFO construct is particularly relevant to the mass customization context because of the psychological stress high NFO consumers tend to experience when faced with a vast array of product choices on the mass market. Schwartz (2004) argues that in order to find satisfactory the outcome of a consumption decision, high NFO consumers must believe they have examined

all possible product alternatives available to them. In contrast, low NFO consumers tend to satisfice, or accept an outcome based on its satisfaction of fixed expectations regardless of whether or not every alternative has been evaluated. For high NFO consumers, the need to evaluate every alternative on the market may cause stress and erode psychological well being (Schwartz 2002). By allowing consumers to specify a product's assortment of features, mass customized products offer the possibility of optimizing a product's utilitarian benefits without requiring the examination of every alternative on the market.

Centrality of Visual Product Aesthetic

Mass customized goods offer consumers the opportunity to tailor the purely aesthetic properties of a consumer product. A product's visual aesthetic qualities are a source of value to consumers (Bloch 1995; Holbrook 1986). Bloch, Brunel, and Arnold (2003) suggest that consumers differ in the degree to which visual product aesthetics are important and that those differences influence product category attitudes. These differences are captured in the concept of centrality of visual product aesthetics (CVPA). CVPA is defined as the level of significance that visual aesthetics hold for a particular consumer in his or her relationships with products. Consumers high in CVPA value the distinction of design, they express acumen in recognizing superior design, and they are particularly moved by products with pleasing design elements (Bloch, Brunel, and Arnold 2003). Given the control over visual design elements provided by mass customized goods, it is reasonable to expect purely stylistic pursuits to drive attitudes toward mass customized products.

Consumer Need for Uniqueness

Consumers use goods, at least partially, to express unique aspects of their self concept (Tian, Bearden, and Hunter 2001). By allowing consumers to specify functional and stylistic properties of products, the symbolic properties (i.e., the meaning) of the product is also necessarily altered (Addis and Holbrok 2001). The alteration of the symbolic properties of mass customized goods has implications for consumers who desire to express unique aspects of their self concept through the expressive properties of goods.

The use of goods to express uniqueness is particularly valued because it satisfies the need for uniqueness with reduced risk of severe social penalties (Snyder 1992). Research has suggested that individuals differ in their relative need to feel unique and different from others (Snyder and Fromkin 1977). Recently, consumer researchers have applied concepts from need for uniqueness research to explore how uniqueness motivations manifest in consumer responses (Tian, Bearden, and Hunter 2001; Tian and McKenzie 2001). Differences in the degree to which consumer goods are used to express uniqueness are captured in the concept of consumer need for uniqueness (CNFU). CNFU is defined as an individual's pursuit of differentness, relative to others, that is achieved through the acquisition, utilization, and disposition of consumer goods for the purpose of developing and enhancing one's personal and social identity (Tian, Bearden, and Hunter 2001). Given the provision of mass customized goods to alter features that ultimately impact the social meaning of the good (Addis and Holbrook 2001), it is reasonable to expect that individual differences in CNFU will explain differences in the perceived value of mass customized goods.

CONSUMERS AS ACTIVE PRODUCERS OF VALUE

Studying consumer perceptions of the value of mass customized products requires a conception of consumers as active agents in the production of product value (Liechty, Venkatram, and Cohen 2001). Here, active value production refers to any activity of a consumer, before, during, or after an exchange that adds utility or imbues meaning in a consumer good. Utilitarian value can be added by a consumer augmenting the performance of a product by upgrading specific components. For instance, the utilitarian value of a digital camera can be increased by adding a larger memory card. Symbolic value can be added by a consumer altering the appearance of a product with accessories. For instance, adding a personalized face plate to a mobile phone or digital music player adds symbolic value by reflecting precisely defined cultural meaning that more closely aligns with the values the consumer desires to express. By definition, mass customization programs that allow consumers to participate in the design and configuration of goods are value-producing activities that occur before acquiring a product. A review of selected studies from marketing and consumer behavior research suggests that a great deal of work has been conducted on consumer value-producing activities that occur after product acquisition. However, only recently have researchers turned their attention to the co-production of value. This is likely due to the fact that only recently have researchers and marketing practitioners recognized that incorporating customers into the value-producing process is the next frontier in competitive effectiveness (Bendapudi and Leone 2003).

Consumers engage in a variety of value-producing activities after acquiring a product. This idea has a long history of study in consumer research. For instance, certain consumption rituals such as display rituals, maintenance and care rituals, and exchange rituals (McCracken 1988) as

well as processes of narrative construction (Escalas 1997; Hirschman, Scott, and Wells 1998; Ritson, Elliott, and Eccles 1996) add value to consumer possessions. Consumption rituals include things such as how a product is displayed in the home, how a product was acquired, and how a product is cared for. Narrative construction is a socio-cultural process through which consumers construct and share with one another elaborate stories involving possessions and consumption experiences (Hirschman 2000). Both consumption rituals and narrative construction add value through ongoing, active exchanges between consumers and goods. Because participating in a mass customization program occurs at a specific point in time and space, it can be said that mass customized goods offer value in a similar fashion as consumption rituals and narrative construction. That is, the value imbued by mass customizing a product is unique to the particular exchange among the consumer, the firm, and the product. The ideas of McCracken, Escalas, Hirschman and others acknowledge the role of the individual consumer in the production of value from the point of product acquisition through disposition, but exclude all value producing activity that occurs prior to acquiring a product. Mass customized goods, in contrast, integrate design and sales activities before the production stage (Addis and Holbrook 2001).

Involvement in Functional and Symbolic Benefits

The previous discussion illustrates the active role played by consumers in the production of value and depicts mass customization as an active form of consumption. The concept of involvement has a long history of association with various active forms of consumer behavior. Active consumption behaviors such as word of mouth, information search, and risk reduction have been associated with high levels of involvement. Product involvement is a person's perceived relevance of the object (a product, an advertisement, or a purchase decision) based on

inherent needs, values, and interests (Zaichkowsky 1985). The more involved consumers are the more active they become in value-producing activities (Bloch and Richins 1983; Richins and Bloch 1991; Traylor and Joseph 1984). As an active form of consumption, it is reasonable to expect that differences in involvement in benefits for a product category may explain differences in the value placed on mass customized goods.

Here, a distinction is made between involvement in functional and involvement in symbolic benefits for a particular product category. Involvement in functional benefits is defined as the personal significance one places on product performance and utilitarian outcomes for a particular product category. Involvement in symbolic benefits is defined as the personal significance one places on self-expressive and stylistic outcomes for a particular product category. The relevance of distinguishing between involvement in functional and involvement in symbolic benefits is explained by ideas associated with the functional theory of attitudes (FTA, Katz 1960). FTA suggests that attitudes may serve value expressive, ego-defensive, and/or utilitarian functions. That is, attitudes help individuals express their core values to various referents, distinguish themselves from threatening objects, and maximize their rewards and minimize their punishments. Consumer research drawing on FTA suggests that, as attitude objects, some consumer goods serve multiple attitude functions whereas other consumer goods are limited in the functions they serve (Shavitt 1990; Shavitt and Lowrey 1992). For instance, attitudes toward cars may serve both value-expressive and utilitarian functions. In contrast, attitudes toward cologne or perfume may serve primarily a value-expressive function. Given that mass customized goods provide consumers the opportunity to affect both performance and stylistic changes on products (rendering the distinction strategically relevant), involvement in

functional and symbolic benefits is an important distinction to make with respect to their influence on attitudes toward mass customized products.

Perceived Risk of a Customized Product

Because the outcomes of consumer decisions are unknown to consumers, risk is inherently embedded in consumption decisions. Similarly, the outcomes of purchasing a mass customized good are also unknown to consumers and therefore inherently risky. Specifically, mass customized products carry with them the potential for social risk in the form of the added responsibility for potentially negative reactions to consumer design decisions and financial risk in the form of the perception that mass customized goods are more difficult to return than mass marketed counterparts (Piller 2003). Perceived risk of a mass customized product solution is conceptualized as the magnitude of negative social or financial outcomes resulting from the consumption of a mass customized product for a particular product category. Perceptions of risk have long been shown as important factors that influence consumer behavior Bauer (1960). As such, differences in perceptions of risk of a mass customized product may influence subsequent perceptions of the value of mass customized products.

A summary of the conceptual definitions is provided in Appendix 1. The following section presents a conceptual framework that illustrates the hypothesized relationships among these constructs.

CONCEPTUAL FRAMEWORK AND RESEARCH HYPOTHESES

Consumers engaged in markets that offer both mass customized and mass marketed goods evaluate and compare the value of owning a customized product to owning a mass marketed alternative. Perceived value of a mass customized product is the positive or negative attitude

toward paying a premium price for a customized good and toward participating in the design process for a particular product category.

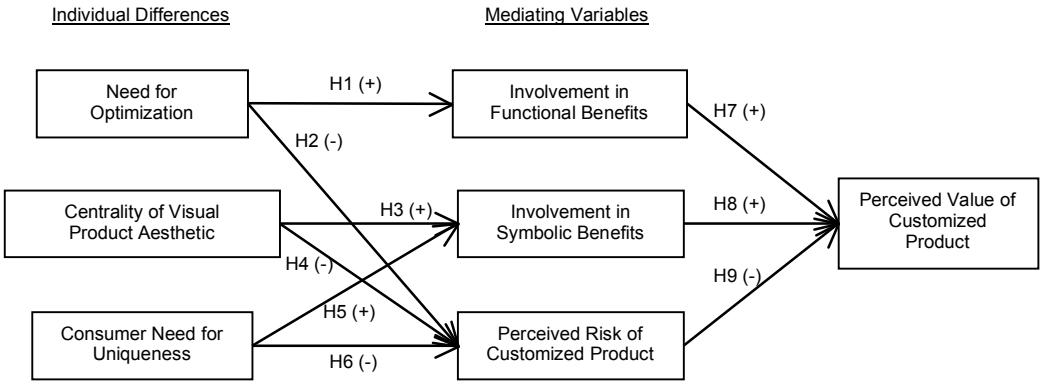
The previous review of the literature revealed three individual difference variables believed to be associated with the perceived value of mass customized goods. The position argued here is that individual differences in NFO, CVPA, and CNFU influence the perceived value of mass customized products. Further, a fully mediated model is postulated wherein these individual differences operate through involvement in the functional and symbolic benefits and perceptions of risk to impact value assessments of mass customized goods.

Market conditions are such that, across various product categories, mass customized goods cost more than mass produced counterparts (Huffman and Kahn 1998). Researchers studying mass customization often conceptualize the value of mass customization programs in terms of the financial premium firms charge for mass customized goods and their feelings toward participating in the design process. Therefore it is important to capture value from the consumer perspective in terms of both a financial metric and a measurement of attitude toward the additional effort and time involved in purchasing a mass customized product. Here, perceived value is conceived as the positive or negative attitude toward paying a premium price for a customized good and toward participating in the design process for a particular product category.

Figure 2.1 illustrates the conceptual framework. The conceptual framework focuses on situations where consumers contemplate a product in a category that is known to them. It is assumed that this process is involving and that the circumstances surrounding the product category are such that the outcomes of a purchase are important. The following discussion

formalizes this argument in nine research hypotheses. A summary of the research hypotheses is provided in Appendix 2.

Figure 2-1
Conceptual Framework



Consumers who have high need for optimization (NFO) must be assured that the objective outcomes of purchase decisions are the best possible outcomes that could be achieved (Schwartz, et al. 2002). The only way for a high NFO consumer to ensure that a purchase decision is the best option that could be made is to examine every possible alternative. Given the vast array of alternatives on the mass market, high NFO consumers likely find the selection of products to be stress-inducing. Mass customized goods allow consumers to optimize the functional and performance aspects of goods without requiring them to survey the entire array of goods available on the mass market. Further, because high NFO consumers seek optimization in their outcomes by focusing on the utilitarian benefits of products, it is reasonable to expect high NFO consumers to be more involved in the functional benefits of a particular product category than low NFO consumers. Given the control over the outcomes of a product category's functional benefits that is offered by mass customized products, it is also reasonable to expect high NFO consumers to perceive mass customized products as lower in

risk than low NFO consumers. That is, the ability to control the functional benefits of a mass customized product likely reduces the degree of financial and social risk that high NFO consumers perceive to be inherent in mass customized products. These ideas are formalized in hypotheses H_1 and H_2.

H1: Consumers with high (versus low) need for optimization will have high (low) involvement in functional benefits for a particular product category.

H2: Consumers with high (versus low) need for optimization will perceive low (high) risk for a mass customized product alternative.

A product's aesthetic design elements influence consumer perceptions of the product by facilitating distinction from other products in the same category, facilitating consumers' interpretation of the product's symbolic qualities, and facilitating the formation of consumer/product relationships (Bloch 1995). Mass customization programs allow consumers to control the outcome of a product's aesthetic attributes. This suggests that the level of involvement in symbolic benefits for a particular product category may be driven by individual differences in CVPA. Similarly, because of the control over aesthetic properties of goods offered by mass customized products, high CVPA consumers likely perceive less risk in mass customized products than low CVPA consumers. The proposed relationship between CVPA and involvement in symbolic benefits and perceived risk of a customized product is summarized in hypotheses H_3 and H_4.

H3: Consumers with high (versus low) centrality of visual product aesthetics will have high (low) involvement in symbolic benefits for a particular product category.

H4: Consumers with high (versus low) centrality of visual product aesthetics will perceive low (high) risk for a mass customized product alternative.

Research in social psychology suggests that the degree to which individuals actively, as opposed to passively, construct their identity depends upon the importance they place on expressing unique aspects of their self concept (Schlenker and Weigold, 1989). Active identity construction involves a great deal of cognitive effort. Individuals rehearse identity roles, and invest considerable effort in the selection and usage of material role identifiers. In contrast, passive identity construction is based on scripts and heuristics that have been used repeatedly and successfully in similar contexts. As such, it is expected that consumers who tend to express their uniqueness with goods will be more highly involved in symbolic benefits for a given product category than consumers who do not. Similarly, consumers high in CNFU will likely view the ability to control the symbolic benefits of mass customized products as a way to build into the product a level uniqueness that will reduce their potential for financial and social risk. Therefore, consumers high in CNFU will likely perceive the individualized solutions offered by mass customized goods as lower in risk. The proposed relationships between consumer need for uniqueness and involvement in symbolic outcomes and perceived risk of a customized product are summarized in hypotheses H_5 and H_6.

H5: Consumers with high (versus low) need for uniqueness will be more (less) involved in symbolic benefits for a particular product category.

H6: Consumers with high (versus low) need for uniqueness will perceive less (more) risk for a mass customized product alternative.

The Effect of Involvement in Functional Benefits

The fact that products are valued for their utility is a "…basic tenant of classical economic theory" (Richins 1994, pg. 507). Functional value comes from the ability of goods to improve consumers' efficiency in navigating their environment (Belk 1988). Consumers who place a great deal of importance on functional benefits for a particular product category likely desire to actively control the performance-related outcomes of consumption decisions. Inasmuch as mass customized products allow consumers to control performance-related outcomes, they facilitate receiving the functional benefits for a particular product category. As such, the perceived value of a customized product is expected to be higher for consumers who are highly involved in the functional benefits for a particular product category than for consumers who are not. The relationship between involvement in functional benefits and perceived value of a customized product is summarized in hypothesis H_7.

H7: Involvement in functional benefits will be positively related to perceived value of a mass customized product.

The Effect of Involvement in Symbolic Benefits

Consumption experiences have meaning because they occur in cultural context. That is they exist within a system that identifies, organizes, and relates its components to one another through systems of meaning (e.g. money, language, and goods) (Mccracken 1988; Sherry 1986). It is well established that consumers value the symbolic properties of consumer products as important resources for social exchange (Belk 1988; Brinberg and Wood 1983; Solomon 1983) and the expression of self (Richins 1994a; Richins 1994b). Further, a product is a source of social capital to a consumer only to the degree that its symbolic properties reflect the values

espoused by that consumer (Allen 2002). Participating in a mass customization program may increase symbolic value by more closely aligning the symbolic qualities of the product to the values of the individual consumer. The relationship between involvement in symbolic benefits and perceived value of a customized product is summarized in hypothesis H_8.

H8: Involvement in symbolic benefits will be positively related to perceived value of a mass customized product.

A basic premise of this study is that consumers evaluate mass customized goods in terms of the potential social and financial risk associated with purchasing a mass customized product. Customized products may be perceived to reduce risk (by offering the opportunity to control the outcome of a purchase) or to increase risk (by subjecting consumers to potential negative financial and social outcomes). It is expected that consumers who view the outcomes of purchasing a mass customized product as high in risk will perceive mass customized products as less valuable than those who perceive the outcomes of purchasing a mass customized product as low in risk. The relationship between perceived risk and perceived value of a customized product is summarized in hypothesis H_9.

H9: Perceived risk of a customized product will be negatively related to perceived value of a mass customized product.

Chapter Two has provided a detailed discussion of a model (Figure 2-1) for individual differences in the perceived value of customized products. Nine hypotheses were introduced to explain a proposed relationship among three individual difference variables and the perceived value of mass customized products. Specifically, individual differences in need for optimization, centrality of visual product aesthetic, and consumer need for uniqueness were

hypothesized to explain a significant amount of the variance in consumer perceptions of the value of customized products. Moreover, the influence of the individual differences are hypothesized to be mediated by involvement in and perceived risk of the product category. These hypotheses were empirically tested in two studies using survey methodology. A summary of the research design, operationalization of the constructs, and an analysis of the measurement model are presented in Chapter Three.

CHAPTER 3 –METHOD

Two studies were conducted to identify product categories appropriate for the sample and to test the hypotheses. The pilot study utilized survey methodology to identify four product categories that were perceived to be relevant to the target sample and that varied in the degree of public consumption visibility. The main study employed a correlational design utilizing survey methodology. The purpose of the design was to correlate scores of the perceived value of a mass customized product with scores of the individual difference and involvement in benefits variables for the four product categories identified in the pilot study. Chapter Three is divided into four sections that describe the procedure of the pilot study, the participants and procedure of the main study, the operationalization of the constructs, and the measurement characteristics of the instrument.

PILOT STUDY

The product categories used in the main study were selected from a total of 14 product categories tested in the pilot study. The 14 products from which the four used in the study were selected are depicted in Appendix 3. Because value perceptions of mass customized products may differ between goods consumed in public and goods consumed in private, it was desirable to include product categories in the study that reflect both publicly and privately consumed goods. Further, because the conceptual framework focuses on situations where the outcome of a purchase are important, it was desirable to include only product categories considered relevant by the sample population.

To identify products for the main study, 29 undergraduates completed semantic differential scales for the 14 products included in the pilot study. Items used to evaluate relevance included,

"unaffordable/affordable," "luxury/necessity," "not relevant to people like me/relevant to people like me," and "not needed/needed." Items used to evaluate visibility included, "consumed at home/consumed away from home," "others aware of the brand I own/others not aware of the brand I own," "consumed outside of public eye/consumed in public eye," and "product use not visible to others/product use visible to others." Results of the pilot study are depicted in Table 3.1. High mean scores indicate high consumption visibility. Similarly, high mean scores indicate high perceived relevance.

Table 3.1

Mean Scores for Relevance and Visibility for 14 Products Tested in Pilot Study

Product category	Mean Relevance (rank)	Mean Visibility (rank)
Alarm Clock*	34.1 (1)	9.6 (14)
Book Bag*	31.8 (2)	28.9 (3)
Shoes	31.4 (3)	30.1 (1)
Calculator	30.6 (4)	22.1 (7)
Cell Phone*	30.1 (5)	29.6 (2)
Desk Chair*	26.8 (6)	11.9 (12)
Desktop Computer	26.7 (7)	19.6 (8)
Desk Lamp	26.2 (8)	13.6 (11)
Watch	23.2 (9)	26.1 (5)
Television	21.9 (10)	15.6 (10)
DVD Player	21.4 (11)	16.8 (9)
Bath Robe	20.9 (12)	10.8 (13)
Laptop Computer	19.7 (13)	24.9 (6)
MP3 Player	16.1 (14)	26.2 (4)

Note: Products marked with an asterisk were selected for the main study.

The four product categories selected for the main study include alarm clocks, book bags, cell phones, and desk chairs. The four product categories were highly relevant to the sample with mean relevance scores of 26.8 and above. Further, the four product categories reflected a

broad spectrum of consumption visibility with cell phones and book bags being perceived as high in visibility, and desk chairs and alarm clocks being perceived as low in visibility. It should be noted that none of the product categories used in the main study are currently marketed with mass-customized alternatives. This departure from real market conditions is desirable in this case because the objective is to test the value of mass customized products compared to mass marketed alternatives in general rather than with respect to a specific product category. As such, comparative evaluations of mass customized versus mass marketed products will not be contaminated by pre-conceived attitudes for the focal product category.

MAIN STUDY

Description of Participants

The questionnaire was administered to a convenience sample of undergraduates (N=240) enrolled in two marketing courses at the University of Missouri. Participants in the study were offered extra credit in the course and the chance to win a prize.

A college student sample is appropriate for this study for two reasons. First, the on-line environment, by which most mass customization programs are administered (Liechty, Venkatram, and Cohen 2001; Piller 2003), is an effective channel to reach college-aged adults. Compared to other age groups, adults 18 to 29 spend a larger percentage of time online compared to other media channels (36% for adults aged 18-29 versus 27% for all other age groups) (Nie 2001). As such, college-aged adults are a likely target for efforts to market mass customized goods. Second, the sample's homogeneity with respect to age is desirable in this instance. As explained in Chapter Two, the conceptual framework assumes that the focal product category is relevant and involving. Intuitively, product categories relevant to a college-

age cohort are likely not relevant to other age cohorts and vice versa. Given that the objective of the research design is to correlate scores of a number of attitudinal variables for product categories that are consistent with respect to relevance, a sample heterogeneous with respect to age may introduce variance beyond the scope of the study.

One questionnaire, submitted with incomplete information, was removed from further analysis. This resulted in a sample final size of 239. One hundred (42%) participants were female. Participants' average age was 20.7 years. Each participant responded to question items for two product categories resulting in a sample N of 478.

Procedure

Participants were solicited by an announcement posted 1 week prior to data collection on the course website and announced in class one week and five days prior to data collection. Students who volunteered to participate were offered one (1) point of extra credit (in a 100-point total course) and the chance to win one of three iPod Shuffles to be given away at the end of data collection. Students who did not volunteer could still earn the extra credit point by completing an essay on a marketing related topic of their choice, but they were not eligible to win one of the iPod Shuffles. Students could participate by showing up at one of two scheduled times to complete the study. The times coincided with the regular class meeting time. To minimize potential schedule conflicts, data were collected on a day that the regular lecture session was not being held.

OPERATIONALIZATION OF THE CONSTRUCTS

Whenever possible, key constructs were measured using adaptations of existing scales. In all, 5 of the 7 key constructs were measured with adaptations of existing scales. Scales for

perceived risk and perceived value of a customized product do not presently exist in the literature. So for each of those constructs new scales were created. All items were closed-ended with 9-point Likert type scales and treated as interval variables. The items used to operationalize all constructs in the hypothesized model are depicted in Appendix 4.

Need for Optimization (NFO)

Need for optimization is defined as an individuals' tendency to strive to maximize objective outcomes of events (Schwartz, et al. 2002). Two items from Schwartz, and colleagues' (2002) optimization scale tap need for optimization. The items include, "I never settle for second best," and "no matter what I do, I have the highest standards for myself." High scores reflect high need for optimization.

Centrality of Visual Product Aesthetic (CVPA)

Centrality of visual product aesthetic (CVPA) is the "…overall level of significance that visual aesthetics hold for a particular consumer in his/her relationship with products" (Bloch, Brunel, and Arnold 2003, pg. 552). To assess CVPA, two items from Bloch, Brunel, and Arnold's (2003) scale were used. The items include, "A product's design is a source of pleasure for me," and "when I see a product that has a really great design, I feel a strong urge to buy it." Items were scored on 9-point Likert scales anchored by strongly disagree and strongly agree. High scores on the items reflect high significance placed on visual product aesthetics.

Consumer Need for Uniqueness (CNFU)

Consumer need for uniqueness is defined as an individual's pursuit of differentness relative to others that is achieved through the acquisition, utilization, and disposition of consumer goods

for the purpose of developing and enhancing one's personal and social identity (Tian, Bearden, and Hunter 2001). Stated more simply it is a measure of the degree to which an individual's desire for uniqueness is manifest in the purchase and consumption of goods. To assess need for uniqueness, three items from Tian, Bearden, and Hunter's (2001) Consumer Need for Uniqueness Scale were used. Items include: "I often look for one-of-a-kind products or brands so that I create a style all my own," "The more commonplace a product or brand is, the less I am interested in it," and "I often combine possessions in such a way that I create a personal image that can't be duplicated." High scores indicate high propensity to express uniqueness with goods.

Involvement in Functional Benefits

Involvement in functional benefits is defined as the personal significance placed on product performance and utilitarian outcomes for a particular product category. Items that measured involvement in functional benefits incorporated response scales based on Zaichkowsky's (1985) involvement inventory. Items include "finding <a product> made with superior construction…*does not matter/matters,*" "owning a <product> with the best technology is…*not important/important,*" and "using a <product> with superior performance is…*of no concern/of concern.*" High scores indicate strong personal significance for functional benefits for a product category.

Involvement in Symbolic Benefits

Involvement in symbolic benefits is defined as the personal significance one places on self-expressive and stylistic outcomes with respect to a particular product category. Similar to involvement in functional benefits items that measure involvement in symbolic benefits

incorporate response scales based on Zaichkowsky's (1985) Personal Involvement Inventory (PII). Bipolar adjective pairs from the PII were used to construct the following scales to measure involvement in symbolic benefits: "Owning a <product> that leaves people with a favorable impression of me is…*does not matter/matters,*" "Buying a <product> that fits my image is…*not essential/essential,*" and "Finding a <product> that has the 'latest look' is…*not essential/essential.*" High scores reflect high involvement in symbolic benefits for a particular product category.

Perceived Risk of a Customized Product

Because this study focuses on pre-purchase attitudes as opposed to post-purchase attitudes, risk is measured as a perception. Perceived risk of a mass customized product is defined as the magnitude of negative social or financial outcomes related to a mass customized product for a particular product category. Perceived risk has been described as a relatively complex construct having two dimensions and manifesting in at least five types of risk. The two risk dimensions include the magnitude of consequences and the probability that these consequences may occur (Dowling and Staelin 1994; Mitchell 1999; Stone and Gronhaug 1993). Types of risk include *financial risk, performance risk, physical risk, psychological risk,* and *social risk* (Havlena and Desarbo 1990; Jacoby and Kaplan 1972).

Not all types of risk are relevant to all consumption scenarios and purchase decisions. Therefore, in studying the risk construct, researchers typically measure only those types of risk relevant to their research context (Folkes 1988; Mandel 2003). The present conceptualization of risk incorporates one dimension (magnitude of the negative outcome) and two types (financial and social) of risk that are relevant to the study. Items to measure perceived risk include "financially speaking, a customized <product> seems…*very safe/very risky,"* and "considering

what others may think, buying a customized <product> seems…*very safe/very risky*. High scores reflect high perceived risk for a customized product.

Perceived Value of a Customized Product

Consumer attitudes toward mass customized products should be measured in terms of attitude toward the incremental costs associated with a customized product alternative and attitude toward the time and effort of co-producing a mass-customized product (Bardakci and Whitelock 2003). Similar to the measure for perceived control, the focus of the value measure is on pre-purchase attitudes. As such, value is measured as a perception. Perceived value of a customized product is defined as the positive or negative attitude toward paying a premium price for participating in the design process for a particular product category. The six items used to tap perceived value include "The additional two days required to receive a customized <product> seems…*not worth it/worth it,*" "The thought of choosing the colors, style, and features for a <product> is…*very unappealing/very appealing,*" "I think paying more money for customized shoes is…*not worth it/worth it,*" "the additional effort required to buy a customized <product> seems…*not worth it/worth it,*" "paying more money for a customized <product> seems…*not worth it/worth it,*" "the premium price of a customized <product> seems like a waste of money…*strongly disagree/strongly agree*" (reverse scored), and "paying 10% more for a customized <product> seems…*very unreasonable/very reasonable.*" High scores reflect positive perceptions of the value of mass customized products compared to mass marketed alternatives.

MEASUREMENT MODEL

A copy of the survey instrument is provided in Appendix 5. The initial questionnaire included items to measure two additional constructs, attitude toward mass market and intent to customize. Because neither construct exhibited sufficient reliability, they were dropped from the analysis. Examination of item reliabilities, modification indices, and tests of discriminant validity from confirmatory factor analysis suggested that some of the items included in the original questionnaire should be excluded from further analysis. The revisions resulted in 21 items to measure the seven constructs. The items are distributed as follows: consumer need for uniqueness (3 items), centrality of visual product aesthetic (2 items), need for optimization (2 items), involvement in symbolic benefits (3 items), involvement in functional benefits (3 items), perceived risk of a customized product (2 items), and perceived value of a customized product (6 items).

In an effort to evaluate the measurement model and its structure, a series of confirmatory factor models was examined. The models were estimated with AMOS 5.0 using raw data as input. The factor models were run in two ways. First, every item in the data set was analyzed in one model for each of the four product categories. Second, using multi-group analysis in AMOS, product categories were pooled to evaluate whether or not components of the measurement model are consistent across product categories. This two-step approach is advocated by Byrne (2001) who suggests that before testing for invariance of a model across sub-groups, it is important first to establish baseline models for each of the sub-groups independently. Before the factor models were analyzed, data were evaluated for out-of-range responses and missing values. Missing values were replaced by mean substitution.

Analysis of the Measurement Model

Measurement models can be evaluated on a variety of fit statistics. For the current analysis, goodness-of-fit was based upon the chi-square test, root mean square error of approximation (RMSEA), and the comparative fit index (CFI). Satisfactory fits are indicated when the chi-square statistic is insignificant. However, given chi square's reliance on sample size and the need to fit indices normed between zero and one (Browne and Cudeck 1993), chi square was evaluated in context with the other two indices. RMSEA is an informative statistic to examine in conjunction with chi-square because RMSEA is less sensitive to distribution and sample size (Hu and Bentler 1999). RMSEA estimates between .05 and .08 indicate adequate fit with estimates of less than .05 indicating good fit (Browne and Cudeck 1993). RMSEA estimates greater than .10 are considered inadequate. The CFI is considered adequate at .90, with estimates of .95 or greater indicating very good fit (Byrne 2001).

Sub-group Analyses (by product category)

Based on analysis of factor loadings and modification indices, one item was removed from the need for optimization scale. The item is worded "whenever I am faced with a choice, I try to imagine what all the other possibilities are, even ones that are not present at the moment." The item did not correlate with either of the other two NFO items (inter-item correlations with the two other items in the scale were .066 and .077, respectively). Removing the item improved Chronbach's alpha from .371 for the three-item factor to .602 for the two-item factor. This finding is consistent with the factor analysis of the maximization scale reported by Schwartz, et al. (2002). In their factor analysis, the item exhibited strong cross-loadings on two other sub-dimensions of the maximization scale. The construct of interest in this study is the relatively

narrowly defined subscale of maximization that concerns maximizing objective outcomes for oneself and for things in general. A face validity check suggests that the remaining two items adequately tap the construct.

One item from the involvement in functional benefits construct that was included in the questionnaire was excluded from the analysis. The removed item is worded "Having a <product> with the right features is…" The item exhibited strong cross loadings with the importance of symbolic benefits factor. A face validity check of the item suggests that having the "right features" is somewhat vague and could easily have been interpreted by participants as referring to a product's aesthetic qualities rather than its functional qualities. Removing the item resulted in a modest improvement in alpha from an average of .73 across product categories to an average of .76 across product categories for the item. The three remaining items more clearly tap the functional aspects of product category benefits by addressing product construction, level of technology, and level of performance.

Item loadings and fit statistics for each of the four product categories are depicted in Table 3.2. Relative chi-square values (x^2/df) are all below the 3 to 1 ratio recommended by Carmines and Mciver (1981) as demonstrating sufficient fit. Moreover, values for the other two fit indices suggest an adequate fit of the measurement model across all four product categories. Comparative fit index values ranged from .902 to .922, all above the .90 advocated by Bollen (1989). RMSEA values ranged from .054 to .074, all within the range considered adequate (Byrne 2001).

Table 3.2
Factor Loadings

Description	*Factor Loadings*				
	ac	*bb*	*dc*	*cp*	*(multi-group)*
Need for Optimization (NFO)					
No matter what I do, I have the highest standards for myself.					.735
I never settle for second best.					.633
Centrality of Visual Product Aesthetic (CVPA)					
A product's design is a source of pleasure for me.					.858
When I see a product that has a really great design, I feel a strong urge to buy it.					.620
Consumer Need for Uniqueness (CNFU)					
I often look for one-of-a-kind products or brands so that I create a style all my own.					.711
The more commonplace a product or brand is, the less I am interested in it.					.519
I often combine possessions in such a way that I create a personal image that can't be duplicated.					.614
Involvement in Functional Benefits (IFB)					
Finding a <product> made with superior construction… (does not matter/matters)	.77	.64	.56	.54	.771
Owning a <product> with the best technology is… (not important/important)	.84	.73	.79	.66	.835
Using a <product> with superior performance is… (of no concern/of concern)	.80	.74	.92	.76	.806
Involvement in Symbolic Benefits (ISB)					
Owning a <product> that gives people a favorable impression of me… (does not matter/matters)	.53	.72	.69	.71	.527
Buying a <product> that fits my image is… (not essential/essential)	.96	.78	.85	.84	.963
Finding a <product> that has the "latest look" is… (not essential/essential)	.83	.87	.83	.83	.824
Perceived Risk of a Customized Product (PRCP)					
Fincancially speaking, a customized <product> seems… (very safe/very risky)	.80	.66	.71	.63	.790
Considering what others may think, buying a customized <product> seems…(very safe/very risky)	.80	.69	.63	.77	.812

Notes: ac-alarmclocks; bb-bookbags; dc-deskchairs; cp-cellphones. Anchors for response scales were strongly disagree/strongly agree unless otherwise noted.

Table 3.2 (continued)
Factor Loadings

Description	*ac*	*bb*	*dc*	*cp*	*(multi-group)*
Perceived Value of a Customized Product (PVCP)					
The additional two days required to receive a customized <product> seems…(not worth it/worth it)	.70	.74	.75	.71	.692
The thought of choosing the colors, style, and features for a <product> is…(very unappealing/very appealing)	.74	.70	.64	.76	.763
The additional effort required to buy a customized <product> seems… (not worth it/worth it)	.83	.79	.86	.86	.834
Paying more money for a customized <product> is… (not worth it/worth it)	.92	.85	.81	.85	.909
The premium price of a customized <product> seems like a waste of money. (reverse scored)	.76	.80	.67	.40	.762
Paying 10% more for a customized <product> seems… (very unreasonable/reasonable)	.71	.72	.77	.67	.733
Degrees of freedom	271	271	271	271	808
X^2	398.3	359.1	376.8	436.1	1181.9
CFI	.902	.922	.908	.904	.901
RMSEA	.063	.054	.058	.074	.033

Notes: ac-alarmclocks; bb-bookbags; dc-deskchairs; cp-cellphones. Anchors for response scales were strongly disagree/strongly agree unless otherwise noted.

Multiple-group Analysis (combined product categories)

Having established baseline measurement models for each product category, the resulting seven-factor model was tested in a multi-group analysis to evaluate whether or not components of the measurement model are consistent across the four product categories. Factor loading scores from the multi-group model suggested that one item be dropped from the consumer need for uniqueness scale. The item is worded "when products or brands I like become extremely popular, I lose interest in them." This finding is consistent with factor loadings for this item reported by Tian, Bearden, and Hunter (2001). The remaining three items tap the narrowly

defined dimension of CNFU labeled "avoidance of similarity." Factor loadings and fit statistics for the multi-group analysis are depicted in the far right column of Table 3.2. Similar to results observed in the independent group analyses, the relative chi-square value is within the acceptable range of less than three times the degrees of freedom. The Comparative Fit Index value of .901 exceeds the .90 advocated by Bollen (1989). And the RMSEA value of .033 is within the range considered to be a good fit (Byrne 2001).

Discriminant validity was evaluated in two ways. First, the average variance extracted for each construct was compared to the squared correlations between all variables. Average variance extracted values that exceed squared correlations provide evidence of discriminant validity (Fornell and Larcker 1981). Second, to provide additional assessment of discriminant validity between CNFU and CVPA, two alternative factor models were fitted and fit indices were evaluated.

The correlation matrix in Table 3.3 indicates strong correlations among a number of the model's constructs. In particular, strong correlations exist among the three individual difference variables and between involvement in symbolic and functional benefits. These correlation values are comparable to correlations found between other conceptually distinct, yet related traits (e.g. Lastovicka et al. 1999; Lichtenstein, Netemeyer, and Burton 1990). However, in no instance did the squared correlation between two items exceed the average variance extracted for either item providing evidence of discriminant validity among the constructs (Fornell Larcker 1981).

Table 3.3
Correlations and Descriptive Statistics

Constructs	Mean	S.D.	AVE	1.	2.	3.	4.	5.	6.	7.
1. Consumer need for uniqueness (CNFU)	4.87	1.63	.51	.64						
2. Centrality of visual product aesthetic (CVPA)	6.19	1.65	.58	***.55***	.71					
3. Need for optimization (NFO)	5.83	1.75	.52	***.51***	*.35*	.60				
4. Importance of symbolic benefits (ISB)	4.35	2.25	.71	*.14*	***.19***	*.24*	.86			
5. Importance of functional benefits (IFB)	6.68	1.84	.66	.04	*.29*	*.32*	***.43***	.78		
6. Perceived risk of customized prod. (PRCP)	3.96	1.64	.65	-.13	***-.57***	-.06	-.14	-.15	.68	
7. Perceived value of customized prod. (PVCP)	5.70	1.94	.66	.13	***.47***	-.04	***.33***	***.40***	***-.53***	.89

Notes: S.D. = standard deviation; AVE = average variance extracted; Chronbach's alpha reported on diagonal; Italic type indicates p<.05, Bold and italic type indicates p<.01.

To ensure discrimination between two of the model's exogenous variables, discriminant validity between CNFU and CVPA was further evaluated by comparing two rival factor models. The rival models, depicted in Figure 3.1, are structured to compare the fit between the proposed two-factor structure and a rival single-factor structure. Results of the analysis are depicted in Table 3.4. Fit statistics for the single factor model are outside of the tolerance recommended by Byrne (2001). These results provide additional evidence for the discriminant validity between CNFU and CVPA.

Figure 3.1
Two-factor versus single-factor models for CNFU and CVPA

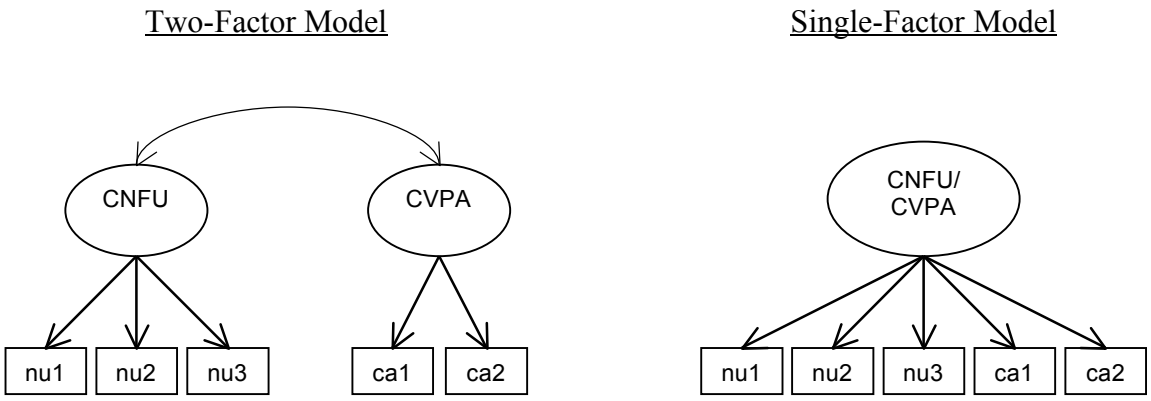


Table 3.4
Fit Indices for Rival Factor Models (CNFU and CVPA)

	CNFU / CVPA	
Fit Indices	**Two-Factor Model**	**One-Factor Model**
CFI	.960	.847
NFI	.953	.840
RMSEA	.077	.174
X^2 (d.f.)	22.8 (4)	77.4 (5)
ΔX^2 (d.f.)	n/a	54.6 (1)

Test for Demand Effects

The design of the study required each participant to respond to items for two product categories, one high-visibility product category and one low-visibility product category. To reduce potential demand effects from responding to high visibility product questions before low-visibility product questions (or vice-versa), questionnaires were counter-balanced with half

of the sample responding to high visibility products first and the other half of the sample responding to low visibility products first. Therefore, it is important to test for item order effects. Independent samples T-tests were conducted for the importance and attitude items for all four product categories. A low significance value for the T-test (less than .05) indicates that there is a significant difference between the two variables. T-values and significance values are shown in Table 3.5. With the exception of two variables (involvement in functional benefits for alarm clocks and involvement in symbolic benefits for desk chairs), T-values are non-significant across the four product categories. Given that the two significant T-values did not replicate for those variables in more than one product category, the difference in means is attributed to chance. Therefore, the results of the T-test provide general support for analyzing the data without concern for item-order demand effects.

Table 3.5
Independent Samples T-test for Item Order Effects

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	Lower	Upper
ISB										
	ac	.001	.975	.974	119	.332	.302	.310	-.312	.918
	bb	.061	.806	-2.133	119	.065	-.795	.372	-1.533	.057
	dc	1.232	.269	-2.626	116	.010	-1.006	.383	-1.764	-.247
	cp	.667	.416	-1.181	116	.240	-.450	.381	-1.205	.305
IFB										
	ac	5.705	.018	3.278	119	.001	1.250	.381	.495	2.005
	bb	3.282	.073	-1.304	119	.195	-.378	.290	-.954	.196
	dc	2.932	.090	.040	116	.968	.013	.335	-.651	.678
	cp	.156	.694	-1.796	116	.075	-.396	.221	-.834	.040
PRCP										
	ac	3.401	.068	1.802	119	.074	.585	.324	-.058	1.228
	bb	.701	.404	1.373	119	.172	.389	.283	-.172	.950
	dc	1.328	.252	-.509	116	.612	-.143	.281	-.701	.414
	cp	.001	.974	-.201	116	.841	-.060	.302	-.659	.537
PVCP										
	ac	.372	.543	-2.072	119	.070	-.403	.194	-.789	.017
	bb	.002	.967	-.621	119	.536	-.116	.187	-.487	.254
	dc	.969	.327	-2.474	116	.065	-.453	.183	-.817	.090
	cp	.020	.887	-1.298	116	.197	-.295	.227	-.747	.155

Note: ISB-importance of symbolic benefits, IFB-importance of functional benefits, PRCP-perceived risk of a customized product, PVCP-perceived value of a customized product.

CHAPTER 4 – RESULTS

TEST OF HYPOTHESES

Assessment of the psychometric properties of the scales suggests that the retained items adequately represent the study's constructs. Path analysis was used to assess the hypothesized relationships. Data were analyzed with AMOS 5.0 using raw data as input. The hypothesized model is well suited to structural path modeling since there are seven latent constructs with nine causal paths. Path analysis using SEM made it possible to simultaneously test all of the hypothesized relationships among the focal constructs. Further, latent variable structural equations modeling controls for the biasing effect of measurement error and reduces the probability of both type I and type II error (Mackenzie 2001).

The analysis followed the systematic approach to testing structural equation models recommended by Bagozzi and Yi (1988). Their three-step approach recommends assessing input data for statistical assumptions, testing overall model fit, and testing fit of the internal structure of the model. The first step in the evaluation of structural equation models is to assess the adequacy of input data. Specifically, parametric statistical procedures assume the condition of normal distribution of data. To assess normality, Bagozzi and Yi (1988) suggest examining skewness and kurtosis values. If skewness and kurtosis values divided by their respective standard error values are between -2 and +2, then the sample is generally considered to be normally distributed (Byrne 2001). The skewness and kurtosis values reported in Table 4.1 indicate that the assumption of normal distribution of data is not violated. As such, estimation methods using SEM are appropriate for the data.

Table 4.1
Descriptive Statistics

Variable	Mean	Std. Dev.	Skewness Stat.	Skewness Std. Err.	Kurtosis Stat.	Kurtosis Std. Err.
NFO	5.8	1.75	-.203	.112	-.208	.223
CVPA	6.2	1.65	-.221	.112	.396	.223
CNFU	4.9	1.63	-.104	.112	-.329	.223
IFB	6.7	1.84	-.186	.112	.451	.223
ISB	4.3	2.25	.045	.112	-.412	.223
PRCP	3.9	1.64	.108	.112	-.018	.223
PVCP	5.7	1.93	.216	.112	-.420	.223

Note: NFO-need for optimization, IFB-importance of functional benefits, PRCP-perceived risk of a customized product, CVPA-centrality of visual product aesthetic, CNFU-consumer need for uniqueness, ISB-importance of symbolic benefits, PVCP-perceived value of a customized product.

The hypothesized structural model was estimated using AMOS 5.0 with maximum likelihood criterion (Arbuckle and Wothke 1999). To assess global measures of fit, a x^2 test was conducted. This statistic indicates the likelihood that the hypothesized model is different from an alternative model that is unconstrained. Results of the x^2 test revealed that the hypothesized model has acceptable fit, as the $x^2_{(177)} = 494.1$ ($p < .001$). It is widely accepted that the x^2 test is sensitive to sample size in that larger sample sizes increase the chances of rejecting a model (Bagozzi and Yi 1988). Therefore, Bagozzi and Yi (1988) suggest comparison of global fit indices produced by the SEM estimation procedure. Table 4.2 indicates that the fit indices are all above the level considered acceptable (Byrne 2001), CFI = .92, NFI = .89, and TLI = .91.

To assess the fit of the internal structure of the model, composite reliabilities were estimated. Reliability scores were all above the recommended level of .50. Further, average variance extracted values were all above the recommended level of .50 (Bagozzi and Yi 1988) providing initial evidence of the fit of the internal structure. All statistically significant paths are in the hypothesized direction and seven of the nine hypotheses are supported at conventional

levels ($p<.05$), providing additional confidence in the nomological validity of the model. The data support significant relationships between the three individual difference constructs and the perceived value of a customized product. Further, support is provided for the mediating roles of perceived risk of a customized product and involvement in symbolic and functional benefits.

Individual Differences and Mediating Variables

As predicted in hypothesis H_1, need for optimization positively influenced involvement in functional benefits ($b = .35$, $p < .01$; where b is the standardized path coefficient). However, need for optimization did not negatively influence perceived risk of a customized product. Therefore, hypothesis H_2 was not supported. Centrality of visual product aesthetics positively influenced involvement in symbolic benefits ($b = .29$, $p < .05$) and negatively influenced perceived risk of a customized product ($b = -.58$, $p < .01$) providing support for hypotheses H_3 and H_4. Consumer need for uniqueness positively influenced involvement in symbolic benefits for a product category ($b = .21$, $p < .01$), providing support for hypothesis H_5. Hypothesis H_6 was not supported, where consumer need for uniqueness did not significantly influence perceived risk of a customized product. While this path was not significant, surprisingly the sign of the path loading is opposite the hypothesized direction. This issue is addressed in the discussion in Chapter Five.

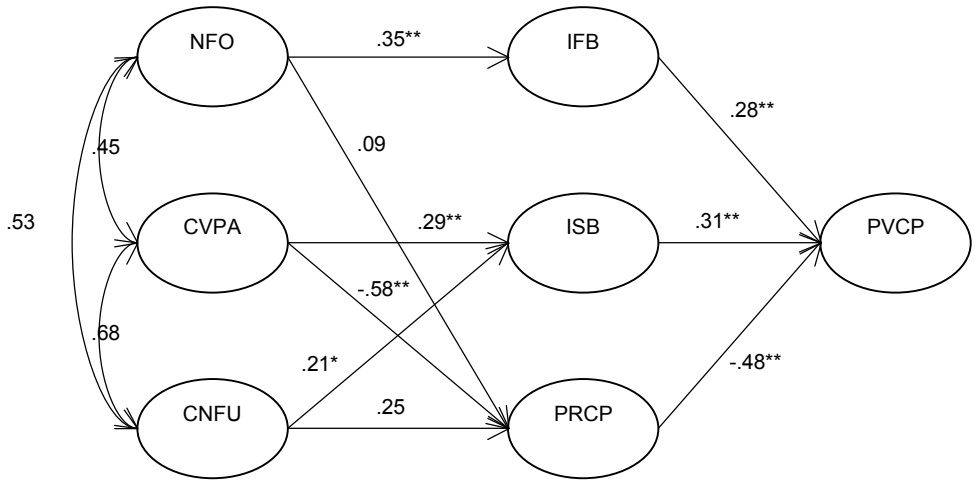
Mediating Variables and Perceived Value of a Customized Product

Involvement in functional benefits positively influenced perceived value of a customized product ($b = .28$, $p < .01$), supporting hypothesis H_7. Similarly, the hypothesized relationship between involvement in symbolic benefits and perceived value of a customized product, hypothesis H_8, was supported, where involvement in symbolic benefits positively influenced

perceived value of a customized product (b = .31, p < .01). Perceived risk negatively influenced perceived value of a customized product (b = -.48, p < .01), supporting hypothesis H_9.

The three individual difference variables accounted for 19% of the variance in perceived risk of a customized product. Consumer need for uniqueness and centrality of visual product aesthetic accounted for 20.6% of the variance in involvement in symbolic benefits. Finally, 12.4% of the variance in involvement in functional benefits was explained by need for optimization. The fully mediated model explained 46.4% of the variance in perceived value of a customized product. Results of the hypotheses tests are depicted in Figure 4.1 and summarized in Table 4.2.

Figure 4.1
Path Loadings



Note: NFO-need for optimization, IFB-importance of functional benefits, PRCP-perceived risk of a customized product, CVPA-centrality of visual product aesthetic, CNFU-consumer need for uniqueness, ISB-importance of symbolic benefits, PVCP-perceived value of a customized product. * indicates significant p<.05, ** indicates significant p<.01.

Table 4.2

Results of Hypotheses Tests

Hypothesized Path	Hyp.	Std. Path Coefficient	C.R.	P Value
NFO → IFB	H_1	.35	5.08	<.001
NFO → PRCP	H_2	.09	1.03	.30
CVPA → ISB	H_3	.29	3.10	.002
CVPA → PRCP	H_4	-.58	-4.56	<.001
CNFU → ISB	H_5	.21	2.17	.03
CNFU → PRCP	H_6	.25	1.86	.06
IFB → PVCP	H_7	.28	6.17	<.001
ISB → PVCP	H_8	.31	7.01	<.001
PRCP → PVCP	H_9	-.48	-8.01	<.001
Fit Statistics				
CFI	.92			
NFI	.89			
RMESA	.06			
X^2 (d.f.)	494.2 (177)			

Note: NFO-need for optimization, IFB-importance of functional benefits, PRCP-perceived risk of a customized product, CVPA-centrality of visual product aesthetic, CNFU-consumer need for uniqueness, ISB-importance of symbolic benefits, PVCP-perceived value of a customized product.

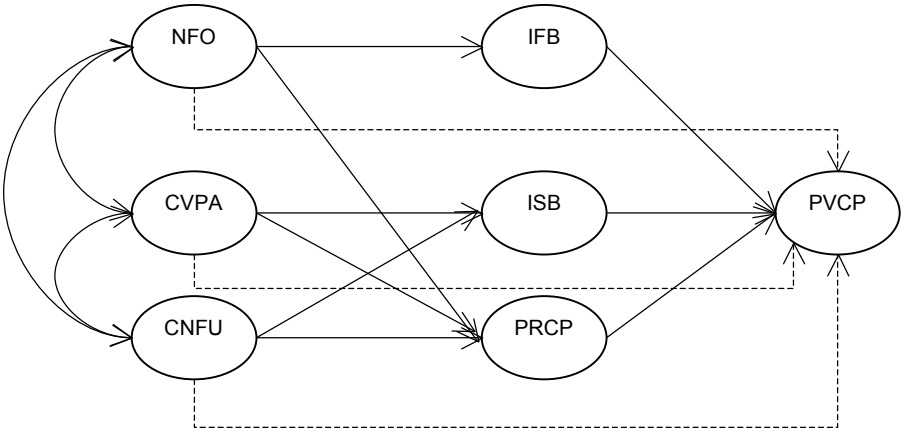
ALTERNATIVE STRUCTURAL MODELS

To further assess and validate the hypothesized model, two rival models were estimated. The rival models were specified to assess whether the hypothesized, fully mediated model is indeed the most appropriate model for the data. As such, it was desirable to estimate models that test for alternative relationships of the mediating variables PRCP, IFB, and ISB. An illustration comparing the two rival models is shown in Figure 4.2. The first rival model, the partially mediated model, includes additional direct paths from the individual difference variables to the perceived value variable. This model tests the idea that in addition to being mediated by risk and involvement in symbolic and functional benefits, the individual difference variables also have direct effects on the perceived value of a customized product. The second

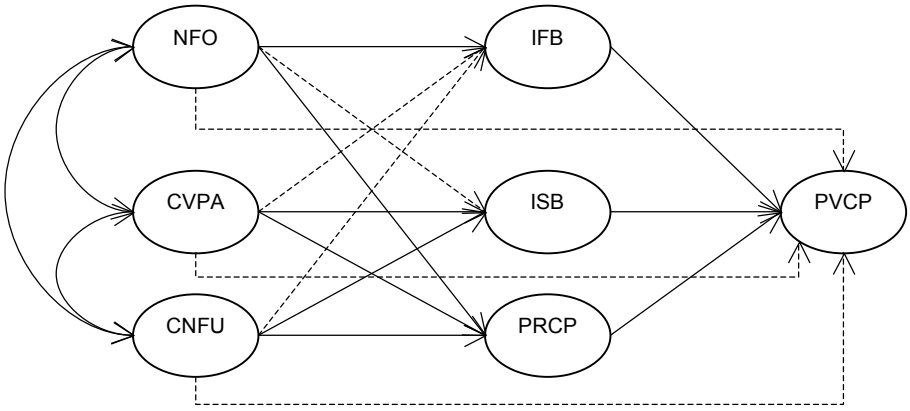
rival model, the fully saturated, or naïve model, tests the idea that every variable in the model effects the other variables simultaneously. It should be noted that, because individual differences are not situation specific (Haugtvedt, Petty, and Cacioppo 1992), a rival model to test the possibility of reverse causality is not necessary. Further, ample evidence exists (Katz 1960; Snyder 1974; Petty, Cacioppo, and Schumann 1983; Bloch, Brunel, and Arnold 2003) to suggest that specific attitudes such as perceived value of a mass customized product do not drive trait-like individual differences. As a result of such conceptual differences in levels of analysis among the constructs in the model, the need to test for reverse causality is eliminated. Following the procedure recommended by Bagozzi and Yi (1988), the two rival models were compared to the hypothesized model on the following criteria: overall fit as measured by CFI, number of significant hypothesized parameters, variance explained as measured by squared multiple correlations for the dependent variable, and parsimony evaluated by the number of relational paths estimated for each model. Results of the analysis of the alternative models are shown in Table 4.3.

Figure 4.2
Rival models

Partially Mediated Model



Fully Saturated Model



Notes: dashed lines represent paths not present in the hypothesized model. NFO-need for optimization, IFB-importance of functional benefits, PRCP-perceived risk of a customized product, CVPA-centrality of visual product aesthetic, CNFU-consumer need for uniqueness, ISB-importance of symbolic benefits, PVCP-perceived value of a customized product.

Table 4.3
Comparison of Hypothesized and Alternative Models

Fit Indices	Fully Mediated Model (Hyp.)	Partially Mediated Model	Fully Saturated Model
# of Paths	9	12	15
CFI	.92	.92	.94
NFI	.89	.89	.90
RMSEA	.06	.06	.06
X^2 (d.f.)	494.2 (177)	487.6 (174)	429.2 (171)
ΔX^2 (d.f.)	n/a	6.57 (3)	64.96 (6)
R^2 (Perc. Value)	.464	.476	.536

The partially mediated model includes additional direct paths from the individual difference variables to the perceived value variable. The overall fit indices, as measured by CFI, were identical (.92) for both the hypothesized model and the partially mediated model. However, the rival model is less parsimonious than the hypothesized model (12 paths versus 9 paths). The rival model explained slightly more variance in the perceived value variable than the hypothesized model ($r^2_{(\text{perceived value})}$ = .486 versus .464) which is expected given the additional variance accounted for by the additional paths. Notably, for the partially mediated rival model, none of the direct paths between the individual difference variables and the dependant variable were significant. While differences between the two models in fit indices and variance explained did not provide compelling evidence for the superiority of the hypothesized model, the difference in the number of significant paths is more convincing. Thus, while the partially mediated model explains slightly more variance in the dependent variable than the hypothesized model, the trade-off in number of significant paths supports the superiority of the hypothesized model.

The second rival model included relational paths between each variable in the model. The fit indices for rival model three were somewhat better than those for the hypothesized model (CFI=.937, NFI=.900, and RMSEA=.056). The third rival model is much less parsimonious (15 relational paths compared to nine in the hypothesized model). Further, when the fully saturated model is estimated, six paths are statistically non-significant. In contrast, seven of the nine paths in the hypothesized model were statistically significant. Thus, examination of the three rival models provides further support for the nomological validity of the hypothesized structural model.

CHAPTER 5 – GENERAL DISCUSSION

The purpose of this study was to provide an individual differences perspective on the perceived value of a customized product. As such, the study participates in and contributes to research that explores the influence of individual difference characteristics on a wide range of consumption behaviors (Haugvedt, Petty, and Cacioppo 1992). Drawing on research from social psychology (Schwartz, et al. 2002; Schwartz 2004) and consumer behavior (Tian, Bearden, and Hunter 2001; Bloch, Brunel, and Arnold 2003) a model was proposed to test the idea that the value of mass customized products can be partially explained by individual differences in need for optimization, centrality of visual product aesthetic, and consumer need for uniqueness.

As a whole, the empirical results reported in this research provide support for the theoretical model advanced in Chapter Two. Two major findings emerged from this study. First, differences in the perceived value of a customized product can be predicted, at least in part, from individual differences in need for optimization (NFO), centrality of visual product aesthetic (CVPA), and consumer need for uniqueness (CNFU). Second, those differences were shown to be mediated by perceived risk of a mass customized product and involvement in functional and symbolic benefits with respect to a specific product category.

Chapter Five is divided into three sections. The first section addresses the findings and provides a discussion of the results of the hypotheses tests. Section two explains the theoretical and managerial implications of the study. Chapter Five closes with a discussion of the limitations of the empirical study and a discussion of future research directions.

SUMMARY AND DISCUSSION OF RESULTS

A major finding of this dissertation relates to the influence of need for optimization, centrality of visual product aesthetic, and consumer need for uniqueness on the perceived value of a customized product. As predicted, differences among consumers of these three trait-like characteristics drove differences in the perceived value of mass customized products. A common element shared by all three of these individual difference variables is a desire for an individualized product solution for a given product category.

Discussion of Results

Related to this desire for an individualized product solution, the first finding concerns the influence of NFO upon involvement in functional benefits for a particular product category. The results indicate that high NFO consumers are more highly involved in the functional benefits for a product category than low NFO consumers. This finding is consistent with Schwartz, and colleagues' (2002) finding that individuals high in NFO make choices so as to maximize the objective outcomes of decisions. Consumers high in NFO can be said to desire individualized product solutions with respect to the function and performance related benefits of a product category. That is, they value mass customized product alternatives for their ability to align the functional benefits of products with their own specific needs and desires. Consumers high in NFO did not report perceiving mass customized products as being less risky than consumers low in NFO.

While NFO can be said to drive perceived value of mass customized goods through involvement in the functional benefits for a product category, it does not appear to influence perceptions of the level of risk associated with mass customized goods. A possible explanation

of this non-result is that, rather than mass customized products reducing the psychological stress associated with exploring all available product alternatives, the additional choices required at the attribute level actually increase the burden placed on the decision process thereby increasing, rather than decreasing, perceptions of risk associated with purchasing a mass customized product.

Second, the results indicate that consumers high in CVPA are more highly involved in the symbolic benefits for a particular product category and perceive mass customized products as lower in risk than consumers low in CVPA. That is, consumers who place a great deal of emphasis on the visual aesthetics of goods value mass customized goods for their ability to align the aesthetic properties of goods with their own specific tastes and preferences. This is consistent with Bloch, Brunel, and Arnold's (2003) research that suggests that the visual aesthetics of goods serve a symbolic function that facilitates consumers' interpretation of the product's symbolic qualities. Also, the finding that high CVPA consumers perceive mass customized products as lower in risk than low CVPA consumers suggests that the potential financial and social risk inherent in mass customized goods tend to be discounted or ignored by high CVPA consumers.

Finally, the results also indicate that consumers high in CNFU tend to be highly involved in the symbolic benefits for a given product category. That is, people who individuate through the uniqueness of consumer products, tend to concern themselves with the aspects of goods that relate to a product's social meaning. This is consistent with Tian, Bearden, and Hunter's (2001) conceptualization of the CNFU construct. Their research suggests that high CNFU consumers are driven to purchase products that symbolically reflect their uniqueness. The results here also

suggest that this involvement in symbolic benefits in turn drives the valuation of an individualized product solution in the form of a mass customized product.

While high levels of CNFU did drive perceptions of the value of a mass customized product through involvement in symbolic benefits, the hypothesized relationship between CNFU and perceived risk of a customized product was not supported. Although the path loading between CNFU and perceived risk of a customized product was not statistically significant, the sign was in the opposite direction from the hypothesized relationship. This suggests that high CNFU consumers tended to perceive mass customized products as somewhat more risky than low CNFU consumers (although this difference was not statistically significant). That is, when it comes to building meaning-related value into goods through mass customization, high CNFU consumers tend to perceive mass customized goods as valuable, but they still perceive mass customized goods as socially and financially risky. While contrary to the proposed relationship between CNFU and PRCP, it is possible that the additional control over the symbolic properties of a mass customized product carry with it an increased possibility of having to take ownership of a negative outcome. Giddens (1991) suggests that engaging the marketplace to pursue identity construction projects carries not only the freedoms associated with choice but also the burdens of choosing accurate reflections of self. The results of this study suggest that, when it comes to mass customized product alternatives, the burden of accuracy outweighs the freedom of choice, leading to higher risk perceptions among individuals high in CNFU.

Another major finding of this dissertation involves the results with respect to the three mediating variables. As predicted, the two involvement variables mediated the relationships between the individual difference variables and the perceived value of a mass customized product. Both involvement in functional and involvement in symbolic benefits for a product

category were shown to be positively related to the perceived value of a mass customized product. Mass customized goods have been described here as an active form of consumption. As such, the finding that consumers highly involved in the functional and symbolic benefits for a product category perceive greater value in a mass customized good than consumers who are not highly involved in those benefits is consistent with a variety of research that suggest that involvement is related to active forms of consumption.

It should be pointed out that in addition to research that suggests that involvement leads to active consumption activities, research also suggests that involvement leads to active attempts to reduce risk. This would suggest that, rather than having a direct effect on perceived value, perceived risk should mediate the relationship between the two involvement variables and perceived value. However, in this study, perceived risk is not conceived as an active risk-reducing activity, rather as the perceived risk in the outcome of consuming a mass customized product. Therefore the finding that high levels of perceived risk for a mass customized product lead to lower perceived value of a customized product is somewhat intuitive.

Post-hoc Analysis

An examination of the construct correlation matrices at the individual product category level reflects the degree to which the relationships among the variables are consistent across the four product categories used in the study. Correlations among the involvement, risk, and value variables for each product category are presented in the table in Appendix 6. With the exception of four relationships involving the PRCP variable, all correlations among constructs in the model are statistically significant for each product category. Further, the signs of each correlation coefficient are consistent across product categories suggesting that the nature of the relationship is the same regardless of product category. The table in Appendix 6 indicates that,

while significance and direction of relationships are consistent across categories, the *strength* of some of the relationships did vary somewhat. This suggests that some of the effects hypothesized in this research may be stronger or weaker depending upon the product category under study. Future research on the influence of the individual difference variables, and the role of the mediating variables, on PVCP should examine those relationships across a broad spectrum of product categories.

One identifiable difference among product categories used in this study is the degree to which the product is consumed in public versus consumed in private. As pointed out in the discussion of the methodology, the product categories selected for the study were chosen to reflect different levels of social visibility. Results of the pilot study suggest that cell phones and book bags were considered socially visible product categories whereas alarm clocks and desk chairs were not. The table in Appendix 7 depicts the results of an independent samples T-test that was conducted to test for differences in construct means due to social visibility of the product. A low significance value for the T-test (less than .05) indicates that there is a significant difference between the two categories. Means for IFB, ISB, and PVCP were all significantly different. This suggests that involvement in functional and symbolic benefits and perceived value of customized product differ depending upon the consumption visibility of the product category.

While controlling for consumption visibility in regression analysis did not support the notion that visibility moderates the relationship among the individual difference variables and the mediating variables, the independent samples t-test does suggest that the role of social visibility in the perceived value of customized products does merit further investigation. In an experimental design controlling for the influence of consumption visibility, future research

could test the idea that consumption visibility influences the relationships among all variables in the model that incorporate symbolic or aesthetic benefits.

THEORETICAL AND MANAGERIAL CONTRIBUTIONS

This study is the first study to explore individual differences with respect to attitudes toward mass customized products. As such, it makes a number of contributions to marketing theory and practice. The study extends the application of CNFU and CVPA into the context of mass customization and offers evidence of the relevance of NFO to the consumer behavior domain by linking differences in NFO to differences in the perceived value of a customized product. Finally, inasmuch as mass customization is a particular type of co-production, this study contributes to the co-production literature by exploring attitudes toward customer co-participation in a consumer products, rather than consumer services domain.

Individual Differences and Mass Customization

This study extends research on CVPA and CNFU into the mass customization context. Each of these concepts has appeared in the marketing and consumer research literatures. And each has been shown to relate to concepts that are parallel to the concepts addressed in this study. CVPA has been conceptualized as having a strong association with symbolic properties of consumer goods. Similarly, CNFU is reported to manifest in the purchase of products that symbolically reflect their uniqueness. While both constructs are conceptualized as having strong associations with the symbolic benefits of goods, they have not specifically been linked to issues of mass customized products. This study extends past research on the relevance of product symbolism to CVPA and CNFU by finding empirical evidence for the link between individual differences in the two constructs and differences in the perceived value of a

customized product. This enables future mass customization research to incorporate both constructs into studies of individual differences in attitudes toward mass customization.

Similarly, this study enables future mass customization research to also incorporate the NFO construct into studies of individual differences in attitudes toward mass customized goods. Need for optimization was originally conceived and researched in the field of social psychology. Studies in social psychology suggest an association between high NFO individuals and desire for optimizing the objective outcomes of events in their lives. However, those studies do not specifically address the relationship between NFO and consumption-related outcomes. By finding an association between NFO and perceived value of a customized product, this study extends the relevance of the NFO construct to consumer research by examining the construct in a context specific to consumer markets.

Involvement in Functional and Symbolic Benefits

This study draws a conceptual distinction between involvement in functional benefits and involvement in symbolic benefits with respect to a particular product category. A variety of research in marketing and consumer behavior draws a similar distinction between issues of function and symbolism. However, none of this research has specifically applied such a distinction to involvement in benefits for a particular product category. Because mass customized products offer consumers control over both symbolic and functional aspects of a product, distinguishing between the two can be a fruitful means to explore evaluation of mass customized goods. Further, distinguishing between involvement in functional and symbolic benefits may lend insight into other areas of involvement research. For instance, high levels of product involvement have been linked to high levels of pre-purchase information search (Bloch and Richins 1983; Zaichkowsky 1985). Distinguishing that involvement in terms of its relative

emphasis on utilitarian versus symbolic benefits of goods may lend insight into differences in the type of information search pursued by consumers.

Mass Customization and Co-production Research

Because mass customization programs require consumers to play an active role in the production of products, mass customization can be considered a type of customer co-production. Co-production is the active involvement of the customer in the design and delivery of products and services (Bendapudi and Leone 2003). The vast majority of co-production research has been conducted in the consumer services domain (e.g. see Bendapudi and Leone 2003; Rodie and Kleine 2000; Bateson 1985; Czepiel 1990) rather than the consumer products domain. There is room in the literature to address co-production issues with respect to products. Song and Adams (1993) suggest that marketers can differentiate themselves by adjusting the degree to which consumers participate in the production and delivery of goods. The present study helps expand the domain of co-production research by examining the perceived value of customized products.

Notwithstanding the tendency of co-production research to focus on the services domain, some research has addressed co-production issues with respect to mass customization. Huffman and Kahn (1998) found that when allowed to configure a mass customized product based on preferences for attributes, participants were more satisfied with their decision than when they configured a mass customized product based on evaluation of various attribute combinations. Dellaert and Stremersch (2005) conducted a study that suggests that the more complex a participant perceived a mass customization system, the less likely he or she was to use it. Results of a study conducted by Bendapudi and Leone (2003) suggest that when the outcome of

a purchase is better than expected, customers who participated in the production of the product or service took more credit for the outcome than customers who did not participate.

These studies offer insight into potential consumer responses to different approaches to mass customization programs. However, the predominant unit of analysis in these studies has been oriented toward the marketer. That is, consumer responses have been examined in response to various levels of marketer input. They do not specifically address how individual differences in consumer characteristics affect attitudes toward mass customized products. The present study fills the gap left by managerial studies of mass customization by focusing exclusively on a consumer perspective. This individual differences perspective is important because the value of customized products is not merely a reflection of heterogeneous patterns of demand. More significantly, the value of mass customized products reflects consumers evaluating experiences according to their own way of thinking, feeling, and doing (Addis and Holbrook 2001; Vargo and Lusch 2004).

Managerial Implications

The present study also holds implications for marketing practitioners interested in pursuing a mass customization strategy. First, results of this study suggest that involvement is a potential way to meaningfully segment markets for mass customized goods. Involvement is widely recognized by marketing researchers and practitioners alike as an effective means by which to segment consumer markets. The present findings suggest that consumers who are highly involved in the functional or symbolic benefits for a particular product category find value in mass customized product alternatives. This finding could be particularly valuable to marketers who offer products through both mass customization and traditional mass market channels.

Specifically, managers may use this study to more effectively target marketing communications to customers who are more inclined to value mass customized products. Individuals highly involved in a product category tend to engage in a great deal of non-purchase search behavior (Bloch and Richins 1983; Zaichkowsky 1985). This behavior often includes reading product related specialty magazines, joining product related clubs, participating in product related discussion groups, etc. Given the relative ease of identifying individuals engaged in product related activities, involvement offers a meaningful way to delineate a market by those who are likely to find value in a mass customized product and those who are less likely to find such value. Further, high levels of involvement have been shown to result in heightened motivation to process detailed product in formation across a variety of types of persuasive communications (Petty, Cacioppo, and Schumann 1983). As such, marketing communications targeted toward highly involved segments would likely do well to incorporate a message that was information rich rather than image oriented taking full advantage of the increased likelihood of central route cognitive processing of the persuasive message.

It is particularly noteworthy that involvement in both symbolic and functional benefits influence the perceived value of a customized product. In practice, marketers pursuing mass customization strategies differ in the degree to which attributes offered for customization are functional or stylistic in nature (Piller 2003). For instance, it was pointed out in Chapter Two that Dell computers allows its customers great input into the performance-related attributes but no input on the aesthetic attributes. In contrast, Nike ID allows customer specification of stylistic attributes such as color and personalized logos, but it does not allow specification of performance-related attributes. The results of this study suggest that in both instances, product

category involvement is a meaningful way to segment the market and tailor marketing communications.

A finding that is particularly relevant to marketing practitioners involves the apparent premium consumers are willing to pay for mass customized product alternatives. In this study, the measure of the perceived value variable incorporated measures of consumers' willingness to pay a premium price for mass customized products. This suggests that current market conditions, at least for the four product categories investigated in this study, are such that firms able to differentiate their brands through mass customized offers may realize revenues above the average revenues realized for mass marketed alternatives. Of course as more firms pursue mass customization strategies and markets for mass customized goods become more saturated, the premium consumers are willing to pay may dissipate. For current market conditions, however, this study suggests that firms may benefit from being first-movers in offering mass customized product alternatives.

LIMITATIONS AND FUTURE RESEARCH

The empirical results reported in this dissertation are subject to a number of limitations in the research design that should be considered when interpreting the findings. First, the sample for the study was limited to college-age adults. While there are characteristics of this sample that made them appropriate and even desirable to the context of the study, caution should be taken when generalizing the findings to other populations. For instance, college adults place greater emphasis on assimilating to their social referent groups than individuating from them. Thus, the lack of results with respect to consumer need for uniqueness and perceived risk of a customized product may be somewhat unique to the present sample. Further, given the prevalence of using computer interfaces for mass customization programs (Dellaert and

Stremersch 2005), it is reasonable to expect the nature of the interface to influence the perceived value of mass customized products for age segments less fluent in on-line consumption. Future research could address these issues by replicating this design with product categories that are equally relevant to a sample that is heterogeneous with respect to age. Such a study may offer insight as to the influence of life stage on the value of customized goods as well as insight on appropriate channels to target mass customized offers to different age segments.

A second limitation of the study is the relatively narrow group of product categories examined in the study. Specifically, the product categories utilized in the study were chosen because of their high level of relevance to the college-age sample. As a result, all four product categories may be characterized as relatively inexpensive consumable goods. It is reasonable to believe that individuals high in any of the individual difference characteristics may be more involved in the functional and symbolic benefits for purchases with significant financial implications. Theory cited in the present study would suggest that, through the mediating role of involvement, the relationships among the individual difference variables and the perceived value of a mass customized product would be stronger for higher priced products. Many manufacturers of high ticket consumer goods such as automobiles are offering consumers mass customized product options. Thus a study replicating this design for product categories heterogeneous with respect to price would offer both theoretical and managerial insight into the influence of individual difference characteristics on the perceived value of a customized product offer.

Also noteworthy is the relative absence of a highly technical or predominantly performance-related product category. A study of product categories that offer a great deal of customization of performance-related features may produce results that differ from those found with the

products used in this study. Specifically, it is reasonable to believe that, in such product categories, individuals high in desire to express uniqueness would do so through their involvement in the functional benefits of goods. Future research could test this proposition by replicating this research using a product category characterized by a high degree of performance-related complexity (e.g. computers, digital cameras, etc.).

In this study, the concept of a mass customized good was presented to participants as a hypothetical scenario. That is, participants did not base their perceptions of the value of a mass customized good on an actual comparison of a mass customized good to a standard off-the-shelf alternative. Instead, participants reflected their value perceptions based on a written description of mass customized goods that was presented in the body of the questionnaire. As such, the study was essentially an assessment of this written treatment rather than an actual comparison between two alternative product options. Future research can overcome this limitation by examining the influence of the three individual difference variables in a more realistic setting that requires participants to compare an actual mass customized good to an otherwise identical mass marketed alternative.

This study addressed individual differences in pre-purchase value attitudes. That is, the emphasis was placed on the set of attitudes that support a comparison and evaluation of customized offers compared to mass marketed offers. It is reasonable to believe that the influence of the individual differences in NFO may lead to interesting differences in post-purchase attitudes as well. Specifically, individuals high in NFO are much more susceptible than individuals low in NFO to post-purchase regret (Schwartz 2004). It may be interesting, in an extension of the present study, to explore how differences in NFO result in differences in regret, or buyer's remorse, toward products purchased through a mass customization program.

It is worth noting here that only one of the three hypothesized relationships among the individual difference variables and the perceived risk variable were supported by the data. As a result, it is difficult to use the present results to speculate as to how a consumer's risk orientation influences attitudes toward mass customized offers. The operationalization of the risk variable in this study may have been a contributing factor to the lack of results associated with the perceived risk variable. Specifically, while it is acceptable to measure only those types of risk relevant to the research context (Folkes 1988; Mandel 2003), it is likely that additional types of risk are relevant to a mass customization context. Based on theoretical contentions (Piller 2003) that risk of a mass customized product should emphasize social and financial types of risk, the operationalization of the risk construct was limited to those two types of risk. It is reasonable to believe, however, that other types of risk are at play in the formation of attitudes toward mass customized products. Specifically, given the control over functional attributes offered by mass customized products, it is likely that performance risk is an important factor in overall perceptions of the risk of a mass customized product alternatives. Future research into the role of risk in the perceived value of customized products should include a more comprehensive measure of the risk construct that incorporates aspects of performance risk.

Finally, the study explored the influence of the three individual difference variables without incorporating differences at the product category level. Recent research on mass customization suggests that differences in the complexity of mass customization interfaces influences attitudes toward mass customized goods (Dellaert and Stremersch 2005). It is reasonable to extend this concept to the relative complexity of the focal product category as well. For instance, the influence of the individual differences on the perceived value of a mass customized product may differ for products that are relatively simple such as book bags and desk chairs than for

products that are relatively complex such as personal computers. Specifically, the additional decision-making necessary when customizing a highly complex product may be psychologically burdensome for individuals high in NFO thus negating the benefit of not having to survey the entire market to optimize their outcomes. Future research should explore product complexity, along with other product category variables, with respect to the valuation of mass customized products. Improving the understanding of product category influences on the perceived value of mass customized goods in addition to the insight gained in this study on the influence of individual difference characteristics may prove to be a fruitful direction in which to take research on consumer attitudes toward mass customization.

Future research could build upon the individual differences perspective examined in this dissertation by exploring their influence upon pricing issues with respect to mass customized goods. Results of the present study suggest that individuals high in need for optimization, centrality of visual product aesthetics, and consumer need for uniqueness perceived mass customized goods to be greater in value than individuals low in those traits. However, the study did not explore the level of premium consumers are willing to pay for mass customized product alternatives. A study by Franke and Piller (2004) suggests that consumers are willing to pay a premium for customized products. In light of the results of the present study, it is reasonable to believe that the degree to which consumers are willing to pay a premium is dependent upon individual differences in NFO, CVPA, and CNFU. Future research should address such pricing issues with respect to these individual differences.

While the scope of this study was limited to the context of consumer goods, it is reasonable to believe that the relationships among the individual differences and the perceived value of a customized product offer may be apply to a service context as well. Specifically, services

research does address the influence of the degree of customization of a service to meet a customer's unique needs (e.g. Solomon et al. 1985; Surprenant and Solomon 1987; and Ostrom and Iacobucci 1995). Further, research suggests that individual personality traits influence consumer perceptions of service experiences (Bitner (1992). Offering consumers customized options in a service setting requires consumers to invest more cognitive effort in the decision process. As a result, "…where choice optimization is the goal, greater option personalization should contribute to the customer's perception of having chosen the best or right service…" (Surprenant and Solomon 1987, pg. 88). As such, individuals high in need for optimization would likely find value in customized service offers in a fashion similar to the evidence that emerged from this study in the product domain. Further, customizing a service encounter contributes to the individuation of the customer (Surprenant and Solomon 1987). This suggests a possible relationship between the perceived value of a customized service offering and the individual difference variable of need for uniqueness. Future research could explore this issue by replicating this study in a customized service context.

In conclusion, the data from this study demonstrate downstream consequences for three individual difference variables, along with mediating paths with strong conceptual backing, in a new domain of consumer behavior. As such, this dissertation represents an important first step in identifying consumer characteristics that influence the perceived value of mass customized product offerings. The three individual difference characteristics employed in this study may be incorporated into future studies to extend extant mass customization research and to identify market conditions in which mass customization will succeed and those in which it will fail. Further, the data in the present study suggest that product category involvement is an informative theoretical perspective from which to explore issues of value in mass customized

goods. Consumer research in a mass customization context lags far behind mass customization in practice. As a result, there is ample opportunity for future research to expand to more diverse contexts. Consumer researchers and marketing practitioners alike would benefit from additional enquiry into this important topic.

APPENDIX 1 – CONSTRUCT DEFINITIONS

Need for optimization (NFO):
an individuals' tendency to strive to maximize the objective outcomes of events.

Centrality of visual product aesthetics (CVPA):
the level of significance that visual aesthetics hold for a particular consumer in his or her relationships with products.

Consumer need for uniqueness (CNFU):
an individual's pursuit of differentness, relative to others, that is achieved through the acquisition, utilization, and disposition of consumer goods for the purpose of developing and enhancing one's personal and social identity.

Involvement in functional benefits (IFB):
the personal significance one places on product performance and utilitarian outcomes for a particular product category.

Involvement in symbolic benefits (ISB):
the personal significance one places on self-expressive and stylistic outcomes for a particular product category.

Perceived risk of a customized product (PRCP):
the magnitude of a negative social or financial outcomes related to a mass customized product for a particular product category.

Perceived value of customized product (PVCP):
the positive or negative attitude toward paying a premium price for customized good and toward participating in the design process for a particular product category.

APPENDIX 2 – SUMMARY OF RESEARCH HYPOTHESES

Hypothesis 1:
Consumers with high (versus low) need for optimization will have high (low) involvement in functional benefits for a particular product category.

Hypothesis 2:
Consumers with high (versus low) need for optimization will perceive low (high) risk for a mass customized product alternative.

Hypothesis 3:
Consumers with high (versus low) centrality of visual product aesthetics will have high (low) involvement in symbolic benefits for a particular product category.

Hypothesis 4:
Consumers with high (versus low) centrality of visual product aesthetics will perceive low (high) risk for a mass customized product alternative.

Hypothesis 5:
Consumers with high (versus low) need for uniqueness will be more (less) involved in symbolic benefits for a particular product category.

Hypothesis 6:
Consumers with high (versus low) need for uniqueness will perceive less (more) risk for a mass customized product alternative.

Hypothesis 7:
Involvement in functional benefits will be positively related to perceived value of a mass customized product.

Hypothesis 8:
Involvement in symbolic benefits will be positively related to perceived value of a mass customized product.

Hypothesis 9:
Perceived risk of a customized product will be negatively related to perceived value of a mass customized product.

APPENDIX 3 – PILOT STUDY PRODUCT CATEGORIES AND SCALES

Alarm clock	DVD player
Bath robe	Laptop computer
Book bag	MP3 player
Calculator	Shoes
Cell phone	Television
Desk chair	Toaster
Desktop computer	Watch

Book Bag

Consumed at home	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	___ 8	___ 9	Consumed away from home
Unaffordable	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	___ 8	___ 9	Affordable
Others unaware of the brand I own	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	___ 8	___ 9	Others aware of the brand I own
Luxury	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	___ 8	___ 9	Necessity
Consumed outside of public eye	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	___ 8	___ 9	Consumed in public eye
Not relevant to people like me	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	___ 8	___ 9	Relevant to people like me
Not needed	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	___ 8	___ 9	Needed
Product use not visible to others	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	___ 8	___ 9	Product use visible to others

APPENDIX 4 – OPERATIONALIZATION OF CONSTRUCTS

Construct/Items	Response Scale	
Need for Optimization (NFO)		
No matter what I do, I have the highest standards for myself.	strongly disagree	strongly agree
I never settle for second best.	strongly disagree	strongly agree
Centrality of Visual Product Aesthetic (CVPA)		
A product's design is a source of pleasure for me.	strongly disagree	strongly agree
When I see a product that has a really great design, I feel a strong urge to buy it.	strongly disagree	strongly agree
Consumer Need for Uniqueness (CNFU)		
I often look for one-of-a-kind products or brands so that I create a style all my own.	strongly disagree	strongly agree
The more commonplace a product or brand is, the less I am interested in it.	strongly disagree	strongly agree
I often combine possessions in such a way that I create a personal image that can't be duplicated.	strongly disagree	strongly agree
Involvement in Functional Benefits (IFB)		
Finding a <product> made with superior construction…	does not matter to me	matters to me
Owning a <product> with the best technology is…	not important to me	very important to me
Using a <product> with superior performance is…	of no concern	of great concern
Involvement in Symbolic Benefits (ISB)		
Owning a <product> that gives people a favorable impression of me…	does not matter	matters
Buying a <product> that fits my image is…	not essential	essential
Finding a <product> that has the "latest look" is…	not essential	essential
Perceived Risk of a Customized Product (PRCP)		
Financially speaking, a customized <product> seems…	very safe	very risky
Considering what others may think, buying a customized <product> seems…	very safe	very risky

Perceived Value of a Customized Product Solution (PVCP)		
The additional two days required to receive a customized <product> seems…	not worth it	worth it
The thought of choosing the colors, style, and features for a <product> is…	very unappealing	very appealing
The additional effort required to buy a customized <product> seems…	not worth it	worth it
Paying more money for a customized <product> is…	not worth it	worth it
The premium price of a customized <product> seems like a waste of money. (reverse scored)	strongly agree	strongly disagree
Paying 10% more for a customized <product> seems…	very unreasonable	very reasonable

APPENDIX 5 – SURVEY INSTRUMENT

PLEASE READ INSTRUCTIONS CAREFULLY

Instructions: Some companies allow buyers to customize book bags prior to purchasing them. Purchasing a customized book bag is different than purchasing a standard, non-customized book bag. The buyer considering a customized book bag previews a basic bag design and chooses the specific style, colors, and features desired. The book bag is then made to the buyer's specifications and delivered.

Assume that it takes **two days longer** to receive a customized book bag. In addition to taking a bit longer to be delivered, a customized book bag also costs more. Assume that purchasing a customized book bag costs **10% more** than purchasing a standard, non-customized book bag.

The following questions ask for your thoughts and feelings about customized book bags. Please read each item carefully and circle the response that most closely describes your thoughts. Be sure to respond to each item. There are no wrong or right answers.

1.	The additional two days required to receive a customized book bag seems…	not worth it	1	2	3	4	5	6	7	8	9	worth it
2.	The freedom to choose the color, style, and features for a book bag seems like the best way to make sure a consumer's needs are met.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
3.	Owning a customized book bag could be a social embarrassment.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
4.	Paying more money for a customized book bag is…	not worth it	1	2	3	4	5	6	7	8	9	worth it
5.	I plan to buy a customized book bag at some point.	very unlikely	1	2	3	4	5	6	7	8	9	very likely
6.	The thought of choosing the colors, style, and features for a book bag is…	very unappealing	1	2	3	4	5	6	7	8	9	very appealing
7.	Financially speaking, a customized book bag seems…	very safe	1	2	3	4	5	6	7	8	9	very risky
8.	The next time I shop for a book bag, I will look for a customized bag.	very unlikely	1	2	3	4	5	6	7	8	9	very likely
9.	Choosing the color, style, and features of a book bag seems…	very difficult	1	2	3	4	5	6	7	8	9	very easy
10.	The premium price of a customized book bag seems like a waste of money.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
11.	Considering what others may think, buying a customized book bag seems…	very safe	1	2	3	4	5	6	7	8	9	very risky
12.	Paying 10% more for a customized book bag seems…	very unreasonable	1	2	3	4	5	6	7	8	9	very reasonable
13.	The additional effort required to buy a customized book bag seems…	not worth it	1	2	3	4	5	6	7	8	9	worth it
14.	What percentage premium would you be willing to pay to purchase a customized book bag?	_____										

PLEASE READ INSTRUCTIONS CAREFULLY

Instructions: The following questions ask for your thoughts and feelings about **book bags in general**.

Please read each item carefully and circle the response that most closely describes your thoughts. Be sure to respond to each item. There are no wrong or right answers.

15. Owning a book bag with head-turning style…	does not matter	1	2	3	4	5	6	7	8	9	matters
16. Finding a book bag made with superior construction…	does not matter	1	2	3	4	5	6	7	8	9	matters
17. Owning a book bag that leaves people with a favorable impression of me…	does not matter	1	2	3	4	5	6	7	8	9	matters
18. Buying a book bag that has a superior design is….	not important	1	2	3	4	5	6	7	8	9	important
19. Owning a book bag with the best technology is…	not important	1	2	3	4	5	6	7	8	9	important
20. Buying a book bag that is "me" is…	not important	1	2	3	4	5	6	7	8	9	important
21. Finding a book bag that has the "latest look" is…	not essential	1	2	3	4	5	6	7	8	9	essential
22. Buying a book bag that fits my image is…	not essential	1	2	3	4	5	6	7	8	9	essential
23. Owning a book bag that I am confident using in public is…	of no concern	1	2	3	4	5	6	7	8	9	of concern
24. Owning a book bag with a style that pleases me is…	of no concern	1	2	3	4	5	6	7	8	9	of concern
25. Having a book bag with the right features is…	not essential	1	2	3	4	5	6	7	8	9	essential
26. Using a book bag that has superior performance is…	of no concern	1	2	3	4	5	6	7	8	9	of concern

PLEASE READ INSTRUCTIONS CAREFULLY

Instructions: The following questions ask for your opinion about **a brand**.

Please read each item carefully and circle the response that most closely describes your thoughts. Be sure to respond to each item. There are no wrong or right answers.

27. I am familiar with Kellogg's Frosted Flakes breakfast cereal.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
28. I consider myself informed about Kellogg's Frosted Flakes breakfast cereal.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
29. It would make little difference to me if Kellogg's Frosted Flakes breakfast cereal were not available in the store.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
30. My overall opinion of Kellogg's Frosted Flakes breakfast cereal is…	very unfavorable	1	2	3	4	5	6	7	8	9	very favorable

PLEASE READ INSTRUCTIONS CAREFULLY

Instructions: Some companies allow buyers to customize alarm clocks prior to purchasing them. Purchasing a customized alarm clock is different than purchasing a standard, non-customized alarm clock. The buyer considering a customized alarm clock previews a basic clock design and chooses the specific style, colors, and features desired. Alarm clocks are then made to the buyer's specifications and delivered.

Assume that it takes **two days longer** to receive a customized alarm clock. In addition to taking a bit longer to be delivered, a customized alarm clock also costs more. Assume that purchasing a customized alarm clock costs **10% more** than purchasing a standard, non-customized alarm clock.

The following questions ask for your thoughts and feelings about customized alarm clocks. Please read each item carefully and circle the response that most closely describes your thoughts. Be sure to respond to each item. There are no wrong or right answers.

31. The additional two days required to receive a customized alarm clock seems…	not worth it	1	2	3	4	5	6	7	8	9	worth it
32. The freedom to choose the color, style, and features for an alarm clock seems like the best way to make sure a consumer's needs are met.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
33. Owning a customized alarm clock could be a social embarrassment.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
34. Paying more money for a customized alarm clock is…	not worth it	1	2	3	4	5	6	7	8	9	worth it
35. I plan to buy a customized alarm clock at some point.	very unlikely	1	2	3	4	5	6	7	8	9	very likely
36. The thought of choosing the color, style, and features for an alarm clock is…	very unappealing	1	2	3	4	5	6	7	8	9	very appealing
37. Financially speaking, a customized alarm clock seems…	very safe	1	2	3	4	5	6	7	8	9	very risky
38. The next time I shop for an alarm clock, I will look for a customized clock.	very unlikely	1	2	3	4	5	6	7	8	9	very likely
39. Choosing the color, style, and features of an alarm clock seems…	very difficult	1	2	3	4	5	6	7	8	9	very easy
40. The premium price of a customized alarm clock seems like a waste of money.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
41. Considering what others may think, buying a customized alarm clock seems…	very safe	1	2	3	4	5	6	7	8	9	very risky
42. Paying 10% more for a customized alarm clock seems…	very unreasonable	1	2	3	4	5	6	7	8	9	very reasonable
43. The additional effort required to buy a customized alarm clock seems…	not worth it	1	2	3	4	5	6	7	8	9	worth it
44. What percentage premium would you be willing to pay to purchase a customized alarm clock?	_____										

PLEASE READ INSTRUCTIONS CAREFULLY

Instructions: The following questions ask for your thoughts and feelings about **alarm clocks in general**.

Please read each item carefully and mark the response that most closely describes your thoughts. Be sure to mark each item. There are no wrong or right answers.

45. Owning an alarm clock with head-turning style…	does not matter	1	2	3	4	5	6	7	8	9	matters
46. Finding an alarm clock made with superior construction…	does not matter	1	2	3	4	5	6	7	8	9	matters
47. Owning an alarm clock that gives people a favorable impression of me…	does not matter	1	2	3	4	5	6	7	8	9	matters
48. Buying an alarm clock that has a superior design is….	not important	1	2	3	4	5	6	7	8	9	important
49. Owning an alarm clock with the best technology is…	not important	1	2	3	4	5	6	7	8	9	important
50. Buying an alarm clock that is "me" is…	not important	1	2	3	4	5	6	7	8	9	important
51. Finding an alarm clock that has the "latest look" is…	not essential	1	2	3	4	5	6	7	8	9	essential
52. Buying an alarm clock that fits my image is…	not essential	1	2	3	4	5	6	7	8	9	essential
53. Owning an alarm clock that I am confident using in public is…	of no concern	1	2	3	4	5	6	7	8	9	of concern
54. Owning an alarm clock with a style that pleases me is…	of no concern	1	2	3	4	5	6	7	8	9	of concern
55. Having an alarm clock with the right features is…	not essential	1	2	3	4	5	6	7	8	9	essential
56. Using an alarm clock with superior performance is…	of no concern	1	2	3	4	5	6	7	8	9	of concern

PLEASE READ INSTRUCTIONS CAREFULLY

Instructions: The following questions ask for your opinion about **a brand**.

Please read each item carefully and circle the response that most closely describes your thoughts. Be sure to respond to each item. There are no wrong or right answers.

57.	I am familiar with Listerine Mouthwash.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
58.	I consider myself informed about Listerine Mouthwash.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
59.	It would make little difference to me if Listerine Mouthwash were not available in the store.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
60.	My overall opinion of Listerine Mouthwash is…	very unfavorable	1	2	3	4	5	6	7	8	9	very favorable

PLEASE READ INSTRUCTIONS CAREFULLY

Instructions: The following questions ask for your thoughts and feelings about **general consumer issues**.

Please read each item carefully and circle the response that most closely describes your thoughts. Be sure to respond to each item. There are no wrong or right answers.

61. When it comes to buying products, finding what I am looking for is typically…	very difficult	1	2	3	4	5	6	7	8	9	very easy
62. At the places I shop, I usually…	do not find what I am looking for	1	2	3	4	5	6	7	8	9	find what I am looking for
63. Whenever I am faced with a choice, I try to imagine what all the other possibilities are, even ones that are not present at the moment.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
64. I often look for one-of-a-kind products or brands so that I create a style that is all my own.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
65. The more commonplace a product or brand is among the general population, the less interested I am in buying it.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
66. A product's design is a source of pleasure for me.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
67. No matter what I do, I have the highest standards for myself.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
68. When products or brands I like become extremely popular, I lose interest in them.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
69. When I see a product that has a really great design, I feel a strong urge to buy it.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
70. The selection of products available in the market today is…	not good	1	2	3	4	5	6	7	8	9	good
71. When it comes to the selection of products on the market, there are…	not enough choices	1	2	3	4	5	6	7	8	9	enough choices
72. I never settle for second best.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
73. I often combine possessions in such a way that I create a personal image for myself that can't be duplicated.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree

74. Age: _____ Gender: M_____ F_____

Instructions: The following questions ask for your thoughts and feelings about the survey **that you just completed**.

Please read each item carefully and circle the response that most closely describes your thoughts. Be sure to respond to each item. There are no wrong or right answers.

75. I found this survey interesting.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
76. I felt involved in the survey.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree
77. I was motivated to do this survey.	strongly disagree	1	2	3	4	5	6	7	8	9	strongly agree

78. Please list below what you think was the purpose of this study.

_____

_____

_____

_____

_____

Thank you for completing our survey!

APPENDIX 6 – CONSTRUCT CORRELATIONS BY PRODUCT CATEGORY

		IFB (sig.)	ISB (sig.)	PRCP (sig.)	PVCP (sig.)
IFB	ac	1.0			
	dc	1.0			
	bb	1.0			
	cp	1.0			
ISB	ac	**.409 (.000)**	1.0		
	dc	**.470 (.000)**	1.0		
	bb	**.398 (.000)**	1.0		
	cp	**.405 (.000)**	1.0		
PRCP	ac	-.121 (.185)	-.139 (.129)	1.0	
	dc	**-.225 (.014)**	-.056 (.547)	1.0	
	bb	-.154 (.091)	**-.197 (.030)**	1.0	
	cp	**-.237 (.010)**	**-.207 (.025)**	1.0	
PVCP	ac	**.215 (.018)**	**.290 (.001)**	**-.271 (.003)**	1.0
	dc	**.311 (.001)**	**.194 (.035)**	-.145 (.117)	1.0
	bb	**.284 (.002)**	**.178 (.049)**	**-.302 (.001)**	1.0
	cp	**.449 (.000)**	**.331 (.000)**	**-.219 (.017)**	1.0
Mean (s.d.)	ac	6.0 (2.18)	2.7 (1.71)	4.1 (1.80)	5.1 (1.09)
	dc	6.4 (1.82)	4.5 (2.13)	3.7 (1.53)	5.6 (1.02)
	bb	6.6 (1.60)	4.8 (2.08)	3.9 (1.56)	5.4 (1.03)
	cp	7.7 (1.21)	5.4 (2.08)	4.0 (1.63)	5.6 (1.24)

Note: IFB-importance of functional benefits, ISB-importance of symbolic benefits, PRCP-perceived risk of a customized product, PVCP-perceived value of a customized product. ***Bold*** indicates significant, $p<.05$. $N_{(ac/bb)} = 121$. $N_{(dc/cp)} = 118$.

APPENDIX 7 – INDEPENDENT SAMPLES T-TEST COMPARING HIGH VISIBILITY PRODUCTS TO LOW VISIBILITY PRODUCTS

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	Lower	Upper
IFB	14.530	.000	-5.583	443	.000	-.91353	.16362	-1.23509	-.59197
ISB	1.143	.286	-7.889	476	.000	-1.52720	.19359	-1.90759	-1.14680
PRCP	.197	.657	-.489	476	.625	-.07322	.14987	-.36771	.22127
PVCP	7.030	.008	-3.327	467.623	.001	-.58298	.17524	-.92734	-.23863

Note: ISB-importance of symbolic benefits, IFB-importance of functional benefits, PRCP-perceived risk of a customized product, PVCP-perceived value of a customized product; Grouping variable = visibility.

REFERENCES

Addis, Michela and Morris B Holbrook, (2001), "On the conceptual link between mass customisation: An explosion of subjectivity," *Journal of Consumer Behaviour*, 1 (1), 50-66.

Allen, Michael W., (2002), "Human values and product symbolism: Do consumers form product preference by comparing the human values symbolized by a product to the human values that they endorse," *Journal of Applied Psychology*, 32 (12), 2475-2501.

Arbuckle, James L. and Werner Wothke (1999), *Amos 4.0 user's guide*, Chicago, IL: Small Waters Corporation.

Bagazzoi, Richard P. and Youjae Yi (1988), "On the evaluation of structural equation models," *Journal of the Academy of Marketing Science*, 16 (1), 74-94.

Bardakci, Ahmet and Jeryl Whitelock, (2003), "Mass-customisation in marketing: The consumer perspective," *Journal of Consumer Marketing*, 20 (5), 463-481.

Bateson, John E., (1985), "Self-service consumer: An exploratory study," *Journal of Retailing*, 61 (3), 49-76.

Bauer, Raymond A (1960), "Consumer behavior as risk taking," in *Dynamic marketing for a changing world*, ed. Hancock, Robert S., Chicago: American Marketing Association, 389-398.

Belk, Russell W., (1988), "Possessions and the extended self," *Journal of Consumer Research*, 15 (2), 139-168.

Bendapudi, Neeli and Robert P. Leone, (2003), "Psychological implications of customer participation in co-production," *Journal of Marketing*, 67 (January), 14-28.

Bitner, Mary Jo (1992), "Servicescapes: The impact of physical surroundings on customers and employees," *Journal of Marketing*, 56 (2), 57-71.

Bloch, Peter H. and Marsha L. Richins, (1983), "A theoretical model for the study of product importance perceptions," *Journal of Marketing*, 47 (Summer), 69-81.

Bloch, Peter H., (1995), "Seeking the ideal form: Product design and consumer response," *Journal of Marketing*, 59 (July 1995), 16-29.

Bloch, Peter H., Frederic F. Brunel and Todd J. Arnold, (2003), "Individual differences in the centrality of visual product aesthetics: Concept and measurement," *Journal of Consumer Research*, 29 (4), 551-565.

Bollen, K. A. (1989), *Structural equations with latent variables*, New York: Wiley and Sons.

Brinberg, David and Ronald Wood, (1983), "A resource exchange theory analysis of consumer behavior," *Journal of Consumer Research*, 10 (3), 330-338.

Browne, M. W. and R. Cudeck (1993), "Alternative ways of assessing model fit," in *Testing structural equations models*, ed. Bollen, K. A. and J. S. Long, Thousand Oaks, CA: Sage, 136-162.

Byrne, Barbara M. (2001), *Structural equation modeling with amos: Basic concepts, applications, and programming*, Mahwah, NJ, London: Lawrence Erlbaum.

Carmines, Edward G. and John P. Mciver (1981), "Unobserved variables," in *Social measurement: Current issues*, ed. Bohrnstedt, George W. and Edgar F. Borgatta, Beverly Hills, CA: SAge, 111-130.

Czepiel, John A., (1990), "Service encounters and service relationships: Implications for research," *Journal of Business Research*, 20 (1), 13-21.

Dellaert, Benedict G. C. and Stefan Stremersch, (2005), "Marketing mass-customized products: Striking a balance between utility and complexity," *Journal of Marketing Research*, 42 (May), 219-227.

Dowling, Grahamer R. and Richard Staelin, (1994), "A model of perceived risk and intended risk-handling activity," *Journal of Consumer Research*, 21 (1), 119-134.

Escalas, Jennifer Edson, (1997), "The positive effects of narrative thought in response to advertising," *Advances in Consumer Research*, 24 67-70.

Firat, A. Fuat and Alladi Venkatesh, (1995), "Liberatory postmodernism and the reenchantment of consumption," *Journal of Consumer Research*, 22 (December), 239-267.

Firat, A. Fuat, Nikhilesh Dholakia and Alladi Venkatesh, (1995), "Marketing in a postmodern world," *European Journal of Marketing*, 29 (1), 40-56.

Folkes, Valerie S., (1988), "The availability heuristic and perceived risk," *Journal of Consumer Research*, 15 (1), 13-23.

Fornell, C. and D. F. Larcker, (1981), "Evaluating structural equation models with unobservable variables and measurement error," *Journal of Marketing Research*, 48 39-50.

Franke, Nikolaus and Frank Piller, (2004), "Value Creation by Toolkits for User Innovation and Design: The Case of the Watch Market," *Journal of Product Innovation Management*, 21, 401-415.

Giddens, Anthony (1991), *Modernity and Self-Identity: Self and Society in the Late Modern Age*, Stanford University Press, Stanford, CA.

Havlena, W.J. and Wayne S Desarbo, (1990), "On the measurement of perceived consumer risk," *Decision Sciences*, 22, 927-939.

Haugtvedt, Curds P., Richard Petty, and John T. Cacioppo, (1992), "Need for Cognition and Advertising: Understanding the Role of Personality Variables in Consumer Behavior," *Journal of Consumer Psychology,* 1(3), 239-260

Hirschman, Elizabeth C., Linda Scott and William B. Wells, (1998), "A model of product discourse: Linking consumer practice to cultural texts," *Journal of Advertising*, 27 (1), 33-50.

Hirschman, Elizabeth C., (2000), "Consumers' use of intertextuality and archetypes," *Advances in Consumer Research*, 27 57-63.

Holbrook, Morris B., (1986), "Aims, concepts, and methods for the representation of individual differences in esthetic responses to design features," *Journal of Consumer Research*, 13 (3), 337-347.

Hu, L. and P. M. Bentler, (1999), "Cutoff criteria for fit indexes in covariance structural analysis: Conventional criteria versus new alternatives," *Structural Equation Modeling*, 6 (1), 1-55.

Huffman, Cynthia and Barbara Kahn, (1998), "Variety for sale: Mass customization or mass confusion," *Journal of Retailing*, 74 (4), 491-513.

Jacoby, Jacob and L. Kaplan, (1972), "The components of perceived risk," in Vol. 3, ed. Venkatesan, M, Association for Consumer Research, 382-393.

Katz, Daniel, (1960), "The functional approach to the study of attitudes," *Public Opinion Quarterly*, 24 (2), 163-204.

Lastovicka, John L., Lance A. Bettencourt, Renee Shaw Hughner and Ronald J. Kuntze, (1999), "Lifestyle of the tight and frugal: Theory and measurement," *Journal of Consumer Research*, 26 (June), 85-98.

Lichtenstein, Donald R., Richard G Netemeyer and Scot Burton, (1990), "Distinguishing coupon proneness from value consciousness: An acquisition-transaction utility theory perspective," *Journal of Marketing*, 54 (July), 54-67.

Liechty, John, Ramaswamy Venkatram and Steven H. Cohen, (2001), "Choice menus for mass customization: An experimental approach for analyzing customer demand with and application to a web-based information service," *Journal of Marketing Research*, 38 (May), 183-196.

Mackenzie, Scott B, (2001), "Opportunities for improving consumer research through latent variable structural equation modeling," *Journal of Consumer Research*, 28 (June), 159-166.

Mandel, Naomi, (2003), "Shifting selves and decision making: The effects of self-construal priming on consumer risk-taking," *Journal of Consumer Research*, 30 (1), 30-40.

McCracken, Grant (1988), *Culture and consumption: New approaches to the symbolic character of consumer goods and activities*, Bloomington and Indianapolis: Indiana University Press.

Mitchell, Vincent-Wayne, (1999), "Consumer perceived risk: Conceptualisations and models," *European Journal of Marketing*, 33 (1/2), 163.

Morgan, Robert M. and Shelby Hunt, (1994), "The commitment-trust theory of relationship marketing," *Journal of Marketing*, 58 (July), 20-38.

Nie, Norman H., (2001), "Sociability, interpersonal relations, and the internet: Reconciling conflicting findings," *American Behavioral Scientist*, 45 (3), 420-436.

Ostergaard, Per, James A. Fitchett and Jantzen Christian, (1999), "On appropriation and singularisation: Two consumption processes," *Advances in Consumer Research*, 26 405-409.

Ostrom, Amy and Dawn Iacobucci (1995), "Consumer trade-offs and the evaluation of services," *Journal of Marketing*, 59 (1), 17-28.

Petty, Richard, John T. Cacioppo, and David Scumann, (1983), "Central and Peripheral Routes to Advertising Persuasion: The Moderating Role of Involvement," *Journal of Consumer Research*, 10 (September), 135-146.

Piller, Frank T., (2003), "What is mass customization? A focused view on the term," *Mass Customization News*, 6 (1), 2-5.

Richins, Marsha and Peter Bloch, (1991), "Post-purchase product satisfaction: Incorporating the effects of involvement and time," *Journal of Business Research*, 23 145-158.

Richins, Marsha, (1994a), "Special possessions and the expression of material values," *Journal of Consumer Research*, 21 (3), 522-533.

Richins, Marsha L., (1994b), "Valuing things: The public and private meanings of possessions," *Journal of Consumer Research*, 21 (December), 504-521.

Ritson, Mark, Richard Elliott and Sue Eccles, (1996), "Reframing ikea: Commodity-signs, consumer creativity andthe social/self dialectic," *Advances in Consumer Research*, 23 127-131.

Rodie, Amy Risch and Susan Schultz Kleine (2000), "Customer participation in services production and delivery," in *Handbook of service marketing and management*, ed. Swartz, Teresa A. and Dawn Iacobucci, Thousand Oaks, CA: SAge, 111-125.

Schlenker, Barry R. and Michael F. Weigold (1989), "Goals and the self-identification process: Constructing desired identities," in *Goal concepts in personality and social psychology*, ed. Pervin, Lawrence A., Hillsdale, NJ: Lawrence Erlbaum Assoc., 243-291.

Schwartz, Barry, Andrew Ward, Sonja Lyubomirsky, John Monterosso, Katherine White and Darrin R. Lehman, (2002), "Maximizing versus satisficing: Happiness is a matter of choice," *Journal of Personality and Social Psychology*, 83 (5), 1178-1197.

Schwartz, Barry (2004), *The paradox of choice: Why more is less*, New York: Harper Collins.

-------, (1990), "The role of attitude objects in attitude functions," *Journal of Experimental Social Psychology*, 26 124-148.

Shavitt, Sharon and Tina M. Lowrey, (1992), "Attitude functions in advertising effectiveness: The interactive role of product type and personality type," in Vol. 19, ed. Association for Consumer Research, 323-328.

Sherry, John F., (1986), "The cultural perspective in consumer research," *Advances in Consumer Research*, 13 573-575.

Snyder, C.R. and Howard L. Fromkin, (1977), "Abnormality as a positive characteristic: The development and validation of a scale measuring need for uniqueness," *Journal of Abmormal Psychology*, 86 518-527.

Snyder, C.R., (1992), "Product scarcity by need for uniqueness interaction: A consumer catch-22 carousel?," *Basic and Applied Social Psychology*, 13 (1), 9-24.

Snyder, M., (1974), "Self Monitoring of Expressive Behavior," *Journal of Personality and Social Psychology*, 30, 526-537.

Solomon, Michael R., (1983), "The role of products as social stimuli: A symbolic interactionsim perspective," *Journal of Consumer Research*, 10 (December), 319-329.

Solomon, Michael R., Carol Surprenant, Joahn A. Czepiel and Evelyn G. Gutman (1985), "A role theory perspective on dyadic interactions: The service encounter," *Journal of Marketing*, 49 (4), 99-111.

Song, Jae H. and Carl R. Adams, (1993), "Differentiation through customer involvement in production or delivery," *Journal of Consumer Marketing*, 10 (2), 4-12.

Stone, Robert N. and Kjell Gronhaug, (1993), "Perceived risk: Further considerations for the marketing discipline," *European Journal of Marketing*, 27 (3), 39-50.

Surprenant, Carol F. and Michael R. Solomon (1987), "Predictability and personalization in the service encounter," *Journal of Marketing*, 51 (2), 86-96.

Tian, Kelly Tepper, William O. Bearden and Gary L. Hunter, (2001), "Consumers' need for uniqueness: Scale development and validation," *Journal of Consumer Research*, 28 (1), 50-66.

Tian, Kelly Tepper and Karyn Mckenzie, (2001), "The long-term predictive validity of the consumers' need for uniqueness scale," *Journal of Consumer Psychology*, 10 (3), 171-193.

Traylor, Mark B. and Benoy W. Joseph, (1984), "Measuring consumer involvement with products: Developing a general scale," *Psychology and Marketing*, 1 65-77.

Tseng, Mitchell M. and Frank T. Piller (2003), "Towards the customer centric enterprise," in *The customer centric enterprise: Advances in mass customization and personalization*, ed. Tseng, Mitchell M. and Frank T. Piller, New York: Springer, 1-27.

Vargo, Stephen L. and Robert F. Lusch, (2004), "Evloving to a new dominant logic for marketing," *Journal of Marketing*, 68 (1), 1-18.

Zaichkowsky, Judith Lynne, (1985), "Measuring the involvement construct," *Journal of Consumer Research*, 12 (December), 341-352.

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