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FACULTY OF BUSINESS ECONOMICS  
*Master of Management*

## Master's thesis

Understanding the nature of the value-satisfaction-loyalty chain  
concerning asymmetry and nonlinearity

Supervisor :  
Prof. dr. Alexandra STREUKENS

Koen Van Camp

*Thesis presented in fulfillment of the requirements for the degree of Master of  
Management*

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# Preface

This thesis is the final culmination of the work and effort that I started in September 2013 to obtain the degree of Master of Management (international Marketing Strategy). Despite some personal setbacks along the way I have managed to bring this thesis to fruition in no small part because of the continued support of particular individuals.

Firstly, a very big thank you to my promoter Prof. Dr. Sandra Streukens for all her advice that she gave me over the course of the thesis. Particularly, when I was stuck in a section or when she found out the mistake in the formula used in my calculations after some frantic searching. Without her help, it is safe to say this thesis would not have reached completion.

Secondly, I would like to thank everyone, in particular, all my friends and all other people that have supported me by giving their advice and more importantly by filling in my questionnaire, without them I would not have been able to gather the necessary responses required to complete this thesis.

Finally, I would like to thank all my family for their continued support, especially when I went through a particularly tough period. They are the final piece of the puzzle that allowed me to complete this thesis.

Koen Van Camp

University of Hasselt

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# Executive Summary

Value still resides at the heart of the marketing place. Companies creating superior value will achieve higher satisfaction among their customers leading to higher loyalty and profits. The different relationships in the customer value-satisfaction-loyalty chain are therefore of utmost importance. Most companies, assume that the relationships between customer value, customer satisfaction and customer loyalty are simple symmetric, linear ones. The question remains, if this assumption is always correct. Assuming symmetrical, linear relationships when they aren't can lead to misallocation of funds and in worst cases to wastage of money. This study aims to develop an understanding of the nature of the relationships in the customer value-satisfaction-loyalty chain regarding asymmetry and nonlinearity using a furniture chain (IKEA) as setting. Customer value was modeled according to the Holbrook typology, customer satisfaction was treated as overall satisfaction and customer loyalty was treated as one construct. An online, self-administered questionnaire was developed. The results show, that both the customer value  $\rightarrow$  customer satisfaction and the customer satisfaction  $\rightarrow$  customer loyalty relationship exhibit asymmetry. More specifically, looking at the six Holbrook items of customer value and their relationships with customer satisfaction, three of them (excellence, play, aesthetics) showed negative asymmetry, two (efficiency, social) showed positive asymmetry while for one of them (altruism) the nature of asymmetry could not be precisely determined. The customer satisfaction  $\rightarrow$  customer loyalty relationship exhibits positive asymmetry as well. Concerning nonlinearity, mixed results were obtained. The customer value  $\rightarrow$  customer satisfaction relationship does not show any nonlinearity in any of the six Holbrook items while the customer satisfaction  $\rightarrow$  customer loyalty relationship exhibits an increasing returns type of nonlinearity. This study adds to the literature by investigating the, previously uninvestigated, relationship between customer value and customer satisfaction concerning asymmetry and nonlinearity. It asserts the importance for management of companies to thoroughly study how the value they bring affects their customer satisfaction and their loyalty and to determine on which factors should be focused more and which less.





# 1 Introduction

In many markets, concepts such as perceived customer value and constructs like customer satisfaction and customer loyalty have gained an incredible amount of importance for businesses. Financial performance of many businesses is largely determined by the value they deliver to their customers as perceived by those customers and the resulting customer satisfaction and customer loyalty that flows from that perceived value (Cronin et al., 2000; Khalifa, 2004; Leroi-Werelds et al., 2014; Sánchez & Bonillo, 2007; Woodruff, 1997).

Because of the importance of the customer value-profit network it is imperative that the true nature of the different relationships between perceived customer value, customer satisfaction and the customer loyalty constructs is properly understood. Many research articles seem content to assume that the relationships between value, satisfaction and loyalty are simple symmetrical, linear ones. While in some cases these assumptions might be valid there will also be many instances where there might be significant asymmetry and/or nonlinearity present in the relationships between value, satisfaction and loyalty (Anderson & Mittal, 2000; Danaher et al., 1997; Falk et al., 2008; Matzler et al., 2004; Mittal et al., 1998; Streukens et al., 2004). This is very important for management to understand and determine since assuming linear relationships when they aren't linear can lead to false assumptions about satisfied/dissatisfied customers and their behavior by management. Worst case, it can even lead to wrong allocation of funds and wastage of money. Research models like the Kano (1984) model allow companies to incorporate asymmetries and nonlinearities in the relationships (Anderson & Mittal, 2000; Danaher et al., 1997; Falk et al., 2008; Matzler et al., 2004; Mittal et al., 1998; Streukens et al., 2004).

Although significant research has been done to investigate asymmetries and nonlinearities between attribute performance and customer satisfaction and customer loyalty, no research has been conducted on possible asymmetry/nonlinearity of the relationship of perceived customer value and customer satisfaction and between customer satisfaction and customer loyalty. In addition some of the earlier literature research on asymmetries and nonlinearities between attribute performance and customer satisfaction and customer loyalty has brought up contradictory results (Azman & Gomiscek, 2012; Mittal et al., 1998; Mittal & Kamakura,

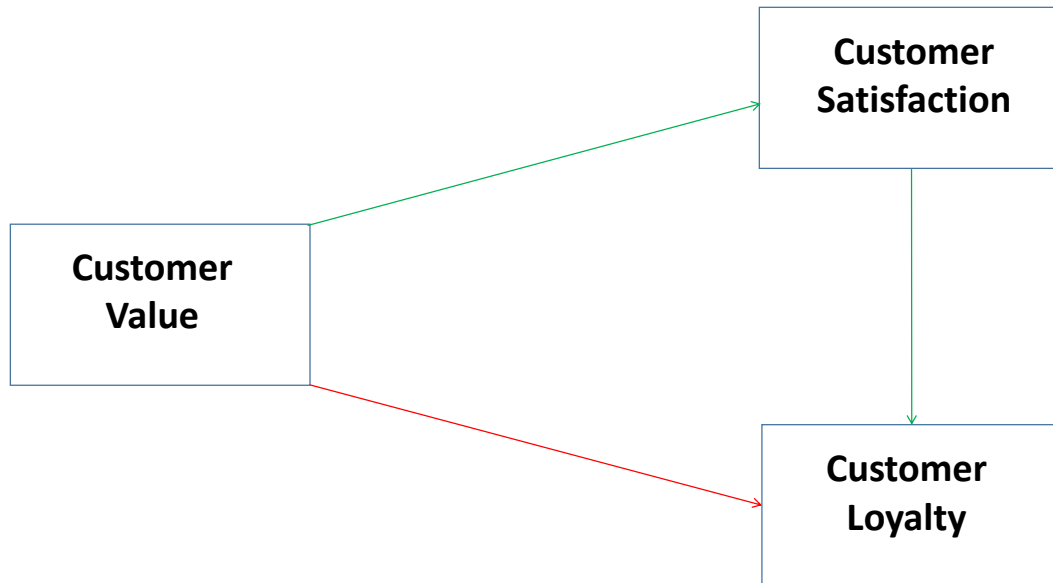
2001; Streukens et al, 2004), therefore this thesis aims to try to develop an understanding of the true nature of the relationships in terms of asymmetry and nonlinearity between the different constructs in the customer value-satisfaction-loyalty chain. First, a general framework will be given followed by a discussion of the most important constructs followed by a deeper look on some of the relationships between the constructs, in terms of asymmetry and nonlinearity. Second, an empirical study in a service setting will be conducted to determine how the relationships between customer value and customer satisfaction and between customer satisfaction and customer loyalty behave concerning asymmetry and nonlinearity.

## **2 Literature review**

### **2.1 General Framework**

Despite the rapidly changing environment, customer value still resides at the heart of the marketplace (Cronin et al., 2000; Khalifa, 2004; Leroi-Werelds et al., 2014; Sánchez & Bonillo, 2007; Woodruff, 1997). It can be viewed as a customer's perception of a tradeoff between benefits received by an offering and sacrifices incurred to obtain that offering (Cronin et al., 2000; Hu et al., 2009; Leroi-Werelds et al., 2014; Sánchez & Bonillo; Woodruff, 1997). Customer value is a key antecedent to several other important constructs such as customer satisfaction and customer loyalty which in turn are big drivers of company's profits (Flint et al., 2011; Khalifa, 2004; Sánchez & Bonillo, 2007; Woodruff, 1997). Customer satisfaction can be viewed as a customer's perception of positive/negative feelings resulting from the possession and/or use of an offering (Cronin et al., 2000; Westbrook, 1987). Customer satisfaction is a big driver of customer's loyalty and company's profits (Anderson & Mittal, 2000; Azman & Gomiscek, 2012; Flint et al., 2011; Khalifa, 2004; Mittal & Kamakura, 2001). Customer loyalty can be viewed as a customer's commitment to stay with a particular company/brand in spite of efforts by other companies/brands (Oliver, 1999) and it is a key driver of company's profits. (Azman & Gomiscek, 2012; Hallowell, 1996; Khalifa, 2004)

Based on the above the following framework is proposed:



**Figure 1: Customer value-satisfaction-loyalty chain.**

In the next section, a more in depth look will be taken at the three mentioned constructs: customer value, customer satisfaction and customer loyalty. Following, the relationship customer value → customer satisfaction and the relationship customer satisfaction → customer loyalty will be investigated in the context of asymmetry and nonlinearity. The final section consists of results obtained in, earlier conducted, empirical studies on asymmetry and nonlinearity in the customer value → satisfaction and customer satisfaction → loyalty relationships. The direct relationship between value and loyalty will not be investigated in this study.

## **2.2 Perceived Customer Value**

The concept of perceived customer value has become very important over the last decades. Many organizations have come to realize that sustainable competitive advantage is in no small part gained or lost by creation of customer value. Customer satisfaction and loyalty and company profits have a strong link to the value that is created for customers (Khalifa, 2004; Leroi-Werelds et al., 2014; Sánchez & Bonillo, 2007). One of the first, now commonly referred to, definitions of perceived customer value was proposed by Zeithaml (Zeithaml, 1988): " The consumers overall assessment of the utility of a product based on perceptions

of what is received and what is given. There are several important aspect of customer value that should be recognized. Customer value is perceived and thus defined by the customer and not by the supplier (Khalifa, 2004; Leroi-Werelds et al., 2014). Customer value is a concept that is different for every person. Each person makes his/her own assessment of the value of a product/service and this is fueled by his/her personal needs/desires (Leroi-Werelds et al., 2014). The value perceived by the customer is not solely dependent on the product/service but also on the circumstances, time frame and location where that product/service is purchased/used. Customer value resides in the experiences derived from the use/consumption of products/services and value emerges during the usage in the customer value creation process. Customer value also implies an interaction between a customer and an object (Leroi-Werelds et al., 2014). This is one of the characteristics that separate customer value from personal core values, goals and purposes. A very important distinction must be made these two concepts. Some people assume that these two concepts are the same while in fact they are very distinct from one another. Values refer to norms, standards, rules which apply in a society and which allow people to make evaluative judgments. Those judgments can be equated to perceived value (Leroi-Werelds et al., 2014; Sánchez & Bonillo, 2007).

There have been several approaches to operationalize customer value. Two main streams are the one-dimensional and the multi-dimensional approaches (Leroi-Werelds et al., 2014; Sánchez & Bonillo, 2007). In the one-dimensional approach value is treated as a single overall concept that can be measured by a self-reported item(s) which evaluate the perception of value by the consumer. Perceived value is looked at from a utilitarian point of view and the relevant benefits and costs are assessed by economic and cognitive reasoning (Leroi-Werelds et al., 2014; Sánchez & Bonillo, 2007). The customer takes the products that has the highest utility and utility is the trade-off between benefits and sacrifices. Although one-dimensional approaches are simple to use, they often fail to fully reflect the complexity of the customer value construct. Because of their singular focus on the utilitarian dimension of value one-dimensional models fail to take other important dimensions of value like emotional factors into account (Leroi-Werelds et al., 2014; Sánchez & Bonillo, 2007). Multi-dimensional approaches, on the other hand, treat value as a construct consisting of different dimensions. Multi-dimensional models in general are better able to capture the complexity

of the value construct but are much more difficult to use (Leroi-Werelds et al., 2014; Sánchez & Bonillo, 2007). Therefore several approaches to capture the customer value concept have been put forward (Leroi-Werelds et al., 2014; Sánchez & Bonillo, 2007, Sánchez et al., 2008). Of these Holbrook's (1996) approach manages to capture the most potential sources of value (Leroi-Werelds et al., 2014; Sánchez & Bonillo, 2007).

Holbrook (1996) developed a customer value framework consisting of three dimensions: extrinsic vs. intrinsic value, self vs. other oriented value and active vs. reactive value. From these dimensions he created eight types of customer value: excellence, efficiency, status, esteem, play, aesthetics, ethics and spirituality (Holbrook, 1996; Leroi-Werelds et al., 2014; Sánchez & Bonillo, 2007; Sánchez et al., 2008). Status and esteem and ethics and spirituality are closely related to each other respectively. This makes it very difficult to operationalize them independently (Leroi-Werelds et al., 2014; Sánchez et al., 2008). Therefore in this research status and esteem are brought together under social value and ethics and spirituality are brought together under altruistic value. Below is a short explanation of each value

**Social (combination of status/esteem):** Product/service ability to allow customers to make favorable impressions upon other people and to receive appreciation by other people because of the prestige awarded by the product/service (Sánchez et al., 2008).

**Efficiency:** A comparison between what a customer receives (product/service/customer-company relationship) during an exchange for what he gives (money/time/effort/costs) (Sánchez et al., 2008).

**Excellence:** Product/service ability to satisfy the needs of customer (by accomplishing customer goals or giving him/her a favorable experience). A heavy emphasis is on satisfaction on a utilitarian level (Sánchez et al., 2008).

**Play:** Dimension involved with 'having fun', leisure, entertainment, etc. (Sánchez et al., 2008).

**Aesthetic:** Associated with beauty, the way in which a product/service brings pleasure and personal enrichment to the customer (Sánchez et al., 2008).

Altruistic (combination of ethics/spirituality): The ability of a product/service to bring an other-orientated consumption experience valued for that sake as an end in itself (Sánchez & Bonillo, 2007).

Perceived customer value has two very important consequences: Customer loyalty and customer satisfaction which will be discussed below.

## **2.3 Customer Satisfaction**

Customer satisfaction is an important factor for companies to obtain sustainable competitive advantage. Satisfied customers are more likely to exhibit behaviors that will increase the company's profits, such as increase the amount of purchases and spreading positive word-of-mouth and being less affected by potential price increases (Anderson et al., 2004). Westbrook (1987) defines satisfaction as: "A global, affective response towards the usage/consumption of a product/service." Studies show that satisfaction is dependent on the performance of various attributes of products/services (Anderson & Mittal, 2000; Mittal et al., 1998; Matzler et al., 2004). Customer satisfaction is recognized as a very important antecedent of customer loyalty. Customer satisfaction, just like customer value, is a multi-dimensional construct that include multiple factors depending on the specific situation. (Anderson et al., 2004; Hu et al., 2009; Vargo et al., 2007). According to the literature two different conceptualizations of customer satisfaction have come forward. Customer satisfaction can be viewed from a transaction perspective. In this perspective it should be understood as a 'post choice evaluative judgment of a specific purchase occasion'. (Anderson et al, 1994; Olsen et al, 2003; Wang et al., 2004). The other perspective views customer satisfaction as cumulative and it should be understood as an 'overall evaluation based on the total purchase and consumption experience with a good/service over time.' Both views have their own uses. Transaction satisfaction can be better to capture to complex responses customers make towards a product/service performance on a specific moment. This could allow companies to track how improvements in quality of product/services lead instant changes in satisfaction (Olsen et al, 2003). Cumulative satisfaction does not have a defined time period for the evaluation because as stated earlier it relies on the customer's total experience. Thus, cumulative satisfaction should a better predictor of customer's behavioral intentions and loyalty (Olsen et al, 2003). Because in this research project the relationships



between customer satisfaction customer loyalty will be examined it is more logical to adopt the cumulative customer satisfaction perspective and not the transaction-specific one (Anderson et al, 1994; Olsen et al., 2003).

## **2.4 Customer Loyalty**

Customer loyalty is, like customer value and customer satisfaction, a complex multi-dimensional construct having several definitions. Oliver (1999) defines brand loyalty as “a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior.” The above definition emphasizes that in the concept of customer loyalty, two main aspects have come forward. The first focuses on the behavioral aspects of loyalty by looking at purchasing behavior, spreading positive word-of-mouth and probability of purchase. The second stream has its focus on the attitudinal aspects of loyalty which are indicated by repurchase intentions, strong advocacy and psychological attachment (Agrawal et al., 2012; Hallowel Roger, 1996; Hu et al., 2009). Several researchers advocate to look at both aspects of loyalty at the same time to get a comprehensive understanding of the construct. Harris & Goode (2004) propose that loyalty is a consequence of direct and indirect relationships with trust, perceived value service quality and customers satisfaction. They also focus on both behavioral and attitudinal aspects of loyalty. They adopt Oliver (1999) framework of customer loyalty that depicts it as going through 4 phases. Loyalty begins in a cognitive phase where people believe certain brands are preferable over others (Harris & Goode, 2004). After cognitive loyalty has been established affective loyalty can occur which favorable attitude is created by satisfied usage of a brand's products/services. When behavioral intentions start to develop based on deeper commitment towards a brand conative loyalty is said to be present. The final tier of loyalty, action loyalty is achieved when customers convert their intentions into actions and people exhibit a willingness to overcome any impediments to those actions (Harris & Goode, 2004). Harris & Goode (2004) then conduct studies which support the proposed sequential evolution of customer loyalty as proposed by Oliver (1997) (Harris & Goode, 2004; Yang et al, 2004). Dick & Basu (1994) developed a similar framework for customer loyalty based on the relative attitude towards

and repeat patronage of products/services of a particular brand. The two extremes: high relative attitude/high repeat patronage and low relative attitude and low repeat patronage are conceptualized as true loyalty and no loyalty towards a brand. The two intermediates forms are defined as latent loyalty (high relative attitude/low repeat patronage) and spurious loyalty (low relative attitude/high repeat patronage) (Baloglu, 2002; Dick & Basu, 1994).

## **2.5 Asymmetry and nonlinearity in relationships between customer value, customer satisfaction and customer loyalty.**

### **2.5.1 Customer value and customer satisfaction**

In the following discussions of asymmetry and nonlinearity and in the overview of empirical results customer value will be substituted by attribute performance. While the value construct is certainly not determined alone by attribute performance it remains a very important component of the construct (Cronin et al., 2000). The reason for this substitution is simple, it is to stay true to the literature that was found. The literature concerning investigations into/discussions about asymmetry and nonlinearity between customer satisfaction and its antecedents (customer value, service quality, ...) most often tested the relationship between the performances of specific attributes and customer satisfaction, in a specific setting on asymmetry and nonlinearity (Cronin et al., 2000).

Attribute performance is often used to investigate customer satisfaction because customers often judge their postpurchase experiences of (dis)satisfaction on a attribute basis instead of a product/service basis. In addition, an attribute-based approach allows researchers to easier understand and conceptualize mixed reactions of customer toward a product. Customers may be satisfied with certain attributes of the product while being dissatisfied with others (Mittal et al., 1998). Many firms make the assumption that the relationship between attribute performance (like service quality) and customer satisfaction and between customer satisfaction and customer retention respectively is a simple, linear and symmetrical relationship. (Anderson & Mittal, 2000; Falk et al., 2008; Matzler et al., 2004; Mittal et al., 1998; Streukens et al., 2004). Firms must, however, confirm that in their specific case this supposition holds. Should asymmetry and/or nonlinearity be present in the attribute-

satisfaction and/or satisfaction-retention relationship it can lead to significant problems such as to incorrect estimates of the individual impact of each of the attributes under study, misallocation of resources, customer dissatisfaction and even customer defection (Anderson & Mittal, 2000; Falk et al., 2008; Matzler et al., 2004; Mittal et al., 1998; Streukens et al., 2004). Asymmetry means that the impact of an increase will be different from the impact of an equivalent decrease both in terms of direction and size. Applying this to the performance-satisfaction chain, this means that changes in performance will result in different effects on customer satisfaction depending on the direction and the size of the change. Nonlinearity means that one unit increases in performance could either lead to less than one unit increases in satisfaction (diminishing returns) or lead to more than one unit increase in satisfaction (increasing returns) (Anderson & Mittal, 2000; Falk et al., 2008; Matzler et al., 2004; Mittal et al., 1998; Streukens et al., 2004).

Taking a closer look at the performance satisfaction chain, according to the author, three plausible scenarios arise: The relationship between performance is a simple linear one, the relationship is asymmetric and exhibits diminishing returns or the relationship is asymmetric and exhibits increasing returns. Asymmetric, diminishing return relationships are often found for those attributes that customers take for granted and whose low performance or absence has a much larger effect on customer satisfaction than their presence or high performance (Anderson & Mittal, 2000). Asymmetry can be either positive or negative (Anderson & Mittal, 2000; Falk et al., 2008; Matzler et al., 2004; Mittal et al., 1998; Streukens & Ruyter, 2004). Negative asymmetry is explained by prospect theory. Prospect theory is a descriptive theory in which all possible scenarios a person faces are reduced to a series of prospects and they are independently evaluated from each other by using a S-shaped value function. It states that most people experience loss aversion (the value of a unit loss is greater than the equal gain), negative information stays longer in the mind of customers than positive information, it is paid more attention to by customers and it triggers a stronger response from customers. Thus it is expected that attributes with a negative performance will have a greater impact on overall satisfaction than attributes with a positive performance (Mittal et al., 2008; Streukens & Ruyter, 2004). Positive asymmetry is said to occur when the perceived quality of a product/service exhibits positive features that are

unanticipated by the customers resulting in the product/service exceeding customers expectations and triggering customer delight (Streukens & Ruyter, 2004).

A very important model that is used for the identification of asymmetries and nonlinearities is the one developed by Kano et al. (1984). They applied an dysfunctional technique where customers must categorize their responses to both functional/dysfunctional conditions of a product attribute. Each attribute is then classified as being in one of the following five categories: attractive, must-be, one-dimensional, indifferent and reverse quality. Attractive elements are factors that increase satisfaction when present but do not cause dissatisfaction when absent. Must-be elements are taken-for-granted and do not lead to satisfaction when present but do lead to dissatisfaction when absent. One dimensional elements are those that cause satisfaction/dissatisfaction when present/absent. Indifferent elements do not have any effect on dissatisfaction when present or absent. Reverse quality elements are those that cause dissatisfaction when present and satisfaction when absent. (Kano et al., 1984; Sauwerwein et al., 1996; Vargo et al., 2007) An overview is given in the figure below.

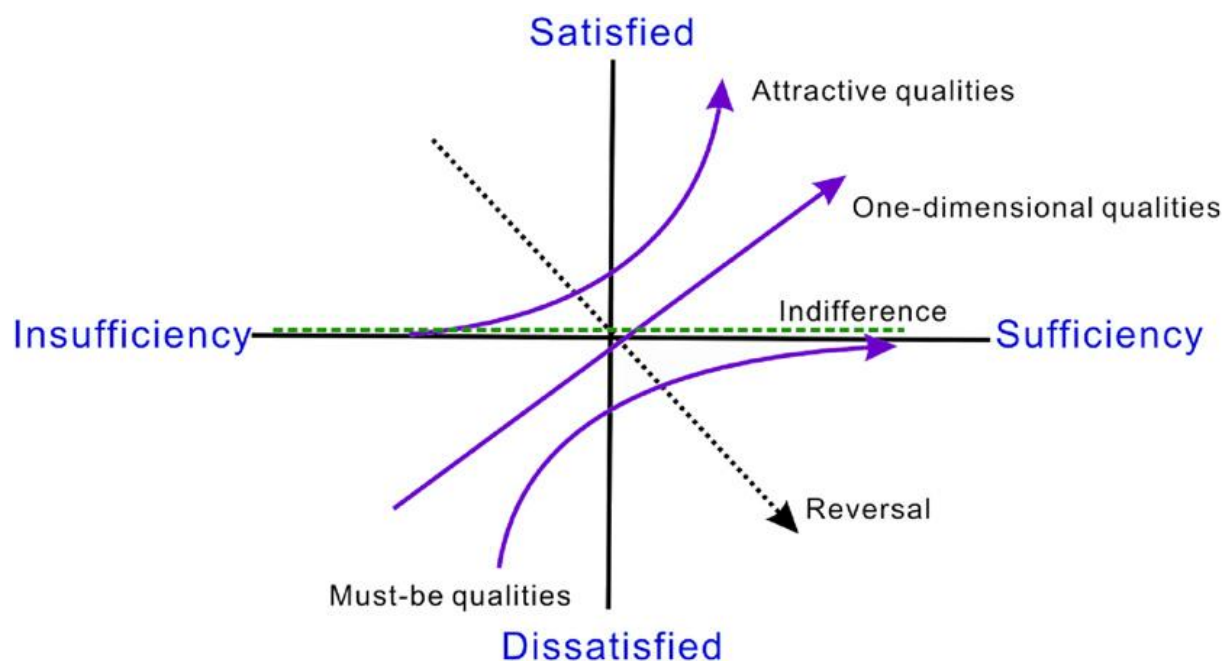


Figure 2: Overview of Kano's Model (Chen & Chang, 2008)

Levitt (1986) uses the 'total product model' in which a product consists of several sub-components. The core product is mostly the physical component. The expected product is the minimal expected factors of the offering by the customers. The augmented product represent the product factors that offer more to customers than they have anticipated and thus they differentiate the product from its competitors. (Levitt, 1986)

Cadotte & Turgeon (1988) and Vargo et al. (2007) use similar terms: satisfiers, dissatisfiers, criticals, neutrals to identify the antecedent factors of customer satisfaction. Satisfiers are equated to the attractive elements of the Kano (1984) model and the augmented product of Levitt (1986) model. Satisfiers are those facets of a product that intend to satisfy a personal psychological, intangible needs. Dissatisfiers are factors are the must-be factors or the core product. They are intended to satisfy extrinsic needs. They represent the utilitarian, functional needs of customers that they expect to be satisfied. Criticals are similar to the one-dimensional elements of the Kano model, making them primary targets to control. Finally, neutrals are those factors which the customer is indifferent to (Vargo et al., 2007). Therefore they, usually, come last on the importance list of companies. In light of the explanation given above, it is easy to see that dissatisfiers will have a greater impact on customer dissatisfaction while satisfiers will have a greater impact on satisfaction. Criticals appear to have a great impact on both. (Vargo et al., 2007)

Besides asymmetry, nonlinearity in the performance-satisfaction relationship has also been researched. Nonlinear relationships either have increasing or diminishing returns. Prospect theory explains that customer's satisfaction will become less sensitive to unit changes in perceived product/service quality when extreme values are considered (Mittal et al., 2000; Streukens et al., 2004). Researchers have used nonlinear models to represent nonlinear effects in the relationship between service quality and higher order constructs, like customer satisfaction (Mittal et al., 2000; Streukens et al., 2004).

Because company's resources are limited an effective method of identification must be chosen. Often the importance-performance analysis (IPA) method is used. The IPA method analyses attributes of quality on two dimensions: their importance (to the customer) and their performance (high/low). Several attributes will be evaluated in this way to create a matrix that will allow firms to identify those attributes that are key drivers of customer

satisfaction (Anderson & Mittal, 2000; Matzler et al., 2004). Based on these results they allocate resources to improve those attributes that have the most need in improvement (low performance, high importance) (Anderson & Mittal, 2000). If correction matrixes are used that assume linear, symmetric relationships when asymmetry and nonlinearity is present misallocation of resources will most likely occur. A firm using a correction matrix assuming a linear, symmetrical relationship will put its resources in low-scoring satisfaction-enhancing attributes and high scoring satisfaction maintaining attributes. At the same time it will withdraw its resources from high-scoring satisfaction-enhancing attributes (Anderson & Mittal, 2000). The firm should, taken asymmetry and nonlinearity into account, do just the opposite. It should deploy resources to improve performance of low scoring satisfaction-maintaining attributes and maintain performance on high scoring satisfaction enhancing attributes and it should withdraw its resources from high scoring satisfaction-maintaining attributes (Anderson & Mittal, 2000).

### **2.5.2 Customer satisfaction and customer loyalty.**

When the customer satisfaction-customer loyalty chain is looked at, asymmetries and can also be an important factor. When certain customer satisfaction indexes were reviewed (like the American Customer Satisfaction Index), it was shown that dissatisfaction had a greater impact on customer retention than satisfaction (Anderson & Mittal, 2000).

Nonlinearities can also be present in the customer satisfaction- customer loyalty relationship. When the same satisfaction indices were reviewed it showed that the impact of customer satisfaction on customer loyalty was greater for extreme values of customer satisfaction strongly indicating the presence of nonlinearities in the relationship (Anderson & Mittal, 2000). When customers crossed over from being 'somewhat satisfied' to 'extremely satisfied' with a particular brand their consideration of going to any other brand dropped dramatically indicating a sharp increase in their loyalty towards a particular brand. Likewise in the other direction, customers going from 'somewhat dissatisfied' to 'extremely dissatisfied' most often dropped the brand they were extremely dissatisfied with from their possible choices indicating a very sharp drop in their loyalty towards that brand (Anderson & Mittal, 2000).

The main consequence of asymmetry and nonlinearity in the customer satisfaction → loyalty relationship is that using linear models for this relationship will yield erroneous results, analogous to the attribute performance → customer satisfaction relationship (Anderson & Mittal, 2000). The impact of changes in customer satisfaction on customer loyalty may be systematically overestimated in the middle part of the satisfaction range (from somewhat dissatisfied to somewhat satisfied) while at the same time the impact of changes in satisfaction in the extreme parts of the range may be underestimated (between very dissatisfied and somewhat dissatisfied and between somewhat satisfied and delighted) (Anderson & Mittal, 2000). Moreover, linear models make a big underestimation of the gravity of customer dissatisfaction when the asymmetry of the relationship is not taken into account as found by Mittal & Kamakura (2001). It must be remarked that asymmetry and nonlinearity in the customer satisfaction-loyalty relationship should be affected by outside factors such as competition, switching costs, level of risk aversion and so on. These factors differ in different industries and therefore the customer satisfaction-customer retention relationship will be different in each industry (Anderson & Mittal, 2000).

## **2.6 Empirical results obtained in earlier investigations of asymmetry and nonlinearity in the relationships between attribute performance, customer satisfaction and customer loyalty**

Mittal et al. (1998) tested if the relationship between attribute performance and customer satisfaction and repurchase intentions exhibited asymmetry and/or nonlinearity. They made use of three studies (one in a health maintenance organization and two in the automotive industry). Regarding asymmetry and nonlinearity, they obtained the following results:

- 1) Attribute performance and disconfirmation have asymmetric effects on overall satisfaction and repurchase intentions. More specific, negative performance/disconfirmation showed a greater impact on overall satisfaction and repurchase intentions compared to positive performance (Mittal et al., 1998).
- 2) The concept of diminishing returns displayed mixed results. If all attributes are lumped together diminishing returns are visible in the positive performance domain but not in the negative one. When attributes were tested individually, both the positive and the negative

performance domain displayed diminishing returns. However, in this data the linear model showed an equally good fit to the data as the diminishing return model (Mittal et al., 1998).

Streukens & Ruyter (2004) used three retail service settings (dry cleaning, fast-food restaurant and supermarket) to test if asymmetry is present in the relationships between service quality, perceived customer value, customer satisfaction and behavioral intentions. They also test if nonlinearity is present, in the above relationships, by testing several nonlinear models (linear-log, log-linear) and by comparing their performance to a simple linear model. In their results, they found no support for asymmetry being present in the relationships between perceived service quality and higher order constructs (Streukens & Ruyter, 2004). Furthermore, they also could not find any support for nonlinear models having superior explaining power versus linear models considering the relationships between value, satisfaction and intentions and between perceived service quality and higher order constructs (Streukens & Ruyter, 2004). Moreover, regarding the relationships between value, satisfaction and intentions the linear models showed better result than their nonlinear counterparts. These results are contradictory to those found by Mittal et al. (1998). The authors state that a possible explanation might be the service settings chosen in the study. All were low involvement services while Mittal et al. (1998) did their test on high involvement services (Streukens & Ruyter, 2004). Because of the low involvement setting used, customers did not perceive high risks in their purchase situation which may indicate that the 'loss aversion' exhibited by customers (as put forward by prospect theory) no longer holds. Therefore negative asymmetry was not present. Likewise, positive symmetry was also absent because the services customers used were familiar to them leading them to make realistic judgments about what to expect and what not and thus severely limited the chances of positive surprises (Streukens & Ruyter, 2004).

Danaher (1997) investigated the relationship between several service attributes and customer satisfaction in an airline and a hotel setting. He used a conjoint analysis method to operationalize multiple measurements on respondents for varying attribute levels. They developed a model that included quadratic terms and interaction terms to test if the relationship between the different attributes and customer satisfaction was linear or not (Danaher, 1997). In their results for both the airline and the hotel setting the models including quadratic and interaction terms gave a better fit than their simple linear analogues



strongly indicating that in their research settings the relationship between their investigated attributes and customer satisfaction is a nonlinear one (Danaher, 1997).

Falk et al. (2008) also investigated possible asymmetries and nonlinearities in the performance satisfaction relationship. They, however, also consider how this relationship could evolve over time. They do this by comparing two subsets of attributes: Functional and hedonic attributes. Functional attributes provide practical benefits while hedonic brings enjoyment and experiential benefits (Falk et al., 2008). To evaluate the evolution of quality effects for both set of attributes Maslow theory (1954) is put forward. It states that basic human needs must first be satisfied before higher order needs can be satisfied. In this context we can expect functional needs to be more basic than hedonic ones (Falk et al., 2008). New customers are looking to satisfy their core needs first while long-term ones seek to satisfy higher order needs (Falk et al., 2008). Therefore functional and hedonic quality attributes will have a different potential to create customer delight across the customers lifecycle. Functional attributes will lose their ability to create customer delight as the customer becomes more experienced while hedonic abilities only come into play for experienced customers (Falk et al., 2008). The results of the study confirm that the nature of the quality-satisfaction link is nonlinear and asymmetric. It indicated positive asymmetric effects of functional/utilitarian features on customer satisfaction while hedonic quality factors displayed negative asymmetry. Secondly, the asymmetries identified by the study changed over time (Falk et al., 2008). Functional attributes saw a significant decline in their positive asymmetry with customer satisfaction as customer experience increased. Functional attributes move from creating positive asymmetry to negative asymmetry as customer experience increases (Falk et al., 2008). Another apparent result was a time-dependent shift in which type of attributes have the possibility to create positive asymmetry as customer experience increases: Hedonic attributes could not create customer delight when their experience was low while the opposite was true for functional attributes (Falk et al., 2008). The authors thus stress that companies should look at how the attribute-satisfaction relationship will evolve over time for each of their customers and how it is difference for new and experienced customers (Falk et al., 2008).

Azman & Gomiscek (2012) made an investigation into possible asymmetries and nonlinearities in the relationship between attribute performance and overall customer

satisfaction specified onto a car servicing context in Slovenia. In light with previous researches, they obtained mixed results (Azman & Gomiscek, 2012). The asymmetric impact of attribute performance was confirmed for all attributes. However, contrary to results obtained by Mittal et al. (1998) positive attribute performance of attributes had a greater impact on overall satisfaction than negative performance (Azman & Gomiscek, 2012). The authors reason that general performance for all investigated attributes is rather high and as a consequence 'dissatisfied and less satisfied' responses should be equated to less satisfaction instead of outright dissatisfaction. This is further reinforced by the answer distributions, more than 56% of interviewees were satisfied or higher while only a little more than 6% were less satisfied or dissatisfied. The investigation into nonlinearities in the relationship between attribute performance and overall satisfaction also gave mixed results (Azman & Gomiscek, 2012). When individual attributes were compared five of them were better modeled by a linear-log model, eight of them better by a linear model and for three both models performed equally well. When the two models were looked at in whole there was no significant difference between the linear-log model and the linear model (Azman & Gomiscek, 2012). An important side note that must be made is that the authors made some assumptions of which the statistical correctness is very doubtful. For the asymmetry part of their investigation, they mention that when the absolute values of the beta coefficients for positive and negative performance differ asymmetry is present (Azman & Gomiscek, 2012). This is done without any mentioning of appropriate statistical tests having been executed. Likewise, for the nonlinear part of this investigation the authors say one model outperforms the other when its  $R^2$  value was at least 0.015 higher. This assumption was made without any mentioning of appropriate statistical tests having been conducted. All of the above could of course invalidate the results they obtained (Azman & Gomiscek, 2012).

Mittal & Kamakura (2001) investigated, among other things, the relationship between customer satisfaction and customer loyalty on possible nonlinearity. They split up customer loyalty in repurchase behavior and repurchase intent and first investigated the link between satisfaction and repurchase behavior. A domestic automotive firm as their setting of choice. Their results showed that the functional form that accurately described the relationship between customer satisfaction and customer loyalty was a nonlinear one (Mittal & Kamakura, 2001). More specifically, they found that customers who moved from the

'somewhat satisfied' region to the very satisfied region exhibited a disproportionate upswing in their repurchase behavior compared to customers who moved from neutral to somewhat satisfied clearly indicating a nonlinear relationship. On the dissatisfaction side of the scale similar results were found (Mittal & Kamakura, 2001). It must be noted that the difference between somewhat dissatisfied and very dissatisfied was much smaller (still statistically significant) than predicted by a linear model. This might be indicative of possible asymmetry being present in the relationship between customer satisfaction and repurchase intention and an indication of the stronger effect of dissatisfaction compared to satisfaction (the notion of asymmetry is not mentioned by the authors in the text) (Mittal & Kamakura, 2001).

Mittal & Kamakura (2001) also checked if a difference was present in functional form if the relationship between satisfaction and repurchase intent instead of repurchase behavior was investigated. They found a different functional form for the satisfaction- repurchase intent relationship. The satisfaction-repurchase intent relationship was also a nonlinear one but exhibited diminishing returns while the satisfaction-repurchase behavior relationship exhibited increasing returns (Mittal & Kamakura, 2001).

From the literature review, it can be seen that research done on asymmetries and nonlinearities between the direct relationship of customer value as a whole construct and customer satisfaction could be a welcome addition. Moreover, earlier investigations into asymmetries and nonlinearities between other relationships such as service quality, attribute performance and customer satisfaction gave contradictory results (Azman & Gomiscek, 2012; Mittal et al., 1998; Streukens & Ruyter, 2004). Therefore there is a clear need to try to develop an understanding of the relationship between customer value and customer satisfaction on the level of asymmetries and nonlinearities and to try develop a better understanding, similarly, for the customer satisfaction and customer loyalty relationship.

## **3 Research Methodology**

### **3.1 Research Approach**

As mentioned earlier, the goal is to develop an understanding of the nature of the relationships between perceived customer value and customer satisfaction and between customer satisfaction and customer loyalty regarding possible asymmetries and nonlinearities. For asymmetry a restricted and unrestricted model were developed (see analytical approach). For nonlinearity, three different representation models for both the customer value → customer satisfaction and the customer satisfaction → customer loyalty relationships will be used (see analytical approach). For each relationship the three models will be compared on their power to explain the relationships to determine which of them has the better explanatory power to confirm if nonlinearity is present or not and when present in which form it is present. In order to conduct the necessary tests an online, self-administered, questionnaire was designed. The questionnaire is set in a furniture service setting, more specifically the IKEA chain was chosen. The IKEA chain was chosen because it is a well-known chain making it easier to find respondents. An online questionnaire was chosen because of its ease of use and its suitability for comparing different models.

### **3.2 Sampling**

For this study, people who are familiar with the IKEA chain were asked for their opinion via an online, self-administered, structured, questionnaire. A total sample size of 166 respondents was obtained. More information over the sampling is given in the table below.

**Table 1: General Information about obtained sample**

Identification criteria		Share (%)
Age	Younger than 18	1.20
	18-30	92.77
	30-40	2.41
	40-50	2.41
	Older than 50	1.20
Sex	Male	30.72
	Female	69.28
# of visits to an IKEA store during the past year	Less than 2 times	51.20
	2-6	43.98
	6-12	3.01
	More than 12 times	1.81

### **3.3 Questionnaire design and measurement**

An online, self-reporting, questionnaire was designed in Dutch. Overall customer satisfaction was measured with a single item adopted from Zeithaml et al. (1996). Perceived customer value was measured using the Holbrook typology via several self-developed items for each of the six different values. Customer loyalty was measured by adaption of the items used by Zeithaml et al. (1996). Perceived customer value and customer loyalty were all measured using 9 point Likert scales ranging from 1 (least favorable anchor) to 9 (most favorable anchor). Overall customer satisfaction was measured using a 10 point Likert scale, ranging from 1 (least favorable anchor) to 10 (most favorable anchor).

### **3.4 Analytical approach.**

#### **3.4.1 Asymmetry**

In order to determine if the relationship between perceived customer value and customer satisfaction and/or the relationship between customer satisfaction and customer loyalty exhibits any asymmetry a strategy adapted from Mittal et al. (1998) is used.

- 1) Answers given in the questionnaire regarding value, satisfaction and loyalty were recoded into dummy variables. More specific, answers ranging from 1 to 4 were recoded into a dummy variable representing negative performance ( $D_n$ ) while

answers from 6-9 were recoded into a dummy variable representing positive performance ( $D_p$ ). The neutral answer (5) was used as base.

2) Two multiple regression models, a restricted and an unrestricted one were estimated via SPSS. The restricted model had the following restriction:  $\beta_1^{\wedge} = \beta_2^{\wedge}$

a) Unrestricted model:  $Y_i^{\wedge} = \alpha + \beta_1^{\wedge} D_n + \beta_2^{\wedge} D_p$

b) Restricted model:  $Y_i^{\wedge} = \alpha + \beta_1^{\wedge} Z$

$$Z = D_n + D_p$$

3) A Wald test was conducted to determine if the imposed restriction could be rejected or not. The Wald test uses the following formula:

$$\frac{(SSR_{res} - SSR_{unres}) \div q}{(SSR_{unres} \div (n - k))} = F_{q, n-k}$$

$SSR_{res}$ : Sum of squared residuals of restricted model.

$SSR_{unres}$ : Sum of squared residuals of unrestricted model.

q: Amount of restrictions

n: Sample Size

k: Degrees of Freedom

If the F-value is larger than the relevant critical F-value, the restriction can be rejected and as a consequence asymmetry is present in the investigated relationship.

### 3.4.2 Nonlinearity

In order to determine the possible presence of nonlinearities in the relationships customer value  $\rightarrow$  customer satisfaction and customer satisfaction  $\rightarrow$  customer loyalty, respectively, the following three models were estimated:

a) A simple linear model:  $Y_i^{\wedge} = \alpha + \beta_i^{\wedge} X_i$

b) A linear-log model:  $Y_i^{\wedge} = \alpha + \beta_i^{\wedge} \ln(X_i)$

c) A log-linear model:  $\ln(Y_i^{\wedge}) = \alpha + \beta_i^{\wedge} X_i$

In the above models, the linear-log model captures the phenomenon of decreasing returns in a relationship while the log-linear captures increasing returns. Answers on reverse coded questions were transformed by subtracting the selected anchor of the given answers from 10 (so an answer of 1 on a reverse coded question would become 9 and so on). In order to compare the performance of the log-linear model to the linear and the linear-log model, Ramanathan (1998) procedure is used to transform the predicted values of the log-linear model. To determine if the three models differ substantially in their explaining power of the outcome variables Steiger's (Steiger, 1980; Steiger & Browne, 1984) methodology was used.

- 1) SPSS was used alongside the results from the questionnaire to obtain the actual values of the dependent variable (Y) and its estimations ( $Y_j^{\wedge}$  with  $j = 1,2,3$ ) according to the three models used for each relationship.
- 2) Correlation Matrices for these four variables with associated correlation coefficients were obtained for each relationship.

$$\begin{bmatrix} 1 & r_{yy_1^{\wedge}} & r_{yy_2^{\wedge}} & r_{yy_3^{\wedge}} \\ r_{yy_1^{\wedge}} & 1 & r_{y_1^{\wedge}y_2^{\wedge}} & r_{y_1^{\wedge}y_3^{\wedge}} \\ r_{yy_2^{\wedge}} & r_{y_1^{\wedge}y_2^{\wedge}} & 1 & r_{y_2^{\wedge}y_3^{\wedge}} \\ r_{yy_3^{\wedge}} & r_{y_1^{\wedge}y_3^{\wedge}} & r_{y_2^{\wedge}y_3^{\wedge}} & 1 \end{bmatrix}$$

- 3) A z-test is used to test for significance between  $r_{yy_1^{\wedge}}$  and  $r_{yy_2^{\wedge}}$  (analogous for the other relationships):

$$z = (z_{yy_1^{\wedge}} - z_{yy_2^{\wedge}}) \sqrt{\frac{N - 3}{2 - 2Cov_{y_1^{\wedge}y_2^{\wedge}}}}$$

In which N is the sample size,  $z_{yy_1^{\wedge}}$  and  $z_{yy_2^{\wedge}}$  are the Fisher r-to-z transformations of  $r_{yy_1^{\wedge}}$  and  $r_{yy_2^{\wedge}}$ ,  $Cov_{y_1^{\wedge}y_2^{\wedge}}$  is the covariance between  $y_1^{\wedge}$  and  $y_2^{\wedge}$  which is calculated via the following formula:

$$Cov_{y_1^{\wedge}y_2^{\wedge}} = \frac{r_{y_1^{\wedge}y_2^{\wedge}}(1 - 2r_{av}^2) - (1/2)(r_{av}^2)(1 - 2r_{av}^2 - r_{y_1^{\wedge}y_2^{\wedge}}^2)}{(1 - r_{av}^2)^2}$$

In which  $r_{av}^2$  is the average of  $r_{yy_1^{\wedge}}$  and  $r_{yy_2^{\wedge}}$ .

If the z-value is positive and larger than the appropriate critical value we can say that model 1 has better explaining power of the relationship than model 2. If the z-value is negative and larger than the critical negative value than model 2 has better explaining power compared to model 1 (analogous for the other comparisons).

One important remark that must be made, for the investigation of the customer value/customer satisfaction relationship, the relationship of each component of the Holbrook value typology (excellence, efficiency, social, play, altruism and aesthetics) with customer satisfaction will be investigated individually for determination of asymmetry and nonlinearity.





## 4 Analytical Results

### 4.1 Asymmetry in the investigated relationships

An overview of the results of the investigation into the nature of the relationships of customer value → customer satisfaction and customer satisfaction → customer loyalty, regarding asymmetry, is given in the table below.

**Table 2: Analytical results of the investigated relationships, concerning asymmetry.**

Dependent Variable	Independent Variable	F-Value (p-value)	Result
Satisfaction	Excellence	54.20 (<0.001)	Reject Restriction (1% level)
	Efficiency	29.05 (<0.001)	Reject Restriction (1% level)
	Social	5.304 (0.022)	Reject Restriction (5% level)
	Play	35.28 (<0.001)	Reject Restriction (1% level)
	Altruism	5.79 (0.017)	Reject Restriction (5% level)
	Aesthetics	45.49 (<0.001)	Reject Restriction (1% level)
Loyalty	Satisfaction	18.05 (<0.001)	Reject Restriction (1% level)

As shown in the table above, the restriction that the  $\beta$  for negative performance is not statistically significantly different from the  $\beta$  for positive performance can be rejected at the 1% level for all relationships investigated, except for the social → satisfaction relationships and the altruism → satisfaction relationships where it can be rejected at the 5% level. Taking a closer look at each of the individual relationships, the estimated regression coefficients of the dummy variables for each relationship is given in the table below.

**Table 3: Dummy Variable regression results**

Dependent Variable	Independent Variable	Estimation of $D_n$	Associated t-value (p-value)	Estimation of $D_p$	Associated t-value (p-value)
Satisfaction	Excellence	-2.417**	-2.884 (0.004)	0.156	0.201 (0.841)
	Efficiency	-0.933	-1.118 (0.265)	2.148**	3.430 (0.001)
	Social	-0.990**	-2.876 (0.005)	-0.238	-0.549 (0.584)
	Play	-0.327	-0.652 (0.515)	1.067*	2.213 (0.028)
	Altruism	-0.276	-0.650 (0.517)	0.558	1.082 (0.281)
	Aesthetics	-1.644*	-2.396 (0.018)	0.639	1.035 (0.302)
Loyalty	Satisfaction	0.375	0.550 (0.583)	2.268 **	4.237 (<0.001)

\* Significant at 5% level; \*\* Significant at 1% level

In the relationships between excellence/social/aesthetics and satisfaction the dummy variable representing negative performance is significant (1% level for excellence, social; 5% level for aesthetics) while the dummy variable representing positive performance has non-significant coefficients for all three relationships. The relationships efficiency/play and satisfaction exhibit the opposite; significant coefficients for the dummy variable for positive performance (1% level for efficiency, 5% for play) while the coefficient for the dummy variable representing negative performance is not significant. For the altruism → satisfaction relationship neither coefficient for both the dummy variables is significant at the 5% level. Finally, the satisfaction → loyalty relationship exhibits the same pattern as the efficiency/play → satisfaction relationship.

Thus, for the customer value → customer satisfaction relationship the results clearly indicate that asymmetry is present since for all individual factors of customer value the restriction that positive and negative coefficients are the same can be rejected (at the 5% level for social, altruism and at the 1% level for excellence, efficiency, play and aesthetics). The restriction can also be rejected for the customer satisfaction → customer loyalty relationship (at the 1% level) indicating that this relationship exhibits asymmetry as well.

## 4.2 Nonlinearity in the investigated relationships

Concerning nonlinearity in the investigated relationships, the explanatory performance of the three different models mentioned in the methodology was compared. An overview is given in the table below.

**Table 4: Analytical results of investigated relationships, concerning nonlinearity. Comparison of explanatory performance of the three different models.**

Dependent variable	Independent variable	Comparison model A vs B <sup>A</sup>	z-value (p-value)	Results (model that performs better)
Satisfaction	Excellence	Linear vs Linlog	-1.27 (0.207)	No difference
		Linear vs Loglin	4.55 (<0.001)	
		Linlog vs Loglin	2.66 (0.009)	
	Efficiency	Linear vs Linlog	-1.10 (0.273)	No difference
		Linear vs Loglin	3.56 (<0.001)	
		Linlog vs Loglin	2.11 (0.036)	
	Social	Linear vs Linlog	-1.8 (0.073)	No difference
		Linear vs Loglin	1.58 (0.115)	
		Linlog vs Loglin	1.79 (0.074)	
	Play	Linear vs Linlog	-1.75 (0.081)	No difference
		Linear vs Loglin	1.956 (0.052)	
		Linlog vs Loglin	1.867 (0.064)	
	Altruism	Linear vs Linlog	-0.8 (0.424)	No difference
		Linear vs Loglin	0 (1)	
		Linlog vs Loglin	0.686 (0.493)	
	Aesthetics	Linear vs Linlog	Inf (0)	Linear
		Linear vs Loglin	4.45 (<0.001)	
		Linlog vs Loglin	4.45 (<0.001)	
Loyalty	Satisfaction	Linear vs Linlog	6.08 (<0.001)	Linear
		Linear vs Loglin	-3.54 (0.001)	
		Linlog vs Loglin	-5.46 (<0.001)	

<sup>A</sup> Comparison of model A vs model B; If  $z < 0$  and statistically significant (min 5% level), model B performs better, if  $z > 0$  and statistically significant (min 5% level) than model A performs better. If  $z$  is not statistically significant (at 5% level) there is no statistically significant difference in performance between the models.

In three of the investigated relationships there is no significant difference in performance between the different models examined: Social/Play/Altruism → Satisfaction. For the excellence/efficiency → satisfaction relationships there is no difference in performance between the linear and the linear-log model. The log-linear model is outperformed by the linear as well as the linear-log model while the linear and linear-log model have similar performances. Looking at the aesthetics → satisfaction relationship, outperformance for the

linear model compared to the other two can be seen. Finally, taking a look at the satisfaction → loyalty relationships we can see the log-linear model performs best when comparing the three models and the linear-log model performs worst.

For the value → satisfaction relationship we can see the linear model is either has superior or equal performance compared to the linear-log and the log-linear models indicating that the value → satisfaction does not exhibit any asymmetry and can be appropriately modeled by a linear model. The satisfaction → loyalty relationship is vastly different; the log-linear model outperforms the other two indicating the relationship is nonlinear and exhibits increasing returns.

## 5 Discussion and Conclusion

### 5.1 Asymmetry in the investigated relationships

Looking at the customer value → customer satisfaction relationship the results clearly indicate that asymmetry is present since for all individual factors of customer value the restriction that positive and negative coefficients are the same can be rejected (at the 5% level for social, altruism and at the 1% level for excellence, efficiency, play and aesthetics). Taking a more in depth look at the relationships between the individual components of customer value and customer satisfaction several things can be noted.

First, in the excellence/social/aesthetics → satisfaction relationships the dummy variable representing negative performance is significant while the one representing positive performance is not. This suggests that for these factors increases in negative performance will lead to increases in dissatisfaction while positive performance will not result in notable increases in satisfaction. These three factors can, thus, be viewed as must-be factors that customers come to expect when they visit an IKEA store. Customers expect that the products reach the level of quality they have set for themselves beforehand. Moreover, they expect the store personnel to be knowledgeable about the products/services when they have questions and they expect the personnel to be sincere when they make recommendations or when deciding between multiple offers. Concerning the social aspects it might be that customers expect to leave a favorable impression on others when they visit the IKEA store and buy their products and if they IKEA products do not leave favorable impressions with others or shopping at IKEA does not lead to social acceptance, the dissatisfaction of shoppers will mount rapidly. This might also be a consequence of the age of the respondents. Over 90% is aged between 18 and 30, in this age category people might attach high importance to social acceptance by others and people want to have a favorable status towards other people and any factors that reduce these will rapidly lead to dissatisfaction while increases will not lead to higher satisfaction. For aesthetics, it can be reasoned that shoppers expect the IKEA stores to look and be attractive, to be very clean and to have products placed in logical places, order, etc. Any shortcomings on this will rapidly lead to customer dissatisfaction.

Second, for the efficiency/play → satisfaction relationship the opposite behavior is found. The dummy variable for positive performance is significant while the one representing negative performance is not. This indicates that efficiency and play are excitement factors. Increases in positive performance will lead to customer satisfaction while increases in negative performance or absence do not lead to customer satisfaction. This could be explained in that customers maybe do not really expect high efficiency when visiting an IKEA store or expect to get a joyful experience when they are going to shop for furniture in an IKEA store. However, when the customers receive high efficiency by for example, IKEA stores having enough parking spaces, items being easy to find in the store they will feel very satisfied. Similarly for play, when customers go out to shop for furniture in an IKEA store they initially might not expect it be joyful but if the IKEA store succeeds in giving them a pleasant experience and makes them forgot about all the problems they have for a bit customers might experience a lot of positive emotions and a result obtain a high to very high satisfaction. Likewise customers might not expect that any facilities for children are present when they go to visit the store but when they are (f.ex. children play corner) it will allow parents to focus more on the shopping without having to look out for their children all the time and this could also lead to additional satisfaction among customers.

When the altruism → satisfaction is considered, neither the dummy variable for negative performance nor the one for positive performance is significant even though the overall evaluation indicate asymmetry is present suggesting a difference between negative and positive performance albeit a very small one. An explanation could be that customers do not pay much thought to altruistic motives when going to shop at an IKEA store and therefore altruism could be considered a somewhat neutral factor whose performance is not very important for consumers when determining their overall satisfaction.

Finally, looking at the satisfaction → loyalty relationship, similar behavior as the efficiency/play → satisfaction relationship is exhibited. Increases in satisfaction leads to more loyalty while increases in dissatisfaction does not lead to less loyalty. This is a logical result, since it can be assumed that customers who are dissatisfied with a company will exhibit very little loyalty, if any, towards that company. Further increases in dissatisfaction will not lead to lower loyalty since it is hardly present in the first place for those customers

and thus it cannot be reduced much further anyway. While customers who become more and more satisfied with a company will also become more and more loyal.

## **5.2 Nonlinearity in the investigated relationships**

Looking at the customer value → customer satisfaction relationship the results clearly show that the linear and linear-log models show the better performance overall while the log-linear model has the worst performance. Breaking it down in the individual components, for three of the six value components (social, play and altruism) there is no significant difference in performance between the three models. The linear model performs best in the aesthetics → satisfaction relationship and for the excellence/efficiency → satisfaction relationship both the linear model/linear-log model both outperform the log-linear model while having no difference in performance between them. Based on these results, we can say that in this setting, the customer value → satisfaction relationship is represented well by a linear model and thus nonlinearity is not present in this relationship. A definite, well underpinned reason for this behavior is not known at this moment. It could be a consequence of the service setting used in this study. Another possibility might be the surveyed customers' considerations. The customers that go to IKEA might apply a simple mathematical approach when they are transmitting the value of a product/service into a feeling of satisfaction or dissatisfaction for themselves. When the value, as perceived by the customers, goes up or down, their overall satisfaction simply follows in a linear way.

Checking the satisfaction → loyalty relationship, the result is different compared to the value → satisfaction relationship. The log-linear model outperforms the linear and linear-log model. This is a clear indication that nonlinearity is present in the satisfaction → loyalty relationship. More specifically, we can say that the relationship exhibits increasing returns. This means that the rate at which customer loyalty increases will go up and up as customer satisfaction reaches higher and higher values. A possible explanation is that in this kind of setting (the IKEA store) customers in general like to keep their options open until they reach a certain threshold of satisfaction with a particular company. Customers who are somewhat satisfied or simply satisfied with a company still look for other offers if they would offer them superior value and therefore lead to higher satisfaction. It is not until satisfaction reaches very high values that the customer set of companies he/she considers as possible



options to obtain the things he/she wants/needs reduces until it, in the limit, goes down to 1 (only the specific company itself) as the customer satisfaction goes towards extremely high values.

### **5.3 Comparison with results from literature**

Finally, comparing the obtained results to some of the obtained ones in the literature it can be seen that these results mostly differ from the ones obtained by Streukens & Ruyter (2004) who did not find any support for asymmetry and nonlinearity in the relationships between value, satisfaction and loyalty. Mittal et al. (1998) did find support for asymmetry in the relationship between value and satisfaction but obtained mixed results towards nonlinearity. The biggest overlap between these results and the literature can be found with Anderson & Mittal (2000). They also found asymmetry in the value → satisfaction relationship working in a similar fashion as it does here, namely some factors exhibit negative asymmetry while others exhibit positive asymmetry. However, contrary to Anderson & Mittal (2000) this study did not find any support for the presence of nonlinearity in the value satisfaction relationship. Anderson & Mittal (2000) also found support for asymmetry and nonlinearity for the satisfaction → loyalty relationships. Again one difference must be noted, Anderson & Mittal (2000) proposed that increasing returns can be found at both the negative end and the positive end of the relationship will in this study there is only support for increasing returns at the positive side of the relationship.

### **5.4 Conclusion**

Based on obtained results, the following conclusions regarding the main research question, 'Trying to develop an understanding of the true nature of the relationships in terms of asymmetry and nonlinearity between the different constructs in the customer value-satisfaction-loyalty chain', can be made.

First, the customer value → customer satisfaction relationship exhibits asymmetric behavior on all investigated items. Three of the six measured items (excellence, social, aesthetics) exhibit negative asymmetry, two positive asymmetry (efficiency, play) and one was not clear

(altruism). The relationship did not, however, exhibit any form of nonlinearity in any of the six investigated items.

Second, concerning the satisfaction → loyalty relationship the results show that this relationship exhibits both asymmetry and nonlinearity. More specifically, regarding asymmetry the relationship exhibits positive asymmetry while for nonlinearity, the relationship shows 'increasing returns' behavior meaning as satisfaction values rise higher and higher the rate at which customer loyalty increases goes up and up.

Finally, when the obtained results were compared to the literature some overlap with earlier results was found. In general, however, significant differences between the results of this study and earlier results were established.

## **5.5 Implications for Management**

As mentioned in the literature review and in the conclusion of this study, wide divergence in results in investigations into asymmetry and nonlinearity in the customer value-satisfaction-loyalty chain can be observed. It is therefore of the utmost importance for the management of companies to thoroughly investigate and establish how the relationships between customer value, customer satisfaction and customer loyalty behave in their specific case. In addition, companies need to establish which factors are most/least important in creating value for their customers as viewed by them. Determining which factors exhibit negative asymmetry, which ones exhibit positive asymmetry and so on is a primary objective for companies. Failure to do this, will lead to, as mentioned earlier, wrong investments, wastage of money and even customers dissatisfaction and disloyalty.



## 6 Limitations

This study makes use of only one specific service setting, a furniture chain. Results could vary significantly if other service settings (f.ex. restaurants) are used. Furthermore, this study makes use of self-reported items which could limit the validity of the results. Additional information on actual customer behavior could provide additional insights and increase the validity of the results. Another limitation resides in the constructs and the relationships between them. Customer loyalty might be better split into behavioral and attitudinal loyalty instead of lumping them together in one construct since they comprise different aspects of the customer loyalty construct and then checking the individual relationships. This research also does not investigate the nature of the direct relationship between customer value and customer loyalty nor are any possible moderators between relationships such as customer characteristics, amount of alternatives available to customers, etc.; taken into account. Another serious limitation of this study is that the study has a cross-sectional design. Previous researchers like Falk et al. (2008) and Vargo et al. (2007) clearly advocate that customers' needs and wants change over time and this will have an impact on the value-satisfaction and the satisfaction loyalty relationship. There is also no possibility to investigate possible carry-over effects between visits/purchases of customers because of the cross-sectional design. In the investigation of the relationships concerning nonlinearity, no distinction is made between the domain for positive and negative performance which could enrich the results further. Finally, extreme care must be taken when trying to infer any causal effects. Since a pre-experimental design was used (questionnaire) it is not possible to control for any statistical interferences.



## 7 Suggestions for future research

As previously mentioned in the limitations section, it would be very useful for future research to conduct similar studies in other service settings to investigate if confirmatory or contradictory results are obtained. Furthermore, as mentioned in the limitations this study does not include possible moderators of the investigated relationships, possible moderators that could be investigated are: type of offering, type of customer (new customer vs long-time customer) and so on. Another very interesting proposition would be to consider the time aspect and to make use of longitudinal study designs to see if there is a time evolution of the nature of the relationships between customer value/ customer satisfaction and customer loyalty concerning asymmetry and nonlinearity as suggested by Vargo et al. (2007) Falk et al (2008), etc. It might also be useful to conduct research that incorporates more models, f.ex. quadratic and maybe even higher order ones to increase the scope of the research and to get a more general idea which models perform best explaining the nature of the value-satisfaction-loyalty relationships and which don't. Furthermore, it could also be useful to conduct a similar type of research but in an experimental setting that can account for statistical interferences in order to establish appropriate causal links that could offer a more in depth explanation of the obtained results in this study. Another important note is that the customer value-customer loyalty chain is part of the entire service/product- profit framework. It could be very useful to try to extend and integrate this research findings into the wider service/profit network since companies should display major interest in how their profits would/could be affected by asymmetries and nonlinearities in the relationships in the customer value-satisfaction-loyalty chain.



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## **9 Appendix**

### **9.1 Questionnaire**

## relatie tussen waarde, tevredenheid, en klantentrouw bij IKEA.

Geachte Meneer/Mevrouw,

Ik ben Koen Van Camp en ik studeer op dit moment Master of Management aan de Universiteit van Hasselt. Het doel van mijn scriptie is het onderzoeken van de relatie tussen waarde, tevredenheid, en klantentrouw bij IKEA. Al uw antwoorden zullen discreet en vertrouwelijk worden behandeld. Deze vragenlijst zal ongeveer 10 minuten tijd in beslag nemen.

Verder zou ik willen beklemtonen dat er zijn geen goede of slechte antwoorden zijn. Ik ben op zoek naar uw persoonlijke mening betreffende de stellingen hieronder.

Veel dank bij voorbaat,

Koen Van Camp

Start

[www.thesistools.com](http://www.thesistools.com)

## relatie tussen waarde, tevredenheid, en klantentrouw bij IKEA.

1.

Heeft u weleens iets gekocht bij IKEA?

- Ja
- Nee

2.

Gebruikt u zelf ook de aangeschafte IKEA producten?



De kwaliteit van IKEA producten is uitstekend.

Het IKEA personeel geeft elke klant voldoende individuele aandacht.

Het IKEA personeel is eerlijk en oprecht met zijn klanten

5.

**Gelieve voor elk van de stellingen aan te geven in welke mate uw akkoord gaat.**

De IKEA winkels zijn gelegen op goed bereikbare plaatsen.

**Volledig Niet Akkoord**

**Volledig Akkoord**

Er zijn voldoende parkeervoorzieningen aanwezig bij de IKEA winkels.

In de winkel vind je alles makkelijk wat je zoekt.

In het magazijn vind je alles makkelijk wat je zoekt.

De wachttijden bij de kassa zijn acceptabel voor mij.

De papieren catalogus is duidelijk opgesteld.

De elektronische catalogus is duidelijk opgesteld.

De montage handleidingen zijn duidelijk opgesteld.

De winkel heeft handige openingsuren

6.

**Gelieve voor elk van de stellingen aan te geven in welke mate uw akkoord gaat.**

**Volledig Niet Akkoord**

**Volledig Akkoord**

Winkelen bij IKEA zorgt ervoor dat ik een goede indruk nalaat op anderen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Winkelen bij IKEA zorgt ervoor dat ik me aanvaard voel bij anderen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Winkelen bij IKEA is aangenaam vanwege de goede sociale contacten met het IKEA personeel.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De aankoop van IKEA producten bezorgen mij een zekere status.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De aankoop van IKEA producten wekt bewondering op bij anderen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7.

Gelieve voor elk van de stellingen aan te geven in welke mate uw akkoord gaat.

	Volledig Niet Akkoord						Volledig Akkoord		
Naar IKEA gaan is plezierig voor mij.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Naar IKEA gaan maakt mij gelukkig.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Naar IKEA gaan geeft mij een goed gevoel.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Naar IKEA gaan doet me mijn zorgen even vergeten.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het IKEA personeel draagt bij tot de IKEA winkelervaring.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gaan winkelen bij IKEA is een unieke ervaring.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8.

Gelieve voor elk van de stellingen aan te geven in welke mate uw akkoord gaat.



	Volledig Niet Akkoord	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Volledig Akkoord
Ik ga naar IKEA omdat zij goede doelen steunen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
IKEA zorgt ervoor dat ik mezelf meer ga inzetten voor goede doelen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik geloof dat IKEA een bedrijf is dat zijn sociale verantwoordelijkheid opneemt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9.

Gelieve voor elk van de stellingen aan te geven in welke mate uw akkoord gaat.

	Volledig Niet Akkoord	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Volledig Akkoord
Het design van de IKEA winkels is aantrekkelijk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De binnen lay-out van de winkels is mooi.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het personeel is correct gekleed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De IKEA winkels zijn proper.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De manier waarop IKEA zijn producten uitstalt is aantrekkelijk voor het oog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De internetsite van IKEA heeft een mooie lay-out	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



10.



12.

**Ik ben een ...**

- Man
- Vrouw

13.

**Ik ben ...**

- Jonger dan 18
- Tussen 18 en 30
- Tussen 30 en 40
- Tussen 40 en 50
- Ouder dan 50

14.

**Het afgelopen jaar ben ik .... maal naar een IKEA winkel geweest**

- Minder dan 2 keer
- Tussen 2 en 6 keer
- Tussen 6 en 12 keer
- Meer als 12 keer

15.

Als u nog bijkomende opmerkingen heeft, gelieve ze dan hier te vermelden



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Ik dank u, ten zeerste, voor uw medewerking.

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**Understanding the nature of the value-satisfaction-loyalty chain concerning asymmetry and nonlinearity**

Richting: **Master of Management-International Marketing Strategy**

Jaar: **2015**

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