The Impact of Customer Empowerment on Observer-Based Brand Equity

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Abstract of master thesis

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Abstract

The aim of this study is to explore the relationship between customer empowerment in new product development and observer-based brand equity, as well as the relevant contextual consideration moderating the relationship. In this study, customer empowerment is defined as the interaction between firms and consumers for the development of new business opportunities by means of creating and/or selecting products. The first part of this study consists of an extent research on customer empowerment and its effects on observer-based brand equity, which resulted in a total of six research hypotheses that are processed into the theoretical framework of this study. The main hypotheses of this study postulate that customer empowerment positively influences the observer-based brand equity. Additionally, it is posited that this influence will be stronger for companies with a low brand comprehension in comparison with companies with a high brand comprehension.

The research data is obtained from an online questionnaire, resulting in a total sample size of 200. Empirically, the main hypotheses are tested through a multivariate analysis of variances, whereas the moderating effect is tested through a multivariate analysis of covariances. Before conducting the two types of analysis, an exploratory and confirmatory factor analysis were performed respectively to ensure reliability and validity of the constructs used in the study.

The results of the multivariate analysis of variances support the main hypotheses, which means that a positive and significant relationship between customer empowerment and observer-based brand equity is found. The results of the multivariate analysis of covariances partly support the hypotheses regarding the moderating effect of brand comprehension, which means that a positive and significant relationship between customer empowerment and brand comprehension is found. This suggests that companies with low brand comprehension benefit more of customer empowerment in new product development than companies with high brand comprehension.

All in all, this study broadens our understanding of the effects of customer empowerment in new product development and therefore contributes to the academical literature. From a managerial perspective, the findings suggest that customer empowerment in new product development can be a profitable approach to stimulate the observer-based brand equity, especially in an environment in which individual wishes and needs become more important.

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1. INTRODUCTION

1.1 The Consumer Centric Innovation Process

In the early 1960s, marketing has been characterized as a decision-making activity in which profit could be obtained by targeting a market and making optimal decisions on that specific marketing mix, or the ever-cited "4 P's" (McCarthy, 1960; Kotler, 1967; Vargo & Lusch, 2004). Leading marketing literature in the 1970s, such as Kotler's textbook "Marketing Management" (1972), stated that the company's objective(s), in form of uncontrollable demand variables, could only be maximized by the company's decisions on the marketing variables. In other words, correct decisions on the marketing mix leads to an higher demand. Later, in the 1980s, studies shifted their focus from standard microeconomics, such as the 4 P's, to the entire production process. The production process represents a chain of consecutive activities (Etgar, 2007; Gummesson, 2008), with each activity leading to the next (Porter, 1985), and is defined as the value chain. In the traditional production process, the entire value chain is processed by internal activities of companies and stops when a consumer has bought something. In these capitalist economies, value is usually created by firms at the specific moment of interaction – the exchange (Prahalad & Ramaswamy, 2004a, b; Vargo and Lusch, 2004). This goods-centred dominant logic considers operand resources as primary above the operant resources. Here, it is most important to understand the distinction between the two types of resources. Operand – which means "something operated on" (O'Shaughnessy, 2009, p.785) – resources can be defined as tangible, static resources (Maglio *et al.*, 2009) on which an act or operation is performed to create an effect (Vargo & Lusch, 2004). Operant – which means "tending to produce effects" (O'Shaughnessy, 2009, p.785) – resources can be defined as intagible resources (Arnould *et al.*, 2006; Etgar, 2007), which are utilized to act on operand resources (Constantin & Lusch, 1994; Vargo & Lusch, 2004). Operand resources are usually raw materials, and operant resources are core competences (such as skills, technologies, and knowledge) and organizational processes (Hamel & Prahalad, 1994; O'Shaughnessy, 2009). In goods-centred dominant logic, the value of operant resources is equal to the extent that the firm could modify its operand resources into low-cost outputs. Therefore, the key to success in this dominant logic is the share of operand resources (Vargo & Lusch, 2004).

Thomas Matlhus (1798) had a major contribution in the (changing) perspective on resources with his analysis of world resources. He concluded that the most important difference between both resources is that operand resources are finite and operant resources are infinite. In the late twentieth century, it were the economists Zimmerman (1951) and Penrose (1959) who noted this shifting view of resources. They suggested that the resources themsleves are not the input to the production process, but only the services that can realize the resources are. The shift in the supremacy of resources in combination with the rise of the information and communication technologies challenged some of the most important pillars of the capitalist economies (Prahalad & Ramaswamy, 2000; Shiffman, 2008; Garrigos-Simon *et al.*, 2012; Galvagno & Dalli, 2014). As a result, the consumers are provided with (1)

access to unlimited information, and (2) the ability to communicate with customers and companies around the world, which gives them a desire to have a greater role in the process of value creation (Hoyer *et al.*, 2010). It was a cry for a new emphasis in the marketing management literature, an emphasis that focusses more on the interaction between firms and consumers in the value creation process to develop new business opportunities. This new paradigm – in which suppliers and customers are, conversely, no longer on opposite sides, but interact with each other for the development of new business opportunities – is called co-creation or customer empowerment in new product development (Galvagno & Dalli, 2014).

The change of customer's perceived value and participation in new product development

Prahalad and Ramaswamy could be considered as the founders of the co-creation theory (Galvagno & Dalli, 2014). They (2000) introduce co-creation by establishing the changing nature of the consumer-company interaction as the locus of the redefined value creation process (Prahalad & Ramaswamy, 2004a). Customer value is not objectively determined by a seller, but rather something perceived by customers (Woodruff, 1997). Value shifts to usage experiences, which has emerged as the basis for unique value to customers (Gentile *et al.*, 2007; Payne *et al.*, 2008). The increased demand for experiences are considered as the major drivers for consumers need(s) satisfaction (Etgar, 2007). The quality of the experiences is determined by the essence of the involvement customers have in co-creating. Therefore, Prahalad and Ramaswamy consider experience environments in which individuals can create their own unique personalized experience (Prahalad & Ramaswamy, 2003, 2004a, b). Within these experience environments, an organizational party compiles many nodes (such as partners, customer communities and suppliers) to form an experience network and establish relationships and interactions between them (Gummesson, 2008).

Nowadays, consumers have the opportunity to engage in an organization's innovation process through information and communication technologies (Di Gangi & Wasko, 2009). It is the emergence of internet in particular that has provided companies with opportunities to obtain consumer's knowledge and innovative potential (Kohler *et al.*, 2011). Internet is a universal, open and cost-effective network (Afuha, 2003), which makes it a global medium with unrivalled reach. As a result, constraints of geography and distance are reduced (Cairncross, 1997). Moreover, the internet has ensured that companies no longer have to make the trade-off between the richness of content and reach because it is bilateral in nature (Evans & Wurster, 1999). In the physical world, transferring rich content requires physical presence of the customers to have personal interactions. In this situation, a firm's reach depends on the number of physical employees and will therefore be limited. However, in the virtual (internet-based) environments, firms are able to engage with a larger number of consumers without harming the richness of the content (Sawhney *et al.*, 2005).

To date, research on customer empowerment in new product development has focused on motivations and perceptions of the consumers who have an active task in the product development

process, but those consumers are not the only consumers to take into account. The effects of customer empowerment in new product development on consumers that are liable to co-created products, but without an active role in the new product development process, is barely researched. Christodoulides *et al.* (2012) suggest that a change in consumer-based brand equity may be caused by simply viewing rather than creating materials.

1.2   Problem Statement and Research Questions

Most of the consumers are only exposed to co-created products (Christodoulides *et al.*, 2012). Still, a major part of the research in customer empowerment in new product development has been dedicated to the partcipating- and developing customers in the new product development processes. This research aims to increase our understanding of the effects of customer empowerment in new product development on the consumers that are only exposed to co-created products in relation to the different degrees of customer empowerment. In addition, another important factor that may affect the effects of customer empowerment in new product development on consumers that are only exposed to co-created products will be added, namely the level of brand establishment. Does customer empowerment in new product development has positive outcomes on established brands due to the trust consumers have in these brands? Or does customer empowerment in new product development has negative outcomes because they have a certain brand image? And vice versa, what are the outcomes on unfamiliar brands? In order to address these issues, the following problem statement must be answered:

"How does a customer empowerment oriented approach in new product development impacts the observer-based brand equity?"

In order to give a comprehensive answer to this research question, the following sub questions will need to be answered:

- What are the levels of consumer empowerment in new product development?
- What elements does observer-based brand equity consist of?
- What is the effect of customer empowerment on the observer-based brand equity?

Besides, the following questions needs to be answered to determine whether a certain context moderate the impact of customer empowerment on observer-based brand equity:

- Does the level of brand comprehension moderate the effect of customer empowerment on observer-based brand equity?

For clarification, a conceptual model has been made which can be found in figure 1 on the next page. This model contains the direct relation between X (customer empowerment) and Y (observer-based

brand equity), as well as the moderator and control variables. The theoretical underpinnings of the hypotheses will be discussed in the next chapter.

1.3 Academic- and Managerial Relevance

The purpose of this research is to increase our understanding of the effects of customer empowerment in new product development on the firms' performance. Until now, the effects of customer empowerment in new product development on the firm's performance in general, such as increased quality (Leone *et al.*, 2012), efficiency (Prahalad & Ramaswamy, 2000; Hull, 2004; Payne *et al.*, 2008; Baars, 2011), effectiveness (Lilien *et al.*, 2002; Fang, 2008) have been examined. Besides, a wide range of literature has been dedicated to the motivational factors in form of monetarty and non-monetary rewards to participate in the new product development process (Bendapudi & Leone, 2003; Etgar; 2007; Hoyer *et al.*, 2010). Furthermore, studies are dedicated to effects of cocreated product/service on the customer's attitude, such as the willingness-to-pay, the product, referrals/word of mouth, and purchase intentions (Franke *et al.*, 2009; Mathwick *et al.*, 2007). However, to date, few studies have investigated the effects of customer empowerment in new product development on the brand- and product perception, and behavioural intentions of the consumers that are only exposed to co-created products.

Furthermore, a limitation in the current literature of customer empowerment in new product development is that most empirical data are derived from records within service sectors, which is not completely astonishing due to the nature of the relationship between provider and user. Therefore, it can be valuable to embody the existing knowledge to other domains (Voorberg *et al.*, 2015).

This master thesis builds on existing studies and literature on how co-created products affect the (exposed) consumers. Relevant behavioural and psychological theories and studies are adapted to this context, and limitations in the existing literature are investigated.

For managers seeking to improve firm's performance and/or consumers perception by using customers in the new product development process, customer empowerment in new product development could be a potential risk when applying the wrong strategy for a specific objective (Etgar, 2007). Therefore, from a managerial perspective, this master thesis can help marketers to improve their new product development processes by deepen the understanding of the effects of the different customer empowerment strategies.

1.4 Structure of the Thesis

Hereby, an overview of the research objectives and research questions is provided, as well as the academic and managerial relevance of this master thesis. The second chapter is dedicated to the existing knowledge on the customer empowerment theory. Besides, relevant models and concepts are reviewed, which could be, in combination with the customer empowerment theory, considered as the building blocks of this master thesis. Furthermore, this chapter also encloses the developed conceptual model

and hypotheses that will be tested later on. The third chapter contains a description of the methodology and design, which are used to test the developed hypotheses. Chapter 4 is dedicated to the conducted data analysis and the tested hypotheses. Finally, the results regarding the problem statement are discussed. This last chapter also contains limitations and future research possibilities. Furthermore, this master thesis is based on products as a result of customer empowerment in new product development. However, it must be said that services are also subject to be co-created but will not be taken into consideration in this master thesis.

2. LITERATURE REVIEW

This chapter indicates the relevant concepts regarding the research problem and forms the theoretical framework of the conceptual model which is illustrated in figure 1. The first part of this chapter consists of the definition and related constructs of customer empowerment, the conceptualization of customer empowerment in the new product development process, the transformation of customer empowerment into strategies, and finally the outcomes of customer empowerment in the new product development process. This is followed by the preparation of the hypotheses in the second part of this chapter. Lastly, the contextual consideration of the research, also known as the moderating effects, will be given.
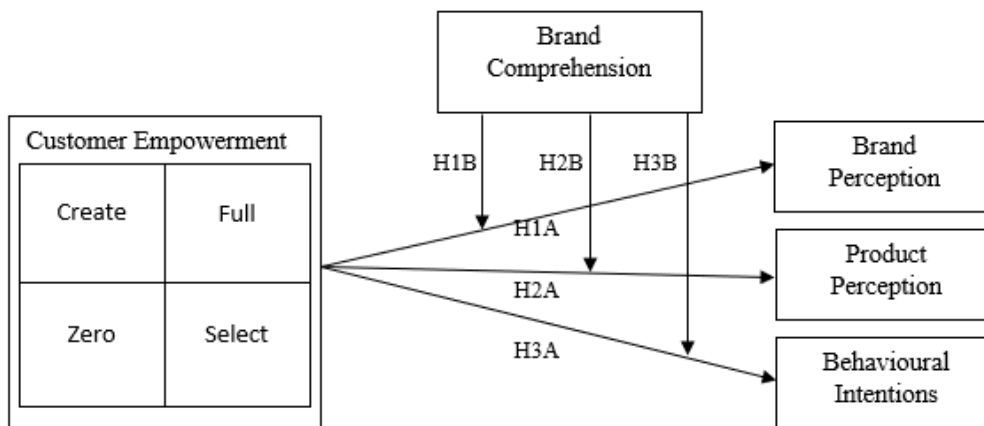
Figure 1: The Conceptual Model

2.1 Understanding Customer Empowerment in New Product Development

2.1.1 Definition and Related Constructs

For many years, the importance of co-operation between producers and consumers in developing innovative services and products has been recognized by a variety of sciences (Greer & Lei, 2012). Table 1 illustrates an overview of studies that are dedicated to the examination of the effects of customer empowerment in new product development in a marketing management context. The degree of interaction between consumers and producers indicates to what extent organization's boundaries are penetrable to knowledge flows and can be referred as open innovation (Chesbrough & Crowther, 2006; Greer & Lei, 2012). Lichtenthaler (2011, p. 77) defines open innovation as 'systematically performing knowledge exploration, retention, and exploitation inside and outside an organization's boundaries throughout the innovation process', and can be divided into four research streams: (1) technology transactions, (2) user innovation, (3) business models, and (4) innovation markets (Greer & Lei, 2012). This master thesis falls within user innovation, which can also be referred as collaborative innovation with customers. Greer & Lei (2012) created a list of (potential) synonyms for customer empowerment by conducting an extensive literature review of collaborative innovation with customers. This list of interchangeably usable terms for customer empowerment contains: co-development, co-production,

collaborative innovation, customer new product development, participatory innovation, joint development, and user-centric innovation.

During the 2000s, the focus shifted from a materialistic perspective to a perspective that focused on the intangible processess – i.e. the skills, knowledge, and technologies that is possessed by consumers. In this period, numerous scholars replaced co-production, which had a negative overtone to goods-centred logic, with the term co-creation (Grönroos & Voima, 2013; Cova *et al.*, 2013). Galvagno and Dalli (2014, p. 644) define co-creation as 'the joint, collaborative, concurrent, peer-like process of producing new value, both materially and symbolically.' Although Greer & Lei (2012) argued that co-creation can be considered as an interchangeably term for user innovation, this thesis will follow the point of view of Frow *et al.* (2015), which means that co-creation can be considered as a particular form of user innovation. In other words, co-creation can be seen as a strategical form of customer empowerment. To ensure clarification, this thesis will use the term 'customer empowerment'.

2.1.2 Conceptualizing Customer Empowerment in New Product Development

Over the past years, the consumers have become more empowered for several reasons; markets become more transparant, an increase in competition, and consumers are better informed about the options between suppliers and the available products (Prahalad & Ramaswamy, 2000; Harrison, *et al.*, 2006). Although companies claim to listen to consumers by conducting (traditional) market researches, they still have the final word in the products that are being sold. This imbalance of power and control is not always accepted by the contemporary consumer (Fuchs *et al.*, 2010). By involving consumers in the new product development, innovation can be democratized, which results in not only a better product fit but also in a closer relationship with the brands and products (Sawhney, *et al.*, 2005; Fuchs *et al.*, 2010). Besides, the quality of the individualistic value depends on the nature of empowerment that consumers have in new product development (Prahalad & Ramaswamy, 2004). Therefore, it is important to understand the different stages of new product development, the usability of customer empowerment in each of these stages, and the different roles of customers in the relevant stages.

The new product development starts with signalling impulses for innovation in forms of trends and ideas. There are two prevailing ways in which innovation impulses differ, namely through market pull or technology push (Brem & Voigt, 2009). In case of market pull, the source of innovation originates from a presently deficient satisfaction of a customer's need, which leads to problem-solving for new demands. The impulses come from individuals who declare their instinctive demands. In case of technology push, the impulses are caused by the usage push of a technical capability. Because co-creation derives, among other things, from consumer needs, idea generation in new product development will be mainly focused on market pull impulses. This is important, because firms should be aware that satisfying inadequate consumers' needs does not necessarily need new/radical products but are more reliable on product improvements. Traditionally, ideas were generated through focus groups and lead

Author(s)	Focus	Nature of Study (Journal)	Findings
Bateson, 1985	Examination on the motivational factors of self-service consumers.	Empirical (JR)	Shows that even in the absence of incentives to encourage participation consumers would rather choose the do-it-yourself option than to be served by a firm.
Dabholkar, 1990	The usage of customer participation to enhance perceived service quality	Conceptual (DMS)	Suggest that customer participation might positively affect the perceived quality due to the influenced perception of the waiting time
Cermak et al., 1994	The effects of participation vs. involvement	Empirical (JABR)	Tried to make a distinction between participation and involvement of consumers. The authors concluded that participation could be seen as the operationalized activity of consumer involvement
Firat et al., 1995	Presents consumer as customizer and producer from a postmodern perspective	Conceptual (JM)	Since consumers have become customizers, marketing shifted from finished products to processes. Customer participation in the new product development need to be conceptualized as co-producers.
Prahalad & Ramaswamy, 2000	Co-creating value with customers	Conceptual (HBR)	The innovation process shifted from manufacturer-centric to consumer-centric. The role of the consumer changed from a passive target to an active co-creator of value. A competitive advantage can be achieved by leveraging customer experience.
Vargo & Lusch, 2004	New dominant logic for marketing	Conceptual (JM)	The authors believe that service provision rather than goods is fundamental in the new dominant logic for marketing and economic exchange.
Yen, 2005	Customer satisfaction for internet self-service technology	Empirical (JSI)	Customer satisfaction in internet self-service technology depends on the ease of use, perceived control and performance.
Payne et al., 2008	Framework for understanding and improving value co-creation within the context of service dominant logic.	Conceptual (JAMS)	The framework has conceptualized the key processes in value co-creation, including knowledge as a fundamental source of competitive advantage; customers as co-creators of value; and the change of the key unit from operand to operant resources.
Woisetschläger et al., 2008	The effects of co-creation on brand image with the presence of brand community	Empirical (JRM)	The presence of brand community has positive effects on the consumer participation in new product development, or co-creation. Furthermore, customer participation has a positive effect on brand image, word of mouth and community loyalty.
Etgar, 2007	Linkages between customization and co-production, and different phases of the production activity chain	Conceptual (JAMS)	The current era is an era of customization. Through co-production, products are tailored to consumer's needs and is thus directly linked to co-production. The different phases of the production activity chain are initiating, design, manufacturing/construction, assembly, distribution and logics, and consumption.
Hoyer et al., 2010	Stimulators and impediments to co-creation, and the firm- and consumer-related outcomes of co-creation	Conceptual (JSR)	The customer motivators are on ground of financial factors, social factors, technological factors and psychological factors. Increased efficiency and effectiveness are the firm-related outcomes, and fit with customer needs, engagement, satisfaction and relationship building are the consumer-related outcomes.

Table 1: Overview of Studies of Co-Creation in Marketing Management Research

users. However, through the improvements in information and communication technologies, firms can now increase the input in a cost-efficient way. When the ideas are generated, they will be transformed in detailed proposals. To come up with such a detailed proposal, the generators of the idea will enrich their knowledge of the idea through (literature) research. As a result, the products will become more robust or even redefined into a new idea. Finally, the detailed ideas will be refined on minor details through an analysis with market prospects, company fit, and technological feasibility as criteria (Kijkuit & van den Ende, 2007). The three stages idea generation, idea development and idea evaluation can be referred as the fuzzy front-end phase of the new product development process (Kim & Wilemon, 2002; Deschamps, 2005; Alam, 2006; Hoyer *et* al., 2010).

Subsequently, the concept products must be translated into actual products and commercialized in a time- and cost-efficient way. This phase, which is called the back-end phase, ends with the postlaunch stage, in which consumers respond to product failures in a manner that diminish negative outcomes of the failed product (Dong *et al.*, 2008). Figure 2 illustrates the different stages of the new product development process with the distinction between front- end phases and back-end phases, which is often referred as the 'stage-gate' model in the new product development literature. Many studies states that the front-end phase in the stage-gate model follows a sequential order. However, according to Mintzberg *et al.* (1976) and Saunders & Jones (1990), the stage-gate model is a dynamic process, which is liable to interventions, feedback circles and dead ends (Kijkuit & van den Ende, 2007). This theory seems logical, because idea evaluations could lead to negative outcomes which brings the process back to the idea development (or even to the idea generation) stage.
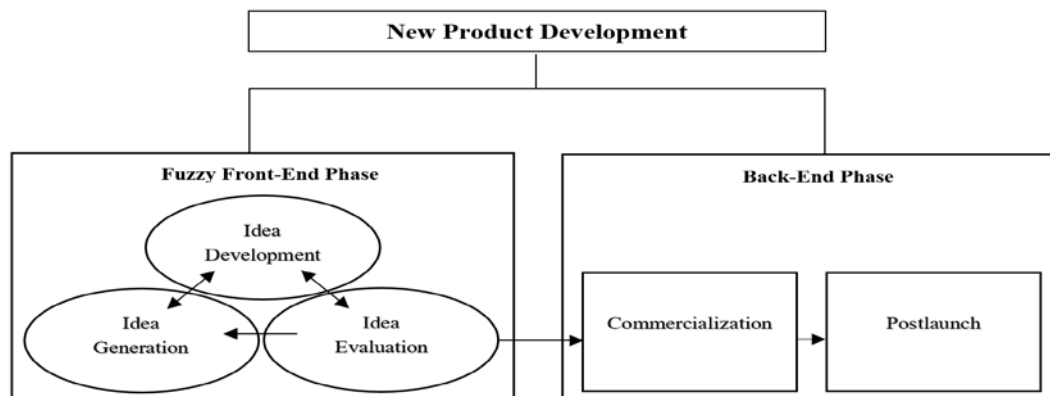
Figure 2: Stage-gate Model New Product Development

The inclination of firms to involve customers in all stages of new product development is called the scope of co-creation (Hoyer *et al.*, 2010). Thus, the highest scope of customer empowerment can be achieved when the customers are involved in all the stages of new product development. The extent to which consumers are involved in a specific stage of new product development is referred as the intensity of customer empowerment. Thus, firms with a high intensity in a particular stage of new product development rely solely on consumers for the activities in that concerned stage.

This master thesis will focus on the fuzzy front-end phase, because this phase is critical for new product development success for several reasons. Firstly, this phase determines greatly which projects will be worthy of further investments and forms the foundation of these designated projects (Cooper, 1988, 1993; Dwyer & Mellor, 1991; Cristiano *et* al., 2000; Herstatt & Verworn, 2003; Alam, 2006). When the foundation is not flawless, the probability that the succeeding phase in the new product development process will fail is more significant (Akbar & Tzokas, 2013). Secondly, the fruzzy front-end phase has a large potentiality for improvements with low costs in terms of time and money (Verganti, 1997). Lastly, the fuzzy front-end phase is dynamic, unstructured, and uncertain, which makes it difficult to manage (Murphy & Kumar, 1997; Cooper, 2008). Thus, to ensure project success and competitive advantage, a high quality of planning is crucial at this phase (Ernst, 2002; Kim & Wilemon, 2002).

2.1.3   Transforming Customer Empowerment into Strategies

According to Zimmerman & Rappaport (1988) and Dalton (1994), consumer empowerment reflects the claim of individual participation. Taylor *et al.* (1992) made a distinction between two approaches of empowerment; under the market, and under the democratic. In the empowerment under the market approach, consumers can only choose between the alternatives that are offered in the market, which means that consumers have zero empowerment in the new product development of a firm. In the empowerment under the democratic approach, consumers are allowed to select the final products that will be developed and marketed by the firm.

According to Kaulio (1998), firms can apply three design strategies in the fuzzy front-end phase; design for (low intensity), design with (select intensity), and design by (high intensity). In the 'design for' strategy, existing theories, models, data, and knowledge from consumers – which are obtained through traditional market researches, focus groups, or interviews – are used for the product development. In the 'design with' strategy, the product development still lies within the company. However, in contrast with the 'design for' strategy, consumers are asked for their opinions about and their choices between the predeveloped products. The 'design by' strategy contains the highest consumer intensity of the three design strategies. In this strategy, consumers are involved in the design conceptualization of their own created products. Thus, these design strategies are based on two dimensions; product development and product selection.

Fuchs and Schreier (2011) translated the combination of the two dimensions and consumer empowerment into co-creation strategies. In addition to the previous literature, Fuchs and Schreier added a fourth co-creation strategy in which consumers have full empowerment. Figure 3 illustrates the matrix with the four co-creation strategies. When the product is both developed and selected by the company, consumers have zero empowerment in the new product development. This strategy, in which the participation of consumers is equal to zero and their only role is to have needs, can be referred as the traditional production strategy. When consumers have a select empowerment, the company is still

responsible for the concept products, but it is up to the consumers to decide which product(s) will be developed. In the create empowerment strategy, consumers will have the opportunity to develop their ideas, but the product selection will be executed by the company. Finally, in case of full empowerment, the consumers are responsible for both the production and selection of the product that will be commercialized.
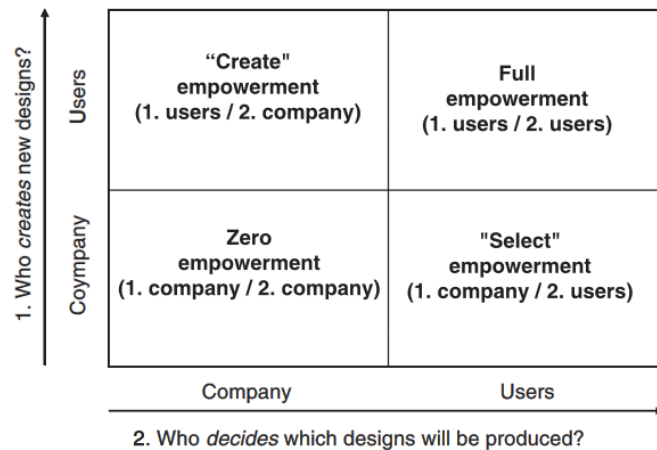

Figure 3: Co-creation Strategies (source: Fuchs & Schreier, 2011)

Examples of the different customer empowerment strategies

One of the most cited examples of full consumer empowerment in new product development research, is the example of the t-shirt manufacturer Threadless who markets a new t-shirt design every week (Fuchs *et al.*, 2010). This fashion start-up, which is based in Chicago, has created an extensive network of registered users who determines what products should be marketed (Chafkin, 2008). To be more specific, it is not Threadless (i.e. professional designers) but rather the customers – or users – who are responsible for the designs of the t-shirts. Nor is it Threadless that determines the attractiveness of the designs, but again the customers who select the most attractive design that should be produced (Fuchs *et al.*, 2010). Based on the customer votes, Threadless commercialize the five best designs on a weekly basis. The winning designers receive a monetary reward for their designs.

A similar example of full empowerment is the Japanese company Muji, which is a manufacturer of consumer goods. Like Threadless, Muji invites consumers to design new products and rank the attractiveness of the submissions in an online environment. User-generated ideas with the highest number of "customer preorders" – also referred as "binding votes" – will be evaluated by Muji in terms of production costs (Fuchs *et al.*, 2010). If the production of a product design is expected to be profitable, it will be transformed into an actual product, and added to one of their product lines.

A business idea competition is an example of create empowerment. In these competitions people are allowed to submit their idea(s) which will be judged by employees from that specific company. For example, EIT RawMaterials held a business case competition in which they asked everyone to submit

new solutions for a sustainable development process of raw materials. Ultimately, the judge of EIT RawMaterials chose the team with the best idea, which were rewarded with a prize up to 10.000 euros.

An example of select empowerment is the eye contacts firm Eyexpert which is part of the firm Eyewish. Eyexpert distributed different types of eye contacts to local opticians. Customers of the opticians were provided with the samples and were asked to choose the best eye contacts based on several aspects. Finally, Eyexpert decided to mainly distribute the eye contacts with the highest customer reviews.

It is still unknown what level(s) of consumer empowerment in new product development is used most by firms. In fact, there are no figures available with numbers of firms that implement (any form of) customer empowerment in new product development. According to Hoyer *et al.* (2010), the degree of customer empowerment activities within firms would probably be low. However, their article originates from the year 2010, which means that the trend of customer empowerment in new product development was probably not as far advanced as it is nowadays. Therefore, it would be most likely that the customer empowerment activities are mainly either developing or selecting (concept) products.

It is remarkable that over the past years, researchers have expanded the consumer empowerment in new product development. Taylor *et al*. (1992) started with only product-selection, subsequently Kaulio (1998) added product-designing, and finally Fuchs & Schreier (2011) added a combination of product-selection and product-designing. Fuchs & Schreier (2011) also found that the effect of customer empowerment on customer orientation, brand attitude, and behavioural intentions increases evenly on the degree of customer empowerment in new product development. In other words, full consumer empowerment has the highest effect on customer orientation, brand attitude and behavioural intentions, whereas the effect of select empowerment is slightly higher than, or almost equal to, the effect of create empowerment according to Fuchs & Schreier (2011).

Findings on the effects of customer empowerment in new product development are mostly related to the active participants, which consequently results in conclusions based on an increase in such brand-related build ups as brand loyalty (Sawhney *et al.,* 2005), brand attitude (Hoyer *et al.*, 2010), or brand perception (Ind *et al.*, 2013). However, as mentioned in the previous section, the greater part of consumers is not integrated in the new product development process. According to Kristal *et al.* (2016), these consumers can be considered as the "observers".

2.1.4   Outcomes of Customer Empowerment in New Product Development

Given the technological development, it has become easier to produce products, which makes it more difficult for companies to distinguish themselves in many markets nowadays (Prahalad & Ramaswamy, 2004a). At the same time, the consumers are faced with the amplification of product choices, which causes them to be more exacting (Etgar, 2007). Therefore, interactions between consumers and firms are necessary for accomplishing new determinants of competitive advantage. Through these interactions, consumers are able to create individualistic experiences with the company as well as unique

value. The quality of this value depends on the nature of empowerment in the new product development process (Prahalad & Ramaswamy, 2004a).

Because of the developments in the information and communication technologies, social networks and virtual communities facilitate and improve learning, sharing of knowledge and ideas, collaboration, creativity, and therefore access to knowledge in a cost-efficient way on a global level (Garrigos-Simon *et al.*, 2012). Here, cost efficiency is defined in terms of time and money. The combination of the shifts in information and communication technologies and consumer empowerment in new product development, forces companies to create a virtual link with the market, which can be referred as Web 3.0. This new digital era – in which open source innovation forms the basis – enhances customer empowerment in new product development between customer and organization (Garrigos-Simon, Alcami, & Ribera, 2012). As a result, consumers could be provided with products that fit closer to their needs (Lilien *et* al., 2002; Fang, 2008; Hoyer *et al.*, 2010). Another positive outcome of customer empowerment in new product development, is that consumers can create brand preferences, strengthen brand relationships, improve product perceptions, and improve behavioural intentions (Dabholkar, 1990; Joshi & Sharma, 2004; Mathwick *et al*., 2007; Franke *et al.*, 2009; Kumar *et al.*, 2010; van Doorn *et al.*, 2010). All in all, consumers will be more satisfied with the products which might increase the customer retention rate of a firm (Prahalad & Ramaswamy, 2003).

Continuing on the firm perspective, research has indicated several competitive advantages of a successful implementation of customer empowerment in new product development. Co-created products lead to cost-minimazation through less input from employees and traditional market research (Mills *et al.*, 1983; Hull, 2004; Evans & Wolf, 2005), a decreased product failure rate and therefore lower costs for holding inventory (Ogawa & Piller, 2006; Cook, 2008), faster detection of consumer needs (Joshi & Sharma, 2004; Sawhney *et al.*, 2005; Fang, 2008), and postlaunch benefits through continuous product reviews and improvements (Muniz & Schau, 2005; Grewal *et al.*, 2006; (Xie *et al.*, 2008). Moreover, co-created products are regularly demonstrated to have high perceived benefits and uniqueness, which conclusively increases commercial attractiveness (Magnusson *et al.*, 2003; Franke *et al.*, 2006).

2.2   Observer-Based Brand Equity as Indicator of New Product Development Success

According to Christodoulides *et al.* (2015), brand equity represents a intangible key asset that shows the added value enriched by brands to the product through brand building activities. One of the most commonly used definitions of brand equity is from Aaker (1991), which defines it as:

> *[…] a set of assets and liabilities linked to a brand , its name and symbol, that add*
> *to or subtract from the value provided by a product or service to a firm and/or that*
> *firm's customers (Aaker D. , 1991).*

Brand equity can be measured from two perspectives; firm-based brand equity and consumer-based brand equity (Aaker, 1991, 1996; Keller, 1993; Christodoulides *et al.*, 2015; Kristal *et al.*, 2016). The firm-based brand equity primarily focuses on the effects of brand equity on the financial values, whereas customer-based brand equity is based on market perceptions (Kristal *et al.*, 2016). With regard to customer empowerment in new product development, in which the outcomes of customer empowerment are based on market perceptions so far, this thesis will focus on the consumer-based brand equity (CBBE) approach. From a psychological perspective, Keller (1993) defines consumer-based brand equity as "the differential effect of brand knowledge on consumer response to the marketing of the brand". In other words, consumers must be aware of the brand name and have unique associations with the brand to stimulate the development of consumer-based brand equity. Many studies have been dedicated to the different dimensions of consumer-based brand equity, including relationships (Blackston, 1992; Sharp, 1995), performance (Lassar *et al.*, 1995), awareness (Aaker *et al.*, 1991; Keller, 1993; Berry, 2000; Im *et al.*, 2012), social image (Lassar *et al.*, 1995), associations (Aaker, 1991; Keller, 1993; Yoo & Donthu, 2001; Netemeyer *et al.*, 2004; Pappu *et al.*, 2005; Im *et al.*, 2012), trust (Christodoulides *et al.*, 2006; Burrman *et al.*, 2009), perceived quality (Aaker, 1991; Kamakura & Russell, 1993; Yoo & Donthu, 2001; (Netemeyer *et al.*, 2004; Pappu *et al.*, 2005), brand meaning (Berry, 2000), loyalty (Aaker, 1991; Yoo & Donthu, 2001; Washburn & Plank, 2002; de Chernatony *et al.*, 2004; Pappu *et al.*, 2005; Im *et al.*, 2012), satisfaction (de Chernatony *et al.*, 2004; Ha *et al.*, 2010), willingness to pay a premium (Netemeyer *et al.*, 2004), and functional and symbolic utility (Vázquez *et al.*, 2002; Kocak *et al.*, 2007).

Despite the variegated conceptualisations of consumer-based brand equity, the most commonly applied concept in emprical research is based on the dimensionality of Aaker (1991) (Christodoulides *et al.*, 2015). The dimensions that Aaker (1991, 1996) has included in his concept are brand loyalty, brand associations, perceived quality, and brand awareness. The effects of customer empowerment in new product development on these dimensions are widely explored in the academic literature. Empirical research verified positive effects of customer empowerment in new product development on brand loyalty (Sawhney *et al.*, 2005), perceived quality (Franke *et al.*, 2010; Fuchs *et al.*, 2010), and brand associations (Ramaswamy & Gouillart, 2010). These effects are facilitated by an increased sense of trust and commitment towards the company due to customer empowerment in new product development (Kristal *et al.*, 2016). No empirical evidence has been found on the effects of customer empowerment in new product development on brand awareness. A reason for this could be that co-creating is not considered as a promoting marketing activity, but rather as an activity to enhance existing brand- and product knowledge and associations. Thus, customer empowerment in new product development positively influences the brand- and product-related constructs of active participants.

However, the findings of the aforementioned studies do not take the non-participating consumers – which is the greater part of consumers – into account. Therefore, the question about the effects of customer empowerment in new product development on observers remained. From this point,

researchers started to focus on the observer itself as a part of the entire consumer-based brand equity. According to Kristal *et al.* (2016), consumer-based brand equity is the sum of participant-based brand equity, and observer-based brand equity. In participant-based brand equity, active consumers that participated in the new product development process are asked about their opinion concerning the co-created product and brand. For observer-based brand equity, in contrast, the pheriphery (observers) – those who do not participated in the new product development process, but are exposed to the co-created product and brand – is asked about their opinion about the co-created product and brand. According to Fuchs & Schreier (2011), the difference between participants and observers with regard to the co-created product and brand is initially based on political systems. Fuchs & Schreier (2011) claim that the traditional new product development can be equated to a totalitarian regime (single company) or to an indirect democracy (various companies) (Murray & Ozanne, 1991; Horkheimer & Adorno, 1996). In a totalitarian regime – in which customers can only buy from a single company – customers only have the power to buy or not. On the other hand, in an indirect democracy – in which customers can buy from various companies – customers have the power to choose between various companies. However, these scenarios still reflects zero customer empowerment in new product development. In other words, people are not empowered to co-create value in new product development, and are therefore not able to directly influence the products that will be marketed by companies. On the other hand, in direct (participative) democracies, power is partly assigned to people. According to economic literature (e.g. Frey & Stutzer, 2002), the periphery is more satisfied with products that are produced based on the direct (participative) democracies, regardless whether they did participate in the new product development process themselves or not. Participant-based brand equity, in contrast, is purely based on the opinion of people that actively participated in the new product development process (Fuchs *et al.*, 2010). To date, only a few empirical studies are dedicated to the effects of customer empowerment in new product development on the observer-based brand equity.

2.2.1 Brand Perception

The first among the studies on observer-based brand equity explored how the observers perceive the different customer empowerment strategies. Fuchs and Schreier (2011) argued that the customers can be involved in the new product development process either by 1) letting them choose among different specifications and designs or 2) by giving them the possibility to produce a concept product (or blueprint) of their own ideas. They conducted an experimental setting in which both dimensions of customer empowerment and their underlying interactions were tested for the product categories T-shirts, furniture, and folding bicycles. First, they showed the participants a basic product model of one of the product categories, and asked them to answer several questions with regard to their general and specific product category involvement. After that, the participants were provided with some information about the company's development and production process. This information was based on one of the 12 scenarios (product categroy x degree of customer empowerment). After reading this information, the

participants were asked to value a new launched product. All the product categories were included to maintain product quality between groups. Only the degree of customer involvement in the new product development process was different between the groups. They found that the degree of consumer involvement positively influences the perceived consumer brand perception.

Schreier *et al.* (2012) dedicated their research to the investigation of the effect of consumer and user designs on the company's perceived innovation ability. In this research design, the product designs of companies were compared to those of users for four product categories (t-shirts, household products, breakfast cereals and sports products). They concluded that the 'design by users' increased the observer's perception of the firm's innovation ability regarding the product outcomes (Schreier *et al.*, 2012). As a result, positive effects were found with respect to the willingness to pay, the purchase intention, and the willingness to recommend the brand to others.

2.2.2 Product Perception

From a product perspective, customer empowerment in new product development is mostly implemented by companies to develop attractive products that fit best to the desires and needs of the market (Prahalad & Ramaswamy, 2004a). A product with a closer fit to the demands and needs of consumers can lead to favorable product perceptions, which in turn might lead to an higher willingness to pay and higher purchase intentions (Hoyer *et al.*, 2010). In existing literature, new products are mostly evaluated on the aspects 'effectiveness' and 'advantage' to determine the likelihood of succes in the market (Cooper, 1979; Kleinschmidt & Cooper, 1991; Hoyer *et al.*, 2010; Van Dijk, 2012).

Product Effectiveness

According to Hoyer *et al.* (2010), product effectiveness depends on the product innovativeness and product quality. Due to the closer fit of co-created products on the consumer's needs and the higher commercial potential, co-created products will score higher on product effectiveness than standardized shelf products (Lilien *et al.*, 2002; Fang, 2008).

According to Garvin (1984), there are five major approaches to define quality; 1) the transcendent approach (philosophically), 2) the manufacturing based approach, 3) the product-based approach, 4) the value-based approach, and 5) the user-based approach. Garvin (1984) concludes that managers must carefully think about the way they communicate their approach to quality, because only then quality could be used as a competitive weapon. customer empowerment in new product development can be seen as a combination ot the product- and user-based approach. On the one hand, the product-based approach refers to the static attributes of the co-created product (e.g. body fit, collars, materials for T-shirts). On the other hand, fashion can be considered as a product in which consumers' tastes may differ greatly. The user-based approach takes these differences into account, because it focusses on the consumer's unique valuation. For example, a consumer can value collars of much more importance in defining the T-shirt's quality than the length of the T-shirt. When the correct quality

approach is used for communication to the consumers, and the the brand and product can actually fulfill the promises made, the product quality can lead to market share gains, cost savings, and profitability improvements (Garvin, 1984).

Product innovativeness can be defined as the capability of a product to differentiate through features and functions that can not be offered by existing products in the market (Reguia, 2014). From a firm's perspective, successful innovative products result in higher productivity, lower costs, higher profitablity, and higher market valuation. From a consumer perspective, which is more important for this master thesis research, product innovation leads to benefits in terms of improved productivity, better services, lower prices, and more choices (Reguia, 2014). However, according to Kleinschmdt & Cooper (1991), quality and innovativeness itselves do not directly result in a higher product attractiveness. They argue that product advantage should also be taken into account.

Product Advantage

According to Kleinschmidt & Cooper (1991), product advantage indicates the product superiority – such as uniqueness and benefits – in comparison with other available products in the market. Earlier research of Cooper (1979) found positive relations between comparative product advantage and the succes of a product. Song & Parry (1996) also argue the importance of competitive product advantage. They stated several determinants of new product succes including competitive product advantage, which means that competitive product advantage has a positive effect on new product succes. Thus, co-created products appear to have a higher competitive advantage than non co-created products by offering a better product fit.

These studies can be considered as the building blocks of the understanding of observer-based brand equity in the new product development process. Since the majority of the studies of participant-based brand equity that focussed on consumer brands – as well as this master thesis – have shown similar effects of customer empowerment in new product development, this master study will follow the gist of the existing literature on participant-based brand equity and observer-based brand equity by predicting that consumer empowerment in new product development will have a positive effect on the observers' brand perception, product perception, and behavioural intentions. Thus, the three main research hypotheses are that:

H1A: There is a positive relationship between consumer empowerment in new product development and the observer's brand perception, such that nonparticipating consumers ("observers") will develop a favorable brand perception toward companies that empower customers in the new product development than toward companies that do not empower customers in the new product development.

H2A: There is a positive relationship between consumer empowerment in new product development and the observer's product perception, such that nonparticipating consumers ("observers") will

develop a favorable product perception toward companies that empower customers in the new product development than toward companies that do not empower customers in the new product development.

H3A: There is a positive relationship between consumer empowerment in new product development and the observer's behavioural intentions, such that nonparticipating consumers ("observers") will develop a favorable behavioural intentions toward companies that empower customers in the new product development than toward companies that do not empower customers in the new product development.

2.3 Contextual Consideration

2.3.1 Brand Comprehension

According to Etgar (2008), the goal of customer empowerment in new product development is to adjust supply to the eccentricity of demand. Nonetheless, in many product categories brand personalities were already created by the manufacturers. These brand personalities contain a specific product attribute mix, which is used to convince the consumers that their product fits the consumers' needs best (Aaker, 1996; Ries & Trout, 2000). Brand personalities can be defined as "the set of human characteristics associated with a brand" (Aaker J. L., 1997). Whereas product-related attributes serve the pragmatic function for consumers, brand personality is more about the self-expressive or symbolic function (Keller, 1993; Aaker J. L., 1997). It might not be interested for consumers to change or personalize a famous brand, because then it will lose its social or psychological benefits of wearing or using that famous brand (Etgar, 2007). Brand personalities are obtained through brand comprehension.

Brand comprehension refers to the degree in which a consumer is familiar with the brand. It consists of the consumers' presence, awareness, and knowledge of a specific brand (Lehmann *et al.*, 2008). In other words, comprehension describes the extent to which a brand is seen and thought of. Due to the high brand comprehension of well established brands, customer empowerment in new product development will probably be less effective on observers compared to less established brands which do not have a brand personality. Therefore, the following is hypothesized:

H1B: There will be an moderating effect between brand comprehension and customer empowerment in new product development, such that any level of customer empowerment in new product development will be less effective on the observers' brand perception of companies with a high brand comprehension than companies with a low brand comprehension.

H2B: There will be an moderating effect between brand comprehension and customer empowerment in new product development, such that any level of customer empowerment in new product development

will be less effective on the observers' product perception of companies with a high brand comprehension than companies with a low brand comprehension.

H3B: There will be an moderating effect between brand comprehension and customer empowerment in new product development, such that any level of customer empowerment in new product development will be less effective on the observers' behavioural intentions for companies with a high brand comprehension than companies with a low brand comprehension.

2.3.3   Controlling Factors: Brand Loyalty and Product Involvement

In order to assure that the variations in observer-based brand equity are caused by the independent variables, it is unavoidable to include control variables in the conceptual model. The first control variable that is included in the conceptual model is product involvement. For decades, product involvement has been broadly used as a controlling variable for decision making in the marketing and psychological discipline (Dholakia, 1997; Bian & Moutinho, 2011). Product involvement refers to the importance of a specific product category in terms of consumer's interests, values, and latent needs (e.g. Zaichkowsky, 1985; Mittal, 1995; De Wulf, 2001; Bian & Moutinho, 2011), and determines several crucial aspects of behavioural processes during the consumer's choice process (Bian & Moutinho, 2011). Therefore, product involvement is measured as a control variable to assure that no significant differences were there between the eight groups.

The second control variable is brand loyalty. Brand loyalty brings a lot of strategic benefits to firms, such as reduction of marketing costs, high market share, and the support of brand extensions (Alhaddad, 2014). However, in the context of this research there is one important benefit of brand loyalty; strengthen brands to competitive threats. According to Oliver (1997), brand loyalty causes repurchase behaviour of the same brand despite marketing efforts of other brands that attempt to cause switching behaviour. This means that it is important to have an equal level of brand loyalty amongst the different groups, because higher levels of brand loyalty could possibly supress the effects of customer empowerment in new product development.

At this point, it is important to aknowledge that many other potential control variables are included in different studies inside the consumer-based brand equity. Examples of these potential variables that might influence the results of customer empowerment in new product development are market conditions (stable vs. turbulent), technology conditions (stable vs. turbulent), and services vs. products. However, due to the limited possibilities in time and resources none of these variables are included in this thesis.

3.   METHODOLOGY

3.1   General Research Process

The empirical research process of this thesis is split into four phases: (1) Sampling and procedure, (2) Defining measurements of variables, (3) Exploratory and confirmatory factor analysis, and (4) Multivariate analysis of variances (MANOVA). The process starts with collecting data by means of an online survey. After the required number of participants filled out the survey, which is set a minimum of 20 respondents per group for a statistical power of .80 according to Läuter (1978), the data-set is prepared for analysis in terms of naming, recoding, and computing variables. Here, statistical power indicates the likelihood that a dataset will detect an effect where it is supposed to be detected. The higher the statistical power, the lower the probability of making a Type II error. A Type II error means that an effect is not found while it is present. The statistical power increases according to the sample size, which means that bigger sample sizes detect small effects earlier than smaller sample sizes. Due to the limitation in time and resources this thesis holds on to a statistical power of .80, which is acceptable for a multivariate analysis of variances (Läuter, 1978). The second phase consists of the operationalization of the dependent, moderating and control variables through separate items and scales. In order to increase frugality as well as to validate the used constructs, factor analyses are conducted in the third phase. To answer the hypotheses and research question of this thesis, a multi analysis of variances has been conducted in the last phase of the research process. Thus, this chapter contains the justification, theoretical and practical underpinnings of each of the five research phases.

3.2   Sampling and Procedure

The data used in this study is taken from an online based survey, whose link was posted on different social media platforms (e.g. LinkedIn, Facebook etc.). The link was randomly assigning the respondents to one of the eight questionnaires that differed solely on brand comprehension (Nike vs. Trendest) and level of customer empowerment (zero, select, create, full). Fictitious advertisements were used to create a context for respondents to empathize in situations that might occur in real life (see Appendix 3). In these advertisements, t-shirts were used since Fuchs & Schreier (2011) found the highest positive significant effects for customer empowerment in the development of t-shirts compared to other product types that were included in their study. It is possible that the effect of customer empower in new product development may be even higher in other product categories, however there is no overview created yet showing the effects of customer empowerment in new product development for different product categories. Therefore, this thesis follows the gist of existing literature and used t-shirts as the product for the advertisements. Furthermore, two brands were used for the contextual consideration (brand comprehension). For the context of high brand comprehension, the brand 'Nike' was used because it was placed as the most popular clothing brand among millennials, which formed the greater part of the

respondents of this study, in 2015 according to research of Schlossberg & Lutz (2015). On the other hand, the fictitious brand 'Trendest' was used to ensure low brand comprehension.

A total of 552 of surveys were collected, of which 200 were filled out completely. This is equivalent to a response rate of approximately 36%. The exact number of 200 completed surveys has to do with an assumption for executing a multi analysis of variances, namely the presence of a homogeneity of variance-covariance matrices. One way to pass this assumption is by testing the Hotelling's and Pillai's statistics when group sizes are equal. The theory behind this assumption will be discussed later in this chapter, meanwhile the outcomes of these tests will be discussed in the next chapter.

3.3 Defining Measurements of Variables and Scale Reliability

The research process starts with the preparation of the experiment (i.e. the online survey). In order to do so, the variables should be operationalized. Due to the variety in dimensions and frameworks of brand equity, it is hard to find a general agreement about the dimensionality and scales, which makes it hard to determine the measurements of consumer-based brand equity or observer-based brand equity in particular (Christodoulides & De Chernatony, 2010). To ensure the validity and reliability of the measurements, the scales in the conceptual framework for this thesis are constructed from items in existing literature scales. In this thesis, the consumer-based brand equity dimensions of Aaker (1991) are combined with those of Lehmann *et al*. (2008) and the observer-based brand equity dimensions of Kristal *et al.* (2016). This resulted in a separation of three core dimensions; brand perception, product perception, and behavioural intentions. The dimensions 'brand perception' and 'product perception' are divided into "sub dimensions". For brand perception these sub dimensions are interpersonal relation and comparative advantage, whereas product effectiveness and product advantage are the sub dimensions for brand perception. An overview of all scales can be found in appendix 1. Despite the fact that most of the measurements of observer-based brand equity relies on existing consumer-based brand equity measurements, there is still a difference in the target group (observers vs. participants) to which the construct is adapted.

3.3.1 Dependent Variables

Brand Perceptions

The brand perceptions were measured based on two constructs; the interpersonal relation, and the comparative advantage.

Interpersonal relation refers to the consumers' perception of how they are treated by the brand. This construct consists of caring, service, customer orientation, and innovativeness. A brand scores high at caring when 1) customers have the feeling that the brand cares about them, 2) the brand values the interests of its customers, and when 3) the brand possesses a certain degree of commitment towards its customers. Service depends on the flexibility and quality of solving certain problems. Lastly, innovativeness represents whether a company succeeds to have innovative products, and the degree to

which brands constantly improve their products. Since it becomes harder for brands to differentiate on the tangible or direct product features, these types of brand associations are increasingly decisive to create differentiation (Lehmann *et al.*, 2008). In other words, value is embedded in special offers in terms of the treatment of consumers by brands, and the innovativeness of the offerings that are introduced by a brand. According to Brady & Cronin (2001), the score on interpersonal relation indicates to what extent a brand is customer-oriented. They defined customer-orientation as "the firm's ability to satisfy consumers needs adequately" (Brady & Cronin, 2001). A high customer-oriented brand that integrates customers in the new product development process achieves better performance (Salomo *et al.*, 2003). *Caring* and *innovativeness* were measured trough 3 and 2 items respectively based on the research of Knowles & Olins (2016). Both constructs consisted of a 5 – point Likert scale. The participants had to indicate to what extent they agree with the statements concerning the empathy of brands with consumers. The scale ranged from totally disagree to totally agree. *Customer orientation* was measured on a 5 – point Likert scale based on the researches of Saxe & Weitz (1982) and Van Der Lof (2012). *Service* was measured based on a 5 – point Likert scale based on the researches of Ambler (2003) and Knowles & Olins (2016).

As noted earlier, consumer empowerment in new product development leads to products that fit better to consumers. As a result, the co-created products have an increased perception in terms of the effectiveness, quality, and differentiation (Hoyer *et al.*, 2010). Lehmann *et al.* (2008) define these advantages as the comparative advantage of a firm, which describes how well discerned and advantageously regarded the branded products are. The two items for measuring comparative advantage are based on the research of Yoo *et al.* (2010) and Van Der Lof (2012). The items were measured on a 5 – point Likert scale. Participants had to indicate to what extent they agreed with the statements.

Product Perceptions

The product perceptions were measured based on two constructs; the product advantage, and the product effectiveness.

Product advantage was measured through 3 items on a 5 – point Likert scale based on the research of Song & Parry (1996). Participants had to indicate to what extent they agreed with the statements, for example 'In comparison with competitive T-shirts, the T-shirt in the advertisement offers unique features to the customers.'

Product effectiveness consists of two constructs; 'Quality & Attractiveness' and 'Innovativeness'. *Quality and attractiveness* were measured through 7 items on a 5 – point Likert scale based on the research of Yoo *et al.* (2000). *Innovativeness* was measured through 4 items on a 5 – point Likert scale based on the research of Schultz *et al.* (2013). Participants had to indicate to what extent they agreed with the statements

Behavioural Intentions

Behavioural intentions were measured based on 6 items on a 5 point – Likert scale according to the research of Yoo *et al.* (2000). Just like the other (dependent) variables, participants had to indicate to what extent they agreed with the statements.

3.3.2 Moderator

The moderator in this research have to do with the brand comprehension of a company, specifically regarding a low brand comprehension vs. high brand comprehension. In the survey, participants were asked to indicate to what extent they agreed with the statements based on one of the eight conditions (Table 2). Two groups are created, namely 'Low brand comprehension' (LBC) and 'High brand comprehension' (HBC) which are combined into one categorical variable (1=LBC, 2=HBC). Finally, for the implementation of a manipulation check 3 items on a 5 point – Likert scale were used based on the research of Lehmann *et al.* (2008). Participants had to indicate to what extent they agreed with the statements.

3.3.3 Controls

As mentioned before, other potential predictors of observer-based brand equity must be taken into account in form of control variables. Brand loyalty plays an important role in the consumer's decision-making process. According to Palumbo and Herbig (2000), brand loyalty indicates the situation in which consumers constantly search for and buy only a specific brand despite the lower prices and sales promotions of competitors. Brand loyalty is measured based on 3 items on a 5 – point Likert scale, which are based on the research of Füller *et al.* (2010). The second control variable – i.e. product involvement – is measured through 2 items on a 5 – point Likert scale based on the researches of Mittal & Lee (1989), Beatty & Talpade (1994), and Flynn *et al.* (1996).

	N	Percentage	Customer Empowerment Intensity	Brand Comprehension
	25	12,5	Zero Empowerment	Low
	25	12,5	Create Empowerment	Low
	25	12,5	Select Empowerment	Low
R	25	12,5	Full Empowerment	Low
N=200	25	12,5	Zero Empowerment	High
	25	12,5	Create Empowerment	High
	25	12,5	Select Empowerment	High
	25	12,5	Full Empowerment	High

Table 2: Overview of the eight conditions

3.3.4   Scale reliability

One of the first mandatory steps in order to provide accurate measurements for the analysis is the evaluation of the reliability of the used scales. It might occur that scales have deficient measuring power for some reason even though the constructs and scales are being proven acceptable in prior studies. Reliability indicates to what extent a specific instrument consistently measures a construct. Cronbach's Alpha is the assessment that is used most commonly to test the scale reliability (e.g. Field, 2013).

The formula to calculate the Cronbach's Alpha is as follows: $\alpha = \dfrac{K}{K-1}\left[1 - \dfrac{\Sigma S_i^2}{S_T^2}\right]$

Here, K indicates the number of items, s_i^2 indicates the variance of item *i*, and s_T^2 is the sum of the variances of all items and forms the variance of the total score. According to George and Mallery (2003, p. 231), the possible outcomes should be interpreted based on the following rules of thumb: "$\geq$ .9 – Excellent, $\geq$ .8 – Good, $\geq$ .7 – Acceptable, $\geq$ .6 – Questionable, $\geq$ .5 – Poor, $<$ .5 – Unacceptable." Additionally, Hair *et al.* (2010) pointed out that lower Cronbach's Alpha values may be considered to be expected and acceptable in exploratory researches. Because Cronbach's Alpha is sensitive for the number of items included, it might occur that the statistic will be inflated by the number of items. In other words, more items will likely lead to a score of 'good' while the items are heterogeneous among themselves (Janssens *et al.*, 2008). Therefore, a factor analysis will be conducted prior to the Cronbach's Alpha test in the next chapter.

3.4   Factor Analysis

3.4.1   Background Information

Factor analysis is a statistical technique whose goal is to determine the actual underlying dimensionality by reducing the size of a dataset. According to Janssens *et al.* (2008, p. 245), a factor analysis leads to "[…] the strength of the association between the variables which is important, to the extent that it is possible to define a smaller set of dimensions, each of which is based on a number of the original variables, while still keeping the majority of the information." The underlying dimensions can also be referred as factors. Factor scores can be calculated on basis of linear combinations of the original scores of the variables that are comprised, which leads to the following equation:

$$Y_i = \beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_n X_{ni} + \varepsilon_i$$

Where Y_i =   i:th factor

β_1 to β_n =   weighting coefficient from 1 to n

X_{1i} to X_{ni} =   values of the original variable X for observation i

ε_i =   residual

A distinction can be made between two main types of factor analysis: exploratory and confirmatory. The essential difference between exploratory and confirmatory factor analysis, is that with an exploratory factor analysis no prior information is needed about which variables will determine a specific factor (Janssens *et al.*, 2008). In contrast, with a confirmatory factor analysis it is hypothesized that certain variables are assigned to a certain factor. In other words, the goal of a confirmatory factor analysis is to verify the measures of a factor that is already grounded on theoretical basis instead of discovering associations between all variables. Figure 4 provides a clear overview of the two different types of factor analysis and the difference between them. The left side of the figure indicates an exploratory factor analysis, in which the loading between the factors (f1, f2, and f3) and all the variables (y1, y2,…, y8) are measured. Meanwhile, the right side of the figure indicates a confirmatory factor analysis, in which the loadings are only measured between the variables and their related factor (for example, y1, y2, and y3 for f1).

For this thesis, both the exploratory and confirmatory factor analyses are conducted. The explorative factor analysis is conducted because some of the measures of the (dependent) variables are drawn up on the basis of multiple researches combined. Therefore, it is hard to assume that certain measures correctly measure a certain factor. Guided by the outcomes of the explanatory factor analysis, the final constructs are ultimately formed by the outcomes of the confirmatory factor analysis.

3.4.2   Requirements and Method

Exploratory Factor Analysis

As for the most statistical analyses, exploratory factor analysis also has some assumptions that must be met before the results of this factor analysis can be considered acceptable. The first assumption has to do with the sample size. A sample sizes of 200 and above can be considered to be significant (e.g. Guilford, 1954; Kline, 1979; Gorsuch, 1983; Hutcheson & Sofroniou, 1999; Garson, 2008). Further, the dataset must pass the 'Bartlett's test of sphericity', 'anti-image correlation matrix', and the 'Kaiser-Meyer-Olkin measure of sampling adequacy', in which more insight into the degree of correlation is provided (Janssens *et al.*, 2008). Bartlett's test of sphericity attempts to determine whether the
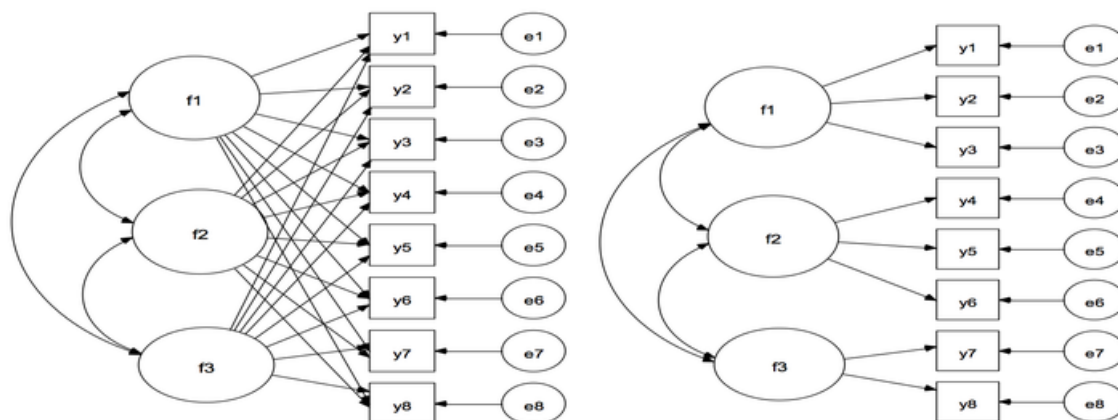
Figure 4: Exploratory vs. Confirmatory Factor Analysis (Source: Cross Validated, 2017)

correlation matrix is an identity matrix, which means that the variables are unrelated and uncorrelated. Thus, the null hypothesis states that the correlation matrix resembles the identity matrix. The anti-image correlation matrix contains the (negative) values for partial correlations between variables (Janssens *et al.*, 2008). The values for partial correlations should be close to zero to determine the likelihood of underlying dimensions and therefore the relevance of a factor analysis. The values lie between 0 and 1, and should be higher than .50 to be considered acceptable. According to Thissen and Bendermacher (2012, p. 6), the Kaiser-Meyer-Olkin measure of sampling adequacy indicates how well the variables the total content determined by the hidden factors. Prior to the interpretation of the global measure of sampling, it is preferable to analyze the measure of sampling scores of each individual variable. The value of Kaiser-Meyer-Olkin measure of adequacy ranges from 0 to 1, and can be considered acceptable when the value is higher than .50 (Janssens *et al.*, 2008). When the individual variables meet the assumption, the global statistic may be examined.

The outcomes of an exploratory factor analysis, which is an overview with the factor loadings, give an indication to what extent the theorized items measure their particular construct. Items with either a loading below .40 for one construct (for a sample size of 200) or with a loading above .40 on multiple constructs could be assumed to be problematic. After extraction of factors, factor rotation is used which is a technique that rotate factor axes such that items are loaded at a maximum to only one factor. The most common method of factor rotation is the varimax method, which is a method that attempts to minimize the number of items that have high loadings on each factor (IBM, 2016). As a result, the interpretation of the factors is simplified. The exploratory factor analysis will be performed with the use of the statistical software IBM SPSS Statistics 25.

Confirmatory Factor Analysis

In order to analyse regarding reliable constructs, the dataset must meet several requirements for the confirmatory factor analysis: unidimensionality, convergent validity, reliability, and discriminant validity (Janssens *et al.*, 2008). Unidimensionality indicates that there is only one underlying dimension for a set of variables. Convergent validity indicates to what extent different indicators of latent variables verify each other. A latent variable is a variable that is not measured directly, but derive from scores for and variances of observerd variables (for example: f1, f2, and f3 in figure 4). Reliability indicates whether the individual indicators are measured consistently. Finally, the discriminant validity determines whether the change in the value of the Chi-square between the accepted model and restrictive model is significant. Table 3 provides an overview with the the values that are needed to meet the requirements.

The method that has been used to conduct a confirmatory factor analysis is structural equation modelling. Structural equation modelling is a method that is used to analyze structural relationships in terms of estimating a model in a way that the model covariance matrix and the sample covariance matrix corresponds as closely as possible (Janssens *et al.*, 2008). The exploratory factor analysis will be

performed with the use of AMOS Graphics 25 which is an add-on of the statistical software IBM SPSS Statistics 25.

3.5   Multivariate Analysis of Variance (MANOVA)

3.5.1   Background Information

Multivariate analysis of variance measures the effect(s) of one or more categorical independent variables on several dependent variables. In other words, the effects of the independent variables on the dependent variables are compared to determine whether there are differences amongst the different categorical groups. There are two important reasons for why there are no separate analyses of variance (ANOVA) performed for each dependent variable instead of a MANOVA. Firstly, the chance of a 'Type I' error will substantially increase when different ANOVAs are performed. This means that the higher the number of separate ANOVAs, the higher the chance will be that the null hypothesis will be incorrectly rejected. Secondly, the multivariate test is able to provide extra important information in terms of the group differences between the variable combinations (Janssens *et al.*, 2008).

3.5.2   Requirements for Validity and Reliability

The last important step before analysing is to test for the assumptions and requirements that need to be met before the results of the MANOVA can be considered valid and reliable. The first requirement regards the sample size. Although there is no general accepted requirement for the sample size, many statisticians rely on the rule of thumb; every group needs more cases than the number of dependent variables that will be analysed (Aerd, 2013). Next, for the dependent variables, a minimum of two variables are needed that measured on a(n) ratio (or interval) scale (i.e. continuous). Meanwhile, the independent variable should contain two or more categorical, independent groups. The other requirements are on ground of: independence of observations, univariate or multivariate outliers, multivariate normality, linear relationship, homogeneity of variance-covariance matrices, and multicollinearity.

Independence of Observations

Even the smallest connection – i.e. dependence – between data could lead to heavily biased results, which are in most cases hard to detect or even undetectable. There are two types of observations, namely observations between groups and observations within each group. Independence of observations between groups means that a respondent does not participate in more than one group. The groups consist of different respondents. Independence of observations within each group means that there are no connections between data points within each group. Relating to this research, it means that respondents within a group should not fill out the survey multiple times.

Requirement	Category	Test	Value to accept
Unidimensionality	Factor Loadings	Regression Weights	> .50
		Critical Ratio	> 1.96
	Model Fit	Chi-Square Value	< .001
		Chi-Square Degrees of Freedom	< 2
		Goodness of Fit index	Preferably > .90
		Adjusted Goodness of Fit Index	Preferably > .80
		Tucker-Lewis Index	> .90
		Comparative Fit Index	> .90
	Overall Fit	Root Mean Square Error of Approximation	< .05 = good; up to .80 = acceptable
		Standardized Root Mean Square Residual	
Convergent Validity	Factor Loadings	Standardized Regression Weights	> .50
		Critical Ratio	> 1.96
Reliability	Composite Reliability	Manually	> .70
	Variance Extracted	Manually	> .50
Discriminant Validity	Correlations	Squared Correlations	Variances of Two Constructs < Average Variance of Construct

Table 3: Overview of Requirements for Confirmatory Factor Analysis

Univariate or Multivariate Outliers

An outlier occurs when any value deviates from the typical range of the other data points within a data set (Cousineau & Chartier, 2010). A distinction can be made between two types of outliers, namely univariate and multivariate. The difference between both is that univariate outliers only occur within a single variable, whereas multivariate outliers occur within two or more variables. Univariate outliers contribute to the multivariate outliers and should therefore be analysed first. Univariate outliers can be detected by standardized values, also known as z-scores. After testing for and removing of univariate outliers, multivariate outliers are analysed and removed when needed. Multivariate outliers can be detected with the use of Mahalanobis Distance.

Multivariate Normality

The multivariate normal distribution can be defined as a multivariate generalization of the one-dimensional (univariate) normal distribution (StatLect, n.d.). It describes whether a random vector – i.e. a mathematical list of variables with unknown values – as a linear combination of its k components is *k-variate* normally distributed. Here, k relates to a mutually independent standard random variable. In a more simplified form, the multivariate normal distribution indicates the joint distribution of a random vector. The multivariate normal distribution can be calculated using the following equation (where X is k-dimensional): $\mathbf{X} \sim \mathcal{N}_k(\boldsymbol{\mu}, \boldsymbol{\Sigma})$. In this equation, $\boldsymbol{\mu}$ indicates the mean vector and $\boldsymbol{\Sigma}$ indicates the covariance matrix. Because the multivariate normal distribution is an exceptionally tricky assumption to test for and cannot be directly measured by the statistical program SPSS Statistics, this thesis tested this assumption with the use of the Kolmogorov-Smirnov and Shapiro-Wilk tests. With these tests the normality for each of the dependent variables for each of the categorical independent variable is tested and is often used as the closest alternative to test whether there is multivariate normality (Janssens *et al.*, 2008). For both tests, the null hypothesis, which indicates that there is a normal distribution, may not be rejected. However, both tests are extremely sensitive to minor deviations from normality (Janssens *et al.*, 2008). Therefore, it is important, especially for large sample sizes (n > 200), to perform a graphic inspection when the null hypothesis is rejected.

Linear Relationship

The relation between a variable and a constant can be referred as a linear relationship. This means that when one variable increases or decreases a corresponding increase or decrease will be caused on the other variable. The linear relationship can be determined either in using a mathematical format or a graphical format. Mathematically, a linear relationship is one when the following equation is satisfied: $f_{(x)} = mx + b$. In this formula, **f(x)** and **x** are two variables (x is mapped to f(x)) which are linked by the parameters **m** (the slope of the line) and **b** (the value of y when x=0). Graphically, a linear relationship can be assessed through scatter plots. Scatter plots display values of two continuous variables for a set of data. This thesis assessed the linear relationship on basis of the scatter plots for two reasons: (1) scatter plots can be easily obtained using SPSS Statistics, and (2) it is the easiest and fastest way.

Homogeneity of Variance-Covariance Matrices

Homogeneity of variance-covariance indicates whether the variance-covariance matrices of the variables are equal across the groups (Janssens *et al.*, 2008). This assumption can be tested by using the 'Box's test of equality of covariance matrices' in first place. The cut-off for this test is set at 0.001, because it is a heavily sensitive test statistic. However, in the event of equal group sizes, some statisticians suppose that this test becomes unstable and may be left for what they are. Instead, they presume that the 'Hotelling's Trace' and 'Pillai's Trace' stats are more robust and solid (Steyn, 2013).

Both test whether the means of the dataset are equal based on more than one parameter. This means that the null hypothesis indicates that the samples derive from populations with the same multivariate means. To pass both tests, the null hypothesis need to be rejected. In other words, the parameters need to be significantly different from each other. If the p-value is lower than 0.05, the null hypothesis should be rejected. Since the set of data for this research consists of equal group sizes, the Hotelling's Trace and Pillai's Trace tests are used to verify this assumption.

Multicollinearity

When two or more predictor variables are highly correlated, then the dataset contains multicollinearity. In a situation of high multicollinearity, small changes in the data may cause erratic changes in the coefficient estimates of the model. However, the model as a whole does not lose its reliability or predictive power in the presence of multicollinearity. Therefore, some statisticians see multicollinearity rather as a limitation than a strict assumption (Field, 2013). Multicollinearity is mostly detected with the use of variance inflation factors, better known as the VIF scores. The rule of thumb that is commonly used is that a VIF score of 10 or higher indicates multicollinearity (Janssens *et al.*, 2008).

4. DATA ANALYSES AND RESULTS

4.1 Preparatory Analyses

4.1.1 Descriptive Statistics

As shown in table 2 the sample size consists of a total of total number of 200 respondents, which is divided into eight different groups. The sample consists of 120 men (66.5%) and 80 females (33.5%) with an average age of 26 years. Furthermore, most respondents finished the university for applied sciences (39%) followed by university (30%), secondary vocational education (28.5%), and secondary education (2.5%). Table 4 provides an overview with information about the respondents for each of the eight conditions. On the basis of this information it can be established that the largest part of each group consisted of men, the average age for all groups lies between 20 and 30 (millennials), and the average achieved education lies around university for applied science (see Appendix 1 for scales).

Level of empowerment	Level of brand comprehension	Gender in percentage	Average age in years	Average Education
Zero	Low	Male: 52% Female: 48%	24.6	3.96
Create	Low	Male: 56% Female: 44%	25.6	3.88
Select	Low	Male: 68% Female: 32%	23.6	3.96
Full	Low	Male: 64% Female: 36%	25	3.88
Zero	High	Male: 60% Female: 40%	25.5	3.92
Create	High	Male: 60% Female: 40%	27.6	3.96
Select	High	Male: 56% Female: 44%	29.3	4.04
Full	High	Male: 64% Female: 36%	26.1	4.12

Table 4: Descriptive Statistics Respondents

4.1.2 Exploratory Factor Analysis

The first step to guarantee the reliability of the constructs used in this research is taken by means of an exploratory factor analysis (EFA). Since there are no direct relations between the constructs, separate

exploratory factor analyses are conducted for interpersonal relationship (EFA 1), comparative advantage (EFA 2), product advantage (EFA 3), product effectiveness (EFA 4), and behavioural intentions (EFA 5). The extraction method that has been used was the principal component analysis as it is one of the most commonly used in a factor analysis (e.g. Janssens *et al.*, *2008 p. 253*). Meanwhile, an orthogonal rotation method (varimax) was used based on the assumption that the factors are independent of one another.

Table 5 provides an overview of the outcomes on the Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett Sphericity Coefficient tests. Each item of the measured constructed was coded. For example, the first item of product effectiveness is coded with PE1. All codes are included in appendix 1. All constructs pass the Bartlett Sphericity Coefficient test with a significance level of .000. In first place, the constructs also pass the Kaiser-Meyer-Olkin Measure of Sampling Adequacy test with values of .500 or higher. However, EFA 2 has a value on the lower bound (.500) and can therefore be considers as arguably. According to Janssens *et al.* (2008, p. 274), at least three items are needed to perform a reliable factor analysis. Based on this rule of thumb, the variable 'comparative advantage' will be eliminated from this research to guarantee reliable and valid constructs.

For EFA 1, EFA 3, and EFA 5 the loadings of the items were all above .400 without loadings of .400 or higher on other components. Therefore, these constructs could be considered acceptable on basis of their exploratory factor analysis. For EFA 4, the items PE7, PE2, and PE4 have values higher than .400 on multiple constructs. These items will therefore be eliminated from the construct since they could be problematic in further analysis.

The exploratory factor analysis formed the foundation of applicable variables and constructs, on which further investigation is conducted by means of a confirmatory factor analysis.

4.1.3   Confirmatory Factor Analysis

Sequent to the exploratory factor analysis, a confirmatory factor analysis is conducted to verify the quality of the constructs and the model as a whole. Here, the model as a whole indicates not only the factors themselves but also the underlying connections within and between the factors. The confirmatory factor analysis has been conducted through structural equation modelling, which is part of the statistics software AMOS. Structural equation modelling enables researchers to test a set of regression equations simultaneously, and is, therefore, suitable to perform a confirmatory factor analysis (Janssens *et al.*, 2008). Through path diagrams it is possible for researchers to illustrate relationships among manifest and latent variables. Manifest variables indicate variables that are directly measured, whereas latent variables indicate variables that are not directly measures but rather derived from other observed variables through a mathematical model. Within structural equation modelling the latent variables are represented by circles, while manifest variables are represented by squares (see figure 5). Due to the fact

EFA 1:
Interpersonal Relation

Item	Loading
IR6	.906
IR4	.885
IR1	.884
IR2	.874
IR7	.842
IR8	.840
IR3	.826
IR5	.815
IR9	.804

Kaiser-Meyer-Olkin: .950
Bartlett's Test: .000

EFA 2: Comparative Advantage

Item	Loading
CA1	.914
CA2	.914

Kaiser-Meyer-Olkin: .500
Bartlett's Test: .000

EFA 3: Product Advantage

Item	Loading
PA1	.890
PA2	.873
PA3	.847

Kaiser-Meyer-Olkin: .719
Bartlett's Test: .000

EFA 4: Product Effectiveness

Item	Loading
PE9	.860
PE10	.851
PE11	.808
PE1	.803
PE6	.801
PE3	.696
PE5	.686
PE7	.649 (-.454 on 2nd component)
PE2	.623 (.494 on 2nd component)
PE4	.591 (.576 on 2nd component)
PE8	.487

Kaiser-Meyer-Olkin: .898
Bartlett's Test: .000

EFA 5: Behavioural Intentions

Item	Loading
BI3	.875
BI4	.827
BI1	.793
BI5	.787
BI2	.779
BI6	.647

Kaiser-Meyer-Olkin: .885
Bartlett's Test: .000

Table 5: Exploratory Factor Analysis Results (Including Kaiser-Meyer-Olkin & Bartlett's Test)

that residuals are unobserved they are represented by circles as well. Performing a confirmatory factor analysis using structural equation modelling ensures that errors are purged. As a result, the predicted relationships among unobserved (or latent) variables will be less contaminated by measurement error (Division of Statistics, 2012).
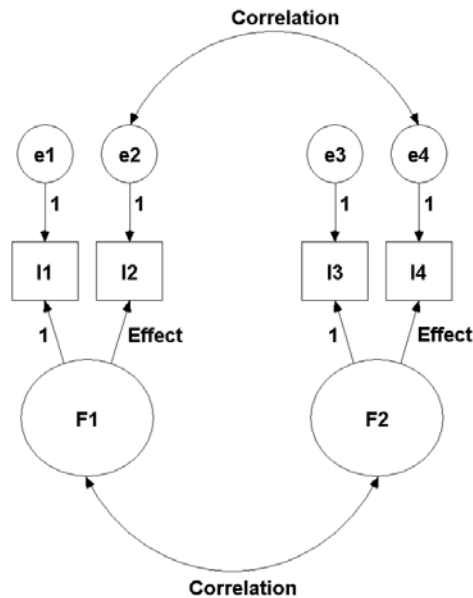
Figure 5: Structural Equation Modelling (Source: Division of Statistics, 2012)

The analysis started with the evaluation of the unidimensionality. Except for item PE3 (.453), the regression weights for all items were above .500 with a critical ratio higher than 1.96. Based on these results, item PE3 was removed from the construct. After removal the model fit was tested. The chi-square value was .000, the chi-square degrees of freedom was 1.669, the goodness of fit index was .863, the adjusted goodness of fit index was .831, the Tucker-Lewis index was .959, and the comparative fit index was .964. According to these results, only the goodness of fit index didn't reach its threshold. A further investigation using the standardized residual covariances showed that most values of PE9 were higher than 2.58 and can therefore be considered problematic. Thus, the item PE9 was also eliminated from the model. As a result, the goodness of fit index was accepted (.902). Furthermore, the standardized regression weights of all items were above .50. Since it is already known that the critical ratios of the items were above 1.96, the assumptions for the convergent validity were accepted. To verify the reliability of the model, the composite reliability and variance extracted are calculated manually. The values for the composite reliability were as follows: interpersonal relation .953, product advantage .842, product effectiveness .875, and behavioural intentions .879. All these values are higher than the threshold of .70 and are therefore accepted. The values for the variance extracted were as follows: interpersonal relation .697, product advantage .637, product effectiveness .585, and behavioural intentions .551. All the values were higher than the threshold of .500, and therefore the variance extracted criterion as well as the reliability of the model is accepted. At last, the variances of two

constructs were lower than the average variance of the construct. Thus, the final assumption of the confirmatory factor analysis, which is the discriminant validity, is accepted.

Summarized, the items PE2, PE3, PE4, PE7, PE8, and PE9 were eliminated from the initial construct based on the information of both types of factor analysis. The last step to verify the quality of the model is done by means of conducting the Cronbach's Alpha test.

4.1.4 Cronbach's Alphas

The last step to obtain reliable constructs for further analysis is calculating the Cronbach's Alphas. Table 6 shows an overview of the Cronbach's Alpha for each construct. All values are above .80, which means that it is not necessary to delete items to increase any of the Alphas. The overall Cronbach's Alpha is .967, and the constructs can therefore be considered to be reliable and acceptable.

Item	Cronbach's Alpha
Interpersonal Relation	.951
Product Advantage	.975
Product Effectiveness	.949
Behavioural Intentions	.951

Table 6: Cronbach's Alphas

4.2 Hypotheses testing

First, two one-way analysis of variance (ANOVAs) were performed to test whether there are significant differences between the eight conditions regarding the control variables. After that, a MANOVA was performed to test the effects of customer empowerment on the brand perception, product perception, and behavioural intentions (hypotheses H1A, H2A, and H3A). Finally, a multivariate analysis of covariance (MANCOVA) was performed to test the effect of the moderator (hypotheses H1B, H2b, and H3B).

4.2.1 Outcomes of Control Variables and Manipulation Check

Since scientific research acknowledged that brand loyalty and product involvement might influence consumer's decision making, it is important to determine that there are no significant differences between the eight conditions for both control variables. Regarding brand loyalty, the outcomes of the one-way ANOVA showed that there are no significant differences between the eight conditions $[F(9,190) = 1.598, p=.118]$. Regarding product involvement, the outcomes of the one-way ANOVA also showed that there are no significant differences between the eight conditions $[F(8,191) = .790, p=.612]$. Thus, due to the equality of the control variables between the groups the results of further analyses were not influenced by either of these variables.

Regarding the manipulation check, results acknowledged that Nike was seen as a brand with high brand comprehension while Trendest was seen as a brand with low brand comprehension. The means of the items are shown Appendix 5. Remarkable, however, is that eight respondents from the conditions with low brand comprehension answered 'somewhat disagree' on the first question. An explanation might be that people thought they remembered something, but are confused with another brand.

4.2.2   Multivariate Analysis of Variance: H1A, H2A, and H3A

Before the output of the statistical software SPSS was analysed, the assumptions from the MANOVA were checked first. The assumptions for sample size ($n \geq 200$), number of dependent variables (>2), categorical independent variable, and independence of observations are met based on existing information of the dataset and model. Regarding univariate and multivariate outliers, no problematic values were found based on the z-scores (<2) and the Mahalanobis distances (>.001). Furthermore, the p-values of the Kolmogorov-Smirnov and Shapiro-Wilk tests were above the threshold of .05 for all the dependent variables. Therefore, the null hypothesis was not rejected, and a multivariate normality was confirmed. For the assumption of linear relationship, scatter plots were created and analysed. Each dependent variable showed a clearly horizontal line, which means that this assumption was also met (see Appendix 4). The second last assumption was the assumption for homogeneity of variance-covariance matrices. For this assumption, the Hotelling's Trace and Pillai's Trace tests were used. The significance level on both tests were lower than .05, which means that the null hypothesis was rejected and therefore the assumption was met. Finally, the last assumption regarding multicollinearity was tested using VIF scores. The VIF scores for all the dependent variables were below the threshold of 10, which means that the last assumption was met as well. After all the assumptions were checked, reliable and valid conclusions could be drawn from the MANOVA outcomes.

	Zero Empowerment	Create Empowerment	Select Empowerment	Full Empowerment
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
Interpersonal Relation	2.10 (.32)	3.39 (.18)	3.52 (.26)	4.49 (.21)
Product Advantage	2.42 (.49)	3.33 (.52)	3.32 (.51)	4.12 (.54)
Product Effectiveness	2.25 (.27)	3.35 (.20)	3.48 (.34)	4.22 (.32)
Behavioural Intentions	2.47 (.29)	3.51 (.25)	3.66 (.34)	4.21 (.41)

Table 7: Overview of Means and Standard Deviations for Customer Empowerment

Table 7 shows an overview of the means and standard deviations of the dependent variables for each empowerment strategy. These results show that the mean for zero empowerment was the lowest, whereas the mean of full empowerment was the highest. The means of create empowerment and select empowerment seemed to be well-nigh equal. However, this needed to be statistically verified using the results of the MANOVA, which are provided in table 8.

	DF	F	Significance	η²
Interpersonal Relation	3	778.11	.000	.923
Product Advantage	3	90.56	.000	.581
Product Effectiveness	3	244.79	.000	.789
Behavioural Intentions	3	401.31	.000	.860

Table 8: Overview of the Results of the Tests of Between-Subjects Effects for Customer Empowerment

Based on the results of the tests of between-subjects effects, customer empowerment has a significant effect on interpersonal relation [$F(3,196) = 778.11$; $p < .0005$; partial $\eta^2 = .923$]. Furthermore, customer empowerment has a significant effect on both product advantage [$F(3,196) = 90.56$; $p < .0005$; partial $\eta^2 = .581$] and product effectiveness [$F(3,196) = 244.79$; $p < .0005$; partial $\eta^2 = .789$]. Lastly, customer empowerment has a significant effect on the observer's behavioural intentions [$F(3,196) = 401.31$; $p < .0005$; partial $\eta^2 = .860$]. In this analysis the (partial) eta square is used over the R-square, because the R-square measures the contribution of the entire model whereas the (partial) eta square measures the effect of a specific variable. Ideally, omega squared may have been the best option, however the statistical software used for this thesis (SPSS) did not include this function.

For the post-hoc tests, the Tukey's (HSD) test was used due to the equal group sizes. The results of this test showed that the significance levels between create empowerment and select empowerment were higher than .05 for product advantage, product effectiveness, and behavioural intentions. This means that there were no significant differences between create empowerment and select empowerment regarding the means of product perceptions and behavioural intentions. This can also be visualised by the generated plots (see figure 6). Meanwhile, the other levels of consumer empowerment do significantly differ from each other because of the significance levels lower than .05.

Hypotheses H1A, H2A, and H3A stated that customer empowerment would have a positive effect on the observer's brand perception, product perception, and behavioural intentions respectively. Based on table 7, it can be concluded that brand perceptions, product perceptions, and behavioural intentions are valued higher towards products that are co-created (i.e. created, selected or both) than towards products that are not co-created. This means that hypothesis H1A, H2A, and H3A are supported. However, it is noteworthy that create empowerment and select empowerment do not significantly differ from each other.

4.2.3 Multivariate Analysis of Covariance: H1B, H2B, and H3B

To determine whether the brand establishment influences the effects of customer empowerment on the brand perceptions, product perceptions, and behavioural intentions, a MANCOVA was conducted. Most of the assumptions were already checked during the MANOVA, however additional information from the MANCOVA was checked as well. Table 9 provides an overview of this additional
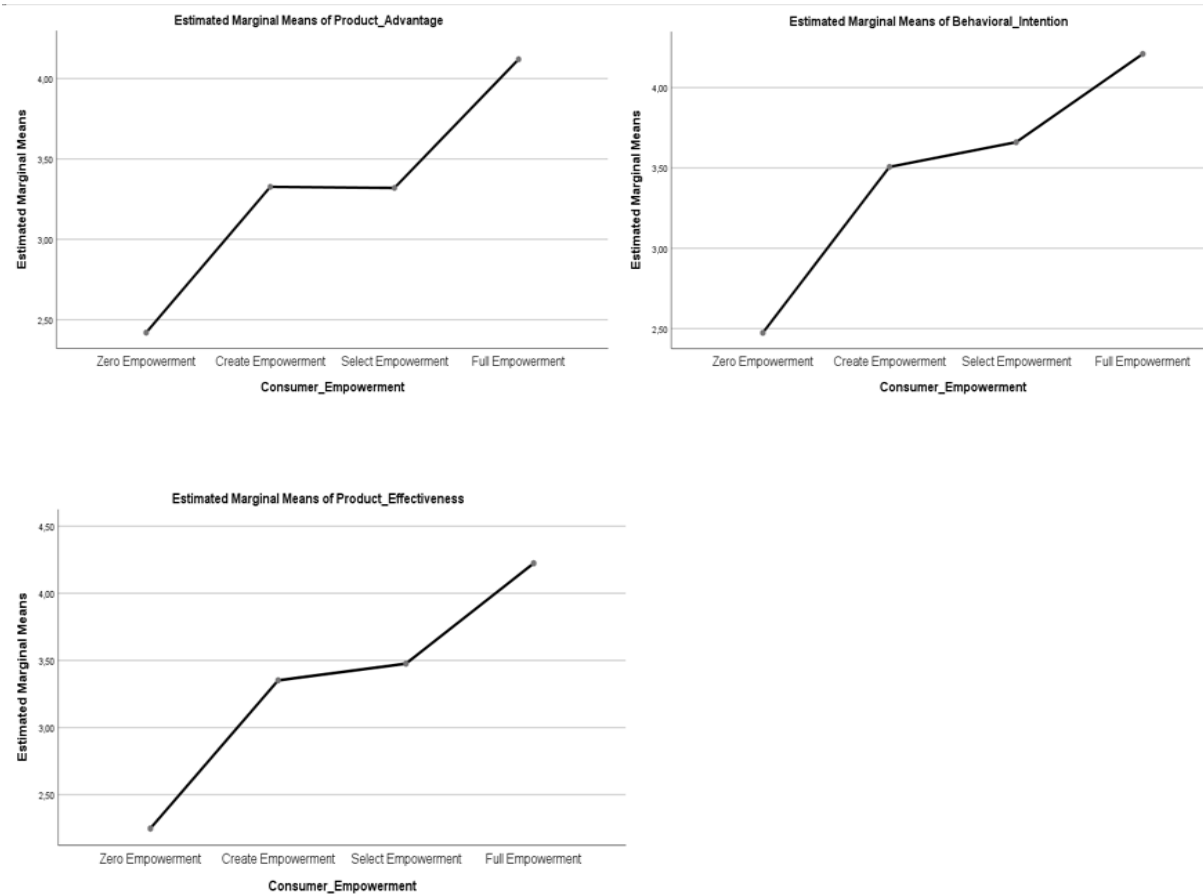
Figure 6: Plots of Means for Product Advantage, Product Effectiveness, and Behavioural Intentions

information information in terms of the results of the multivariate test for customer empowerment * brand comprehension. The most important tests for this research are again the Pillai's Trace and Hotelling's Trace. For both tests the null hypothesis was rejected (p<0.05), which means that the assumption for homogeneity of variance-covariance matrices was met.

	Value	F	Hypothesis df	Error df	Sig.	η^2
Pillai's Trace	.466	8,789	12	573	.000	.155
Wilk's Lambda	.587	9,317	12	500.339	.000	.163
Hotelling's Trace	.617	9,655	12	563	.000	.171
Roy's Largest Roots	.434	20,711	4	191	.000	.303

*Table 9: Results of Multivariate Tests for Customer Empowerment * Brand Comprehension*

Based on the results of the tests of between-subjects effects (see table 10), the moderating effect of brand comprehension a significant effect on interpersonal relation [$F(3,192) = 6.656$; $p < .0005$; partial $\eta^2 = .094$], product advantage [$F(3,192) = 9.970$; $p < .0005$; partial $\eta^2 = .135$], product effectiveness [$F(3,192) = 22.189$; $p < .0005$; partial $\eta^2 = .257$], and behavioural intentions [$F(3,192) = 15.601$; $p < .0005$; partial $\eta^2 = .196$].

	DF	F	Significance	η^2
Interpersonal Relation	3	6.656	.000	.094
Product Advantage	3	9.970	.000	.135
Product Effectiveness	3	22.189	.000	.257
Behavioural Intentions	3	15.601	.000	.196

*Table 10: Overview of the Results of the Tests of Between-Subjects Effects for Customer Empowerment * Brand Comprehension*

Table 11 provides an overview of the means for the combinations of the level of customer empowerment and brand comprehension. In this table, "Low" and "High" indicates the level of brand comprehension. It is not remarkable that the values of zero empowerment were higher for the company with a high brand comprehension (Nike). What is remarkable is that most of the values of create empowerment were higher for low brand comprehension (Trendest) compared to high brand comprehension, whereas the values of select empowerment were higher for high brand comprehension compared to low brand comprehension. Furthermore, the scores of full empowerment were higher for high brand comprehension than for low brand comprehension.

Hypotheses H1B, H2B, and H3B state that there would be a less positive effect on brand perceptions, product perceptions, and behavioural intentions respectively for companies with a high brand comprehension. Based on the relative values, the company with a high brand comprehension scores the highest on all the dependent variables except for create empowerment. This would mean that the three hypotheses need to be rejected. However, the hypotheses explicitly state 'less positive effect', which means that the changes in percentages between the initial situation (zero empowerment) and any form of customer empowerment should be taken into consideration.

		Zero Empowerment	Create Empowerment	Select Empowerment	Full Empowerment
		M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
Interpersonal Relation	Low	2.05 (.17)	3.40 (.19)	3.34 (.19)	4.38 (.19)
	High	2.23 (.42)	3.39 (.17)	3.51 (.17)	4.60 (.17)
Product Advantage	Low	2.16 (.46)	3.49 (.48)	3.13 (.47)	3.84 (.46)
	High	2.68 (.38)	3.16 (.52)	3.51 (.48)	4.40 (.46)
Product Effectiveness	Low	2.16 (.19)	3.34 (.19)	3.19 (.16)	4.00 (.24)
	High	2.34 (.31)	3.37 (.21)	3.76 (.21)	4.45 (.22)
Behavioural Intentions	Low	2.41 (.24)	3.59 (.24)	3.42 (.24)	3.91 (.24)
	High	2.53 (.33)	3.42 (.23)	3.75 (.25)	4.51 (.31)

*Table 11: Overview of Means and Standard Deviations for Customer Empowerment * Brand Comprehension*

		Zero Empowerment	Create Empowerment	Select Empowerment	Full Empowerment
		M	*M (Δ%)*	*M (Δ%)*	*M (Δ%)*
Interpersonal Relation	Low	2.05	3.40 (65.74)	3.34 (62.91)	4.38 (113.86)
	High	2.23	3.39 (51.68)	3.51 (57.28)	4.60 (106.00)
Product Advantage	Low	2.16	3.49 (61.71)	3.13 (45.05)	3.84 (77.78)
	High	2.68	3.16 (17.19)	3.51 (30.86)	4.40 (64.18)
Product Effectiveness	Low	2.16	3.34 (54.44)	3.19 (47.78)	4.00 (85.19)
	High	2.34	3.37 (44.18)	3.76 (60.96)	4.45 (90.41)
Behavioural Intentions	Low	2.41	3.59 (62.36)	3.42 (54.54)	3.91 (76.82)
	High	2.53	3.42 (35.02)	3.75 (48.05)	4.51 (73.98)

*Table 12: Overview of Changes in Percentage of The Means for Customer Empowerment * Brand Comprehension*

In table 12 the changes in percentage of the means are provided, which makes it easier to evaluate the hypotheses. For interpersonal relationship, the percentage changes were higher for the company with a low brand comprehension for all the customer empowerment levels. Therefore, hypothesis H1B is partly accepted, which means that customer empowerment in new product development has a less positive effect on brand perceptions for companies with a high brand comprehension compared to companies with a low brand comprehension. For product advantage and product effectiveness, only the percentage changes for product advantage were higher for the company with a low brand comprehension compared to the company with a high brand comprehension. Therefore, hypothesis H2B is rejected, which means that customer empowerment in new product development does not have a less positive effect on product perceptions for companies with a high brand comprehension compared to companies with a low brand comprehension. For behavioural intentions, the percentage changes for the company with a low brand comprehension were higher than the percentage changes for the company with a high brand comprehension. Therefore, hypothesis H3B is partly accepted, which means that customer empowerment in new product development has a less positive effect on the behavioural intentions for companies with a high brand comprehension compared to companies with a low brand comprehension.

5. CONCLUSION, DISCUSSION, AND LIMITATIONS

The empirical findings of this study are discussed and compared with findings from previous studies in this final chapter. The empirical findings formed the foundation to formulate the answers for the research questions, and ultimately for the problem statement "How does a customer empowerment oriented approach in new product development impacts the observer-based brand equity?". After that, limitations and managerial implications are discussed. Lastly, some recommendations are done for future research.

5.1   Research Summary and Findings

The theoretical section of this master thesis aimed to provide a comprehensive understanding of customer empowerment in the new product development process. Through this literature review the underlying motives for applying customer empowerment in the new product development process as well as its beneficial outcomes were defined. Little attention has been paid to the measurable impacts of customer empowerment on the observer-based brand equity in prior literature (e.g. Hoyer *et al.*, 2010). For those who did, the results were considered to be arguable (e.g. Fuchs & Schreier, 2011), which left some room for debate and improvements. Nonetheless, this study set up a case in which it was hypothesized that the implementation of customer empowerment as a practice within the new product development process improves the observer-based brand equity. This hypothesis and the sub-hypotheses containing the recognized contextual consideration were illustrated in the constructed conceptual framework.

The hypotheses, and therefore the conceptual model, were quantitatively tested with the help of the obtained dataset. Prior to the multivariate analysis of variances, the proposed measured constructs were first refined through both types of factor analyses – i.e. exploratory and confirmatory – and a scale reliability analysis. This resulted in the final constructs that were used to obtain reliable and valid results from the multivariate analysis of variances. Based on the results of the multivariate analysis of variances, the following conclusions are drawn up regarding the problem statement and research questions:

> *How does a customer empowerment oriented approach in new product development impacts the observer-based brand equity?*

The results of the analyses showed that customer empowerment does have a significant positive impact on the observer-based brand equity. It appeared that full empowerment had the highest positive impact on brand perceptions, product perceptions, and behavioural intentions, whereas the effects of create empowerment and select empowerment on the components of observer-based brand equity were around equal. These results were in line with the results of most prior studies on this topic (e.g. Fuchs & Schreier, 2011; Van Der Lof 2013).

Does the level of brand comprehension moderate the effect of customer empowerment on observer-based brand equity?

According to the multivariate analysis of covariances, brand comprehension seems to moderate the effect of customer empowerment on observer-based brand equity. Relatively, a company with a high brand comprehension scores higher on observer-based brand equity than companies with a low brand comprehension. However, when the differences in results are expressed in percentages it seems that the effects between the different forms of customer empowerment have a higher increase for companies with a low brand comprehension compared to companies with a high brand comprehension except for product perceptions. Thus, companies with a low brand comprehension seem to profit more of customer empowerment in new product development than companies with a high brand comprehension.

5.2   Discussion

This study provided evidence for the claims that customer empowerment in new product development has a positive and significant impact on the observer-based brand equity. In other words, co-created products positively affect the brand perception, product perceptions, and behavioural intentions of consumers who are not involved in the new product development process. These findings are mostly in line with prior studies that examined the effects of customer empowerment in new product development using different types of products and/or other industries (e.g. Fuchs & Schreier, 2011; Van Dijk, 2012; Van Der Lof, 2013; Kristal *et al.,* 2016). The effect of customer empowerment on each independent variable will be discussed in this section.

Based on the results, customer empowerment has an influence on both the interpersonal relation and the comparative advantage, which combined form the brand perception. This research proved that giving customers any level of empowerment (e.g. select, create or full) in the new product development to share their ideas and/or needs with companies has an impact on the observer's perceptions of the brand. Observers tend to perceive companies that involve consumers in their new product development process to be more caring, innovative, customer oriented, and in possession of a good service in comparison to the condition where consumers are not involved in the new product development process (zero empowerment). Furthermore, observers tend to create a higher preference for companies that empower consumers to participate in their new product development process. These findings are in line with prior studies (e.g. Fuchs & Schreier, 2011; Van Dijk *et al.*, 2014). Thus, in order to increase the observer's brand perceptions, involving consumers into the new product development process seems like a worthy strategy.

This research also provided evidence for the fact that customer empowermen in new product development can lead to higher product effectiveness and advantage. Giving customers any level of empowerment in the new product development results in products that have a closer fit to observers than standardized shelf products. Besides, product superiority – such as uniqueness and higher perceived

quality – will be obtained by implementing customers in the new product development. In contrast to brand perceptions, the results of the effects of customer empowerement in new product development on the observer's product perceptions are not enitrely in line with prior studies. For example, Kristal *et al.* (2016) argued that customer empowerment in new product development neither harms nor confers noticeable benefits on the observer's product perceptions. A possible reason for this might be the differences in product types used for the experiment. Where this research selected the product type based on prior studies about oberserver-based brand equity and customer empowerment in new product development, the research of Kristal *et al.* selected the product types based on prior studies about the most common brands in Germany. Research of Fuch & Schreier (2011), in which different results for different types of products were found, seems to acknowledge this explanation of differences in results. Although not much attention has paid to the effects of customer empowerment in new product development on observer-based brand equity, this research follows the gist of the majority of the prior studies confirming the positive influence of customer empowermen in new product development on the observer's product perception.

Finally, customer empowerment in new product development positively influences the observer's decision-making process such that observers are more likely to buy products when the products are co-created. According to Ajzen's theory of planned behaviour (1991), behavioural intentions can be divided into attitudes towards the behaviour and the subjective norm. Attitudes towards the behaviour are determined by the noticeable beliefs about a specific behaviour that will lead to a preferred outcome. Subjective norm indicates the perception of the specific behaviour, which is mostly influenced by opinions of other people. Regarding co-created products, the observer's attitudes towards the behaviour to buy the co-created product might be formed by the observer's beliefs that implementing consumers within the new product development will lead to products that have a closer fit. In this context, the influence of consumers in new product development by means of selecting and/or creating products will be the subjective norm for observers. Thus, consumer empowerment in new product development might influence the two key elements of planned behaviour which possibly explains the positive outcomes on the observer's behavioural intentions.

The results of the moderator, brand comprehension, showed that customer empowerment has a positive and significant effect for both companies with a low or high brand comprehension. Based on the multivariate analysis of covariances, it seems that full empowerment has the highest effect on the observer-based brand equity for both types of brand comprehension. However, it is noteworthy that the values of create empowerment were higher for companies with a low brand comprehension than companies with a high brand comprehension, whereas the values of select empowerment were higher for companies with a high brand comprehension than companies with a low brand comprehension. A reason for this might be that people have a higher trust in the knowledge and experience of the R&D department of companies with a high brand comprehension over consumers (e.g. Etgar, 2007). As a result, observers prefer co-created products of companies with a high brand comprehension to be created

by the company and selected by the consumers than the other way around. In contrast, observers prefer co-created products of companies with a low brand comprehension to be created by the consumers and selected by the company than the other way around. This might be of importance for managers to decide what specific customer empowerment strategy should be implemented in the new product development.

5.3   Managerial Implications

From a managerial perspective, this research suggests that customer empowerment in new product development might be a profitable strategy in terms of positively stimulating the observer-based brand equity. Therefore, it is logically considerable for companies to encourage customers to 1) share their preferences between a selection of products, 2) share their blueprints of adjusted or new products, 3) interactively design products and select the product that meets their needs.

It is noteworthy that the positive relationship between customer empowerment and observer-based brand equity is not to be taken as directly realizable, but rather as a strategic orientation. In other words, customer empowerment in new product development has the potential to add value to the products, but only when it is correctly implemented within the firm. The operational steps for a correct implementation of customer empowerment in new product development are beyond the scope of this study. However, a number of prior studies has paid attention to the practical implementation of customer empowerment within companies and created some frameworks with important aspects to follow (e.g. Etgar, 2007; Hoyer *et al.,* 2010; Kohler *et al,* 2011; Piller *et al.*, 2011).

The results of this study provisionally suggest that customer empowerment in new product development is a appropriate strategic orientation for both companies with a low or high brand comprehension, but especially for companies with a low brand comprehension. This would entail that companies with a low brand comprehension are able to add value to their products in a cost efficient way. However, this study does not dig deeply into the question of what steps the advertisement contains to make the strategic orientation visible for observers. Subsequently, even though this study showed positive outcomes for companies with a high brand comprehension, it remains impossible to fully assume that customer empowerment in new product development is a profitable strategy, because it is still unknown whether the increase in observer-based brand equity can compete with the additional costs. Furthermore, this study suggests that full empowerment is the customer empowerment strategy in new product development with the highest significant influence on the observer-based brand equity. Select empowerment appears to be the strategy with the second highest significant influence on the observer-based brand equity for companies with a high brand comprehension. Create empowerment appears to be the strategy with the second highest significant influence on the observer-based brand equity for companies with a low brand comprehension. These results help managers to choose the appropriate customer empowerment strategy.

5.4 Academic Contribution

From an academic perspective, this thesis contributes in different ways. Firstly, little attention was paid the impacts of a customer empowerment orientation on the observer-based brand equity in the past. Mostly, customer empowerment has been studied on a global and conceptual level (e.g. Prahalad & Ramaswamy, 2004; Etgar, 2007; Payne *et al.,* 2007; Roberts *et al.*, 2014). Several researchers acknowledge that more empirical studies are needed to get a better understanding of the potential effects of customer empowerment (e.g. Hoyer *et al.*, 2010; Fuchs & Schreier, 2011; Van Der Lof, 2013). This study offers support for the understanding of customer empowerment as a strategic orientation for new product development.

Secondly, this thesis analysed whether there is a difference in the effects of customer empowerment on observer-based brand equity between companies with a high or low brand comprehension. No prior research has paid attention to the potential relevance of this contextual factor for customer empowerment. Therefore, this study helps to form a foundation for future work in this specific field of research. Results of this study showed that the increase in observer-based brand equity using customer empowerment in the new product development is higher for companies with a low brand comprehension compared to companies with a high brand comprehension.

All in all, the results obtained from the experimental setting of this study confirm findings of prior studies and provides a broader understanding of the effects of customer empowerment in new product development. Furthermore, the new insights of this study may lead to future work that are in line with this research.

5.5 Limitations and Directions for Future Research

Although this study contributes on both theoretical and practical level regarding customer empowerment in new product development, there are several limitations that are worth discussing. Firstly, despite the fact that positive significant effects of customer empowerment on the observer-based brand equity for T-shirts were found, it is not allowed to generalize these effects to other product categories. Fuchs & Schreier (2011), for example, found different effects for different product categories. To broaden our understanding of the effects of customer empowerment on observer-based brand equity, future research should investigate the effects on different product categories. Subsequently, it would be interesting to investigate whether there are some product specifications that makes products more susceptible to customer empowerment. Van Der Lof (2013), for example, studied whether product complexity had a moderating effect on the effects of customer empowerment in new product development. More contextual considerations should, therefore, be taken into account in future research

Secondly, this study only focused on customer empowerment in new product development as a strategic orientation. From an operational perspective, it remains, therefore, unknown what steps need to be taken within firms to successfully implement customer empowerment. Therefore, future research

should focus on the customer empowerment activities within each stage of the new product development process. This might lead to a discovery of new customer empowerment activities within new product development in comparison to existing literature that solely focused on creating and/or selecting products. Additionally, it would be interesting to investigate whether certain organizational capabilities are required to add maximum value to products through customer empowerment in new product development. Will the effects of customer empowerment in new product development be influenced by the complementary capabilities? Furthermore, the results of this study did not take the additional costs of customer empowerment in new product development into account. When the costs of customer empowerment in new product development reach a certain level at which the costs are higher than the expected benefits, customer empowerment in new product development might not be a profitable strategy anymore. Therefore, future research should approach customer empowerment in new product development from a financial perspective.

Thirdly, the results of this study are solely based on the fuzzy front-end phase of the stage-gate model. According to existing literature, the fuzzy front-end phase is the most important phase in new product development. However, it should not be forgotten that the back-end phase is still a part of the entire new product development process. Therefore, the findings of this study only project a part of the entire potential effects of customer empowerment in new product development. It might be possible that implementing customers in the back-end phase of the stage-gate model will lead to an additional increase, or even decrease, of the effects of customer empowerment in new product development on the observer-based brand equity. Thus, future research should pay more attention to the implementation of customers in the back-end phase of new product development.

Lastly, from a methodological perspective, the used method for this study does not exactly determines what participants looking at when they see the advertisement. How much attention are the participants paying to the mention that the product is partly developed by consumers? Prior research on the effects of customer empowerment in new product development mainly used the experimental advertisements as methodology (e.g. Fuchs & Schreier, 2011; Van Der Lof, 2013; Van Dijk, 2014; Kristal *et al.*, 2016), however none of these studies investigated whether the effects were actually created by the mentioning of customer empowerment in new product development in the advertisement. Therefore, future research should investigate whether consumers are actually paying attention to the statement that the product is co-created by consumers (e.g. eye tracking).

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APPENDIX

Appendix 1: Measured Constructs

Note: After removal of items because of the factor analyses, the items in bold are used for the main study, manipulation check, and control variables.

Brand Perception	**Interpersonal Relation:**
	The brand X…
(Knowles & Olins, 2016)	*Caring*
	… cares about its customers. (IR1)
	… has the interests of its customers at heart. (IR2)
	… is committed to me as a customer. (IR3)
	Innovativeness
	… is innovative. (IR4)
	… constantly improves its products. (IR5)
(Saxe & Weitz, 1982; Van Der Lof, 2013)	*Customer Orientation*
	… helps customers to achieve their goals. (IR6)
	… finds out what kind of product would be most helpful to a customer. (IR7)
(Ambler, 2003; Knowles & Olins, 2016)	*Service*
	1. **I can count on good service from this brand. (IR8)**
	2. **This brand deals with problems quickly and well. (IR9)**
	Comparative Advantage:
(Yoo, Donthu, & Lee, 2000; Van Der Lof, 2013)	1. *It makes sense to buy Brand X instead of any other brand, even if they are the same. (CA1)*
	2. *Even there is another brand as good as Brand X, I prefer to buy Brand X. (CA2)*
Product Perception	**Product Advantage:**
	Based on your impression of the advertisement and brand X, you can indicate on a scale of 1 to 5 to what extent you agree with the statements. Here, 1 indicates totally disagree, whereas 5 indicates totally agree.
(Song & Parry, 1996)	1. *In comparison with competitive T-shirts, the T-shirt in the advertisement offers unique features to the customers. (PA1)*

(Yoo, Donthu, & Lee, 2000) (Schultz *et al.*, 2013)	2. *The T-shirt in the advertisement is clearly better in complying with the needs of the customers than competitive T-shirts. (PA2)* 3. *The product in the advertisement is of higher quality than competing products. (PA3)* **Product Effectiveness:** Based on the advertisement, I think that… *Quality and Attractiveness* **… the expected quality of the product in the advertisement is very high. (PE1)** *… the trustworthiness of the product in the advertisement is high. (PE2)* *… I expect the features, such as the collar and body fit, to be of high quality. (PE3)* *… I don't expect the t-shirt to be damaged quickly. (PE4)* **… the t-shirt meets the standard characteristics of a t-shirt. (PE5)** **… the t-shirt can be fixed quickly by Brand X when it is damaged. (PE6)** *… the quality of the product in the advertisement appears to be very poor. (PE7)* *Innovativeness* *… this t-shirt offers a value that is not offered by any other product. (PE8)* *… this t-shirt creates a totally new market. (PE9)* **… this t-shirt can be characterized as being very new to the market. (PE10)** **… this t-shirt is innovative. (PE11)**
<u>Behavioural</u> <u>Intentions</u> (Yoo, Donthu, & Lee, 2000)	Based on your impression of the advertisement and Brand X, you can indicate on a scale of 1 to 5 to what extent you agree with the statements. Here, 1 indicates totally disagree, whereas 5 indicates totally agree. 1. *I am eager to check out the product and brand of this advertisement. (BE1)* 2. *I intend to try this product and brand. (BI2)* 3. *I plan on buying this product and brand. (BI3)* 4. *It is likely that I will buy this product when it comes available. (BI4)* 5. *I would consider buying this product. (BI5)* 6. *I would consider buying products of this brand. (BI6)*

Brand loyalty	Please indicate on a scale of 1 to 5 to what extent you agree with the following statements. Here, 1 indicates totally disagree, whereas 5 indicates totally agree.
(Füller *et al.*, 2010)	1. *I'm willing to try new brands. (BL1)* 2. *I often buy the same brand. (BL2)* 3. *Brands have a great influence on my product selection. (BL3)*
Involvement (Mittal & Lee, 1989; Beatty & Talpade, 1994; Flynn *et al.*, 1996)	**General interest in T-shirts** 1. **In general, I have strong interest in T-shirts. (INV1)** 2. **T-shirts are very relevant to me. (INV2)**
Brand Comprehension (Lehmann *et al.*, 2008)	Please indicate on a scale of 1 to 5 to what extent you agree with the following statements. Here, 1 indicates totally disagree, whereas 5 indicates totally agree. 1. **I'm familiar with the brand of this product (BCO1)** 2. **I'm aware of the products this brand sells (BCO2)** 3. **When I think of T-shirts, I think of this brand. (BCO3)**

Appendix 2: Questionnaire

Dear respondent,

First of all, I would like to thank you for participating in this questionnaire, which takes an important part of my master thesis in Economics and Business at the Erasmus University. This research focusses on the launch of a new product. Completing the questionnaire will take up to 10 minutes. Your data will be processed anonymously. If you would like to win a €25,- bol.com voucher, please leave your email address at the end of the questionnaire. When the questionnaire is closed, one of the completed questionnaires will be randomly selected as winner. Thank you in advance for your participation!

Jordy Zodenkamp

Start of the survey

The questionnaire consists of four parts. Please, carefully read what is being asked for each question. There are no good or wrong answers, all that matter is your opinion.

The brand Nike will soon introduce a new T-shirt in the store. Nike is very curious about your opinion about the brand and the new T-shirt.

After this screen, four advertisement of Nike's new T-shirt will appear. One of these advertisements will be used during the launch of the new T-shirt. Carefully read all the information in the advertisement because they are not the same!

Press the "next" button to see the advertisement.

MANIPULATION → ADVERTISEMENT

Part 1a: Interpersonal Relation

Based on your impression of the advertisement and Nike, you can indicate on a scale of 1 to 5 to what extent you agree with the statements. Here, 1 indicates totally disagree, whereas 5 indicates totally agree.

Based on Nike's new T-shirt in the advertisement, the brand Nike…

- … cares about its customers.
- … has the interests of its customers at heart.
- … is committed to me as a customer.
- … is innovative.
- … constantly improves its products.

General statements:

1. I can count on good service from this brand.
2. This brand deals with problems quickly and well.

Part 1b: Comparative Advantage

Based on your impression of the advertisement and Nike, you can indicate on a scale of 1 to 5 to what extent you agree with the statements. Here, 1 indicates totally disagree, whereas 5 indicates totally agree.

1. It makes sense to buy Brand X instead of any other brand, even if they are the same.
2. Even there is another brand as good as Brand X, I prefer to buy Brand X.

Part 2a: Product Advantage

Based on your impression of the advertisement and brand X, you can indicate on a scale of 1 to 5 to what extent you agree with the statements. Here, 1 indicates totally disagree, whereas 5 indicates totally agree.

1. In comparison with competitive T-shirts, the T-shirt in the advertisement offers unique features to the customers.
2. The T-shirt in the advertisement is clearly better in complying with the needs of the customers than competitive T-shirts.
3. The product in the advertisement is of higher quality than competing products.

Part 2b: Product Effectiveness

Based on the advertisement, I think that…

- … the expected quality of the product in the advertisement is very high.
- … the trustworthiness of the product in the advertisement is high.
- … I expect the features, such as the collar and body fit, to be of high quality.
- … I don't expect the t-shirt to be damaged quickly.
- … the t-shirt meets the standard characteristics of a t-shirt.
- … the t-shirt can be fixed quickly by Brand X when it is damaged
- … the quality of the product in the advertisement appears to be very poor.
- … this t-shirt offers a value that is not offered by any other product.
- … this t-shirt creates a totally new market.
- … this t-shirt can be characterized as being very new to the market.
- … this t-shirt is innovative.

Part 3: Behavioural Intentions

Based on your impression of the advertisement and Brand X, you can indicate on a scale of 1 to 5 to what extent you agree with the statements. Here, 1 indicates totally disagree, whereas 5 indicates totally agree.

1. I am eager to check out the product and brand of this advertisement.
2. I intend to try this product and brand.
3. I plan on buying this product and brand.
4. It is likely that I will buy this product when it comes available.
5. I would consider buying this product.
6. I would consider buying products of this brand.

You are arrived at the last part of this questionnaire! In this last part, questions will be asked to gather some background information.

Part 4: Brand Comprehension and Background information

Please indicate on a scale of 1 to 5 to what extent you agree with the following statements. Here, 1 indicates totally disagree, whereas 5 indicates totally agree.

1. I'm familiar with the brand of this product
2. I'm aware of the products this brand sells
3. When I think of T-shirts, I think of this brand.
4. I'm willing to try new brands.
5. I often buy the same brand.
6. Brands have a great influence on my product selection.
7. In general, I have strong interest in T-shirts.
8. T-shirts are very relevant to me.

What is your gender?
- Male
- Female

What is your age in years?
……… years

What is your highest (achieved) education?

- Primary education
- Secondary education
- Secondary vocational education
- University for Applied Sciences
- University

Appendix 3: Advertisements

Zero Empowerment + High Brand Comprehension

Create Empowerment + High Brand Comprehension

Select Empowerment + High Brand Comprehension

Full Empowerment + High Brand Comprehension

Zero Empowerment + Low Brand Comprehension

Create Empowerment + Low Brand Comprehension

Select Empowerment + Low Brand Comprehension

Full Empowerment + Low Brand Comprehension

Appendix 4: Scatter Plots for Linear Relationship

Scatterplot Matrix Interpersonal_Relation,Product_Advantage,Behavioral_Intention...
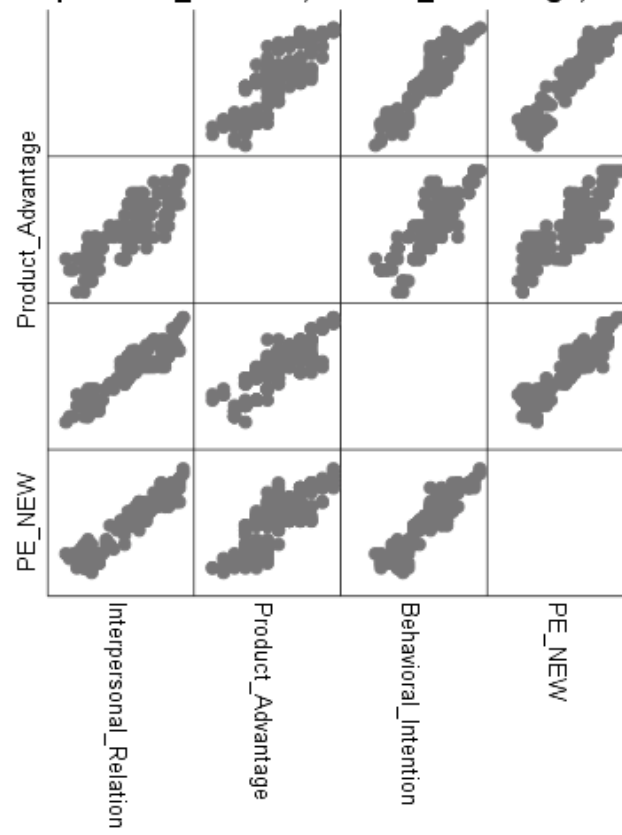
Appendix 5: Results Manipulation Check

I'm familiar with the brand of this product * Brand_Comprehension Crosstabulation

Count

		Brand_Comprehension		Total
		Low	High	
I'm familiar with the brand of this product	Totally disagree	92	0	92
	Somewhat disagree	8	0	8
	Somewhat agree	0	8	8
	Totally agree	0	92	92
Total		100	100	200

I'm aware of the products this brand sells * Brand_Comprehension Crosstabulation

Count

		Brand_Comprehension		Total
		Low	High	
I'm aware of the products this brand sells	Totally disagree	100	0	100
	Neutral	0	8	8
	Somewhat agree	0	43	43
	Totally agree	0	49	49
Total		100	100	200

When I think of T-shirts, I think of this brand * Brand_Comprehension Crosstabulation

Count

		Brand_Comprehension		Total
		Low	High	
When I think of T-shirts, I think of this brand	Totally disagree	100	0	100
	Somewhat disagree	0	8	8
	Neutral	0	34	34
	Somewhat agree	0	33	33
	Totally agree	0	25	25
Total		100	100	200