Consumers' Perceptions of User Innovation Concepts

A Fashion Industry Approach

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Abstract

Title: Consumers' Perceptions of User Innovation Concepts - A Fashion Industry Approach

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Open innovation is gaining traction as individuals have easier access to new information and communication technologies which enables them to effortlessly acquire and exchange knowledge. Involving consumers in the innovation process represents a great opportunity for businesses to cut developing costs while delivering products that are a better match to consumers' preferences and needs.

Several studies have highlighted the importance that concepts of user innovation such as mass customisation and co-creation play in today's digital era, with no clear distinction as to which is the preferred strategy from the consumer perspective, in the fashion industry. This dissertation followed a quantitative numeric data collection by conducting a survey. 101 participants took part in a within-subject design experiment to examine the differences in consumers' purchase intentions, perceptions of quality, and perceptions of innovation between co-created and mass customised fashion products.

The results indicate that communicating products as co-created enhances perceived innovation and purchase intention over mass customised products. Furthermore, this dissertation provides valuable implications for the theory of consumer participation in the innovation process and managerial recommendations in terms of marketing strategies on how to engage with current and potential consumers to increase fashion businesses' competitive advantage.

Keywords: open innovation, co-creation, mass customisation, user involvement, new product development, purchase intention, perceived quality, perceived innovation, brand image, consumer behavior

Sumário

Título: Perceções dos Consumidores Sobre os Conceitos de Inovação do Utilizador - Uma Abordagem da Indústria da Moda

Autor: Sara Pereira

A inovação aberta está a ganhar força à medida que os indivíduos têm um acesso mais facilitado às novas tecnologias de informação e comunicação, o que lhes permite adquirir e trocar conhecimentos sem grande esforço. O envolvimento dos consumidores no processo de inovação representa uma grande oportunidade para as empresas reduzirem os custos de desenvolvimento ao mesmo tempo que fornecem produtos que correspondem melhor às preferências e necessidades dos consumidores.

Vários estudos salientaram a importância que os conceitos de inovação do utilizador, tais como a customização em massa e a co-criação, desempenham na atual era digital, sem distinção clara quanto à estratégia preferida na perspetiva do consumidor, na indústria da moda. Esta dissertação baseou-se numa recolha de dados numéricos quantitativos através da realização de um inquérito. 101 participantes integraram uma experiência "within-subject design" para examinar as diferenças nas intenções de compra dos consumidores, perceções de qualidade e perceções de inovação entre produtos de moda co-criados e produtos de moda customizados.

Os resultados indicam que a comunicação de produtos como sendo co-criados aumenta a perceção de inovação e intenção de compra em relação a produtos customizados em massa. Além disso, esta dissertação apresenta contributos relevantes para a teoria da participação dos consumidores no processo de inovação e recomendações para empresas em termos de estratégias de marketing, sobre como interagir com atuais e potenciais consumidores para aumentar a vantagem competitiva de empresas da indústria da moda.

Palavras-chave: inovação aberta, co-criação, customização em massa, envolvimento dos utilizadores, desenvolvimento de novos produtos, intenção de compra, qualidade percebida, inovação percebida, imagem de marca, comportamento do consumidor

To My Family

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1. Introduction

With the growing complexity and speed of change affecting our world, innovation has become vital for companies and businesses that aim to succeed and stand out in a crowded market. According to McKinsey, innovation is critical to growth, and over 80% of executives claim that their future success depends on innovation strategies (McKinsey & Company, s.d.).

In the fashion industry, this is no exception. A 2019 report from Business of Fashion and McKinsey, refers that the fashion industry is a $1.3 trillion global business employing over 300 million people, that operates in a fiercely competitive environment dominated by global players (BOF & McKinsey&Company, 2019). With shifting consumer behaviours, and over-saturated marketplaces, new products must reach the market much faster than ever before, so companies are forced to either innovate or to accept stagnation. In this digital era, where the influence of data and digitalisation is remarkable, pinning down exactly what consumers want and engaging with them has become critical for brands that aim to remain competitive (Spencer Stuart, 2020).

Modern consumers are looking for options that allow them to express their individuality, uniqueness, and diversity (Tian, Bearden, & Hunter, 2001), and are demanding a level of customisation in the products they buy, meaning that the concept of "one size fits all" is no longer expected. This desire to make something their own arises from consumers' beliefs that they know themselves, what they want and need, better than anyone else. Nowadays, mass customisation is not only about selecting from a wider range of patterns, prints, or colours, it's also about creating unique elements of items from scratch. (Mintel, 2022)

Customers may get this product customisation service from a variety of brands, including Levi Strauss, which has offered customers the option of customising their jeans (by selecting from a variety of styles, colours, and fits) for numerous years (Piller F. , 2004). Ralph Lauren offers a large range of customised items (such as polo tees, ties, dresses, and robes) for women, men, girls, boys, and babies, available online. Consumers may choose from a variety of materials and colours for the famous brand's pony logo. A sophisticated configurator allows them to see the finished items in real-time, and they may follow their orders on the website while waiting for their arrival. (Yeung, Choi, & Chiu, 2010).

New communication and information technologies are changing the role of consumers, as these become an essential font of knowledge for the innovation process because consumers are ultimately the ones buying and using the product. As a result, companies and businesses are turning to their user communities for new product ideas, allowing them to reduce costs in Research and Development, and augment product performance and relevance while increasing brand awareness in new and different markets. (Von Hippel, 2005; Weber, 2011)

These newly developed products will be marketed as "co-created" or "user-designed" (Gemser & Perks, 2015). Co-creation occurs when customers take over activities and product development steps that were previously executed by the firm (O'Hern & Rindfleisch, 2010). The literal meaning of *"co-creation"* is to (*co*) jointly (*creation*) make or develop something (Koning, Crul, & Wever, 2016).

Numerous companies have adopted this strategy of opening the innovation process to external stakeholders and letting the consumer have a say in the development process of their new products and services. Among them are Coach, Oscar de la Renta, and Threadless.

"Design a Coach Tote" was an initiative run by Coach where consumers contributed with over 3000 different designs for a bag, the finest of which were afterwards commercialised by the company. The campaign generated a lot of buzz online, with more than one hundred thousand users rating the designs, leading to over six million page views. (Fuchs, Prandelli, Schreier, & Dahl, 2013); Luxury brand Oscar de la Renta also relies on its user communities to come up with fresh product designs and ideas. Alex Bolen, CEO of the brand asserted *"We like the idea of trying to collaborate with our fans. There are people who love our brand and have ideas about what would be beautiful"* (Fuchs, Prandelli, Schreier, & Dahl, 2013, p.76); Lastly, Threadless is a company that commercialises T-shirts with unique and bright graphics. Their community of customers, like the corporations described previously, is their point of distinction, since they are the ones that create, inspect, and approve the designs. Customers can show an interest in purchasing a design, and Threadless analyses this data to select which ones should be created and manufactured, currently producing around 5 new designs per week. The winning products' creators will be awarded a $1,000 prize. In over 35,000 submissions, more than 400 designs have been approved and manufactured. The company is thriving with a community of 120,000 subscribers. (Schreier, Fuchs, & W. Dahl, 2012; Ogawa & T. Piller, 2006)

1.1. Problem Statement

Several studies have highlighted the importance that both the concepts of mass customisation and user co-creation play in the digital era that we are living in. However, little is known about how consumers' purchase intentions differ for co-created products when compared to those that are mass customised, in the fashion industry.

1.2. Objective and Research Question

Whilst the concepts of customisation and co-creation share common features as is the case of customer interaction, previous research made a sharp distinction between the two, relating the concept of co-creation to a focus on the consumer and mass customisation to a focus on the company (Peppers & Rogers, 1997; Prahalad & Ramaswamy, 2004)

Communicating products as resulting from co-creation can have both undesirable and desirable outcomes. On the one hand, from the point of view of non-participating consumers (consumers who do not actively participate in co-creation activities), scepticism and lack of trust in the capabilities of the person who is co-creating can result in a decrease in demand due to the decrease in quality perception (Thompson & Malaviya, 2013; Prahalad & Ramaswamy, 2004; Sarasvuo, Rindell, & Kovalchuk, 2022), while on the other hand, it can have a favourable impact on purchase intent, willingness to pay and recommendation to others (Hoyer, Krafft, Dorotic, & Singh, 2010; Schreier, Fuchs, & W. Dahl, 2012).

The fundamental goal of mass customisation is to deliver greater customer value. This stems from the favourable relationship between consumer value and the level of satisfaction with the customised product (Schreier, 2006), and consumers are willing to pay more for individualised products if this bonus is proportional to their perception of value-added (Wind & Rangaswamy, 2001; Broekhuizen & Alsem, 2002). However, questions regarding the benefits of customisation have also been risen, since mass customisation requires an extensive level of consumer involvement (Fang, 2008) and, due to lack of expertise, consumers might have reduced knowledge about norms and common practices that impact the design of those specific products (Bonnardel & Sumner, 1996).

This research aims to illustrate how the adoption of user innovation strategies such as co-creation and mass customisation impacts consumers' perception of the level of innovation, level of quality, and ultimately, purchase intention, in the fashion industry.

The following research question is addressed:

RQ1 – Do consumers display different purchase intentions for co-created products than for products that are customised, in the fashion industry?

2. Literature Review

2.1. Open Innovation

The current mainstream concept of the innovation process is founded on the basis that companies seldom innovate alone, and that the process may be considered as a series of interactions between consumers, producers, and a variety of other stakeholders (Piller, Ihl, & Vossen, 2010; Martini, Massa, & Testa, 2012). Innovations that largely rely on foreign contributions are claimed to take less time to reach the market and require less funding than those that rely purely on internal Research and Development (Thomke & Von Hippel, 2002).

The expression "open innovation*"* is used to designate a system where innovation is carried out cooperatively with other external actors rather than simply within a company (Reichwald & Piller, 2009). One of its most common definitions is: "*the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and to expand the markets for external use of innovation, respectively*" (Chesbrough, Vanhaverbeke, & West, 2006, p.1). The Schumpeterian model of a sole entrepreneur driving ideas to market is supplanted by a complex set of interactions between various players in communities and networks (Laursen & Salter, 2006).

Open innovation is gaining traction as individuals have easier access to new information and communication technologies which enables them to effortlessly acquire and exchange knowledge and information (Prahalad & Ramaswamy, 2004; Hienerth, Lettl, & Keinz, 2014), representing a great chance for companies to gain competitive advantage by both cutting developing costs and delivering goods with a better market fit (Von Hippel, 2005; Lee & Yoo, 2019). When diverse sources cooperate, a wider collection of information is applied in developing approaches (Gassmann, 2006), and as a result, companies' knowledge will become more original, unique, and harder to imitate (Sawhney, Verona, & Prandell, 2005).

2.2. Closed Innovation vs. Open Innovation

Closed innovation, which is usually contrasted with open innovation, is where firms produce their own innovative ideas, and then develop, manufacture, sell, distribute, service, support, and finance them on their own (Chesbrough, 2003).

Figure 1 shows the Closed Innovation Paradigm for research and development. The solid lines represent the boundaries of each company, A and B, showing that in this concept, all activities are carried out within the company and there is no other way for ideas to enter, except through the company's own idea generation pipeline. Ideas flow into each organization on the left and out into the market on the right. These are screened and filtered during the corporate research process and the remaining ideas are developed and then brought to market.

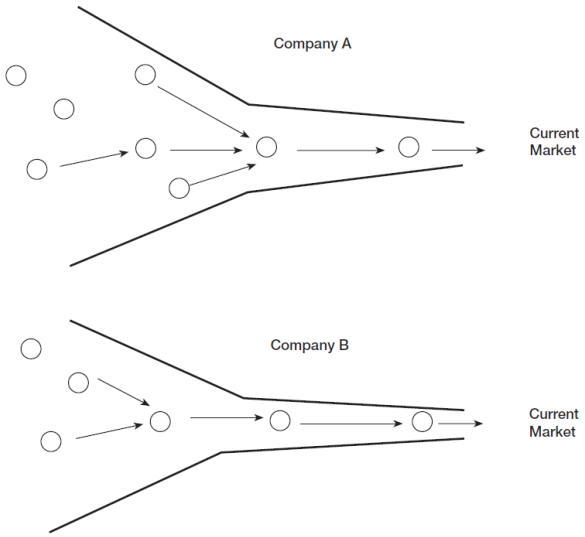

Figure 1: Paradigm of Closed Innovation (Chesbrough, 2003)

Figure 2 shows the knowledge landscape resulting from the flow of internal and external ideas. In this concept, there are not only ideas within each company, but also outside the company boundaries, which are now marked only as dashed lines. Successful developments no longer necessarily originate from just one company (Chesbrough, 2003). Open innovation does not replace the previous innovation strategy in the company but forms instead another way of increasing the probability of product success (Reichwald & Piller, 2009).

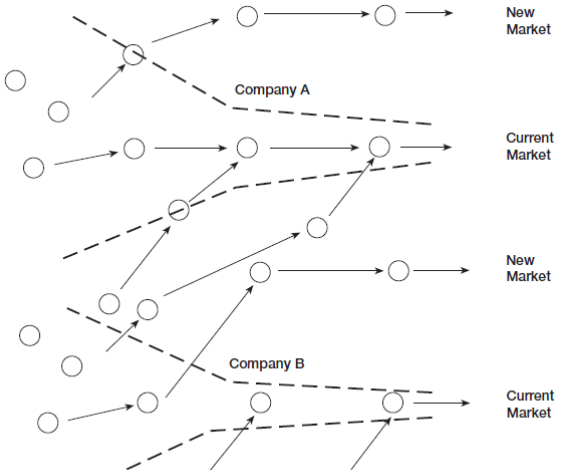

Figure 2: Paradigm of Open Innovation (Chesbrough, 2003)

2.3. Co-Creation

Consumers nowadays are well-informed, have a greater range of skills and creativity (Prahalad & Ramaswamy, 2004), and as a result, are more willing to take an active part in the process of developing brand new products (Martínez-Cañas, Ruiz-Palomino, Linuesa-Langreo, & Blázquez-Resino, 2016).

Co-creation is defined as *"an active, creative and social process, based on collaboration between producers and users, that is initiated by the firm to generate value for customers"* (Roser, Samson, Cruz-Valdivieso, & Humphreys, 2009, p.9); *"a process in which customers consciously and actively engage in a firm's innovation process, taking over innovation activities traditionally executed by the firm"* (Gemser & Perks, 2015, p.664), amongst numerous other definitions.

To raise the likelihood of launching a successful product that better meets the demands of its consumers, companies can incorporate their community of users in different steps of product development (Gruner & Homburg, 2000). In the ideation and product development stages, consumers may react to other users' involvement, state what their requirements and wishes about a product are, and review new product concepts, while at the commercialization and post-launch stages, consumers can offer comments on the new product's usefulness, functionality, possible drawbacks, and positioning (Hoyer, Krafft, Dorotic, & Singh, 2010).

The success of new products and the degree of consumer engagement are both determined by the stage of product development at which the relationship takes place, so, in order to gain the greatest benefit, businesses must involve customers at the appropriate stage, based on the firm's needs and consumers' talents (Gruner and Homburg, 2000).

Previous research claims that co-creation benefits both businesses and consumers. From a business standpoint, the goal of co-creating is to cut costs (Martínez-Cañas, Ruiz-Palomino, Linuesa-Langreo, & Blázquez-Resino, 2016). Effective co-creation leads to stronger user-firm connections, resulting in improved loyalty and future willingness to be involved in co-creation activities (Dervojeda, et al., 2014). From a consumer perspective, according to Füller (2010), their desire to participate in the design process can be defined as (a) extrinsic: if the consumers' involvement is contingent on the outcomes of the collaboration (e.g. monetary rewards, with little concern for obtaining knowledge or a clearer grasp of the creative process); and (b)

intrinsic: if consumers take part in co-creation with the expectation that the process will bring them delight and pleasure.

Although a lot of research focused on the effects of co-creation on participating consumers, very few studies have investigated the impact of co-creation on consumers who do not actively participate in co-creation activities (non-participating consumers) (Weber M. , 2016). Non-participating consumers who share the same feelings as participating consumers favour firm goods that include them in the innovation process, being more prone to feeling indirectly empowered, as it could have been them co-shaping the product (Dahl, Fuchs, & Schreier, 2015; Weber M. , 2016). The mismatch, however, arises when customers differ from the participating group in aspects such as gender and age, making them feel like they are not a member of the same social group as the co-creator(s) (Dahl, Fuchs, & Schreier, 2015).

According to Schreier, Fuchs, and Dall (2012), besides familiarity and knowledge of the product, familiarity with the concept of co-creation itself is a key moderator of the co-creation influence, as consumers who appear to be conscious of co-creation have a much more favourable attitude towards a company's ability to innovate than consumers who are not. Suggesting that familiarity with the innovation concept and with the product itself has an impact as to whether non-participating consumers feel the entrepreneurs have the required abilities to create useful goods.

2.4. Mass Customisation

Mass customisation is expressed as the creation of goods that are tailored towards individuals' needs, right down to the primary elements (Westbrook & Williamson, 1993). According to Peppers (1995), customisation is about allowing consumers to teach companies what they want so that it can be given to them. From a firm perspective, mass customisation can be described as the capability of giving consumers what they want, where, when, and how they want it (Hart, 1995). From a customer point of view, is a way of creating value, in which buyers purchase commodities which are more personal than off-the-shelf equivalents (Liechty, Ramaswamy, & Cohen, 2001).

In this type of user innovation strategy, sales are not the goal of the marketing process, but instead the start of a relationship in which the buyer and seller become interconnected (Webster, 1996). In contrast to the typical concept of global marketing and mass production where

product-driven firms focus on reaching more people while fulfilling a restricted set of their demands, mass customisation is focused on exclusively assisting one consumer at a time, fulfilling practically all their wants (Bardakci & Whitelock, 2003). Consequently, mass customisation can be thought of as more consumer-centric than every other method (Peppers & Rogers, 1997).

The method of mass customisation is usually carried out using a dedicated toolkit, such as web-based configurators, with a variety of possibilities for each component, that should go from selecting the overall design of the product to selecting colours, fabrics, fitting, and accessories (Tiihonen & Felfernig, 2017; Liu, Zhang, & Yuen, 2010). These toolkits enable "trial-and-error" testing and provide instant virtual feedback on design concepts' potential outcomes (Franke & Piller, 2004). After a good solution has been identified, the design may then be placed into a company's manufacturing system and distributed to the client. (Hippel & Katz, 2002).

While the goal of standard items is to meet the demands of the ordinary consumer (Franke, Keinz, & Steger, 2009), customised items are tailored to individual preferences, leading to a better preference fit (Aichner & Coletti, 2013; Tseng, Yue, & Roger, 2017). As customisation allows consumers to be part of the development and design of their own item, they are far more likely to be pleased with the product's general performance, resulting in consumer loyalty (Dellaert & Stremersch, 2005; Peppers & Rogers, 1997). In fact, customers build a stronger cognitive relationship with a product when they are involved in the design process, leading to higher product identification (Cui, Ye, & Teo, 2011; Atakan, Bagozzi, & Yoon, 2014).

The authorship value arises as a result of one's own creative accomplishment through customisation (Franke, Schreier, & Kaiser, 2010). *"I designed it myself"*, was an expression idealized by Franke, Schreier, and Kaiser (2010), and it is described as the "*value increment a subject ascribes to a self-designed object, arising purely from the fact that she feels like the originator of that object"* (p. 125).

Furthermore, mass customised products are also said to boost individuals' sense of uniqueness (Franke & Schreier, 2008). Uniqueness attributes enhance a product's perceived value, and the experience component of customising one's own item leads to pride and hedonic value, resulting in an increased preference for customisation, driven by a sense of accomplishment (Merle, Chandon, Roux, & Alizon, 2010). Additionally, self-expression is an autonomous

driver of customer value in mass customisation. While uniqueness is a result of the ability to distinguish oneself from others, self-expression is a result of the customised product's ability to represent one's individuality. (Merle, Chandon, Roux, & Alizon, 2010)

Franke, Schreier, and Kaiser (2010) claim that customers' willingness to pay increases considerably with an intensification in the preference fit of customised items and level of design flexibility. However, option complexity can also lead to choice overload (Huffman & Kahn, 1998; Iyengar & Lepper, 2000), which is especially important for mass customisation since it increases the number of customer decisions that must be made, and when the number of alternatives is expanded, the probability of product purchase decreases (Iyengar, Huberman, & Jiang, 2004). For effective mass customisation, Loginova (2010) observed that familiarity and knowledge of the product are required, as novice clients have great difficulty articulating their personal preferences.

2.5. Mass Customisation vs. Co-creation

Even though both notions contain convergent features (preference collection, consumer involvement, etc.), mass customisation is said to be focused on the company, while co-creation is focused on the consumer (Prahalad & Ramaswamy, 2004). Furthermore, co-creation bears more risks than mass customisation, as the new product development is tailored to firms' supply chains rather than individual preferences (Prahalad & Ramaswamy, 2004).

Compared to firm-designed equivalent low-priced products, there is a greater willingness to pay for customised products (Franke, Keinz, & Steger, 2009). The same is held true for co-created products as Schreier, Fuchs, and Dahl (2012) discovered that consumers are willing to spend 50% more for a product from a user-driven company, an outcome that is connected with the perception of better innovation potential and applies for both functional and aesthetic product enhancements. As an example, for three years in a row, MUJI, a consumer goods retail company, reported that sales of user-designed products were five times greater than sales of employee-created products (Nishikawa, Schreier, & Ogawa, 2013).

If consumers have a strong desire and appreciation for product aesthetics and design, then possessing distinctive, unique, and customisable products is a must for them (Tian, Bearden, & Hunter, 2001). On the other hand, users are better suited to co-creating if their product demands

are unusual, distinctive, or difficult to discover. This allows them to give their input and personalise products to an extent that the market has not yet supplied. (Füller, 2010)

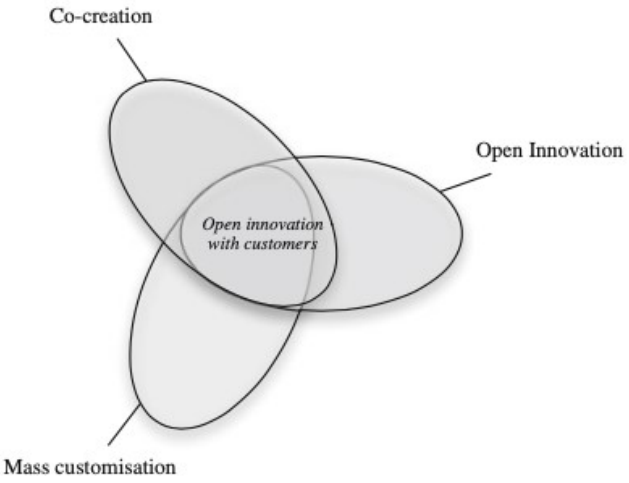

Figure 3: Relationship between Open Innovation, Co-Creation and Mass Customisation (Rayna, Striukova, & Darlington, 2014)

Figure 3 shows the existing relationship between open innovation, co-creation, and mass customisation. Not all consumer co-creation efforts result in open innovation, as innovation predicates effective commercialisation (e.g., designs that never progress beyond the concept stage) (Rayna, Striukova, & Darlington, 2014). Despite the fact that co-creation endeavours are increasingly leading to mass customised items, the opposite is not always verified (Prahalad & Ramaswamy, 2004). For example, when mass customisation entails selecting from a list of established alternatives (e.g., size, add-ons, colours), this cannot be defined as co-creation because buyers do not have meaningful participation other than selecting from a list of predetermined possibilities. (Piller & Tseng, 2010).

Nonetheless, mass customisation can be referred to as a kind of consumer co-creation if there is a conversation between the customer and the firm, or if user communities are incorporated into the process (Merle, Chandon, Roux, & Alizon, 2010).

2.6. Fashion Industry

Fashion items are used to enhance consumers' personal image (Miller, Shelby, & Murali, 1993). According to Fletcher and Grose (2012), *"fashion at its creative best is one of the most powerful and direct expressions of personal aspirations, individuality and belonging"* (p.138). And, as a dynamic phenomenon, fashion trends arise, get recognition, become embraced, and then go away (Cholachatpinyo, Padgett, & Crocker, 2002). The term *"fashion"* refers to the style or types of clothes and accessories used by groups of individuals at any particular moment in time,

and fashion products may be characterized as items for which the buyer places a high value on style, design, and aesthetic (Fuchs, Prandelli, Schreier, & Dahl, 2013).

Both co-creation and mass customisation are innovation strategies that the fashion industry is familiar with. One of the focal motivations for fashion firms to implement user-design strategies is to offer better products to their consumers (Fuchs, Prandelli, Schreier, & Dahl, 2013). When encouraging users to participate in voting procedures, for example, these companies are more likely to appeal to the general public, which may enhance their willingness to pay and brand engagement (Schau, Muniz, & Arnould, 2009).

Manufacturers who aim to pursue a mass customisation strategy, need flexible production to make items according to consumers' preferences, as consumers can usually choose from a variety of alternatives for product designs, colours, materials, trimmings, and/or sizes (Fan, Yu, & Hunter, 2004). There are a few cases of other manufacturers engaging in online mass customisation. Virtual Tailor, is, as the name suggests, a virtual men's clothing tool that allows customers to engage in the design stage of their suits, pants, tuxedos, and shirts, without the need to physically go to a store. Consumers may select components such as cuffs and collars to a shirt and preview how the item they created will appear before placing an order. (Roma Tailors LLC, s.d.). Digital printing is another technology that can potentially improve a manufacturer's capacity to promptly respond to a consumer's wants for customised fabric patterns, as it allows them to generate single batches of fabric, granting companies the ability to take one-of-a-kind offers to the market in a short period of time and at reduced cost (Ujiie, 2006).

2.7. Perceived Quality

The term "perceived quality" can be defined as *"customers' perception of the overall quality or superiority of a product or service related to relevant alternatives"* (Keller, 2012, p.159). Quality is a difficult and contentious term to define (Keller K., 2003). However, perceived quality is said to have a favourable impact on purchase intent (Tsiotsou, 2006). The awareness of a brand's reputation is also said to influence consumer behaviour towards quality perception (Keller K., 2012).

Consumer perceptions of a company's product quality are included in the brand image (van Dijk, Antonides, & Schillewaert, 2014), and are influenced by a company's ability to innovate by inventing and developing new ideas, goods, and services (Schreier, Fuchs, & W. Dahl,

2012), as consumers may see a firm as undesirable if it continues to produce low-quality items, and they may associate negative perceptions with the brand (and vice-versa).

When it comes to co-created items, their perceived quality is also strongly linked to the awareness of the design source (Fuchs, Prandelli, Schreier, & Dahl, 2013). From a non-participating consumers' perspective, scepticism, and lack of trust in the capabilities of the co-creator can result in a decrease in demand due to the decrease in quality perception (Thompson & Malaviya, 2013; Prahalad & Ramaswamy, 2004; Sarasvuo, Rindell, & Kovalchuk, 2022),

In mass customisation, aesthetic features of an item can be altered. From the consumer's perspective, mass customisation combines the benefits of immediate consumer input with the producers' capacity to deliver a low-cost, high-quality product (Fralix, 2001). In fact, when consumers customise their products, they tailor them to their desires, resulting in better fitting items and in a higher perceived quality (Broekhuizen & Alsem, 2002).

2.8. Perceived Innovation

Consumers' perceptions of product innovativeness have been highlighted in recent research (Shams, Alpert, & Brown, 2015), and defined in terms of two major dimensions: a) novelty, is described as the difference between new and prior offers (Garcia & Calantone, 2003); b) meaningfulness is the extent to which consumers perceive that a new product or service is suitable and beneficial (Rubera, Ordanini, & Griffith, 2011). The perceived degree of product innovation is the primary driver of consumer purchase intent for innovative products (Wu & Ho, 2014). If customers are aware of the concept and basics of user innovation (described as the degree towards which customers have insights of creation/modification of goods themselves or know colleagues who have done it), the probability of recognising an innovation effect of user design products intensifies (Schreier, Fuchs, & W. Dahl, 2012).

According to Schreier, Fuchs, and Dahl (2012), involving customers in co-creation improves consumers' impressions of the firm's ability to innovate, when compared to organizations that hire expert designers. They discovered that non-participating customers feel that a greater amount of people active in the innovation phase results in a larger number of ideas, which raises the odds of finding a good one. More diverse interests, backgrounds, and skillsets among innovators result in more desirable items. Marking goods as co-created has an impact on consumers' perception and approval of the product's level of innovation (Schreier, Fuchs, & W.

Dahl, 2012). However, from the point of view of mass customised products, little is known about how consumers perceive their level of innovativeness.

2.9. Conceptual Framework and Hypotheses

In short, communicating co-creation and mass customisation in the fashion industry results in different responses from consumers. If marking goods as co-created has an impact on consumers' perception of the level of innovation (Schreier, Fuchs, & W. Dahl, 2012), scepticism can result in quality perception decrease (Thompson & Malaviya, 2013). Marking goods as mass customised seems to have an opposite effect, as perceived quality is highlighted (Broekhuizen & Alsem, 2002) and little is known about its consequence over consumers' innovation perception.

The dissertation's conceptual framework is shown in Figure 4, as a concise description of the ideas explored in the research. The objective is to test how the perception of quality and innovation related to the concepts of co-creation and mass customisation may influence the purchase intent of a fashion product. Quality perception is influenced by how consumers perceive the brand (brand image), and innovation perception is influenced by users' familiarity with the concept of co-creation and mass customisation.

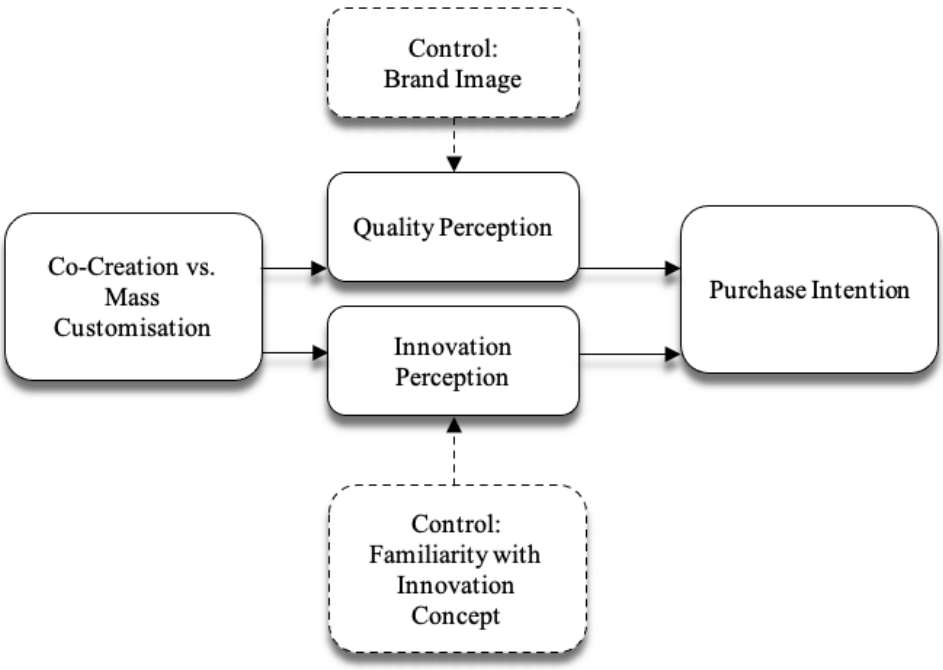

Figure 4: Conceptual Framework

To answer the research question *"Do consumers display different purchase intentions for co-created products than for products that are customised, in the fashion industry?"*, the following hypotheses can be posited:

H1: Consumers' purchase intention for co-created products is similar to mass customised products.

H2: Consumers' perception of quality in co-created products is lower than in mass customised products.

H3: Consumers' perception of innovation for co-created products is higher than for mass customised products.

3. Research Methodology

A brief pilot survey and a main study were developed: the main study intended to test how businesses that adopt user innovation strategies such as co-creation and mass customisation may impact consumers' purchase intentions, and a pilot survey assisted in determining which product category would be more relevant to include in the main study. Subsequently, major findings and outcomes are presented to consolidate the data gathered.

3.1. Overview of the Research Method

The present research followed a quantitative numeric data collection, based on two surveys: a pilot survey and the main questionnaire, both distributed online using social media platforms such as *Facebook* and *WhatsApp*, and using specific survey sharing platforms, namely Survey Circle (see www.surveycircle.com) and Survey Swap (see www.surveyswap.io). This quantitative research was critical to enhance the literature and test the presented hypotheses (Saunders, Lewis, & Thornhill, 2016).

The experimental research method was used, as this method is widely applied in social sciences to test cause-effect relationships, with non-probability sampling via web surveys being used as the sampling method. The key advantages of employing this sort of quantitative approach include ease of survey access, regardless of user device and geographical location, and absence of costs (Saunders, Lewis, & Thornhill, 2016; Evans & Mathur, 2005). Personal interviews, according to previous research, might yield lower-quality findings resulting from the interviewer's absence of talents and partiality (Bronner & Ton, 2007). As the goal of this study is to examine individuals' innovation adoption attitudes, an impartial and more accurate data gathering approach is preferred. Research also points to drawbacks of using web-assisted programs, as the participation rate is usually smaller when compared to personal interview methods (Manfreda, Berzelak, Vehovar, Bosnjak, & Haas, 2008).

3.2. Pilot Survey

Pilot surveys are commonly used by academics for a number of purposes, including gathering exploratory data, developing a research topic, and identifying possible difficulties that may arise in the main study (van Teijlingen & Hundley, 2001). A pilot survey was conducted with the aim to understand which types of fashion products are more highly impacted by co-creation and mass customisation in terms of perceived value, by consumers, and it was intentionally

short and simple. This pilot was key to validate which and if the presented product categories are relevant to the consumer, and therefore should be further studied in the main research. The results of the primary study would be skewed if the chosen items did not have a positive contribution if co-created and mass customised. It was also important to understand the role of branding on consumers' purchase decisions.

3.2.1. Measures

The measures used in the pilot survey were:

- gender
- frequency of fashion items purchase
- brand relevance
- products' added value from co-creation and from mass customisation, respectively

All measures and respective possible values are listed in Table 1.

Variables	Items
Gender	[1] Male [2] Female [3] Prefer not to say
Fashion Items Purchase Frequency	How often do you buy new fashion items? [1] Almost never - [6] About once a week
Brand Relevance	How important for you is the brand when purchasing a fashion item? [1] Not important at all - [5] Extremely important
Value-added from co-creation	Please indicate to which extent you agree that co-creation would add value to the following fashion items: bags and accessories; boots, shoes, and footwear; underwear; sweatshirts and sweaters; jackets and coats. [1] Strongly Disagree - [5] Strongly Agree
Value-added from mass customisation	Please indicate to which extent you agree that customisation would add value to the following fashion items: bags and accessories; boots, shoes, and footwear; underwear; sweatshirts and sweaters; jackets and coats. [1] Strongly Disagree - [5] Strongly Agree

Table 1: Pilot Study Relevant Measures

3.2.2. Procedure and Findings

The pilot survey was developed using the software *Qualtrics* (see www.qualtrics.com) and made available in English. The poll was sent to the whole population with no limitations, and it was posted online for 2 days from April 13th to April 15th, 2022.

Participants (N=20) were first asked to determine, on a 6-point scale [1-almost never - 6-about once a week] how often they usually purchase a new fashion item, where 40% stated that they do it "about every 2 weeks" and only 5% selected "almost never" ($M_{PurchaseFrequency} = 4.20$). Then, participants were exposed to a 5-point scale [1-not important at all; 5-extremely important] that aimed to understand the importance they place on the "brand" when purchasing a fashion item, with 50% selecting the highest option "extremely important" and 40% the second-highest "important" ($M_{BrandRelevance} = 4.45$).

Lastly, participants were asked to indicate on a 5-point scale [1-strongly disagree; 5-strongly agree] to which extent they agreed with whether co-creation/customisation would add value to selected fashion items. The products selected for the study were chosen from categories that the vast majority of people are familiar with, helping participant item deliberation, such as: bags and accessories; boots, shoes and footwear; underwear; sweatshirts and sweaters; and jackets and coats.

Footwear was the highest ranked category in terms of perceived added value for both co-creation and mass customisation ($M_{AddedValueCC} = 4.45$; $M_{AddedValueMC} = 4.35$), and there is no statistically significant difference between added value in the footwear category from co-creation and from mass customisation ($t(38) = 0.466$, p-value = 0.644) (Appendix 2).

The pilot study was used to increase the accuracy of the investigation, and footwear was selected as the category for analysing in the main study. The brand was also perceived to play an important role for consumers when purchasing fashion items. In conclusion, a mainstream footwear brand was selected to develop scenarios and respective stimuli in the main survey – Converse.

3.3. Main Study

3.3.1. Objectives and Research Design

The purpose of this study is to determine consumers' perceptions of the two open innovation approaches in the fashion industry.

A total of 101 participants took part in the main study ($M_{age\ group}$ = 2.45; 65% Female), which followed a 2 within-subject design experiment (source of design: co-creation and mass customisation), analysing how much the respondents' answers in this sample would vary over the course of their survey participation (Field, 2013). Therefore, a single group of participants was subject to two different scenarios, namely: [0] Co-Creation, and [1] Mass Customisation, which were presented in a randomized order as a way of avoiding the effects of partiality. This method is known as repeated measures (Saunders, Lewis, & Thornhill, 2016).

The questionnaire, with 41 single questions was developed using the software *Qualtrics* (see www.qualtrics.com), which with its randomizer option easily allowed for participants to be exposed to the two fashion concepts in random order. The available language was English.

The analysis of all the data collected was performed through the statistical software SPSS.

3.3.2. Method

Participants were first told that a company is preparing to launch a new product in the market and is now at the testing stage, aiming to understand consumers' opinions and points of view. Afterwards, participants were exposed to a brief description of Converse, allied with a visual representation of the brand's most popular model, followed by a question regarding frequency of sneaker use, and a question regarding brand importance in fashion item purchase.

Participants were then exposed to two different scenarios - co-creation and mass customisation, in a random order (Fuchs et al., 2013). Besides the details provided for each concept, both scenarios were presented identically, and the information was described in a concise, easy-to-understand manner, allied with visual representations of the scenarios.

In the co-creation scenario, participants could read the following: *"Converse created a platform named "Made By You", where regular consumers can be the designers of the famous All-Stars. Users can submit their suggestions for new products and even vote on other members' designs. The ideas that reach 10,000 votes are then produced and sold on Converse's website. In the following image, you can observe some of the designs that successfully made their way into the website. Imagine that you are browsing the platform. Please study the presented details closely and answer the following questions accordingly to this scenario".*

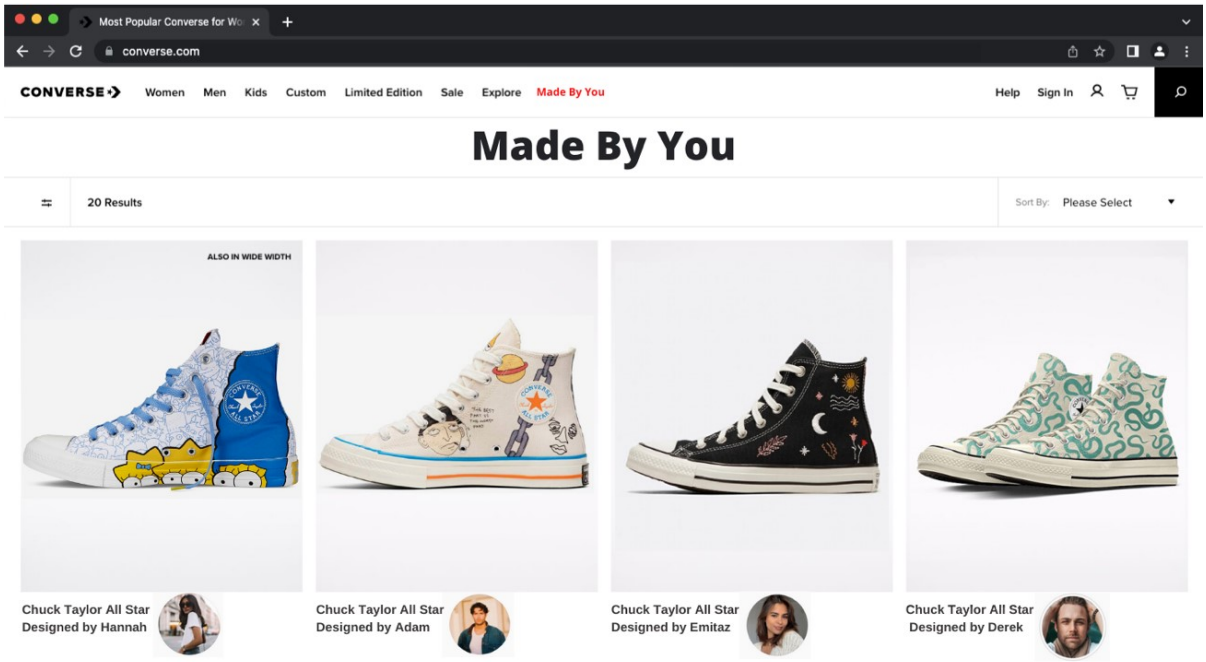

Figure 5:Main Survey - Co-Creation Scenario

And for the mass customisation scenario: *"Converse has a customisation feature on its website, where users can alter every single component of their All Stars, selecting from a big range of colours, patterns, fabrics, and fit. Imagine that you are browsing the website. Please study the presented details closely and answer the following questions accordingly to this scenario".*

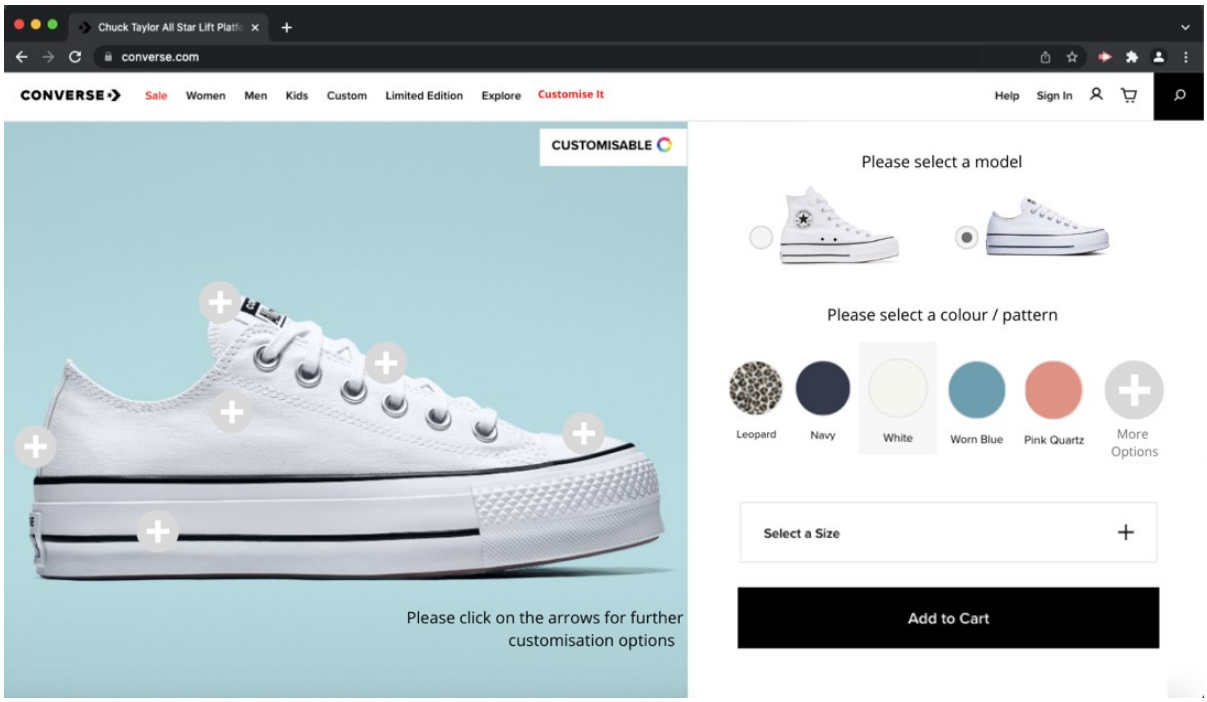

Figure 6: Main Survey - Mass Customisation Scenario

After the description of each one of the scenarios, there was a manipulation check ([1] (product) is customisable according to individuals' unique preferences; [2] (product) is co-created with consumers.; [3] (product) is designed by professionals or Converse employees), that aimed to verify that participants understood the scenario that they were being presented. In both scenarios, participants were asked to complete a set of questions about their perception of quality, perception of innovation, willingness to buy, and willingness to recommend the product displayed and were questioned regarding their familiarity with the innovation concept. Afterwards, participants were exposed to an attention check that requested them to select the option "agree".

In the last block of the survey, participants were asked to answer four demographic questions regarding their gender, age, country of origin, and employment status. Lastly, participants were debriefed and thanked for their participation in the study.

3.3.3. Sample

Peters and Eachus (1995) pointed out that "the purpose of sampling is to select a subset of a population for detailed investigation, in order to draw valid conclusions about that population".

The poll was sent to the whole population with no limitations, given the extensive management relevance for fashion businesses to attract a broad and diversified customer target.

The survey was posted online for 6 days from the 2nd of May to the 8th, 2022, and had a completion rate of 71%, with 109 valid responses. After analysing the attention check, 8 other answers were considered invalid. Only completed questionnaires that passed the attention check were considered for analysis. According to Gorsuch (2014), the recommended minimum sample size for a relevant analysis is 100 individuals.

Most of the respondents (N=101) had ages ranging between 18-24 years old (62,4%) and 64,4% identified themselves as female. 71,3% of the respondents were students and 19,8% full-time workers. Participants' country of origin was diversified (Australia, Austria, Brazil, Chile, China, France, Germany, Hungary, India, Iran, Italy, Netherlands, Norway, Poland, Portugal, Romania, Singapore, South Africa, UK, USA, and Vietnam), with 32,7% Portuguese respondents, 23,8% German and 12,9% from the Netherlands. (Appendix 4h)

3.3.4. Measures

The variable *product involvement* was adapted from (Thompson & Malaviya, 2013), and was tested by asking participants about their frequency of use of the fashion item on which the study was based – sneakers (1-almost never; 5-almost daily), and from (Felix, 2012) by asking participants about the importance that brand has in their sneakers purchase decision (1-not important at all; 5-extremely important).

The variable *brand image* was adapted from (Campbell & Keller, 2003), and was tested by asking participants about their familiarity with the brand (1-extremely unfamiliar; 7-extremely familiar), and from (Thompson & Malaviya, 2013) by asking participants, on a 7-point scale [1-strongly disagree; 7-strongly agree] the extent to which they agree with the affirmations: -"I believe that Converse products always have superior quality; I believe that Converse products are very innovative; I would be likely to recommend Converse products to my friends and family".

The variable *quality perception* was adapted from (Fuchs & Diamantopoulos, 2012), and was tested by asking participants to indicate, on a 7-point scale [1-extremely low; 7-extremely high], their perception of the level of quality of the product they were exposed to.

The variable *innovation perception* was adapted from (Schreier, Fuchs, & W. Dahl, 2012), and was tested by asking participants to indicate, on a 7-point scale [1-extremely low; 7-extremely high], their satisfaction with the level of innovation of the product they were exposed to.

Quality perception and innovation perception were assessed on a single-item scale. Existing research, rates single-item assessments as extremely trustworthy (Bergkvist and Rossiter, 2007; Diamantopoulos et al., 2012; Homburg et al., 2015).

The variable *purchase intention* was adapted from (Fuchs & Diamantopoulos, 2012), and was tested by asking, on a 7-point scale [1-extremely unlikely; 7-extremely likely], how likely participants would be to purchase the product they were exposed to, and from (Felix, 2012) by asking, on a 7-point scale [1-extremely unlikely; 7-extremely likely], how likely participants would be to recommend to others the product they were exposed to.

The variable *familiarity with the innovation approach* was adapted from (Schreier, Fuchs, & W. Dahl, 2012), and was tested by asking participants, at the end of each scenario, how familiar they were with the innovation concept present in each scenario (namely, co-creation and mass customisation) (1-extremely unfamiliar; 7-extremely familiar).

Before analysing the results, the reliability of the scales for *brand image, product involvement,* and *purchase intention* was tested. Reliability of the scale of *brand image* was tested for Item-Total Correlation and using the Cronbach Alpha, which measures internal consistency between the several items on the scale (Cronbach, 1951). For the scale of *product involvement* and *purchase intention*, Pearson Correlation tests were performed, which measure the *"strength of a linear association between two variables"* (Laerd statistics, s.d.) (Appendix 4c).

For *product involvement* an obtained Pearson Correlation of 0.175 indicated a weak correlation between the *frequency of use of sneakers* and *importance of the brand when purchasing sneakers*, therefore this variable will not be used in the analysis.

For *brand image*, items that have a correlation value under 0.3, as per recommended by Quadrelli, Davoudi, Galindez, & Colt (2009) were removed from the scale, which is the case of *familiarity with the brand Converse* with a correlation value of 0.262. After item removal, a Cronbach alpha of 0.795 shows that the 3-item scale (*perceived quality of Converse's products, perceived innovation of Converse's products,* and *willingness to recommend Converse products*) has an acceptable internal consistency.

Lastly, the independent variable *purchase intention*, showed a Pearson Correlation of 0.746 in the co-creation scenario and 0.689 in the mass customisation scenario, indicating that there is a

strong correlation between the *willingness to buy* and *willingness to recommend the product to others* items.

Variables that were utilized as survey questions to get particular measurements for further research are presented in Table 2.

Variable	Items	Item Correlation
Product Involvement	- Frequency of use of sneakers. [1] Almost never - [5] Almost daily - Importance of the brand when purchasing sneakers. [1] Not important at all - [5] Extremely important	
Brand Image	- Familiarity with the brand Converse. [1] Extremely unfamiliar - [7] Extremely familiar - Perceived quality of Converse's products. - Perceived innovation of Converse's products. - Willingness to recommend Converse products [1] Strongly disagree - [7] Strongly agree	.262 .669 .552 .702
Scenarios Quality Perception Innovation Perception Purchase Intention Concept Familiarity	 - Overall quality perception [1] Extremely low- [7] Extremely high - Overall satisfaction with the level of innovation [1] Extremely dissatisfied- [7] Extremely satisfied - Willingness to buy - Willingness to recommend the product to others [1] Extremely unlikely - [7] Extremely likely - Familiarity test of concepts [1] Extremely unfamiliar - [7] Extremely familiar	
Demographics Gender Age Country of Origin Employment Status	 - [1] Male [2] Female [3] Prefer not to say - [1] Under 18 [2] 18-24 years old [3] 25-34 years old [4] 35-44 years old [5] 45-54 years old [6] 55+ - Open Question - [1] Working full-time [2] Working part-time [3] Unemployed [4] Student [5] Retired [6] Other	

Table 2: Main Study Measures

4. Results

After the description of each scenario, there was a "manipulation check" that aimed to verify if consumers understood the presented scenario. When exposed to co-creation, 95% of the respondents perceived the scenario correctly ($M_{Man.Check\_CC} = 1.80$); and for mass customisation, this number was of 96% ($M_{Man.Check\_MC} = 1.16$). The manipulation check on the mass customisation scenario was statistically significant higher compared to the manipulation check on the co-creation scenario, according to a performed t-test ($t(200) = -9.806$, $p < 0.001$). (Appendix 4a)

In order to decide which test would be the most appropriate to explore the study's hypotheses, tests of normality were performed on all variables. Variables with a p-value <0.05 significantly deviate from the normal distribution, which was verified for all variables, with a p-value <0.001 (Appendix 4b). When the data does not follow a normal distribution, nonparametric tests are commonly used (Whitley & Ball, 2002). *"The Wilcoxon Signed-Rank test is an alternative to the parametric Paired-samples T-test, testing the statistical differences in the mean between two related/dependent random samples."* (Verma & Abdel–Salam, 2019).

4.1. Test of Hypotheses

H1: Consumers' purchase intention for co-created products is similar to mass customised products.

A Wilcoxon Signed Ranks test was performed to understand if consumers are as likely to purchase a co-created product as a mass customised one. The results are presented in Table 3.

		N	Mean Rank
Purchase Intention$_{MC}$ – Purchase Intention$_{CC}$	Negative Ranks (R^-) $PI_{MC} < PI_{CC}$	40	39.31
	Positive Ranks (R^+) $PI_{MC} > PI_{CC}$	30	30.42
	Ties ($R^=$) $PI_{MC} = PI_{CC}$	31	-
	Total	101	-

Table 3: Ranks for Purchase Intention in Co-Creation and Mass Customisation Scenarios

A total of 40 participants demonstrated a higher purchase intention for the co-created product; 30 participants a higher purchase intention for the mass customised product; and the remaining 31 participants demonstrated an equal purchase intention for the products from both scenarios. A mean of negative ranks (M_{R-} = 39.31), and a mean of positive ranks (M_{R+}= 30.42), signifies that there are bigger differences between samples in *purchase intention* in the cases where co-creation scored higher values than mass customisation.

Inferences can be made on whether the exposure to these scenarios, led to an overall statistically significant difference in consumers' *purchase intent* for co-created and mass customised products. With a p-value = 0.05 (Appendix 4d), we reject the null hypothesis that states that there is no difference in purchase intention for both scenarios.

Therefore, the hypothesis that consumers' purchase intention for co-created products is similar to mass customised products is rejected.

H2: Consumers' perception of quality in co-created products is lower than in mass customised products.

A Wilcoxon Signed Ranks test was performed to understand if consumers' perception of quality for co-created products differs from their perceived quality of mass customised products. The results are presented in Table 4.

		N	Mean Rank
$Quality_{MC}$ - $Quality_{CC}$	Negative Ranks (R^-) $Quality_{MC} < Quality_{CC}$	17	18.24
	Positive Ranks (R^+) $Quality_{MC} > Quality_{CC}$	19	18.74
	Ties ($R^=$) $Quality_{MC} = Quality_{CC}$	65	-
	Total	101	-

Table 4:Ranks for Perception of Quality in Co-Creation and Mass Customisation Scenarios

A total of 17 participants demonstrated a higher perceived quality for the co-created product; 19 participants a higher perceived quality for the mass customised product; and the remaining 65 participants perceived both products from both scenarios as being equal in terms of quality. A mean of negative ranks (M_{R-} = 18.24), and a mean of positive ranks (M_{R+} = 18.74), indicate

that there are no differences between samples in *perceived quality* in the cases where co-creation scored higher values than mass customisation, and vice versa.

Similarly to *purchase intention*, inferences can be made on whether the exposure to these scenarios, led to an overall statistically significant difference in consumers' *perceived quality* for co-created and mass customised products. With a p-value = 0.703 (Appendix 4d), we sustain the null hypothesis that states that there is no difference in perceived quality for both scenarios.

Another nonparametric test was performed to contribute toward result robustness. The Sign test *"is used to determine whether there is a median difference between paired or matched observations"* (Laerd Statistics, s.d.). A p-value=0.868 (Appendix 4e), sustains the findings that consumers' perception of quality in co-created products is not lower than for mass customised products.

When analysing quality, however, it is important to account for the control variable of brand image, present in the conceptual framework, as the awareness of a brand's reputation is also said to influence consumer behaviour toward quality perception. (Keller, 2012).

An Ordinal Logistic Regression was performed to analyse the effect of *brand image* on *perceived quality*. An *"Ordinal Logistic Regression is a statistical analysis method that can be used to model the relationship between an ordinal response variable and one or more explanatory variables"* (Parry, 2016).

A one unit increase in *brand image* perception results in a 1.013 increase in the ordered log odds of consumers' quality perception in co-created products. For mass customised products, a one unit increase in *brand image* leads to an increase of 1.026 in perceived product quality, ceteris paribus. These results are statistically significant when perceived quality is high (values above 3), with a p-value <0.001 (Appendix 4f). It is then possible to conclude that *brand image* has a similar influence on the quality perception of mass customised products and of co-created products.

H3: Consumers' perception of innovation for co-created products is higher than for mass customised products.

A Wilcoxon Signed Ranks test was performed to understand if consumers' perception of innovation for co-created products differs from that for mass customised products. The results are presented in Table 5.

		N	Mean Rank
$Innovation_{MC}$ - $Innovation_{CC}$	Negative Ranks (R^-) $Innovation_{MC} < Innovation_{CC}$	33	27.27
	Positive Ranks (R^+) $Innovation_{MC} > Innovation_{CC}$	19	25.16
	Ties ($R^=$) $Innovation_{MC} = Innovation_{CC}$	49	-
	Total	101	-

Table 5:Ranks for Perception of Innovation in Co-Creation and Mass Customisation Scenarios

A total of 33 participants demonstrated a higher perceived innovation for the co-created product; 19 participants higher perceived innovation for the mass customised product; and the remaining 49 participants, perceived both products from both scenarios as being equal in terms of innovation. A mean of negative ranks (M_{R-}= 27.27), and a mean of positive ranks (M_{R+} = 25.16), signifies that there are slightly bigger differences between samples in *perceived innovation* in the cases where co-creation scored higher values than mass customisation.

With an obtained p-value of 0.042, it can be inferred that there is a statistically significant difference in consumers' perceived innovation for the scenarios of co-creation and mass customisation, and the null hypothesis is therefore rejected. A Sign's Test p-value =0.051 (Appendix 4e), sustains the findings that consumers' perception of innovation for co-created products is higher than for mass customised products.

To analyse the effect of *familiarity with the innovation concept* (i.e. familiarity with the concept of co-creation or mass customisation) on *perceived innovation*, an Ordinal Logistic Regression was performed. The results are presented in Table 6 and 7.

	Estimate	p-value
$Innovation_{CC} = 3$	-2.604	<0.001
$Innovation_{CC} = 4$	-1.050	0.070
$Innovation_{CC} = 5$	-0.030	0.958
$Innovation_{CC} = 6$	1.823	0.002
Average Increase	0.076	0.495

Table 6: Effect of Familiarity with the Innovation Concept on Perceived Innovation, Co-Creation Scenario

	Estimate	p-value
$Innovation_{MC} = 2$	-2.335	0.008
$Innovation_{MC} = 3$	-1.375	0.048
$Innovation_{MC} = 4$	0.396	0.515
$Innovation_{MC} = 5$	1.664	0.008
$Innovation_{MC} = 6$	3.878	<0.001
Average Increase	0.335	0.005

Table 7:Effect of Familiarity with the Innovation Concept on Perceived Innovation, Mass Customisation Scenario

In the co-creation scenario, a one unit increase in *familiarity with the innovation concept* results in a 0.076 increase in the ordered log odds of consumers' perception of innovation. These results are statistically significant when perceived quality has a score of 3,4,5 and 6, with p-values of <0.001, 0.070, 0.002, and 0.495, respectively.

In the mass customisation scenario, a one unit increase in *familiarity with the innovation concept* results in a 0.335 increase in the ordered log odds of consumers' perception of innovation. These results are statistically significant when perceived quality has a score of 2, 3, 5, and 6, with p-values of 0.008, 0.048, 0.00,8, and <0.001, respectively.

We conclude that "*familiarity with the concept of co-creation"* has a lower influence on innovation perception for co-created products when compared to mass customised ones. However, the performed tests were still significant and, therefore, the hypothesis that consumers' perception of innovation for co-created products is higher than that for mass customised products is retained.

4.2. Further Analysis

"The Spearman rank-order correlation coefficient is a nonparametric measure of the strength and direction of association that exists between two variables measured on at least an ordinal scale. It is denoted by the symbol (r_S)" (Aerd Statistics, s.d.).

The following table contains information on how to interpret correlation coefficients.

Absolute Magnitude of the Observed Correlation Coefficient	Interpretation
0.0 – 0.10	Negligible correlation
0.10 – 0.39	Weak correlation
0.40 – 0.69	Moderate correlation
0.70 – 0.89	Strong correlation
0.90 – 1.00	Very strong correlation

Table 8: Interpretation of correlation coefficients (Schober, Boer, & Schwarte, 2018)

A Spearman's rank-order correlation was run to quantify the relationship between *perceived innovation* and *purchase intent*. For both co-created and mass customised products, there is a moderate correlation between these variables of (r_S)= 0.570 and (r_S)= 0.502, respectively. An obtained p-value <0.001 indicated that this correlation is statistically significant, providing strong evidence to reject the null hypothesis that states that there is no correlation between *perceived innovation* and *purchase intent* (Appendix 4g).

The same process was used to determine the relationship between *perceived quality* and *purchase intent*. For both co-created and mass customised products, there is a moderate correlation between these variables of (r_S)= 0.489 and (r_S)= 0.568, respectively. A p-value <0.001 indicated that this correlation is statistically significant, providing strong evidence to reject the null hypothesis that states that there is no correlation between *perceived quality* and *purchase intent*. (Appendix 4g).

In conclusion, the *perceived quality* and *perceived innovation* variables are, in fact, correlated with *"purchase intention"*.

4.3. General Discussion

The results reveal that mass customisation and co-creation are not equal in terms of behavioural intentions. Differences were observed in consumers' purchase intention when exposed to the scenarios, as participants demonstrated a higher purchase intention for the co-created product

when compared to the product displayed in the mass customisation scenario, explained by the way consumers perceive the level of innovation of co-created products. These results concur with Schreier and colleagues (2012) findings, which suggested that involving customers in co-creation improves consumers' innovation perception. Furthermore, Wu & Ho (2014) showed that the perceived degree of product innovation is the primary driver of consumer purchase intent for innovative products. In fact, even an increase in consumer familiarity with the concept of mass customisation resulted in a higher displayed perception of innovation regarding the co-creation scenario when compared to the mass customisation one.

However, the obtained results differ from the a priori beliefs concerning quality perception, as values for this factor were shown to be similar in both the co-creation and mass customisation cases. This finding might be a consequence of participants' perception of Converse and its brand image (Keller, 2012).

Overall, the findings of this research show that the adoption of user innovation strategies by fashion companies can influence consumers' perceptions of product innovation and quality, which then translates into their purchase intentions.

4.4. Theoretical Implications

The involvement of consumers in product innovation processes is gaining traction as individuals have easier access to new information and communication technologies which enables them to effortlessly acquire and exchange knowledge (Prahalad & Ramaswamy, 2004; Hienerth, Lettl, & Keinz, 2014). Two big user innovation concepts have been highlighted in the fashion industry, namely co-creation (Fuchs, Prandelli, & Schreier, 2010) and mass customisation (Fan, Yu, & Hunter, 2004). However, previous research fails to explain how consumers' perception of these two concepts differ, and how they are disparately influenced by them.

This research makes significant contributions to the literature. Firstly, as shown in Chapter 4.2., the results sustain existing findings regarding a positive relation between perceived innovation (Wu & Ho, 2014), perceived quality (Tsiotsou, 2006), and purchase intention.

Secondly, this research is in concordance with previous findings stating that communicating products as being co-created can have a favourable impact on purchase intent, willingness to

pay, and recommendation to others (Schreier, Fuchs, & W. Dahl, 2012; Hoyer, Krafft, Dorotic, & Singh, 2010).

Thirdly, in line with what had been previously discussed by Schreier, Fuchs, & W. Dahl (2012), this research demonstrates that consumers' perception of innovation in co-created products is highlighted. On the other hand, contrarily to what had been mentioned in previous research regarding lack of trust on the capabilities of the co-creator, leading to a decrease in quality perception (Thompson & Malaviya, 2013), participants demonstrated an elevated perception of quality towards the co-created product. Concerning mass customised products, this study could not sustain previous research claims that mass customisation leads to a higher perceived quality (Fralix 2001; Broekhuizen & Alsem, 2002), as similar results for perceived quality were observed between the two concepts.

Fourthly, this research's findings go against what was previously mentioned by Schreier, Fuchs, & W. Dahl (2012) with respect to the assumption that familiarity with the concept and basics of user innovation leads to higher recognition of innovation. In fact, even though consumers demonstrated a higher perceived innovation for co-created products, they were less familiar with the concept of co-creation than they were with the concept of mass customisation.

Lastly, this study addresses several perceptions that are in line with what had been shown by previous research in various contexts: product involvement (Thompson & Malaviya, 2013; Felix, 2012), brand image (Campbell & Keller, 2003;Thompson & Malaviya, 2013), quality perception (Fuchs & Diamantopoulos, 2012), innovation perception (Schreier, Fuchs, & W. Dahl, 2012); purchase intention (Fuchs & Diamantopoulos, 2012; Felix, 2012); familiarity with the innovation approach (Schreier, Fuchs, & W. Dahl, 2012) (see Section 3.3.4).

4.5. Managerial Implications

The current dissertation offers valuable conclusions and recommendations to company executives, in terms of marketing strategies on how to engage with current and potential consumers, to preserve and/or increase market share and competitive advantages for fashion businesses. As discussed in the literature review chapter, e-commerce has seen rapid growth, allowing open innovation to make its way into the market, which may prove challenging for traditional physical stores that have not yet considered the value of these consumer involvement strategies.

Overall, labelling products as co-created and mass customised has an influence on their customers' willingness to buy, willingness to recommend, quality perception, and innovation perception. The obtained results demonstrate that consumers' purchase intention is higher for co-created products, therefore, fashion businesses should investigate and lean into promoting and marketing this innovation strategy.

This research suggests that perceived innovation is a relevant point of distinction for co-created products when compared to mass customised ones, as consumers have higher innovation perceptions for products that result from co-creation. This implies that giving importance to the innovation process of a co-created product is a positive approach to increase consumers' perception of a product's and consequently a firm's innovation level, which will then be reflected on willingness to buy and recommendations for these products. Promoting the concept online can be done as demonstrated in the co-creation scenario, by providing non-participating consumers with full information about who developed the product, and how ideas were created or selected. In-store activations can be achieved with the use of flyers and tag items, indicating they were designed by other users.

When it comes to mass customised products, contrary to what was expected, the findings were not very clear. As suggested in the literature review, perceived quality for mass customised products was expected to yield higher values, however, similar results were observed between the two scenarios. Therefore, in Chapter 6, we will recommend introducing a new variable of "social status" in further studies, for companies who aim to pursue this innovation strategy to properly promote it.

5. Conclusion

Firms are increasingly relying on their user community to develop and design products that are a better match to individuals' needs and preferences. Exploring this fact can result in clear added benefits for both sides – consumers, either in a direct or indirect way, feel empowered, as they are somehow integrated in the production process, and firms cut costs while acquiring exclusive knowledge, which might result in relevant competitive advantage.

In the fashion industry, there are several examples of successful products and businesses that followed co-creation and mass customisation strategies. However, they are usually seen as separate concepts, and little is known about how consumers perceive and distinguish them. Therefore, this research had the objective of understanding consumers' purchase intentions for fashion items that resulted from co-creation and mass customisation, while analysing differences in perceived quality and innovation.

In agreement with existing literature, it was verified that there is a correlation between perceived quality and perceived innovation with purchase intent. If on the one hand, for co-creation, perceived innovativeness was confirmed to be an important point of differentiation for consumers, on the other hand, contrarily to what had been conjured, perceived quality turned out not to be an exclusive and more relevant aspect for mass customisation.

Overall, and answering the research question that was formulated in the first chapter of this research: "do consumers display different purchase intentions for co-created products than for products that are customised, in the fashion industry?", results showed that the purchase intention for products created under co-creation is higher than in a mass customisation approach. These results are linked to consumers' higher perception of innovation for co-created products.

Business managers might use the information presented in this research as a way of implementing effective marketing strategies. Future research, however, can enhance the research model to get findings for increased viability, as this study contains some limitations (explored in the following Chapter 6). Furthermore, the complete value creation process may be re-evaluated, introducing more variables than only perceived quality and perceived innovation.

6. Limitations and Further Research

This dissertation provided useful information for academic research. However, it was designed with some limitations.

The first limitations are related to the sample used to test the hypotheses. A sample of 101 individuals is very close to what research claims as being the minimum recommended sample size (Gorsuch, 2014). Also, the sample has a different size distribution of males and females, most participants have ages ranging between 18-24 years old, and over 56% of the respondents come from Portugal and Germany (combined), meaning this sample is not indicative of the broader consumer population. However, if in an initial study phase, it was important to have a smaller sample size, findings should be validated in future research with bigger sample sizes, and a more rigorous demographic sample. For example, a separate analysis of different population segments, such as female and male participants, for instance, could provide interesting results to better understand where purchase behaviours and perceptions differ (across gender, in this case).

The second limitation relates to the fact that this research focused solely on quantitative analysis (surveys). Running an additional qualitative analysis would help produce *"in-depth and illustrative information in order to understand the various dimensions of the problem"* (Queirós, Faria, & Almeida, 2017), helping better understand motives, beliefs, attitudes, and values. Also, if the advantages of within-study design studies were highlighted, this research raised questions regarding the impact of individual variables without accounting for mediating effects as it could have been possible with a between-subject design study.

One other limitation relates to the fact that although it was important to expose participants to the same brand in both scenarios to control for biased results, only one brand was used in this research, therefore, results might be compromised by consumers' overall purchase intent, quality, and innovation perceptions towards this brand. Future research might include scenarios with different brands, or even no brand at all, in order to understand if these results are applicable in general or only for mainstream brands (which is the case of Converse).

Lastly, other variables besides perceived quality and perceived innovativeness should be added to the model, such as social status, for instance. From the literature review, writers suggest that people usually opt for co-created products for the feeling of group belonging (Dahl, Fuchs, &

Schreier, 2015), and individuals who tend to value uniqueness and individuality are said to prefer mass customisation (Merle, Chandon, Roux, & Alizon, 2010). This could be an opportunity to find more relevant differentiation aspects between the two concepts.

Ultimately, further study is needed to determine the generalizability of our findings. In light of this, the current dissertation contributes to the body of knowledge on the notion of co-creation and mass customisation, the development of co-created and mass customised goods and brands, and their link to consumer behaviour.

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Appendix

Appendix 1 – Pilot Survey Questions Example

Co-creation takes place when consumers contribute with their ideas and knowledge to the development of new products.

Please indicate to which extent do you agree that co-creation would add value to the following fashion items:

	Strongly disagree	Somewhat Disagree	Neither agree nor disagree	Somewhat Agree	Strongly agree
Bags and accessories	○	○	○	○	○
Footwear	○	○	○	○	○
Underwear	○	○	○	○	○
Sweatshirts	○	○	○	○	○
Jackets, coats	○	○	○	○	○

Customisation refers to the action of altering certain components of a product to suit individual preferences/requirements.

Please indicate to which extent do you agree that customisation would add value to the following fashion items:

	Strongly disagree	Somewhat Disagree	Neither agree nor disagree	Somewhat Agree	Strongly agree
Bags and accessories	○	○	○	○	○
Footwear	○	○	○	○	○
Underwear	○	○	○	○	○
Sweatshirts	○	○	○	○	○
Jackets, coats	○	○	○	○	○

Appendix 2 – Pilot Survey Results

Table 1: Fashion Items Purchase Frequency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	5.0	5.0	5.0
	2	2	10.0	10.0	15.0
	3	1	5.0	5.0	20.0
	4	6	30.0	30.0	50.0
	5	8	40.0	40.0	90.0
	6	2	10.0	10.0	100.0
	Total	20	100.0	100.0	

Source: SPSS Output

Table 2: Fashion Items Purchase Frequency Statistics

Statistics		
N	Valid	20
	Missing	0
Mean		4.20

Source: SPSS Output

Table 3: Brand importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	5.0	5.0	5.0
	4	9	45.0	45.0	50.0
	5	10	50.0	50.0	100.0
	Total	20	100.0	100.0	

Source: SPSS Output

Table 4: Fashion Items Purchase Frequency Statistics

Statistics		
N	Valid	20
	Missing	0
Mean		4.45

Source: SPSS Output

Table 5: Value-added from co-creation and mass customisation

Group Statistics					
	Group	N	Mean	Std. Deviation	Std. Error Mean
Bags and accessories	Co-creation	20	3.80	1.152	.258
	Mass customisation	20	3.90	1.252	.280
Boots, Shoes, and Footwear	Co-creation	20	4.45	.686	.153
	Mass customisation	20	4.35	.671	.150
Underwear	Co-creation	20	2.50	1.235	.276
	Mass customisation	20	2.75	1.251	.280
Sweatshirts and Sweaters	Co-creation	20	3.70	1.174	.263
	Mass customisation	20	3.75	.910	.204
Jackets, coats	Co-creation	20	4.05	.999	.223
	Mass customisation	20	3.70	.923	.206

Source: SPSS Output

Table 6: Value-added from co-creation and mass customisation - T-test

	t	df	Signif.		Mean Diff	Std. Error Diff	95% Confidence Interval of the Difference	
			One-Sided p	Two-Sided p			Lower	Upper
Bags and accessories Equal variances assumed	-.263	38	.397	.794	-.100	.380	-.870	.670
Boots, Shoes, and Footwear Equal variances assumed	.466	38	.322	.644	.100	.215	-.334	.534
Underwear Equal variances assumed	-.636	38	.264	.529	-.250	.393	-1.046	.546
Sweatshirts and Sweaters Equal variances assumed	-.150	38	.441	.881	-.050	.332	-.723	.623
Jackets, coats Equal variances assumed	1.151	38	.129	.257	.350	.304	-.266	.966

Source: SPSS Output

Appendix 3 – Main Study Questions (Examples)

How important is the brand when you purchase sneakers?

- Not important at all
- Not important
- Neutral
- Important
- Extremely important

How familiar are you with Converse?

- Extremely unfamiliar
- Unfamiliar
- Somewhat unfamiliar
- Neutral
- Somewhat familiar
- Familiar
- Extremely familiar

Please select the option that better describes the presented scenario.

"Made by You" All Stars are customisable accordingly to individuals' unique preferences.

"Made by You" All Stars are co-created with consumers.

"Made By You" All Stars are designed by professionals or Converse employees.

Overall, how would you evaluate the level of quality of a "Made By You" All Star?

Extremely low

Low

Moderately low

Neither high nor low

Moderately high

High

Extremely high

Overall, how satisfied are you with the level of innovation of the products presented?

- Extremely dissatisfied
- Dissatisfied
- Slightly dissatisfied
- Neither satisfied nor dissatisfied
- Slightly satisfied
- Satisfied
- Extremely satisfied

How likely would you be to purchase a "Made By You" All Star?

- Extremely unlikely
- Unlikely
- Slightly unlikely
- Neutral
- Slightly likely
- Likely
- Extremely likely

How likely would you be to recommend this product to a friend or a member of your family?

- Extremely unlikely
- Unlikely
- Slightly unlikely
- Neutral
- Slightly likely
- Likely
- Extremely likely

How familiar are you with the concept of co-creation?

- Extremely unfamiliar
- Unfamilar
- Slightly unfamiliar
- Neutral
- Slightly familiar
- Familiar
- Extremely familiar

Appendix 4 – Main Study Results

- Appendix 4a - Manipulation Check

Table 7: Manipulation Check

Group Statistics					
	Scenario	N	Mean	Std. Deviation	Std. Error Mean
Manip. Check (1=MC; 2= CC; 3=Prof.)	MC	101	1.16	.367	.037
	CC	101	1.80	.548	.055

Source: SPSS Output

Table 8: Manipulation Check – T-test

Independent Samples t-Test									
		t-test for Equality of Means							
		t	df	Signif.		Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Diff.	
				One-Sided p	Two-Sided p			Lower	Upper
Manip. Check	Equal variances assumed	-9.806	200	<.001	<.001	-.644	.066	-.773	-.514
	Equal variances not assumed	-9.806	174.651	<.001	<.001	-.644	.066	-.773	-.514

Source: SPSS Output

- Appendix 4b – Tests of Normality

Table 9: Test of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Quality_CC	.208	101	<.001	.890	101	<.001
Innovation_CC	.257	101	<.001	.884	101	<.001
Fam. Concept_CC	.251	101	<.001	.882	101	<.001
Innovation_MC	.237	101	<.001	.894	101	<.001
Quality_MC	.229	101	<.001	.897	101	<.001
Fam. Concept_MC	.189	101	<.001	.909	101	<.001
WTB_CC	.173	101	<.001	.906	101	<.001
WTR_CC	.185	101	<.001	.925	101	<.001
WTB_MC	.184	101	<.001	.903	101	<.001
WTR_MC	.183	101	<.001	.924	101	<.001
Brand_Quality	.219	101	<.001	.908	101	<.001
Brand_Innov	.161	101	<.001	.923	101	<.001
Brand_W.T.Recom.	.160	101	<.001	.911	101	<.001

Source: SPSS Output

- **Appendix 4c – Cronbach's Alpha, Pearson Correlation, and Total-Item Correlation**

Table 10: Cronbach's Alpha - Brand Image

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.795	.804	3

Source: SPSS Output

Table 11: Pearson Correlation – Frequency of use of sneakers and Importance of the brand

Pearson Correlation			
		Freq. Use of Sneakers	Importance of the Brand
Frequency of Use of Sneakers	Pearson Correlation	1	.175
	Sig. (2-tailed)		.080
	N	101	101
Importance of the Brand	Pearson Correlation	.175	1
	Sig. (2-tailed)	.080	
	N	101	101

Source: SPSS Output

Table 12: Pearson Correlation – Willingness to Buy and Willingness to Recommend – MC scenario

Pearson Correlation			
		WTB_MC	WTR_MC
WTB_MC	Pearson Correlation	1	.689**
	Sig. (2-tailed)	-	<.001
	N	101	101
WTR_MC	Pearson Correlation	.689	1
	Sig. (2-tailed)	<.001	-
	N	101	101

Source: SPSS Output

Table 13: Pearson Correlation – Willingness to Buy and Willingness to Recommend – CC scenario

Pearson Correlations			
		WTB_CC	WTR_CC
WTB_CC	Pearson Correlation	1	.746**
	Sig. (2-tailed)	-	<.001
	N	101	101
WTR_CC	Pearson Correlation	.746	1
	Sig. (2-tailed)	<.001	-
	N	101	101

Source: SPSS Output

Table 14: Total-Item Correlation – Brand Image

Item-Total Statistics		
	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Fam_Brand	.262	.795
Brand_Quality	.669	.603
Brand_Innov	.552	.667
Brand_W.T.Recom.	.702	.573

Source: SPSS Output

- Appendix 4d –Wilcoxon Signed Ranks Tests

Table 15: Wilcoxon Signed Ranks Tests

Test Statistics			
	PI_MC - PI_CC	Quality_MC - Quality_CC	Innovation_MC - Innovation_CC
Z	-1.955	-.382	-2.030
Asymp. Sig. (2-tailed)	.051	.703	.042

Source: SPSS Output

- Appendix 4e – Sign Tests

Table 16: Sign Tests

Frequencies		
		N
Quality_MC - Quality_CC	Negative Differences[c,d]	17
	Positive Differences[c,e]	19
	Ties[c,f]	65
	Total	101
Innovation_MC - Innovation_CC	Negative Differences[a,d]	33
	Positive Differences[b,e]	19
	Ties[c,f]	49
	Total	101

a. Quality_MC < Quality_CC
b. Quality_MC > Quality_CC
c. Quality_MC = Quality_CC
d. Innovation_MC < Innovation_CC
e. Innovation_MC > Innovation_CC
f. Innovation_MC = Innovation_CC

Source: SPSS Output

Table 17: Sign Tests Statistics

Test Statistics		
	Quality_MC - Quality_CC	Innovation_MC - Innovation_CC
Z	-.167	-1.803
Asymp. Sig. (2-tailed)	.868	.051

Source: SPSS Output

- Appendix 4f – Ordinal Logistic Regressions

Table 18: Ordinal Logistic Regression: effect of brand image on perceived quality – CC scenario

	Estimate	Std. Error	df	Sig.
[Quality_CC = 3]	.195	.838	1	.817
[Quality_CC = 4]	2.650	.741	1	<.001
[Quality_CC = 5]	4.836	.852	1	<.001
[Quality_CC = 6]	7.847	1.068	1	<.001
Brand Image	1.013	.187	1	<.001

Source: SPSS Output

Table 19: Ordinal Logistic Regression: effect of brand image on perceived quality – MC scenario

	Estimate	Std. Error	df	Sig.
[Quality_MC = 3]	.788	.764	1	.302
[Quality_MC = 4]	2.958	.744	1	<.001
[Quality_MC = 5]	4.595	.823	1	<.001
[Quality_MC = 6]	7.375	1.007	1	<.001
Brand Image	1.026	.185	1	<.001

Source: SPSS Output

- Appendix 4g – Spearman's rank-order correlation

Table 20: Spearman's Correlation – purchase Intention and perceived innovation – MC scenario

			PI_MC	Innovation_MC
Spearman's rho	PI_MC	Correlation Coefficient	1.000	.502**
		Sig. (2-tailed)	.	<.001
	Innovation_MC	Correlation Coefficient	.502**	1.000
		Sig. (2-tailed)	<.001	.

Source: SPSS Output

Table 21: Spearman's Correlation – purchase Intention and perceived innovation – CC scenario

			PI_CC	Innovation_CC
Spearman's rho	PI_CC	Correlation Coefficient	1.000	.570**
		Sig. (2-tailed)	.	<.001
	Innovation_CC	Correlation Coefficient	.570**	1.000
		Sig. (2-tailed)	<.001	.

Source: SPSS Output

Table 22: Spearman's Correlation – purchase Intention and perceived quality – MC scenario

			PI_MC	Quality_MC
Spearman's rho	PI_MC	Correlation Coefficient	1.000	.568**
		Sig. (2-tailed)	.	<.001
	Quality_MC	Correlation Coefficient	.568**	1.000
		Sig. (2-tailed)	<.001	.

Source: SPSS Output

Table 23: Spearman's Correlation – purchase Intention and perceived quality – CC scenario

			PI_CC	Quality_CC
Spearman's rho	PI_CC	Correlation Coefficient	1.000	.489**
		Sig. (2-tailed)	.	<.001
	Quality_CC	Correlation Coefficient	.489**	1.000
		Sig. (2-tailed)	<.001	.

Source: SPSS Output

- ## Appendix 4h – Demographics

Table 24: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	65	64.4	64.4	64.4
	Male	36	35.6	35.6	100.0
	Total	101	100.0	100.0	

Source: SPSS Output

Table 25: Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	2.0	2.0	2.0
	2	63	62.4	62.4	64.4
	3	28	27.7	27.7	92.1
	4	5	5.0	5.0	97.0
	5	3	3.0	3.0	100.0
	Total	101	100.0	100.0	

Source: SPSS Output

Table 26: Age Statistics

Statistics		
Age		
N	Valid	101
	Missing	0
Mean		2.45

Source: SPSS Output

Table 27: Employment Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Other	1	1.0	1.0	1.0
	Student	72	71.3	71.3	72.3
	Working full-time	20	19.8	19.8	92.1
	Working part-time	8	7.9	7.9	100.0
	Total	101	100.0	100.0	

Source: SPSS Output

Table 28: Origin

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Australia	2	2.0	2.0	2.0
	Austria	1	1.0	1.0	3.0
	Brazil	1	1.0	1.0	4.0
	Chile	1	1.0	1.0	5.0
	China	1	1.0	1.0	5.9
	France	2	2.0	2.0	7.9
	Germany	24	23.8	23.8	31.7
	Hungary	1	1.0	1.0	32.7
	India	1	1.0	1.0	33.7
	Iran	1	1.0	1.0	34.7
	Italy	5	5.0	5.0	39.6
	Netherlands	13	12.9	12.9	52.5
	Norway	1	1.0	1.0	53.5
	Poland	1	1.0	1.0	54.5
	Portugal	33	32.7	32.7	87.1
	Romania	1	1.0	1.0	88.1
	Singapore	1	1.0	1.0	89.1
	South Africa	1	1.0	1.0	90.1
	United Kingdom of Great Britain and Northern Ireland	3	3.0	3.0	93.1
	United States of America	6	5.9	5.9	99.0
	Viet Nam	1	1.0	1.0	100.0
	Total	101	100.0	100.0	

Source: SPSS Output