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## The effect of a design label on product choice in FMCG

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## **Abstract**

The concept of User Innovation is not very familiar to consumers, but a growing number of companies are starting to invest on users to assist their R&D process. Thompson and Malaviya's Skepticism-Identification model explain why companies should encourage but at the same be careful when communicating that a product was designed by users. This experimental study aims to understand the influence of the level of user input in product design on product choice. The design continuum: (1) firm-designed; (2) user-designed and (3) co-creation (the collaboration between the two) is applied to the FMCG industry and tested whether product nature (hedonic and utilitarian) influences consumers' responses.

Firstly, the results indicated that co-creation is the preferred design label, regardless of the product nature. A co-created label enhances perceptions of product quality and for this reason, managers should use this increase in product value to create a competitive advantage in the marketplace. Secondly, the results indicated that utilitarian products draw the most benefits from a user design label. When looking at communicating the product design mode, companies should first look at the nature of their products.

**Keywords:** co-creation, FMCG, user innovation, design mode, observing consumers, new product development, customer empowerment

## Resumo

Os consumidores não se encontram muito familiarizados com o conceito de “inovação do consumidor”. Contudo, um número crescente de empresas começa a investir cada vez mais no seu contributo para o processo de I&D. O modelo “Ceticismo-Identificação” de Thompson e Malaviya explica as razões que incentivam e alertam sobre os cuidados da comunicação de que um produto foi concebido pelos consumidores. O presente estudo experimental tem como objectivo perceber a influência do grau de contribuição dos consumidores (na fase de concepção) na escolha do mesmo. O contínuo (1) concebido por profissionais (2) por consumidores e (3) cocriação (colaboração entre as duas partes) é aplicado em Bens de Consumo e é testado perante naturezas de produto distintas (hedónica e utilitária).

Os resultados indicam que, em primeiro lugar, a cocriação é a opção mais preferida dos consumidores, independentemente da natureza do produto. Os consumidores percebem uma qualidade superior nestes produtos, sendo que as empresas podem ganhar uma vantagem competitiva no mercado. Em segundo lugar, os resultados indicam que os produtos utilitários vão beneficiar fortemente da comunicação de que um produto foi concebido por utilizadores, o que sugere que as empresas devem analisar a natureza do produto antes de investirem neste tipo de estratégias.

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# 1.Introduction

The current business and economic context can be characterized by high levels of technology complexity, a fast time-to-market, a constant change in consumers' preferences and an unstable and competitive environment that creates considerable pressure for companies to remain profitable (Trautler et al. 2011). Innovation is the solution to deal with the new business environment, meaning that companies can no longer only rely on past achievements but rather need to work hard to achieve new ones.

Recently, largely due to the Internet, there has been a power shift from companies to consumers, where the latter are gaining a greater access to information. This greater access as well as the readiness to communicate with companies has made some customers want to have a greater say (Ogawa and Piller 2006) in the products they are passionate about and be willing to engage in initiatives that ask for consumer's input.

Companies such as Procter & Gamble, Nivea and PepsiCo have become aware of this new paradigm and have decided to include users in their New Product Development (NPD) process and, by taking advantage of information technologies and social media that facilitate the communication with customers; they have promoted powerful initiatives with extremely positive outcomes. With help from consumers, Nivea developed the first "black & white" deodorant, creating a market for anti-stain deodorants and a mandatory product in the portfolio of competitors nowadays (Bilgram et al. 2011). Frito-Lays launches a contest every year that asks enthusiastic customers to submit their own ideas for new potato chip flavors that the company will then produce. The company invests in this project because it soon realized that the amount of new flavors that consumers brought in were never considered by the firm; opening room for future sources of revenue.

Evidence shows that collaborating with users brings a competitive advantage (Hull 2004; Payne et al. 2008; Prahalad and Ramaswamy 2000) by increasing efficiency (e.g., by decreasing operational costs) and effectiveness (e.g., increased market acceptance). In fact, von Hippel's work demonstrated that users have been responsible for developing many of the major and minor innovations across several industries (cf von Hippel 2005).

This strategy can also be used as a marketing tool. Literature suggests that consumers who are empowered to contribute to the innovation process by selecting the products that are going to be launched will demonstrate higher willingness to pay and purchase intentions for the underlying products (Fuchs et al. 2010). However, there is a broader market that does not participate in these initiatives. Academic research has exploited the impact of user innovation

on the observing consumers - the ones that buy products but do not participate in the product development process (Fuchs and Schreier 2011; Schreier et al. 2012; Fuchs et al. 2013; Thompson and Malaviya 2013; Dahl et al. 2015). Those studies aim to answer whether companies should inform the broader market about their innovation process.

This line of reasoning merits attention because it is the bulk of the market that is going to determine the commercial success of newly launched products, which will significantly impact the company's Key Performance Indicators (KPIs). Involving consumers in product development is not a simple or cost-free task, because it demands organizations to rethink the way business departments work, in order to fulfill the expectations of participants. Therefore, it is important to understand the reactions of the whole market and then analyze if the benefits will outweigh costs, leading to a positive impact on the Return on R&D Investment (ROI).

Extant research is not consensual about communicating a user label, i.e., whether managers should communicate user participation in the product design. On the one hand, customers might perceive the company as more customer-oriented (Fuchs and Schreier 2011) and more able to innovate (Schreier et al. 2012), which consequently, will lead to more favorable attitudes. On the other hand, consumer demand for some products could decrease if they are labeled as user-designed (Fuchs et al. 2013).

The Skepticism-Identification model (Thompson and Malaviya 2013) summarizes the two opposite feelings generated by a user-designed label that might impact consumers considerations when choosing between a product that was designed by users or professionals. On the one hand, a user-designed label will increase feelings of identification towards the creator, which as a consequence, generates positive evaluations of the product and the brand. On the other hand, it might generate feelings of skepticism if consumers believe that their fellows do not possess the technical competences necessary to develop the product. The presence of opposite feelings could explain why there is no consensus about communicating a user-designed label.

In order to clarify about the impact of skepticism or identification on consumers preferences, we tested consumers choice for labels under the design continuum: (1) firm-designed; (2) user-designed and (3) co-creation. This contributes to the literature since the majority of the studies were based on a "black-and-white comparison", testing differences between the two extreme design modes, user-designed and firm-designed. To the best of our knowledge, no research to date has investigated performance measures under a design mode spectrum, where co-creation is the option that lies somewhere in the middle (requiring the collaboration between users and professionals); combining the advantages of both design modes, therefore

solving the dichotomy of feelings that user participation generates.

We test our model in the Fast Moving Consumer Goods industry. Within this industry, consumers buy a product from a specific brand that they already know and if satisfied, consumers will choose the same brand in the next shopping trip (Silayoi and Speece 2004). In addition, consumers do not usually perceive many differences between leading brands (Silayoi and Speece 2004), which demonstrates the inability of companies to differentiate themselves from direct competitors and “steal” market share. Moreover, this industry presents a high innovation failure - approximately 76% of new innovations fail to complete their first year on the shelves (Nielsen Company 2014) - making it particularly important to understand the potential of a design mode label, as an extrinsic cue that can influence product choice among alternatives.

Finally, it is important to highlight that the majority of the studies have only adopted a between-subjects methodology. A within-subject methodology would merit attention because studies have proven that purchasing intentions can be affected by the context and the set of alternatives under consideration (Burton and Zinkhan 1987; Huber, Payne and Puto 1982; Ratneshwar, Shocker and Stewart 1987).

The study aims to add to existing literature by gaining a richer understanding about the importance of labeling products, namely by:

- 1) Examining design mode influence on product preference in the FMCG industry;
- 2) Identifying the preferred design mode;
- 3) The conditions for those preferences.

By answering these questions, this study will enrich the existent theory by clarifying the benefits of disclosing product design mode; helping managers to evaluate the cost-benefit analysis more accurately before communicating open innovation initiatives.



## **2.Literature Review**

### **2.1. Open innovation**

During the 21<sup>st</sup> century, R&D practices have been undergoing a significant transformation that demands not only a redefinition of the innovation department tasks but also company strategies overall. Traditionally, in a “Closed System”, the research and development of new products was done in secrecy within the boundaries of the firm, with the aim of entering the market first and reaping the benefits from that (first mover advantage). The recent “Open Innovation” paradigm assumes the opposite: companies are not able to hold all the competencies needed in-house, forcing them to open up their R&D processes in order to succeed. The concept of OI was first introduced by Chesbrough (2003) and defined as follows:

“Open Innovation means that valuable ideas can come from inside or outside the company and can go to market from inside or outside the company as well. This approach places external ideas and external paths to market on the same level of importance as that reserved for internal ideas and paths”.

This way, companies can have access to different knowledge sources and new resources, which will, speed up the pace of innovation, reduce R&D costs, increase differentiation (Chesbrough 2011) and ultimately increase return on R&D investment, which has been a major concern among managers (Allio 2005). In the FMCG industry, Procter & Gamble embraced the concept in 2000 when it set the goal that 50% of its innovations would contain a significant external component (Lafley and Charan 2008). As a result, the company has been reporting increases in their commercial success rate from 15%-20% to 50%-60% in the first 8 years of the program (Lafley and Charan 2008).

There are several potential sources of innovation outside the firms, such as suppliers, competitors, universities or customers. The importance of customers, in particular, has been studied extensively and a potential shift was discovered, from their role as value extractors to value creators (von Hippel 2005; Ramaswamy and Gouillart 2010; Prahalad and Ramaswamy 2004; Prahalad and Ramaswamy 2000). The reason why consumers are worthwhile studying is that they possess a unique and valuable knowledge that is very difficult to any of the other innovation sources to obtain.

## 2.2. User Input

Customer knowledge development - learning about customer preferences - is found to be essential to new product success (Cooper and Kleinschmidt 1995; Cooper and Kleinschmidt 1996). In fact, the failure to understand those preferences is the main reason for the failure rates during the launch of new products, rather than because of technical deficiencies (Ogawa and Piller 2006).

To gain the consumer's knowledge, companies have invested in traditional market research methods such as focus groups and surveys that seek to hear the "voice of the customer" in order to create and test the products (Sawhney et al. 2005). These methods consider consumers only as passive agents that will contribute according to the questions asked and tasks demanded by the firm, restricting the creative process and the discovery of new and unknown needs. Furthermore, the knowledge generated would result from episodic interactions, giving no opportunities for customers to refine and enhance ideas (Sawhney et al. 2005). The creative process will therefore be restricted and controlled by the firm and in the end; value creation will be an exclusive firm activity.

This narrow perspective of using customer input presents several limitations for companies since they invest a lot of money and time in translating customer insights into product concepts; often arriving late to the market, thus losing the first-mover advantage. Furthermore, there is no guarantee that the market will accept the products because the methods companies have used to design them are often inadequate to perfectly meet consumer needs (O'Hern and Rindfleisch 2008; von Hippel 2005).

Including users in the innovation process has emerged as an attractive solution to safeguard against these problems. The final products will mirror consumer needs and because of that, will be more likely to be valued by the market (Hoyer et al. 2010).

In fact, research on sources of innovation has proven the commercial attractiveness of innovations developed by users in a wide range of sectors, from industrial software (Urban and Hippel 1988); to IT innovation for libraries (Morrison et al. 2000) and mountain biking (Lüthje et al. 2005). The reason for the success is that customers have gained knowledge from using the products - what Rosenberg (1982) describes as "learning by using". This knowledge is very difficult for companies to acquire, since it is *tacit*, which means "highly personal (...) and therefore difficult to articulate, identify and evaluate" (Bogers et al. 2010) and consequently *sticky*, difficult and costly to transfer (von Hippel 1994).

Thomke and von Hippel (2002) used an illustrative example that clearly demonstrates such stickiness and tacitness. When tasting a new flavor, the customer informs the company that the product should, for example, be less smoky and more gutsy. In the client's mind, he knows exactly how he wants the product to be, but the company's professionals find it difficult to interpret the feedback and it is very likely that they do not get it right at their first attempt to improve the product.

### **2.3. Stages of New Product Development**

The NPD process is constituted by four stages: ideation, product development, commercialization and post launch (Hoyer et al. 2010). The level of user participation could vary in *scope* as well as *intensity*. According to the authors, the scope refers to the "propensity of firms to collaborate with consumers across all the stages of the NPD process" while intensity refers to "the extent to which firms rely on co-creation to develop products within a particular stage of NPD".

Threadless, a start-up based in Chicago, sells T-shirts with colorful graphics. The company got the attention of many researchers (Brabham 2010; Wu et al. 2010; Langner and Seidel 2013) because more than one NPD phase rely on customers' participation. Firstly, customers (hobbyists or professional graphic designers) come up with design ideas by submitting them into the company's website and secondly, they rate the attractiveness of the ideas which will indicate to the company what designs should be produced. Moreover, the consumers who want their ideas to be chosen, are going to ask everyone to visit the company's website, which is a way of advertising. The company attracts a large number of enthusiasts, with the number of new submissions each week varying between 400 and 600 and, on average, 1,500 people rating each idea (Ogawa and Piller 2006).

However, the most common strategy in terms of scope is to choose only one phase of the NPD which integrates consumers. Many companies have chosen the ideation phase as the most appropriate one.

Fluevog, a shoe company, asks consumers to submit ideas for new products in the company's website (Humphreys and Grayson 2008). However, it is the company, more precisely the founder and designer John Fluevog, who selects the ideas and reworks them in order to create a functional shoe. Fluevog may use the whole idea, base an internal design on a customer's idea, or simply use part of the input into one of his designs (Fluevog Shoes 2016). This example illustrates that the level of intensity could vary according to what the company

considers to be more appropriate. In this case, the final product will be a result of the ideas coming from the consumer and the professional.

As a consequence, we consider that the final product could be the result of three different strategies: user-designed (exclusively designed by users), co-created (jointly designed by users and professionals) and firm-designed (exclusively designed by professionals).

Several researchers have studied the outcomes of user integration and have concluded that users can generate ideas that outperform the ones generated internally by firms, in terms of novelty and customer benefit (Poetz and Schreier 2012). Muji, a furniture company that has strong user input in their NPD, reveals that products based on user ideas registered a better performance in terms of aggregate sales, revenues and profit margins (Nishikawa et al. 2013). This evidence supports the idea that consumers can take the role of designers, leaving firms with the sole responsibility of acting as a producer and distributor of the products that users have designed.

On the other hand, professionals have, in general, a significant advantage when compared to consumers in terms of technical, procedural and intellectual knowledge (Moreau and Herd 2010; Amabile 1998). Due to their experience, internal designers not only understand product components better, but also know what failed in the past (Vincenti 1990), which would result in more reliable ideas (Mahr, Lievens and Blazevic 2013) and products of superior quality (e.g., Larkin et al. 1980; Magee 2005; Weisberg 1993).

If companies see this source of design as the most adequate, they should continue to act autonomously, having the exclusive responsibility for all stages of NPD.

Co-creation is the intermediate level of *intensity* that combines the advantages of the two design modes described above. It can be defined as “a collaborative new product development activity in which consumers actively contribute and select various elements of a new product offering” (O’Hern and Rindfleisch 2008). More specifically, the hybrid design mode will result from a collaborative work between consumers and professionals and so, there is a shared responsibility to create new products (Prahalad and Ramaswamy 2004). This process is based on customer-company interactions, where both parties share their complementary knowledge, enhancing their understanding of each other’s needs and solution requirements (Sawhney et al. 2005; von Hippel 2005). In contrast to conventional methods, co-creation will be based on transparent procedures in which professionals and consumers will be considered as equal partners, both using problem-solving skills to create value (Prahalad and Ramaswamy 2004).

## **2.4. Mixed Studies: Benefits and Drawbacks of a User-designed Label**

Users are “individuals who could benefit from a new product by using or consuming it” (Schweitzer et al. 2014). Before deciding on the best suited design mode, it is important to distinguish two types of users: participant and observer, since the user innovation initiatives will be perceived differently between them and, as a consequence, the type of performance measures achieved will differ.

There is evidence that, when companies allow consumers to select and design the products that are going to be commercialized, this will generate feelings of ownership towards the final products, which will be translated into higher purchase intentions and willingness to pay (WTP), when compared to those from non-empowered consumers (Fuchs et al. 2010; Franke et al. 2009; Franke and Piller 2004). Empowering consumers will generate other favorable outputs that can have positive consequences on the overall performance of the company, such as positive word-of-mouth (WOM) intentions, willingness to defend the product in public and future loyalty intentions towards the firm.

Nonetheless, there is a broader market constituted by people who do not want the added responsibility of participating in companies’ innovation processes.

The first study of this field revealed that there is a positive impact of customer empowerment on brand image (Fuchs et al. 2011). Brands that foster customer empowerment are perceived as more customer-oriented which, according to the literature, means that those companies are more able to adequately anticipate and respond to customer’s needs (Brady and Cronin 2001) and ultimately, consumers will exhibit more favorable attitudes (purchase intention and brand loyalty) when compared to zero-empowerment companies (Fuchs et al. 2011).

Researchers proved that the design mode could also influence perceptions about companies’ innovation abilities (Schreier et al. 2012). These findings are important since that those perceptions will generate positive results in terms of buying behavior and consumers’ satisfaction (Chun 2006; Szymanski, Kroff and Troy 2007).

In fact, although observing consumers consider their fellows as having less expertise, communicating the user design mode proved to enhance, rather than decrease, consumers’ perceptions of a firm’s innovation ability. Several arguments can explain the effect such as the diversity of ideas, more freedom to innovate and the tacit knowledge about consumers’ needs and problems. Nonetheless, consumer familiarity, for example, was identified as an important moderator that creates boundary conditions to the benefits of user design.

According to the arguments presented above - a more democratic view of the innovation process and the higher level of perceived innovation abilities - it would be valuable for companies to integrate consumers in the products' development process (Fuchs and Schreier 2011, Schreier et al. 2012). However, recent studies identified contexts where the effect of a user label is reversed.

Findings revealed that product complexity is a moderator of user-design preferences. For low complex products, perceptions of company innovation ability are higher, but the opposite effect holds true for the category of high complex products (Schreier et al. 2012).

Moreover, in the luxury fashion industry, labeling a collection as user-designed reduces the demand for that collection and communicating that the advertisement was user-designed can hinder persuasion (Fuchs et al. 2013; Thompson and Malaviya 2013). In the fashion industry in particular, experience agentic feelings (to feel superior or worthy, when compared to others) is determinant for purchase intentions; so no added value arises from an item designed by a common user, who is not recognized as having the expertise or the reputation of internal designers.

These findings suggest that, in certain conditions, communicating about the user participation in the product development may not benefit the product and/or firm.

## **2.5. The skepticism-Identification model**

The skepticism-identification model proposed by Thompson and Malaviya (2013) could clarify the variables that should be considered if managers want to communicate that a consumer designed a product (figure 1). There are two opposite effects that could either defend or discourage the strategy of user designers and a wide range of variables could affect those two effects.

The model was tested in the context of the advertising industry and, as the name suggests, the authors posit that consumers who observe could either feel skeptical about the ad creators' competencies or identify themselves with their fellow consumers.

The identification component is supported by literature on source effects, social influence and persuasion knowledge (Wilson and Sherrell 1993; Kelman 1961; Campbell and Fairey 1989) that suggests that an ad will have a favorable impact on persuasion if the recipients of the message perceive the ad creator as a person similar to them. The same identification is present in physical products alike, which means that, for example, "if users like oneself are getting the power to shape the product offerings of a given firm, one might subjectively experience a

social collectivity toward users” (Dahl et al. 2015).

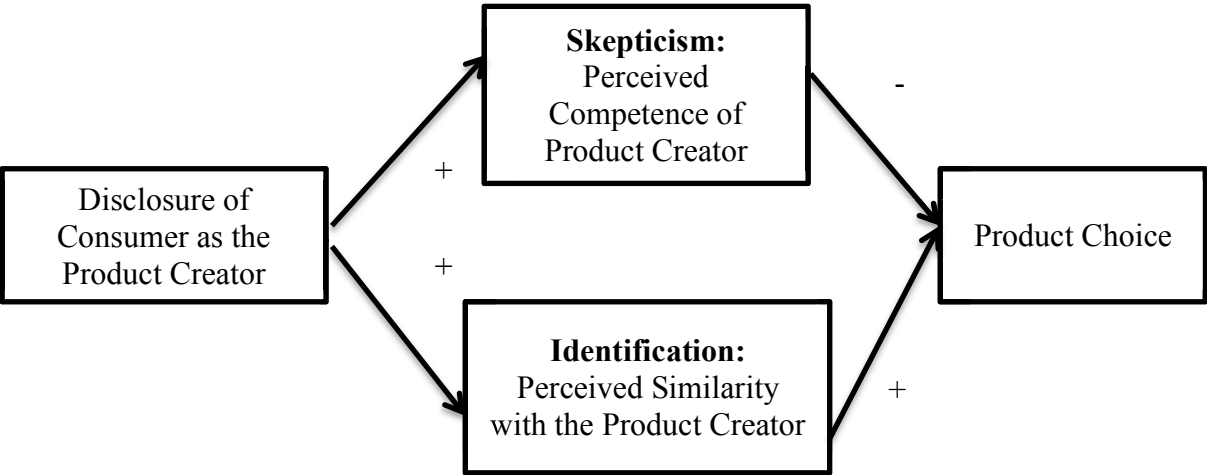
On the other hand, the skepticism component implies that consumers who observe might be skeptical about the participants’ competence to develop effective persuasive messages. There is evidence that the awareness of user-generated ads will bring on critical thoughts, leading observers to act as “ad critics” (Ertimur and Gilly 2012), which could ultimately inhibit persuasion, rather than encourage it.

Regarding skepticism in physical products, there is evidence that user designers would face an upward social comparison when analyzing self-designed products and the ones designed by professionals, which will negatively influence self-designed product’ evaluations (Moreau and Herd 2010). This can be explained because consumers will compare not only the final result in terms of execution but also the competencies of the professional designers. In this sense, if the observers apply the same reasoning, “skepticism” might play a role in the decision-making process.

Therefore, a user-designed label will generate mixed feelings that will offset each other, leading to the following hypothesis:

**H1: When choosing between alternatives, consumers will be indifferent between products labeled as user-designed and the ones designed by professionals.**

**FIGURE 1.** Adapted from Thompson and Malavya (2013) “The Skepticism-Identification Model of the Ad Creator”



The importance of introducing a third option, co-creation, is that it solves this dichotomy because it combines the advantages of a user-design label and a firm-designed one.

## **H2: When choosing between alternatives, the co-created label will be preferred to either professional or user labels.**

The existence of these two opposite effects implies that any variable that impacts one of these feelings might change the outcome. The authors suggest that, for example, consumers who are more loyal towards the brand (which is communicating user innovation initiatives) might react more favorably to a user design-mode because they believe they have the same preferences that the creator and as a result, feel more similar to them. Following this line of reasoning, perceptions about shared preferences could increase identification feelings and consequently, preferences towards a user-designed product.

### **2.7. Product Nature: hedonic and utilitarian consumption**

Two broad categories are found in FMCG products: hedonic or utilitarian. Dhar and Wertenbroch (2000) explain that hedonic products include all the products that provide more “experiential consumption, fun, pleasure, and excitement” whereas the latter includes “the ones that are primarily instrumental and functional”. In other words, the purpose of consuming hedonic products is to extract pleasure from doing it, which is what happens when people buy sports cars, luxury items and chocolates. Regarding utilitarian products, the purpose of consumption is to perform a practical task, such as using a microwave to warm food, or a personal computer to play computer games. Although both dimensions characterize the consumption of a large variety of goods (Batra and Ahtola 1991), consumers’ buying decisions are made mainly based on one of the two goals (Strahilevitz and Myers 1998).

The choice of hedonic products is based on very specific personal and subjective tastes, while the choice of utilitarian products is based on criteria that are very similar and objective across consumers. This assumption is based on the notion of preference heterogeneity, which is defined as the “extent to which people’s preferences for products vary” (Feick and Higie 1992). The authors explain that, for high preference heterogeneity services, like nightclubs, restaurants and hair salons, different consumers seek different benefits. On the other hand, low preference heterogeneity services like plumbers, rug cleaners and auto mechanics present similar preferred attributes. Others also posit that there is a greater variability in the consumer’s decision criteria for hedonic attributes (e.g. Moskowitz and Bernstein 2000; Pangborn 1981; among others).



Thus, utilitarian products are expected to be more aligned with the purpose of user participation. As mentioned before, users could add value in the sense that they are the ones who better understand the preferences of their peers, because they have gained a tacit knowledge that companies do not possess.

However, when there is a large segmentation of the market, which happens for hedonic products, consumers would not perceive much difference in the value added from other users, when compared to companies' internal designers (the default option they are used to), because the particular benefits they seek from the consumption of those products might be very different from the ones their peers value. In hedonic products, consumers are more likely to feel dissimilar to other users than in utilitarian products, which could lead them to be more skeptical about their technical competences (Thompson and Malavya 2013) and, as a consequence, prefer products designed by company's professionals. On the contrary, as utilitarian products are meant to achieve a goal that is common to many consumers, it is more likely that the observing consumers would believe in the ability of their peers to create a unique and valuable solution that will solve the problems and needs they all have to deal with. In this sense, product nature could influence the importance of consumers as value creators, which lead us to the following assumptions:

**H3a: In hedonic products, consumers prefer products with a professional design to a user design label.**

**H3b: In utilitarian products, consumers prefer products with a user design label to a professional design.**

Regarding co-creation, we expect preferences for this design mode label not to be influenced by the product nature. Compromise effect indicates that consumers avoid "extreme" options and value "intermediate" ones (Simonson 1989), which in this study would correspond to co-creation. This conclusion is based on the fact that, even when presented with a riskless choice, consumer behavior can rely on the loss aversion principle, which describes a situation in which losses will be weighted heavier than gains (Tversky and Kahneman 1991). Thus, when consumers are comparing products, if advantages are considered as gains, the disadvantages as losses (Simonson and Tversky 1992) and this principle holds, the intermediate option would be the most attractive option. In our example, both the firm-designed label and the user-designed label present disadvantages, namely a low level of identification and a high level of skepticism, respectively. A joint design, because it combines the participation of both

parties, will in this case eliminate the disadvantages and be perceived as the most valuable design mode.

Based on this theory, it could be assumed that:

**H4: The product nature will not influence preferences for a co-created design.**

## **2.8. Perceived quality**

Several studies have confirmed that consumers' perception of quality is one of the factors affecting buying behavior (Bishop 1984; Jacoby and Olson 1985; Sawyer and Dickson 1984). Perceived quality could be described as "a global assessment that in some cases resembles attitude" and "a judgement usually made within a consumer's evoked set" (Zeithaml 1988). Because it is a perception, consumers base their opinion on product attributes that they believe will have an impact on the real quality. The literature divides those attributes into intrinsic and extrinsic, referring to the ones that are present in the composition of the product and the ones that are product-related but are exterior to the product itself as, for example, brand names, advertising and country-of-origin labels (Olson 1977; Olson and Jacoby 1972). For certain product categories, it is very difficult to analyze intrinsic attributes at the point of purchase, for example, food products (unless free samples are distributed). In this situation and other similar ones, consumers rely heavily on extrinsic attributes. A type of label that can have a strong influence on quality perception is the country-of-origin, which was found to be of a comparable price (Hastak and Hong 1991) and also to be even more important than brand name (Darling and Arnold 1988).

According to the assumptions stated before, if consumers believe that co-creation is a way to combine the advantages of a professional design and a user design, namely because it combines the technical knowledge of the former and the tacit knowledge of the latter, it is likely that:

**H5: Consumers will perceive higher quality from a co-creation label than from the two extremes of the design label continuum.**

In terms of commercial attractiveness, researchers have proven that co-creation could be a successful way of doing R&D. When 3M decided to invite lead users to collaborate with

internal personnel, new product concepts revealed a sales potential that was, on average, eight times higher than the one resulting from traditional methods (Lilien et al. 2002) However, studies so far have overlooked the impact of a co-created label on observing users. A possible reason is that it requires the difficult task of educating people about its meaning, which can increase the costs associated with it in terms of time and money. Therefore, it is important to understand the benefits of using co-creation as a marketing strategy that could generate positive outcomes such as the ones documented in terms of real product quality.

### **3.Methodology**

Our study was conducted in the Fast Moving Consumer Goods Industry, not only for the reasons previously mentioned (in particular, the high innovation failure rate) but also because of its importance in the Global Economy. Data from 2013 reveal that FMCG companies dominated the ranking of the 250 largest retailers around the world, in terms of number and share of the total revenue (Deloitte 2015). In specific, approximately half of the 250 companies analyzed (52.8%) are from this industry and account for 67.5% of the total revenue, which corresponds to \$22,269 billion.

#### **3.1 Design**

In order to study the impact of a design mode label on product choice, we designed a 3 (source of design: professionals, co-creation, user) x 2 (product category: cereal vs. bread) mixed model design experiment in which the design source was a within-subject factor and the product category a between-subject factor. The choice of the method for product category is that if the same individual were exposed to both categories and asked to answer the exact same questions, it would be likely that he would forsake the survey or would apply the same reasoning to choose both goods and so the difference expected to occur would not be evident.

We carried an online questionnaire that was distributed through social media. The reason for the choice of this method was that it presents advantages in terms of the number of people reached as well as randomization tools that were simple to use and also effective.

Two hundred and four young adults ( $M_{age}=22$  years; 56,7% female) participated in this study, mainly college students (both taking a bachelor or master degree) from two internationally recognized Portuguese Business Universities (70%). In order to increase the sample size, participants were also randomly selected at study spaces (in both schools and at a local library) and asked to participate in the study. Guided by practical reasons, we chose college students because they are more familiar with completing questionnaires for academic purposes and thus, it would be less likely that they would drop out of the questionnaire.

In order to study product category we based our product choice on Coelho Vale and Duarte (2013). We chose two product categories that represent two different product natures: hedonic (which describes products that generate feelings of fun, pleasure, and excitement) vs. utilitarian (which describes products that are supposed to perform a specific task or achieve a goal).

Assisted by literature that shows that user participation is more efficient in the development of low complexity products (Schreier et al. 2012), we chose the FMCG industry to conduct our study. Firstly, we chose breakfast cereals due to the fact that previous studies regarding user innovation have demonstrated that it is worth studying this product (Fuchs et al. 2010; Schreier et al. 2012), is a common used product relevant to our sample and is a representative of the hedonic product category. According to the literature (Coelho do Vale and Duarte 2013), groceries (in which breakfast cereals are included) are considered to be hedonic products, scoring 5.67 in a 7-point utilitarian vs. hedonic continuum. To find a utilitarian product, we used the same scale, where bakery was the only utilitarian category that could be equivalent in terms of design complexity and therefore, bread was chosen to be included in the study. Again, this product reasons well with our sample, having consumed them at some point during their lives.

### **3.2 Procedure and Stimuli**

Participants were asked to fill in the questionnaire where they were first told they would participate in a market research study for a food company in the FMCG, not only to avoid them realizing the purpose of the study, but also to increase the realism of the experiment.

Next, all participants were informed that the company was planning to launch one of the three different products that would be presented later, explaining that they would all be equivalent in terms of price and calories per serving and that the only difference was the way they were designed. To clarify participants about the different design mode alternatives, the following explanations were given: Product A was described as firm-designed ("Product A was designed by company's professionals), product B as co-created ("Product B resulted from the collaboration between the company's professionals and consumers. In this case, consumers suggested ideas and professionals adapted them until achieving the final product") and Product C user-designed ("Product C was designed by a consumer. The company asked its online community to share ideas on new possible products. The best idea was selected and produced by the company).

After the initial context, participants were asked to rate five statements in order to evaluate feelings of identification and skepticism. Using a seven-item scale, participants answered, "To what extent do you [they] agree with the following sentences?" regarding sentences such as "I believe that the creators of product A [professionals] better understand my preferences" and the same procedure to product B [co-creation] and product C [users]. To understand feelings of skepticism, participants also evaluated the statement "I believe that creators of this

product are more able to find an innovative way to prolong the sense of satiety” (evaluating the statement for all the product alternatives). The purpose of presenting these questions before the specific product alternatives was to understand if feelings of identification and skepticism regarding the concept behind each design label were present.

After describing each design label (firm-designed, co-creation, user-designed), participants were assigned to one of the two groups: cereals or bread ( $n_{cereals}=101$ ;  $n_{bread}=103$ ) in order to test differences in product preferences according to the product nature (H3a), H3b) and H4)).

To control for differences in product involvement between the two products, some items from established scales ( $\alpha_{Cereals}=0,816$   $\alpha_{Bread}=0,826$ ) were used to operationalize the measure (Mittal 1995; Zaichkowsky 1985). Two examples from the scales are “I choose this product very carefully” and “I would be interested in reading about how my breakfast cereals are made”. For full measures, see appendix 1.

Next, respondents were shown representative pictures of the products the company was launching. Each product was labeled differently corresponding to one of the three options of the design continuum. Participants allocated to packaged cereals were exposed to pictures shown in figure 2 while the group allocated to sliced bread products were exposed to pictures shown in figure 3.

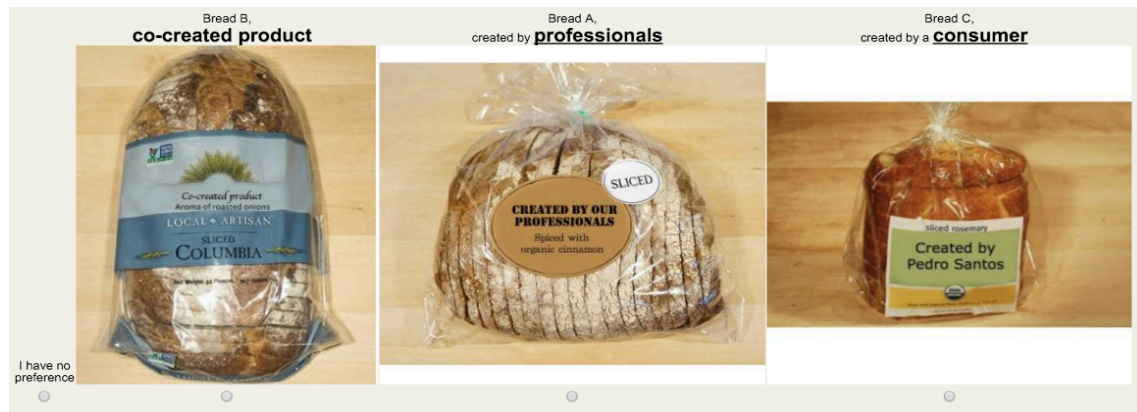
To add reality to the study, real product pictures were chosen from websites of foreign FMCG companies specialized in those products but the names of the brands were deleted from the package to exclude brand effects. The product flavors chosen were intended to be original so that the innovation process stood out.

In order to control for image effect, scenarios were randomly displayed, in which images appear differently, not only in terms of the design mode label but also the position in which each image appears.

**FIGURE 2.** Stimuli for the group of cereals product category



**FIGURE 3.** Stimuli for the group of bread product category



In the end, we had six scenarios to manipulate in terms of the label associated with each flavor. None of the scenarios appeared significantly more than the others (see appendix 2), which ensures the reliability of the study.

In order to test H1) and H2), participants were asked to choose which one of the products they would be most likely to buy. This is similar to a real life situation in which consumers are in a supermarket aisle and have to decide upon product alternatives and for this reason, we decided to use stated preference measures to product attitude scales.

Finally, in order to test H5), respondents were asked to evaluate product quality perceptions from 1 to 7, based on a scale developed for the food categories (Bonner and Nelson 1985). Participants answered the question “How do you perceive the product quality in the following items”, for example, “rich flavor“ and “natural taste”, (for full measures, see appendix 3). Since food products have a very specific nature, other generalized scales are not adequate to these types of products. However, it would be expected that the same comparative results (in terms of the average evaluation) would yield when evaluating the design of other low complex non-food products using a different design evaluation scale.

## 4. Results

### 4.1 The main effect of a design mode label

Previous studies have focused on comparing purchasing intentions for products labeled differently. In our study, we want to measure how many people prefer to choose one label rather than the alternatives. In other words, we want to analyze the proportions of people who chose each one of the design modes. In order to test the impact of a design mode on product preferences, we will use differences in proportions, with a chi-squared test. Therefore, we performed a series of identical chi-squared tests to validate our hypotheses.

We started by analyzing the differences in the number of people who chose either one of the two extremes of the design mode continuum: users or professionals (reducing the sample to  $n=92$ ).

The first chi-squared test revealed that differences in choices between those two design labels are not significant ( $p\text{-value}>0.10$ ), which means that  $p_{professionals} = p_{users} = \frac{1}{2}$ , supporting our H1 that states that consumers will be indifferent between a firm-designed label and user-designed. As figure 4 shows, 43% (40 out of 92) participants chose the former products whilst 57% chose the latter (52 out of 92). These results are aligned with Thompson and Malaviya model that posit that each of the labels generates mixed feelings of skepticism and identification that will offset each other. In low complexity products, consumers will not show consistent preferences for none of the labels.

We believe that co-creation arises as the solution to this dichotomy of feelings, since that, by combining the advantages of each of the two labels, it eliminates the disadvantages.

In order to test the value of this “intermediate option”, we repeated the previous test, including in the analysis the answers of the participants who chose the co-creation alternative ( $n=177$ ) - the design mode that has never been tested in terms of observing users preferences. We excluded from the sample all the participants who stated they “have no preference” for any of the products presented ( $n=27$ ). The exclusive purpose of this option was to avoid that random answers of people who do not know what product to choose influence the results.

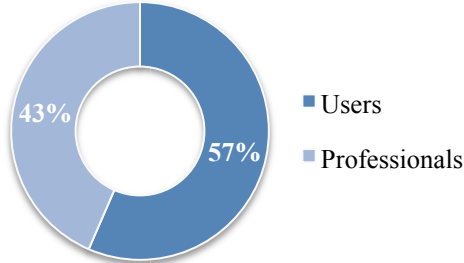
Contrarily to the previous result, the second chi-squared test revealed that, when presented with the co-creation alternative, differences in preferences are significant ( $p=0.000$ ), which means that overall, we can reject the null hypothesis in which  $p_{professionals} = p_{users} =$

$$p_{co-creation} = \frac{1}{3}.$$

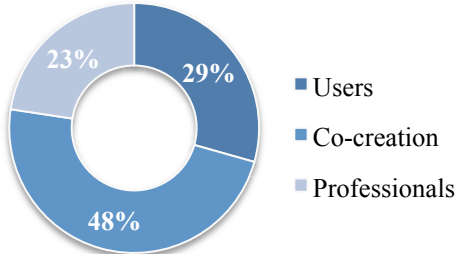


In line with our theory, 48% of participants (85 comparing with 40 and 52) showed clear preferences for the co-creation label (figure 5). However, in order to test our H2, that states that consumers will prefer a co-created label than either one of the extremes, we need to understand if co-creation is statistically preferred to professionals and, at the same time, to users. Two chi-squared tests comparing co-creation with each of the extremes separately validated our hypothesis (p-value=0.000 and p-value=0.005). All the results of chi-squared tests comparing the different labels are summarized in table 1.

**FIGURE 4. Differences in perceptions: Professionals vs Users**



**FIGURE 5. Differences in perceptions: Co-creation**



**TABLE 1. Chi-squared tests - Differences in Preferences**

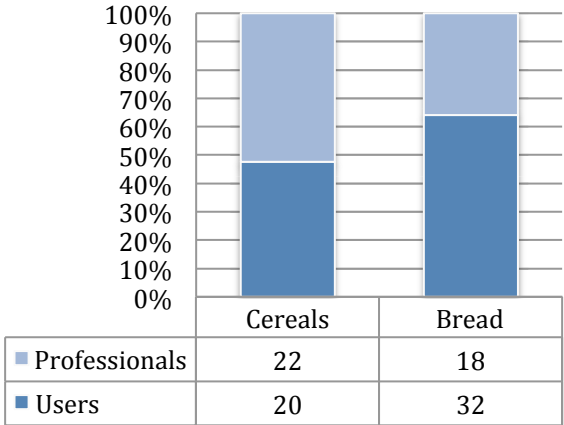
	Professionals vs. Users	Professionals vs. Co-creation	Users vs. Co-creation	Professionals vs. Co-creation vs. Users
<b>Chi-square</b>	1.565	16.200	7.949	18.407
<b>Asymp. Sig.</b>	0.211	0.000	0.005	0.000
<b>N</b>	92	125	137	177

**4.2 Product Nature as a moderator variable**

After predicting the main effects of a design mode in product choices, we posit that product nature might moderate that effect. Next we conducted an analysis to understand differences for hedonic and utilitarian products. H3a) states that consumers will prefer a firm-designed label when products are hedonic (cereals) and H3b) states that consumers will prefer a user-designed label when products are utilitarian (bread).

A chi-squared testing the independence of proportions considering product nature confirms that product nature could partially impact the preferences towards a user-designed label ( $p\text{-value} < 0.10$ ). In this case, we analyzed the fisher’s exact test significance for one side of the qui-square ( $p\text{-value} = 0.086$ ), because we wanted to test if preferences for a user label could be

**FIGURE 6. The impact of product nature on preferences: Users vs Professionals**



Fisher’s Exact Test Sig. (1-sided) for Independence of proportions = 0.086

higher for one of the two scenarios.

This result indicates that, if we assume that choosing a user-design mode is the “success” choice, we can conclude that the probability of “success” cases will be higher under the bread category. These findings are aligned with our theory that product nature will impact feelings of Skepticism and/or Identification (when products are utilitarian, feelings of identification towards a user label are higher than when products are hedonic due to higher levels of preference homogeneity), which in the end will affect product choice. As we can see by analyzing

figure 6, a larger percentage of respondents choose a user-designed label when products are utilitarian (64%) rather than when they are hedonic (47,6%).

Interestingly, the table suggests that under the cereals (hedonic) product category, the difference between choices for a user or a professional design is insignificant (20 vs. 22), whilst under the bread (utilitarian) product category; there is a dominant preference for user-designed products (32 vs. 18). However, only a chi-square test for each of the products alone could provide statistical evidence for those differences.

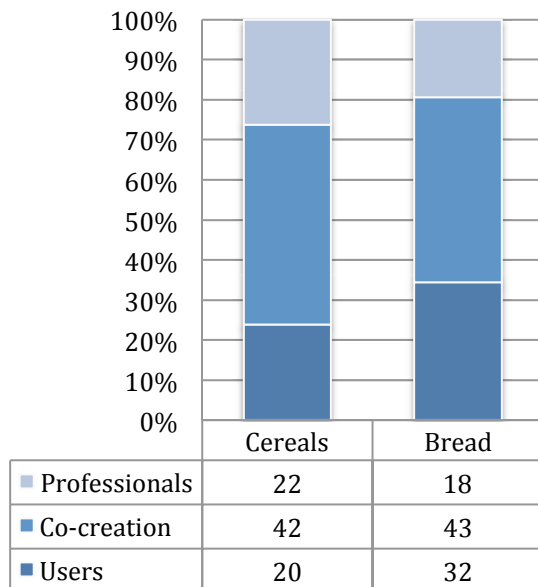
Firstly, the test for hedonic products reveals that consumers are indifferent to the design label ( $p\text{-value} = 0.758$ ). Product choice is not influenced by who was involved in creating the product, but particular preferences of each consumer for specific product characteristics. Therefore, H3a) is not supported.

When assessing the design label in utilitarian products, a chi-square analysis shows that consumers prefer products designed by their fellow consumers ( $p\text{-value} = 0.048$ ). Thus, H3b) is supported.

These results suggest that utilitarian products benefit from a user-designed label. Such label sends a strong cue, which will make consumers experiencing increased identification feelings

and consequently, prefer those products rather than firm-designed ones. However, when products are hedonic, a user-designed label does not influence perceptions in such a way that feelings of skepticism would dominate the trade-off considerations and lead consumers to prefer products designed by professionals. But at the same time, people do not consider the participation of fellow consumers as a valuable resource. Summing up, consumers will perceive both design modes as equivalent.

**FIGURE 7. The impact of product nature on preferences: Co-creation**



Pearson Chi-Square for independence of proportions=0.255.

In order to understand if co-creation was evaluated differently under product categories, we conducted the test of independence of proportions, adding the co-creation alternative (figure 7).

The results are different from the two-design mode case scenario and reveal that product nature will not affect preferences for co-creation (p-value>0.10), which validates our hypothesis H4). Regardless of the product nature, the majority of the participants (50% participants under the cereals product category and 46,2% participants under the bread product category) prefer to choose the co-creation alternative. It is important to clarify that the test for independence of proportions can only conclude

if the product nature affects or not the preferences for different design labels.

Therefore, in order to fully explore the value of a co-creation label, we compared co-creation to a user-designed label and to a firm-designed label separately under the two product natures, resulting in 4 different scenarios. We could conclude that in  $\frac{3}{4}$  possible scenarios, a higher number of participants chose co-creation rather than the alternative (p-value=0.012; p-value=0.005; p-value=0.001; p-value=0.204). The exception is when we compare co-creation and users for bread alternatives. In this case, there is no statistical difference between them, which means that consumers do not perceive significant higher advantages from the collaboration between professionals and users, when designing bread products. In other words, communicating that a product was co-created would be a more powerful strategy for hedonic products. All the results of chi-squared tests comparing the different labels are summarized in table 2.

**TABLE 2. Chi-squared tests - Differences in Preferences according to product nature**

	Cereals			Bread		
	Professionals vs. Users	Professionals vs. Co-creation	Users vs. Co-creation	Professionals vs. Users	Professionals vs. Co-creation	Users vs. Co-creation
<b>Chi-square</b>	0.095	6.250	7.806	3.920	10.246	1.613
<b>Asymp. Sig.</b>	0.758	0.012	0.005	0.048	0.001	0.204
<b>N</b>	42	64	62	50	61	75

### 4.3 Perceived Quality

Previous researchers have proved the impact of a user label on perceptions such as customer-orientation and ability to innovate, which will impact outcome variables such as purchase intentions, willingness to pay, willingness to recommend the firm to others and brand loyalty (Fuchs and Schreier 2011; Schreier et al. 2012). At the product level, we believe that perceived quality would be of the uttermost importance to study, since that this variable could significantly impact products evaluations.

According to the previous results, consumers are indifferent between a firm-designed and a user-designed product (when we do not consider a specific product nature). However, a co-created label has proven to be the consumers' preferred choice, which concludes that communicating that firms and consumers jointly designed a product has a very powerful impact on consumers' minds and therefore, marketers should take advantage of that. We believe that those preferences will affect quality perceptions. Therefore, we conducted and ANOVA repeated measures within subjects for quality perceptions about each of the differently designed products (table 3).

**TABLE 3. ANOVA for differences in quality perceptions**

	Firm-designed	Co-created	User-designed
<b>Mean</b>	5.047	5.276	5.030
<b>N</b>	197	198	195
<b>Std. Deviation</b>	1.223	0.903	1.005

F = 3.667; Sig. = 0.029

In line with our predictions, the results revealed significantly higher perceptions of quality towards a co-creation label than either of the other two ( $M_{co-creation}=5,28$ ;  $M_{user}=5,05$ ;  $M_{professionals}=5,03$ ;  $p\text{-value}<0.05$ ). Although the assumption of sphericity is violated (see appendix 4), the p-value under the most common corrections, Greenhouse-Geisser and Huynh-Feldt, is 0.029; which proves that there is a design mode effect on quality perceptions. After realizing that perceptions are different for the co-created product, a simple t-test was conducted to exploit the average quality of perceptions for different design modes of the people who chose the co-created label (table 4).

**TABLE 4. T-tests for quality perceptions**

	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
			Lower	Upper
<b>Firm-designed</b>	0.000	5.028	4.8085	5.247
<b>Co-created</b>	0.000	5.529	5.3626	5.696
<b>User-designed</b>	0.000	4.903	4.6851	5.120

Results indicate that those participants ranked the co-created product highly in comparison to the other two design modes. In fact, the lower average limit of  $M_{co-creation} =5,36$  is higher than any of the upper limits of  $M_{professionals} =5,24$  and  $M_{user} =5,12$ .

These insights help to support the added value resulting from a co-created label. This strategy allow companies to benefit from the positive outcomes generated when consumers know that their fellows participated in the design of the product, without suffering from the negative consequences that are also associated, leading consumers to perceive their products as having high quality. Those perceptions, if consistently proved to be true, can transform the co-creation label as one of the most important heuristics that users can use in the future to base their decisions on, as they have always done with brand and price, for example.

## 5. Conclusions and Further Research

Nowadays, a lot of brands from the FMCG industry are investing in the “open innovation” model, asking consumers to participate in the product development. The reason why these types of initiatives could be particularly successful in this industry is that a large range of products are easy to create when compared to products involving high-end technology, like smartphones and computers.

Our research aims to further explore the impact of disclosing the design mode on purchasing behavior, making three main contributions.

Firstly, our results show that communicating a user-designed label does not drive product choice particularly when consumers are faced with other product labels. Instead, they feel indifferently between a user-designed product and a firm-designed one. This view is opposed to previous studies that encourage disclosing a user-designed label for low complex products, such as cereals (Fuchs et al. 2010; Schreier et al. 2012).

We believe that a possible reason for these findings is that consumers will evaluate each design mode in comparison with the others and will think about the advantages and disadvantages of each one, leading to opposite effects of skepticism and identification towards the two design modes that in the end will offset each other. On the contrary, when evaluating each alternative alone, as it happens for between-subjects design, this reasoning might not be so present in purchasing considerations.

Secondly, our study reveals that one of the boundaries of user-designed label preferences is product nature (hedonic vs. utilitarian). Our findings suggest that, for hedonic products, observing consumers will not perceive an extra value from the participation of fellow consumers in the product design. In this case, no feelings of either identification or skepticism are dominant and as a result, participants were still indifferent between the two labels and may have based their choice on the normal heuristics they are used to basing their decisions on, like packaging or flavor. However, the difference is very clear for utilitarian products. This result is aligned with the prediction that perceptions of having similar preferences will increase feelings of identification, which in the end will influence consumers to choose user-designed products.

It is important to note though, that these results could be explained by the fact that people are used to the idea of individuals producing bread in their houses and for that reason, they are more familiar with user participation in that specific product development. Literature shows that the familiarity with these types of initiatives is one of the moderators affecting

perceptions towards this design mode (Schreier et al. 2012). To explore this result further, it would be interesting to study the impact of different labels on products such as gardening, bricolage (DIYs) tools or on baby products, because mothers usually feel they belong to a community, using forums to ask questions to other mothers and for that reason, the impact of a user label could be enormous.

Knowing if the product nature could be a moderator for user-designed preferences helps managers to better understand which type of product would be best to communicate a user design mode. However, in this case, we did not compare the weights attributed to feelings of skepticism and identification. Different weights could significantly change the outcome and therefore, there is a large range of possibilities that remain to be explored that could influence the outcome of preferences.

Another limitation of the present study is the sample size. The methodology used was associated with a large variety of scenarios and choice options that in the end led to small numbers of people choosing each option. A larger scale study would yield more reliable results.

Finally, our analysis suggests that disclosing that a product is a result from the collaboration of the company and users could avoid the risk of choosing the wrong design mode and create the wrong perceptions in consumers' minds. As stated before, a study conducted with products from the luxury fashion industry concluded that a user-designed label could harm the company (Fuchs et al. 2013). Little research has stated evidence about the variables that will influence feelings of identification and skepticism and for that reason, asking consumers to participate in product development could be risky and it is not certain that the return will pay off the costs associated with it. In this sense, the co-creation value remains in the fact that, if people really value the option in the middle, that combines the advantages of the two extreme design modes, that will always be the best strategy, regardless of the variables that could affect the two opposite feelings. Therefore, this strategy decreases the risk inherent to the uncertainty about what will weigh more in the dichotomy "identification vs. skepticism" (Thompson and Malaviya 2013), present in consumer considerations.

Our study has measured the presence of this dichotomy towards the different design modes. On one hand, participants agree that other consumers will better understand their needs (identification) and on the other hand, they feel that consumers will have less ability in finding new ways of prolonging the sense of satiety (skepticism). We could conclude that co-creation is the option that rates the highest score on the identification-related items and lowest on the skepticism-related items measured.

In addition, consumers would perceive the co-created product as superior in terms of quality. This way, communicating that a product is co-created could be a way to differentiate the product and gain market share. However, this effect deserves further research because, as mentioned previously, perceived quality influences choice. In the present study, this causality effect was not investigated.

It is important to clarify that these recommendations are based on the psychological effects of the different design modes. In this methodology, real product differences that are inherent to the knowledge and capabilities associated with different groups of creators was not taken into consideration. Nonetheless, it is expected that in terms of real quality, the co-creation will be the process that generates the best products since it combines, on one hand, the capabilities of users (that could lead to ideas that rate high on creativity and on customer benefit) and, on the other hand, the capabilities of professionals (that are expected to generate ideas that perform high on feasibility criteria) (Poetz and Schreier 2012). Thus, choosing that intermediate option would probably produce high quality outcomes. Moreover, it might avoid the possibility of increasing internal barriers for open innovation - that already exist nowadays (Salter et al. 2014) - if companies decide to choose ideas that come exclusively from consumers.

What remains to be answered, though, is whether a company possessing that competitive advantage will maintain it when every company starts to replicate the strategy. However, that is not expected to happen in the medium-run because implementing these initiatives requires companies to change the organization design and company's philosophy (Salter et al. 2014).

In our study, product involvement was only used as a control variable, in order to guarantee that there was no significant difference between the two product categories ( $M_{cerelas} = 5.23$ ,  $M_{Bread} = 5.31$ ;  $p\text{-value}=0.646$ ). However, it would be interesting to repeat the study for products of higher involvement, since it is expected that participants would think deeper about the way goods are produced, which might amplify feelings of identification and/or skepticism. For example, feelings of social identification are attenuated when companies pursue selective user innovation strategies rather than fully open ones (Dahl et al. 2015). For those products, co-creation might be seen by the broader market as a way to restrict the power of participating users; thus decreasing the value of a joint label.



## Reference List

- Allio, R. (2005). Interview with Henry Chesbrough: innovating innovation. *Strategy & Leadership*, 33(1), pp.19-24.
- Amabile, T. (1998). *How to kill creativity*. [Boston, MA]: [Harvard Business School Publishing].
- Batra, R. and Ahtola, O. (1991). Measuring the hedonic and utilitarian sources of consumer attitudes. *Marketing Letters*, 2(2), pp.159-170.
- Bilgram, V., Bartl, M. and Biel, S. (2011). Getting Closer to the Consumer – How Nivea Co-Creates New Products. *Mark Rev St. Gallen*, 28(1), pp.34-40.
- Bishop, W. (1984). Competitive Intelligence. *Progressive Grocer*, pp.19–20.
- Bogers, M., Afuah, A. and Bastian, B. (2010). Users as Innovators: A Review, Critique, and Future Research Directions. *Journal of Management*, 36(4), pp.857-875.
- Bonner, P. and Nelson, R. (1985). Product Attributes and Perceived Quality: Foods. In J. Jacoby & J. Olson, eds. *Perceived Quality*. Lexington: MA: Lexington Books, pp. 64–79.
- Brabham, D. (2010). MOVING THE CROWD AT THREADLESS. *Information, Communication & Society*, 13(8), pp.1122-1145.
- Brady, M. and Cronin, J. (2001). Customer Orientation: Effects on Customer Service Perceptions and Outcome Behaviors. *Journal of Service Research*, 3(3), pp.241-251.
- Burton, S. and Zinkhan, G. (1987). Changes in consumer choice: Further investigation of similarity and attraction effects. *Psychology and Marketing*, 4(3), pp.255-266.
- Campbell, J. and Fairey, P. (1989). Informational and normative routes to conformity: The effect of faction size as a function of norm extremity and attention to the stimulus. *Journal of Personality and Social Psychology*, 57(3), pp.457-468.
- Chesbrough, H. (2003). *Open innovation*. Boston, Mass.: Harvard Business School Press.
- Chesbrough, H. (2011). Everything You Need to Know About Open Innovation. [Blog] Available at: <http://www.forbes.com/sites/henrychesbrough/2011/03/21/everything-you-need-to-know-about-open-innovation/#7607e5520b40>.
- Chun, R. (2006). The Influence of Corporate Character on Customers and Employees: Exploring Similarities and Differences. *Journal of the Academy of Marketing Science*, 34(2), pp.138-146.
- Coelho do Vale, R. and Duarte, J. (2013). Classification of FMCG Product Macro-Categories on the Utilitarian vs. Hedonic Dimensions. *Laboratório de Psicologia*, 11(1).
- Cooper, R. and Kleinschmidt, E. (1995). Benchmarking the Firm's Critical Success Factors in New Product Development. *Journal of Product Innovation Management*, 12(5), pp.374-391.
- Cooper, R. and Kleinschmidt, E. (1996). Winning businesses in product development: The critical success factors. *Research Technology Management*, 39(4), pp.18–29.
- Dahl, D., Fuchs, C. and Schreier, M. (2015). Why and When Consumers Prefer Products of User-Driven Firms: A Social Identification Account. *Management Science*, 61(8), pp.1978-1988.
- Darling, J. and Arnold, D. (1988). Foreign consumers' perspective of the products and marketing practices of the United States versus selected European countries. *Journal of Business Research*, 17(3), pp.237-248.
- Deloitte, (2015). *Global Powers of Retailing 2015 Embracing innovation*. 1st ed. [ebook] Deloitte. Available at: <http://www2.deloitte.com/pt/pt/pages/consumer-business/articles/global-powers-of-retailing.html>.
- Dhar, R. and Wertenbroch, K. (2000). Consumer Choice Between Hedonic and Utilitarian Goods. *Journal of Marketing Research*, 37(1), pp.60-71.

- Ertimur, B. and Gilly, M. (2012). So Whaddya Think? Consumers Create Ads and Other Consumers Critique Them. *Journal of Interactive Marketing*, 26(3), pp.115-130.
- Feick, L. and Higie, R. (1992). The Effects of Preference Heterogeneity and Source Characteristics on Ad Processing and Judgements about Endorsers. *Journal of Advertising*, 21(2), pp.9-24.
- Fluevog Shoes, (2016). *Fluevog Shoes | Open Source Footwear*. [online] Available at: <https://www.fluevog.com/community/open-source-footwear/>.
- Franke, N., Keinz, P. and Steger, C. (2009). Testing the Value of Customization: When Do Customers Really Prefer Products Tailored to Their Preferences?. *Journal of Marketing*, 73(5), pp.103-121.
- Franke, N. and Piller, F. (2004). Value Creation by Toolkits for User Innovation and Design: The Case of the Watch Market. *Journal of Product Innovation Management*, 21(6), pp.401-415.
- Fuchs, C., Prandelli, E. and Schreier, M. (2010). The Psychological Effects of Empowerment Strategies on Consumers' Product Demand. *Journal of Marketing*, 74(1), pp.65-79.
- Fuchs, C., Prandelli, E., Schreier, M. and Dahl, D. (2013). All That Is Users Might Not Be Gold: How Labeling Products as User Designed Backfires in the Context of Luxury Fashion Brands. *Journal of Marketing*, 77(5), pp.75-91.
- Fuchs, C. and Schreier, M. (2011). Customer Empowerment in New Product Development\*. *Journal of Product Innovation Management*, 28(1), pp.17-32.
- Hastak, M. and Hong, S. (1991). Country-of-origin effects on product quality judgments: An information integration perspective. *Psychology and Marketing*, 8(2), pp.129-143.
- Hoyer, W., Chandy, R., Dorotic, M., Krafft, M. and Singh, S. (2010). Consumer Cocreation in New Product Development. *Journal of Service Research*, 13(3), pp.283-296.
- Huber, J., Payne, J. and Puto, C. (1982). Adding Asymmetrically Dominated Alternatives: Violations of Regularity and the Similarity Hypothesis. *Journal of Consumer Research*, 9(1), p.90.
- Hull, F. (2004). Innovation Strategy and the Impact of a Composite Model of Service Product Development on Performance. *Journal of Service Research*, 7(2), pp.167-180.
- Humphreys, A. and Grayson, K. (2008). The Intersecting Roles of Consumer and Producer: A Critical Perspective on Co-production, Co-creation and Prosumption. *Sociology Compass*, 2(3), pp.963-980.
- Jacoby, J. and Olson, J. (1985). *Perceived quality*. Lexington, Mass.: LexingtonBooks.
- Kelman, H. (1961). Processes of Opinion Change. *Public Opinion Quarterly*, 25(1), p.57.
- Lafley, A. and Charan, R. (2008). *The game-changer*. New York: Crown Business.
- Langner, B. and Seidel, V. (2013). Competing with friends: Community-based innovation contests at Threadless & Local Motors. *Academy of Management Proceedings*, 2013(1), pp.10372-10372.
- Larkin, J., McDermott, J., Simon, D. and Simon, H. (1980). Expert and Novice Performance in Solving Physics Problems. *Science*, 208(4450), pp.1335-1342.
- Lilien, G., Morrison, P., Searls, K., Sonnack, M. and Hippel, E. (2002). Performance Assessment of the Lead User Idea-Generation Process for New Product Development. *Management Science*, 48(8), pp.1042-1059.
- Lüthje, C., Herstatt, C. and von Hippel, E. (2005). User-innovators and “local” information: The case of mountain biking. *Research Policy*, 34(6), pp.951-965.
- Magee, G. (2005). Rethinking invention: cognition and the economics of technological creativity. *Journal of Economic Behavior & Organization*, 57(1), pp.29-48.
- Mahr, D., Lievens, A. and Blazevic, V. (2013). The Value of Customer Cocreated Knowledge during the Innovation Process. *Journal of Product Innovation Management*, 31(3), pp.599-615.

- Mittal, B. (1995). A comparative analysis of four scales of consumer involvement. *Psychology and Marketing*, 12(7), pp.663-682.
- Moreau, C. and Herd, K. (2010). To Each His Own? How Comparisons with Others Influence Consumers' Evaluations of Their Self-Designed Products. *Journal of Consumer Research*, 36(5), pp.806-819.
- Morrison, P., Roberts, J. and von Hippel, E. (2000). Determinants of User Innovation and Innovation Sharing in a Local Market. *Management Science*, 46(12), pp.1513-1527.
- Moskowitz, H. and Bernstein, R. (2000). VARIABILITY IN HEDONICS: INDICATIONS OF WORLD-WIDE SENSORY AND COGNITIVE PREFERENCE SEGMENTATION. *Journal of Sensory Studies*, 15(3), pp.263-284.
- Nielsen Company, (2014). *NIELSEN BREAKTHROUGH INNOVATION REPORT*. 1st ed. [ebook] Available at: [http://www.nielsen.com/content/dam/nielsen-global/eu/nielseninsights/pdfs/Breakthrough\\_Innovation\\_Report\\_EU\\_FINAL.pdf](http://www.nielsen.com/content/dam/nielsen-global/eu/nielseninsights/pdfs/Breakthrough_Innovation_Report_EU_FINAL.pdf).
- Nishikawa, H., Schreier, M. and Ogawa, S. (2013). User-generated versus designer-generated products: A performance assessment at Muji. *International Journal of Research in Marketing*, 30(2), pp.160-167.
- Ogawa, S. and Piller, F.T. (2006). Reducing the Risks of New Product Development. *MIT Sloan Management Review*, 47(2), pp.65-71
- O'Hern, M. and Rindfleisch, A. (2008). Customer Co-creation: A Typology and Research Agenda. *Review of Marketing Research*, (Working Paper No 4), pp.84-106.
- Olson, J. (1977). Price as an Informational Cue: Effects in Product Evaluation. In G. Woodside, N. Sheth, and D. Bennet, eds. *Consumer and Industrial Buying Behavior*. New York: North Holland Publishing Company, pp. 267-86.
- Olson, J. and Jacoby, J. (1972). Cue Utilization in the Quality Perception Process. In M. Venkatesan, ed. *Proceedings of the Third Annual Conference of the Association for Consumer Research*. Iowa City: Association for Consumer Research, pp. 167-79.
- Pangborn, R. (1981). Individuality in Responses to Sensory Stimuli. In J. Solms & R. Hall, eds. *Criteria of Food Acceptance: How Man Chooses What He Eats*. Zurich: Foster Verlag, pp. 177-219.
- Payne, A., Storbacka, K. and Frow, P. (2008). Managing the co-creation of value. *Journal of the Academy of Marketing Science*, 36(1), pp.83-96.
- Pitt, L. (2006). The Penguin's Window: Corporate Brands From an Open-Source Perspective. *Journal of the Academy of Marketing Science*, 34(2), pp.115-127.
- Poetz, M. and Schreier, M. (2012). The Value of Crowdsourcing: Can Users Really Compete with Professionals in Generating New Product Ideas?. *Journal of Product Innovation Management*, 29(2), pp.245-256.
- Prahalad, C. and Ramaswamy, V. (2000). Co-opting customer competence. *Harvard business review*, pp.1-8.
- Prahalad, C. and Ramaswamy, V. (2004). Co-creation experiences: The next practice in value creation. *Journal of Interactive Marketing*, 18(3), pp.5-14.
- Ramaswamy, V. and Gouillart, F. (2010). *The power of co-creation*. New York: Free Press.
- Ratneshwar, S., Shocker, A. and Stewart, D. (1987). Toward Understanding the Attraction Effect: The Implications of Product Stimulus Meaningfulness and Familiarity. *Journal of Consumer Research*, 13(4), p.520.
- Rosenberg, N. (1976). *Perspectives on technology*. Cambridge [England]: Cambridge University Press.
- Salter, A., Criscuolo, P. and Ter Wal, A. (2014). Coping with Open Innovation. *California Management Review*, 56(2), pp.77-94.
- Sawhney, M., Verona, G. and Prandelli, E. (2005). Collaborating to create: The Internet as a

- platform for customer engagement in product innovation. *Journal of Interactive Marketing*, 19(4), pp.4-17.
- Sawyer, A. and Dickson, P. (1984). Psychological Perspectives on Consumer Response to Sales Promotion. In K. Jocz, ed. *Research on Sales Promotion: Collected Papers*. Cambridge, MA: Marketing Science Institute.
- Schreier, M., Fuchs, C. and Dahl, D. (2012). The Innovation Effect of User Design: Exploring Consumers' Innovation Perceptions of Firms Selling Products Designed by Users. *Journal of Marketing*, 76(5), pp.18-32.
- Schweitzer, F., Gassmann, O. and Rau, C. (2014). Lessons from Ideation: Where Does User Involvement Lead Us?. *Creativity and Innovation Management*, 23(2), pp.155-167.
- Silayoi, P. and Speece, M. (2004). Packaging and purchase decisions. *British Food Journal*, 106(8), pp.607-628.
- Simonson, I. (1989). Choice Based on Reasons: The Case of Attraction and Compromise Effects. *Journal of Consumer Research*, 16(2), p.158.
- Simonson, I. and Tversky, A. (1992). Choice in Context: Tradeoff Contrast and Extremeness Aversion. *Journal of Marketing Research*, 29(3), p.281.
- Strahilevitz, M. and Myers, J. (1998). Donations to Charity as Purchase Incentives: How Well They Work May Depend on What You Are Trying to Sell. *Journal of Consumer Research*, 24(4), pp.434-446.
- Szymanski, D., Kroff, M. and Troy, L. (2007). Innovativeness and new product success: insights from the cumulative evidence. *Journal of the Academy of Marketing Science*, 35(1), pp.35-52.
- Thomke, S. and von Hippel, E. (2002). Customers as innovators: A new way to create value. *Harvard Business Review*, 80(4), p.74.
- Thompson, D. and Malaviya, P. (2013). Consumer-Generated Ads: Does Awareness of Advertising Co-Creation Help or Hurt Persuasion?. *Journal of Marketing*, 77(3), pp.33-47.
- Traitler, H., Watzke, H. and Saguy, I. (2011). Reinventing R&D in an Open Innovation Ecosystem. *Journal of Food Science*, 76(2), pp.R62-R68.
- Tversky, A. and Kahneman, D. (1991). Loss Aversion in Riskless Choice: A Reference-Dependent Model. *The Quarterly Journal of Economics*, 106(4), pp.1039-1061.
- Ulrich, K. and Eppinger, S. (1995). *Product design and development*. New York: McGraw-Hill.
- Urban, G. and Hauser, J. (1993). *Design and marketing of new products*. Englewood Cliffs, N.J.: Prentice-Hall.
- Urban, G. and von Hippel, E. (1988). Lead User Analyses for the Development of New Industrial Products. *Management Science*, 34(5), pp.569-582.
- Vincenti, W. (1990). *What engineers know and how they know it*. Baltimore: Johns Hopkins University Press.
- von Hippel, E. (1994). "Sticky Information" and the Locus of Problem Solving: Implications for Innovation. *Management Science*, 40(4), pp.429-439.
- von Hippel, E. (2005). *Democratizing innovation*. Cambridge, Mass.: MIT Press.
- Weisberg, R. (1993). *Creativity*. New York: W.H. Freeman.
- Wilson, E. and Sherrell, D. (1993). Source effects in communication and persuasion research: A meta-analysis of effect size. *Journal of the Academy of Marketing Science*, 21(2), pp.101-112.
- Wu, J., Damminga, C., Johnson, K. and Kim, H. (2010). Content Analysis of Online Co-Design Community Interactions: A Case Study of Crowd-Sourced Threadless. *Journal of Global Academy of Marketing Science*, 20(4), pp.334-342.
- Zaichkowsky, J. (1985). Measuring the Involvement Construct. *Journal of Consumer*

*Research*, 12(3), pp.341–352.  
Zeithaml, V. (1988). Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence. *Journal of Marketing*, 52(3), p.2.

# Appendix

## 1) Scale of Product Involvement

Adapted from Banwari Mittal, 1995; Zaichkowsky, 1985

This product is very important to me
This product does not matter
I choose this product very carefully
What product I choose from this category matters to me

## 2) Randomization of different products, labeled differently

### 2.1) Number of scenarios created

	Frequency
Valid 1	27
2	33
3	41
Total	101

	Frequency
Valid 1	38
2	31
3	34
Total	103

### 2.2) Differences in the number of scenarios presented

	Cereals	Bread
Chi-Square	2,931 <sup>a</sup>	,718 <sup>b</sup>
df	2	2
Asymp. Sig.	,231	,698

a. 0 cells (0,0%) have expected frequencies less than 5. The minimum expected cell frequency is 33,7.

b. 0 cells (0,0%) have expected frequencies less than 5. The minimum expected cell frequency is 34,3.

### 3) Scale of Perceived Quality

From Bonner and Nelson, 1985.

Rich Flavor
Natural Taste
Good Aroma
Appetizing Looks

### 4) Sphericity - Violation and Corrections

#### Mauchly's Test of Sphericity<sup>a</sup>

Measure: Average\_quality

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon <sup>b</sup>		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
design_mode	,939	11,899	2	,003	,943	,952	,500

#### Tests of Within-Subjects Effects

Measure: Average\_quality

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
design_mode	Greenhouse-Geisser	6,853	1,886	3,635	3,667	,029
	Huynh-Feldt	6,853	1,904	3,600	3,667	,029