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A study on labeling strategies for crowdsourced consumer electronics: crowdsourced idea selection and the relationship with product market performance

Master Thesis Economics & Business – Marketing

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ABSTRACT

Firms are utilizing consumers for their new product development processes, this phenomenon is called crowdsourcing. The crowd is being utilized for generating new product ideas and for selecting new product ideas. Previous literature has been looked at the effect of branded crowd generated products on product market performance, while this study extends the literature by examining the effect of labeling products as crowd selected as well. In addition, it argues that such effects are mediated by perceived risk and perceived quality. This study attempts to test these effects by conducting an experimental survey. The within-subject design allows us to measure the effect of four labeling strategies on crowdsourced consumer electronical products. All respondents will randomly be exposed to all treatments, i.e. the labels are attached to the products randomly and the survey allows us to measure the effect of the treatments on product market performance, perceived risk and perceived quality.

Crowdsourced products that are generated and selected by the crowd can be labeled to four labeling strategies. These products can be labeled as 'generated by the crowd', 'selected by the crowd', 'generated and selected by the crowd' or no label is attached.

We argue that labeling crowdsourced products as customer selected, the perceived risk decreases because the word-of-mouth effect will improve the decision making process for customers. Crowdsourced products that are labeled as 'generated and selected by the crowd' have no direct or indirect effects on purchase intentions. When crowdsourced products are labeled as 'selected by the crowd', we found something different. This label leads to lower purchase intentions, but this effect disappears when crowdsourced products are perceived as useful and novel. We found an indirect-only mediation effect of the label 'generated by the crowd' on purchase intentions. This label negatively affects crowdsourced consumer electronics' purchase intentions by increasing the perceived risk. In other words, people are less intended to purchase such products attached with a 'generated by the crowd' label, because they perceive these products as less reliable.

Content

1. Introduction

In 2012 Lay's (crisp brand from PepsiCo) conducted an innovation contest, where people could submit a new flavor for Lay's. Peter Boogerd was one of the participants and came up with a new flavor. During his wife's pregnancy, Boogerd was sent on regular basis to the cafeteria to provide her some fries with 'Joppie' sauce[1]. Peter Boogerd figured out that this could be a nice new flavor for Lay's and submitted his idea for 'Joppie' crisps. More than 700,000 ideas were submitted by everybody who had an idea. Three finalists were chosen by Lay's and Boogerds' flavor won with 72% of the votes. His 'Joppie' flavored crisps were available in the supermarkets, he won €25.000 and received 1% of the total turnover (Snackkoerier, 2012).

Firms like PepsiCo, and many more, are utilizing people for new product and service development. This phenomenon is called crowdsourcing and is described in 2006th edition of Wired Magazine by Jeff Howe as:

Simply defined, crowdsourcing represents the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call. This can take the form of peer-production (when the job is performed collaboratively), but is also often undertaken by sole individuals. The crucial prerequisite is the use of the open call format and the large network of potential laborers. (2006a: 5)

Crowdsourcing is based on the wisdom of the crowds. Surowiecki (2004) states that the group is more intelligent than the smartest person in that group. In his book he examined various challenges; the estimation of the weight of an ox and the distribution of sports betting. Ultimately the group performed better than the individual. Surowiecki states that this is because of the wisdom is derived from aggregating solutions and not from averaging the solutions. The people who are participating, the crowd, can be everybody: consumers, users, professional designers, engineers. Anybody who might have a (good) idea and participates in the crowdsourcing process can be a part of the crowd.

Companies have to decide whether they internally or externally develop their new products. There are multiple ways people can be involved in the crowdsourcing process. King and Lakhani (2013) examined the aspects of involvement of the crowd and mentioned that the crowd can participate in the 'idea generation' process and/or the 'idea selection' process.

		Idea selection	
		Internal	**External**
Idea generation	**Internal**	Traditional, internal R&D (Apple)	Approval contests (The Voice, Idols)
	External	Innovation Tournament (Fiat Mio)	Communities and markets (Quirky, Lay's)

Figure 1: Company approaches innovation and new product development (King & Lakhani, 2013)

Fiat, the Italian car manufacturer, conducted an Innovation Tournament and utilized the crowd in Brazil for the 'idea generation' aspect of crowdsourcing. People could submit ideas for their most preferred car; color, door configuration, size, etc. Fiat collected all these preferences and manufactured the new Fiat Mio[2], based on the ideas of the participants.

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[1] Joppie sauce is a sauce that is regularly eaten with fries in The Netherlands, just like mayonnaise and ketchup
[2] See appendix 1.1. for Fiat Mio

Approval contests such as, The Voice and Idols utilize the crowd for the 'idea selection' aspect of crowdsourcing. The show provides the candidates and the people who are watching can vote for their favorite performer. In the end, the crowd and not professional music labels select the performer. A company like Quirky, a crowdsourcing community, combines both aspects of crowdsourcing. Everybody can generate an idea and pitches this idea on the Quirky platform. The community can bring out their vote for the different ideas. When an idea has reached a certain amount of votes, the idea has been selected by the crowd and will be manufactured by Quirky. Crowdsourcing is not beneficial for all companies. Apple is a company that doesn't utilize the crowd in their new product development process. They generate the ideas internally and selects them internally, this might be their power.

A lot of research has been done on crowdsourcing. Nishikawa, Schreier and Fuchs (2017) have shown that when crowdsourced products are labeled as 'user-ideated', sales appeared to be higher. This means that crowdsourcing could also be used as a marketing tool. They found that perceived quality is the mediating variable, in other words, people perceive the product's quality as higher when the 'customer-ideated' label is present. Moreover, they regard these products as ones that meet their needs better. Their hypothesis about the 'user-argument' was proven to be true. People believe that users are more capable than in-house designers to know what other users need. This is because the people who are participating in crowdsourcing, are part of the same consumer group as everybody else (Schreier, Fuchs, Dahl, 2012).

More and more firms have also begun to involve customers in the selection process of new product ideas. This study extends the prior literature by researching the effect of crowdsourced products that are also selected by the crowd on product market performance. We argue that products that are selected by the crowd will increase purchase intention due to a lower perceived risk. Besides that the products are also generated by the crowd, which means that the purchase intentions will also increase due to a higher perceived quality (Nishikawa, Schreier & Fuchs; 2017). We have seen in their study, but in many more labeling studies, that labeling products is a good method to make people aware products' source and this could be used as a marketing tool. Because we focus on products that are generated and selected by the crowd, two aspects of crowdsourcing involved in this study, four different labeling strategies are possible (see figure 2).

Labels		Generated Crowdsourcing	
		Yes	no
Selected crowdsourcing	yes	1	2
	no	3 (Nishikawa, Schreier & Fuchs 2017)	4

Figure 2: Labeling strategies crowdsourced products

In this study we examine the best labeling strategy for products that are generated and selected by the crowd. This means that these products can be labeled in four different ways; generated by crowd, selected by crowd, generated and selected by crowd, no label. It is important to examine the effect of these labeling strategies, because we don't know the best labeling strategy for crowdsourced products generated and selected by the crowd. This means that we don't know the effect of labeling products that are selected by customers on purchase intention, therefore it is important to examine all possible labeling strategies.

We focus on products that are 'generated and selected by the crowd' and what the effect of the different labeling strategies is. We suggest that when the crowd selects these ideas, the product market performance will increase. We expect that the product market performance will increase when the crowdsourced products are labeled as such, because it will lower the perceived risk for consumers.

Because we focus on both idea generation and idea selection, we extend to the literature a more holistic view on crowdsourced products , where Nishikawa, Schreier and Fuchs (2017) only focused on products that are generated by the crowd. We argue that crowdsourced products that are labeled as selected by the crowd lead to a higher purchase intention due to a reduced perceived risk. Crowdsourced that are labeled as generated by the crowd will increase purchase intention due to a higher perceived quality, just like Nishikawa, Schreier & Fuchs (2017) have shown.

The argument that the label 'selected by customers' will increase purchase intention due to a reduced perceived risk is based on the word-of-mouth argument. Consumers communicate to other consumers about their experiences with the firm, product or service (Richins 1983). This could be in terms of actual talking, but also in terms of online word-of-mouth (eWOM) like comments, reviews or ratings. Research has shown that word-of-mouth contributes significantly to consumer's purchase decisions (Bone, 1995; Brown & Reingen, 1987; Engel, Blackwell & Kegerreis, 1969; Arndt, 1967). Word-of-mouth is a phenomenon that consumers value when they are purchasing a product, because it lowers the perceived risk and uncertainty about the purchase (Bansal & Voyer, 2000).

Products that are selected by users indicates a similar process. Products that have good reviews and ratings provide less risk for consumers in their decision-making process. Nielsen (2012) stated that 70% of the people trust online reviews. That means that when a product is selected by the crowd and this is mentioned and displayed, it is already approved by the users. The increase of product market performance will be due to the effect of a reduced uncertainty/perceived risk.

Literature overview						
Study	**Method**	**Type of crowdsourced products**	**Labeling strategy**	**Mediation variables**	**Dependent variable**	**Product categories**
Fuchs, Prandelli, Schreier & Dahl (2013)	Experiment & Survey	Non-crowdsourced products	User-designed vs. Company-designed	Design quality perception, agentic feelings	Product market performance	Luxury fashion (e.g. Prada), mainstream fashion (e.g. Zara)
Nishikawa, Schreier & Fuchs (2017)	Randomized field experiment & Survey	Products based on idea generation by the crowd	Generated by customers	Perceived quality	Product market performance	Consumer electronics (security buzzer & pedometer) vs. food
This study	Experimental survey	Products based on idea generation and selection by the crowd	Generated by customers, selected by customers & generated and selected by customers	Perceived quality, perceived risk	Product market performance	Consumer electronics; lighting, power strips & extenders, cable management, computer accessories

The empirical work we have performed didn't support our hypotheses. We conducted an experimental survey where we measured the effect of different labeling strategies on purchase intention and the mediating variables perceived risk and perceived quality. The within-subject design allows us to measure the effect of four labeling strategies on four crowdsourced consumer electronical product categories (obtained from Quirky). All respondents were randomly exposed to all treatments, i.e. the labels were randomly attached to the products and because the survey contained all four labels (label 4 is the reference category), it allowed us to measure the effect of the treatments on product market performance, perceived risk and perceived quality. We found that the label 'selected by customers' did not have a positive effect on purchase intention due to a reduction of perceived risk. On the contrary, we found that this label has a negative effect on purchase intention, but this effect disappears when people perceive the products as novel and useful. Also our hypothesis that crowdsourced products labeled as 'generated by customers' affects purchase intention positively due to an increase of perceived quality, was not supported by our empirical work. We found that this label leads indirectly to a lower purchase intention, because the label increases perceived risk. We found that when this label is attached to crowdsourced products, people perceive the products as less reliable. When both these labels are attached (generated and selected by customers) we hypothesized that purchase intentions will increase by respectively an increase of perceived quality and a decrease of perceived risk. Also for this hypothesis we didn't find any support.

The context of our hypotheses is described in the first part of this paper. In this literature section the crowdsourcing landscape will be described and the distinction between crowd generated product ideas and crowd selected product ideas will be properly elaborated. This section includes the labeling argument of crowd selected products and the hypothesized effect on product market performance due to a reduced perceived risk. The conceptual framework provides a clear overview about the effects and the hypotheses. After that the experimental design elaborate on the setup of the survey and the variables involved. Thereafter the results of the experiment will be described, evaluated and explained. Finally the conclusion and discussion part includes the conclusion of the findings and the contribution to the existing literature. It also includes recommendations for firms and marketers based on the conclusion of this study. At last the finding's limitations and possibilities for future research are described which examines the generalizability of this study's results.

2. Literature

In this paragraph the crowdsourcing landscape will be described. What opportunities does crowdsourcing create and what is the relationship between firms and consumers in this process?

The crowdsourcing process is not a very transparent process within a company. Especially when a firm only chooses to utilize the crowd for idea generation, we don't know what happens with these ideas. Firms may have different motivations for new product development. During the selection process firms consider various motivations to select that idea that can be converted into a product. The product has to meet the expectations of the company, customers and users, but also the engineering goals, requirements and constraints (Stevanoviç et al. 2016). The author also showed that companies consider feasibility as most important when selecting an idea for new product development. Consumers and users have different motivations for selecting a product. Research on the sources of innovation has shown that users innovate for themselves and that these innovations are also appealing to other consumers (Franke, Von Hippel, and Schreier 2006; Jeppesen and Frederiksen 2006; Lilien et al. 2002; Von Hippel, 2005).

The decision process that companies face when selecting a new product idea is quite mysterious and not without any risk. When a firm evaluates the crowdsourced ideas, they have to select them. These ideas may be obtained from the crowd, but the question is whether these products are also approved by the crowd? In other words, the best idea according to the firm would be a different one than the best idea according to consumers. It is very complicated for firms to manage such an open-innovation process (King & Lakhani, 2013). PepsiCo for example faced some problems when they involved people to their Super Bowl advertisement. In 2011 people could take a view in PepsiCo's innovation process by watching some of their advertisements in an online platform. They developed an ad that used Dorito's tortilla chips as sacramental wafers during Holy Communion. Kraft Food Australia also utilized the crowd for their new product. They organized a name contest for their new vegemite cheese snack. Kraft selected the winner and chose iSnack 2.0, which encountered a lot of negative publicity. Kraft dropped the name and let the crowd choose among six names, eventually 'Vegemite Cheesybite' won.

Firms find it very difficult to manage these crowdsourcing processes, but on the other hand they do want to benefit from this phenomenon. Crowdsourcing ensures a lot of opportunities in the idea generation process. According to Girotra, Terwiesch and Ulrich (2010), the expected quality of the best idea is driven by the number of ideas generated. They suggest that the average quality of the ideas may be lower than when ideas are generated within a firm, but the best idea from the crowd is more likely to be fantastic.

The selection of the idea can also be very beneficial for the firm when this is crowdsourced. For example, in the past the best improvements across the industry for snowboarding, windsurfing and skateboarding are invented by their users and not by the manufacturing companies (Shah 2010). Similar cases of user-innovations have been seen in Japan and the United States (Von Hippel, Ogawa and De Jong, 2011). Users are able to evaluate and improve these products very well. Outsiders can also be very useful to select ideas, because they can be very creative with their evaluations and generate insights that will facilitate the application of the product and make it easier to select the best ideas.

Firms and their managers have to determine their crowdsourcing strategy. Should a company use the crowd for generation of new ideas or for the selection of new ideas? Which strategy is more beneficial, or should both strategies be utilized.

2.1. Generation of ideas by the crowd

To generate ideas from the crowd, firms have challenged people to come up with their best idea. Since the internet these contests can be properly managed and everybody can participate. Firms offer often incentives to motivate people to participate. Because the value of crowdsourcing lies in the number of ideas and in the quality of them (Girotra, Terwiesch and Ulrich; 2010).

Harvard Medical School for example challenged people to come up with a solution for a treatment of diabetes type 1. Within six weeks more than 190 people participated. It showed that the winning ideas where not directly related to the existing literature on diabetes, but were founded on other fields of science. The winners were a couple of chemistry students, a retired dentist, a geophysicist and a genetic researcher. All with no prior background in diabetes (Cameron, 2010). Also companies as Netflix challenge the crowd to come up with complex algorithmic solutions for their business problems.

Online platforms help sufficiently to facilitate idea generation. eYeka, for example, is a platform that allows brands to post ideas for a new product. Brands as P&G, Nestlé and Citroen are part of their community. They utilize the crowd in this community for new design ideas. Nestle asked the crowd to come up with a slogan or advertising film for their new product. The participating firms at eYeka ask the crowd also for more complex tasks, for example P&G utilized the community to develop a positioning strategy for new products.

Allen's (2018) paper examined several motivations for companies to crowdsource. He showed that when the initial idea quality of a product is low, the effect of crowdsourcing on sales increases. This suggests that products and services that are difficult to market, are converted into better marketable ideas through crowdsourcing.

Based on the examples mentioned earlier, the design of new product ideas can vary from high-tech solutions (algorithms and diabetes cures) to low-tech designs as new slogans. Crowdsourcing does not only work for non-complex technical products and services. General Electric invested more than $134 million since 2010 in several crowdsourcing projects that generated new ideas and businesses for renewable energy, grid efficiency and other complex cases (King & Lakhani, 2013).

Firms are utilizing the crowd for solutions especially on low-tech quality ideas (Allen, 2018), but many examples prove that also high-tech challenges can be a success when crowdsourced. The main benefit from idea generation by the crowd is the fact that the pool of ideas becomes bigger and therefore the quality of the best idea is topnotch (Girotra, Terwiesch and Ulrich; 2010).

2.2. Selection of ideas by the crowd

Most of the initiatives from firms regarding to crowdsourcing are as mentioned before. They utilize the crowd for generation of new ideas and the firm selects them. Firms are less familiar with the option crowdsourced selection. The crowd selects the ideas that are being showed to them. An online community that particularly uses the crowd to select the best ideas is Kickstarter. Kickstarter is a crowdfunding website where companies develop a product and everybody can decide whether or not to fund these projects. The products that have achieved their predetermined goal (investments) are selected by the crowd.

LEGO Group asked consumers to vote on new features for their assortment. They've asked the people which landmark buildings should be converted into a LEGO model kit. Also Wal-Mart asks consumers to vote for new products, the highest scores are obtained in their assortment.

These examples show that companies utilize the crowd to select the ideas that the firm has generated. The firm remains control over the ideas that are being generated and uses the crowd to select them.

When an idea is generated by the crowd, the ideas can be in line with the firms' business line or strategy but it can also be that these ideas don't fit the company's values at all. The crowd thinks in a different manner than when a design group within the company thinks and these ideas can be completely unfit for the company. It can also be that these ideas are a potential success, just because they unfit the company.

In idea selection crowdsourcing, the company remain control over the generated ideas. They let people choose between several ideas that the firm has generated. But there are also examples of firms that crowdsource the idea generation and the idea selection process.

2.3. Crowdsourced idea generation and selection

Firms with products that are subjected to a quick change of needs (e.g. Zara) are perfectly fit to crowdsource new ideas in the generation and selection process. Threadless has established an online community where people can design T-shirts, dresses, phone cases, bags etc. The designs are posted by the people, showed and evaluated by the community. Based on the community's score and their own sense of fashion and style, Threadless manufactures the design with the highest score.

In this study we use products from Quirky. Quirky has a similar approach as Threadless. This firm specializes itself in socially developed products for a various range of consumer product categories. The product categories that Quirky distinguishes are: Electronics, Kitchen & Home, Outdoor, Work & Office and Toys. Consumers generate ideas and submit them on the Quirky website. The Quirky community evaluates and scores the ideas. The most popular ideas are being developed, produced and sold by Quirky. The community can help the inventor with solutions for his product, they are called influencers. The royalties of the sold products are distributed to the inventor, the influencers, Quirky and the brand partners where the products are being sold. The products that are used in this study are obtained from Quirky. These products are perfectly fit for this study, because the products are based on ideas and designs generated by their community (crowd) and the submitted ideas are selected by their community (crowd).

In the cases of Quirky and Threadless, where both idea generation and selection are being crowdsourced, the firm's control over the new product development process is more or less lost. When the idea is generated by the crowd, the products or services can be unsuitable for the firm. When these ideas are also being selected by the crowd the company has lost all its control.

2.4. What happens to the products that were selected by the crowd and labeled as such?

In this paragraph we will describe the motivation for this study. We argue that crowdsourced products that are generated and selected by the crowd and labeled as such, reduces the perceived risk of consumers about the products. We expect that word-of-mouth (online reviews) will cause the reduction on perceived risk.

2.4.1. Perceived risk

Risk perception is viewed as arising from unanticipated and uncertain consequences of an unpleasant nature of the product purchase process (Bauer, 1960). Carl may have some trouble when purchasing a used-car, he fears that he might end up all alone in the desert with a broken car. Caroline may worry with the purchase of a new smartphone, will it be as expected? When Fred is inviting his friends and is looking for a good wine, will the wine be good and will his friend like it?

These cases show the experienced risk of consumers when consuming particular products. The perceived risk of a product is related to the potentially negative outcome of the product. Mitchell (1999) argues that perceived risk is a powerful variable to explain the behavior of consumers in the

purchasing process, because consumers are more often motivated to avoid mistakes than to maximize utility in the decision making process.

Prior literature argues that the purchase probability increases when the perceived risk is reduced (Chang & Chen, 2008). Jacoby and Kaplan (1972) identified five risk dimensions: financial, performance, physical, psychological, social and overall perceived risk.

Financial risk is defined by the chance of losing money if you try a new brand/product. Are the costs of Carl's car more than it should be considering the conditions of the car? Performance risk is defined as the likelihood that there will be something wrong with an unfamiliar brand/product, does Caroline's new smartphone works properly? Physical risk is defined as the probability that a product is not safe to your health. Contains Fred's wine harmful pesticides? Psychological risk is defined as the chance that a product will not fit with your self-image. Does Carl's new car fit his personality? Social risk is defined as the chance that the product will affect the way other people think of you. Will Fred's guests enjoy and like his wine? The overall perceived risk is defined as all sorts of factors combined about how risky the purchase of the unfamiliar product was in general.

The perceived risk of a purchase depends on the type of product or service. This product involvement is defined as 'an internal state variable that indicates the amount of arousal, interest or drive evoked by a product class' (Bloch, 1981; Mittal and Lee, 1989). Product involvement is higher when a lot of money is involved, because the high price results in a greater 'pain of paying' and concern of the best choice (Prelec and Loewenstein, 1998).

Word-of-mouth (WOM) or electronic word-of-mouth (eWOM) might reduce this perceived risk. WOM is the act of consumer providing information about goods, services, brands or companies to other consumers (Rosario, Sotgiu, de Valck and Bijmolt, 2016). Consumers rely on the information about a product provided by fellow consumers on these websites. The result is that, for example, online ratings increase product sales (Chevalier and Mayzlin, 2006; Clemons, Gao, and Hitt 2006; Dellarocas, Zhang, and Awad 2007). Research has shown that WOM contributes significantly to consumer's purchase decisions (Bone 1995; Brown & Reingen 1987; Engel, Blackwell & Kegerreis 1969; Arndt 1967). WOM is a phenomenon that consumers value when they are purchasing a product, because it lowers the perceived risk and uncertainty about the purchase (Bansal & Voyer 2000).

Research done by Alan Au, Alan Tse, Wai Kin Choi, and Chi Ming Siu (1994), showed that an increase of the perceived technology of a product increases the perceived risk. In this research, consumer electronics will be evaluated, which means these products are developed on a decent level of technology, which allows us to measure the effect of perceived risk.

We expect that products that are 'selected by the crowd' have a similar effect on purchase intention such as WOM has. Selected by the crowd indicates that it is recommended/approved by the crowd and therefore comparable to WOM. We expect an increase of the product market performance since the products are selected by consumers and labeled as such.

2.5.   Labeling crowdsourced products
The labeling strategy of a product is very important, because it might serve as a marketing tool. We argue that when a crowdsourced product is actively marketed as 'customer selected', i.e. labeled as such, may increase the product market performance. The underlying concept is based on the consumer inference literature, which means that consumers construct spontaneous if-then linkages between information and conclusion (Kardes, Posavac, and Cronley 2004).

For example, if you are walking in an unknown city and looking for a good restaurant, you will go to the most crowded restaurant. Similarly, people perceive the quality of a product which is expensive as

better than when the product is cheap (price-quality inference, Rao and Monroe, 1989). When we know that organic food is organic, we perceive it as tastier than when we are not aware of this information (Johansson et al. 1999). Similar for German engines, French wine or Italian pasta, the quality of these products are perceived higher when the country of origin is labeled (Bilkey and Nes 1982). The same goes for products that are customer ideated, these products are perceived as a better fit to consumers' needs (Nishikawa, Schreier and Fuchs 2017). These cases show that the effect of labels on product market performance is significant.

In this last study, Nishikawa, Schreier and Fuchs were able to conduct two randomized field research in order to measure the effect of labeling on crowdsourced products. They were able to collaborate with Muji, a crowdsourcing company, and manipulate the labels on the crowdsourced product in the stores. In one store they did label the product as 'customer-ideated' at the point-of-purchase and in the other store they didn't label the product as such. They found an increase of product market performance when the label was displayed, due to the fact that the product quality was perceived as a better fit for the consumer's needs. Their hypothesis about the 'user-argument' was proven to be true, people believe that users are more capable than in-house designers to know what other users need. As mentioned previously, this is because the people who are participating in crowdsourcing, are part of the same consumer group as everybody else (Schreier, Fuchs, Dahl, 2012).

The paper of Schreier, Fuchs & Dahl (2012) examines the effect of innovation perception when a product is labeled as user-design or expert-design. They have shown in their study that when cereals were labeled as 'designed by users' (vs. designed by experts), it increased the perceived innovation ability of the firm and lead to a higher willingness to pay. This innovation ability focuses on the aesthetics of the product and the functionality of the product. They have also shown that the recommendation intent for cereals that are labeled as 'user-design' are higher than 'expert-design', this effect is also mediated by a higher innovation ability perception.

Another study from Fuchs, Prandelli, Schreier & Dahl (2013) examined the effect of labeling strategies on branded products. They have researched the effect of the label 'user-design' (vs. company-design) on luxury and mainstream brands. They have found that mainstream brands (H&M, Diesel) labeled as 'user-design', lead to higher sales than when the label is absent. The 'user-design' label on luxurious brands (Prada, Burberry) results in an opposite effect. This label on luxurious brands affects the perceived quality negatively. Besides that, this label compromises the social distance that high-status/luxury products create. This effect on luxury brands can be attenuated when the users are (1) legitimized by the brands' head designer, (2) described as artists or (3) linked to a celebrity status. Fuchs also showed that the effect varies between product categories, i.e. the user-design effect are mitigated when a product category is defined as a low status relevant category. Luxury brands rely on the internal professional designers, that is what consumers appreciate from these kind of brands.

Labeling strategies are important for marketing products in order to generate more sales. The source is mentioned on the products as a marketing tool. Labeling crowdsourced products has also affected the perceived quality successfully, except for luxury branded products. Less is known about crowdsourced products that are selected by the crowd and labeled as such. In this study we focus on products that are generated and selected by customers and we will examine which labeling strategy will be best. There are four labeling strategies possible for crowdsourced products that are generated and selected by the crowd, showed in the matrix below:

Labels		Generated Crowdsourcing	
		Yes	no
Selected crowdsourcing	yes	1	2
	no	3 (Nishikawa, Schreier & Fuchs 2017)	4

Figure 3: labeling strategies crowdsourced products

Nishikawa, Schreier and Fuchs' (2017) paper examines crowdsourced products that are based on ideas generated from the crowd. We focus in this study on products that are generated and selected by the crowd, that means that we can add two more labels than Nishikawa, Schreier and Fuchs (2017), namely label 1 and 2.
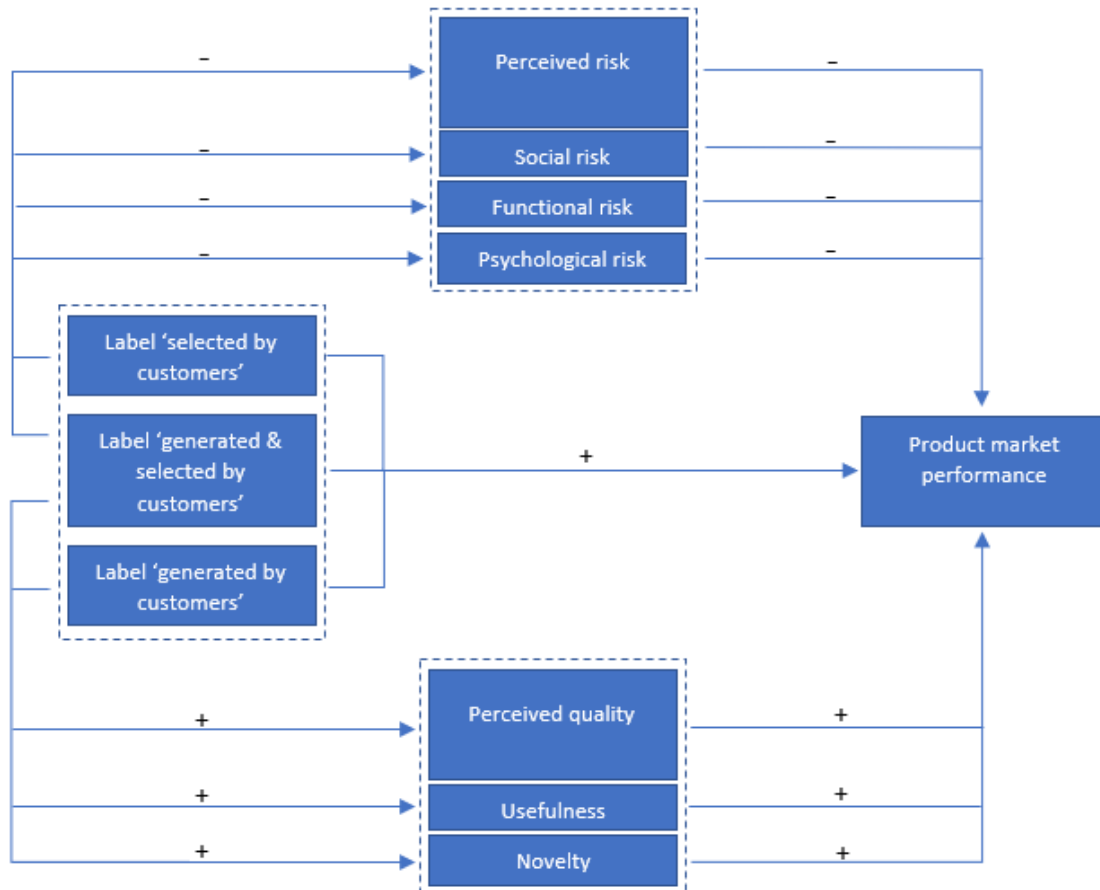

Figure 4: The conceptual framework – mediation model

We expect that when these products are labeled as such, the product market performance will increase. There are two main rationales underlying this effect. We expect that when the products are labeled as 'selected by customers', perceived risk will decrease due to WOM (Archak, Ghose, and Iperiotis, 2011) and that will increase product market performance (Chang & Chen, 2008). The second rationale underlying the effect of the labels on product market performance is when the products are labeled as 'generated by customers'. We have seen in Nishikawa, Schreier & Fuchs (2017) that this will increase the perceived quality and lead to a higher product market performance. When the label 'generated and selected by customers' is attached to the product, we expect that this will increase the product market performance because it reduces the perceived risk and increases the perceived quality, based on the same motivations we have described earlier. The conceptual framework in figure 4 displays a clear overview of the described effects.

H1: Customer selected and generated products that are labeled as such may increase the product market performance

To check if the rationales underlying on H1 are true, we want to test the effects of the labels on perceived risk. We believe that when crowdsourced products that are generated and selected by customers are labeled as such, it will lower the perceived risk. In this study we examine Jacoby and Kaplan (1972) construct of perceived risk; functional, social and psychological risk. We argue that when consumers know that the product is selected by the crowd, the perceived social risk will be reduced because the consumer has information that more consumers, users of the same group, have chosen for this product. This idea is based on the diffusion theory (Rogers, 1962) and the product life cycle theory (Levitt, 1965). The majority of the people adopts a new product after several groups (innovators and early adopters) have already tried the product, service etc. The early majority and late majority will adopt the product after the innovators and early adopters. The majorities are informed (WOM) by innovators and early adopters and this will lower the bar to adopt the products.

We also expect that the perceived functional risk will decrease, because of a similar argument as mentioned above. The product has already been approved (selected) by consumers. Therefore consumers perceive this product as reliable.

The final variable of the construct is psychological risk. We expect this to decrease when a product is selected by the crowd based on the usefulness argument. Customer-ideated products are considered to be a better fit to consumers' needs, i.e. it fits the consumer more properly. A product that is publicly consumed allows people to communicate their self-image (Belk, 1988). Therefore when the product is labeled as selected by customers, we expect that this will reduce the perceived risk.

H2: Customer selected and generated products that are labeled as such may lead to higher product market performance by reducing the perceived risk associated with such products

H2a: Customer selected and generated products that are labeled as such may lead to higher product market performance by reducing the social risk associated with such products

H2b: Customer selected and generated products that are labeled as such may lead to higher product market performance by reducing the functional risk associated with such products

H2c: Customer selected and generated products that are labeled as such may lead to higher product market performance by reducing the psychological risk associated with such products

In this study we also want to measure the effect of labeling on perceived quality, because Boris Snoj, Aleksandra Pisnik Korda and Damijan Mumel (2004) have shown that perceived risk and perceived quality are highly correlated for consumer electronics. The construct of perceived quality is based on the variables Allen (2018) used in his paper. He used these variables to measure the various aspects of a product that influence the decision for firms to crowdsource or not. Allen (2018) argues that the variables; usefulness, product reliability, usability/performance and novelty, the quality of an idea can be measured. Poetz and Schreier (2012) have shown that crowdsourced ideas outperform firm's generated ideas in terms of novelty and customer benefit (usefulness). Nishikawa, Schreier and Fuchs (2017) have used similar variables for their perceived quality construct and found that perceived quality mediated the effect of the label on product market performance. We also use the variables usefulness and novelty for the construct perceived quality, to examine the underlying effect on perceived quality construct. We know from Nishikawa, Schreier and Fuchs study (2017) that crowdsourced products (generated by customers) perform better due to the increase of perceived quality. We expect to find similar results on products that are labeled as customer ideated, i.e. these labeled products have an higher effect on product market performance due to the mediating variable

perceived quality. According to research conducted by Liang & Corkindale (2012) the effect of eWOM on quality perceptions is significant. Therefore we also expect that crowdsourced products, selected and generated by the crowd and labeled as such will increase the perceived quality and lead to a higher product market performance.

H3: Customer selected and generated products that are labeled as such may lead to higher product market performance by increasing the perceived quality associated with such products

H3a: Customer selected and generated products that are labeled as such may lead to higher product market performance by increasing the perceived usefulness associated with such products

H3b: Customer selected and generated products that are labeled as such may lead to higher product market performance by increasing the perceived novelty associated with such products

3. Experimental Design

What we add in this study to the existing literature is the effect of labeling products that are generated and selected by the crowd on product market performance. We've seen in Nishikawa, Schreier and Fuchs (2017) paper that products that are generated by the crowd perform better due to an increase of perceived quality. These products are only generated using crowdsourcing, but are selected by the manufacturing firm (Muji). We argue that products that are generated and selected using crowdsourcing and labeled as such, will increase the product market performance due to the mediating effect of a reduced perceived risk. We examine the effects for consumer electronics in four different categories; Computer Accessories, Cord & Cable management, Lighting and Power Strips & Extenders.

In order to examine the hypothesized effects mentioned earlier, we conduct an experimental survey (see appendix 2.2. for the survey). This experiment uses a within-subject design because it increases the statistical power of the model. That is because all independent variables are evaluated by each individual, so we can examine the individual differences within subjects. That is exactly what we want, we want to see the effect of each labeling strategy per individual. The different labels are shown in figure 5. All respondents are shown to all treatments (four labels) to examine the relative effects.

Labels		Generated Crowdsourcing	
		Yes	no
Selected crowdsourcing	yes	1	2
	no	3 (Nishikawa, Schreier & Fuchs 2017)	4

Figure 5: labeling strategies crowdsourced products

The products that are used this study are consumer electronics, which are collected from the website Quirky. The labels are randomly attached to the various products. As already mentioned this website allows everybody to generate new products ideas and let the community selects the ideas. The selected ideas will be developed and sold by Quirky and their brand partners. The products that are used for this experiment are:

Product	Description	Product category
Twig Earbud Organizer	Earbud Holder	Cord & Cable management
Prop Power	Wrap-Around Extension Cord	Power Strips & Extenders
Switchflip	Control all your Outlets with one Switch	Lighting
Contort USB Hub	Flexible USB Hub	Computer Accessories

Figure 6: products used in study (see appendix 2.1. for more info about the products)

The products in figure 6 are (already) generated by customers and selected by customers and are available at Quirky and various brand partners.

The research consists of four products with four labels. We want to test the effect of all labels, therefore 24 profiles are generated. Any doublets are not allowed, because we want to test for all labels per respondent. There are eight profiles randomly picked, i.e. there are eight different surveys. We have deliberately chosen for this method and not for fractional factorial design, because this technique takes a sample out of all possible profiles. There are 4^4=256 possible profiles, but because the respondents need to be treated with all four different treatments, only 24 profiles are sufficient. That's why we have chosen to randomly pick eight profiles. We picked them randomly to avoid any bias, but we have incorporated that every product was attached to every label.

To have a balanced set of profiles every product was linked to every label twice, this means that all treatments were measured equally. Ideally you want to show all profiles to all respondents, but that is simply too much. When the profiles are randomly picked, we can make the survey more manageable and reduces the chance of bias. The surveys are also randomly distributed among respondents, to reduce any bias. In figure 7 below you'll find the eight profiles.

Survey	Product	Label	Product	Label	Product	Label	Product	Label
1	Twig Earbud Organizer	Label 1	Prop Power	Label 2	Switchflip	Label 4	Contort USB Hub	Label 3
2	Twig Earbud Organizer	Label 1	Prop Power	Label 4	Switchflip	Label 3	Contort USB Hub	Label 2
3	Twig Earbud Organizer	Label 2	Prop Power	Label 1	Switchflip	Label 4	Contort USB Hub	Label 3
4	Twig Earbud Organizer	Label 2	Prop Power	Label 3	Switchflip	Label 1	Contort USB Hub	Label 4
5	Twig Earbud Organizer	Label 3	Prop Power	Label 1	Switchflip	Label 2	Contort USB Hub	Label 4
6	Twig Earbud Organizer	Label 3	Prop Power	Label 4	Switchflip	Label 2	Contort USB Hub	Label 1
7	Twig Earbud Organizer	Label 4	Prop Power	Label 2	Switchflip	Label 3	Contort USB Hub	Label 1
8	Twig Earbud Organizer	Label 4	Prop Power	Label 3	Switchflip	Label 1	Contort USB Hub	Label 2

Figure 7: Survey profiles

The labels are photoshopped in the product images. To be able to measure the effect of the label, the labels are not explained at all. The literature refers to these labels as: 'customer-ideated' and 'customer-selected' labels. Because we expect that these terms are too technical, these labels are described as 'created by consumers' and 'chosen by consumers'. The labels are clearly visible and naturally merged with the product description. E-commerce web shops like Amazon.com and Coolblue.nl have put the review labels (stars and number of reviews) generally right under the product title. We have decided to put the crowdsourcing labels in the same position to create a natural and recognizable environment.

3.1. Variables

We want to make sure that the same constructs are being measured per respondent, but also across groups. If we don't make sure that the same constructs will be measured, measurement invariance will occur. It is possible that when we use different items or questions for the same construct, respondents can interpret it differently. We assume that the same constructs will be measured by using the exact same items and questions for the constructs, to reach for an optimal generalization of interpretation of the items (G.H. Lubke 2003). This means that the respondent has to answer the same questions of the constructs for four times.

In this within-subject design study the possibility of a carry-over effect or state-dependence, can bias the analysis. This effect means that the response carryover from one item to another independent of specific item content (e.g., Chintagunta 1998, Heckman 1981, Seetharaman et al. 1999). Choices of an individual are highly correlated with each other, which results in a lower degree of reliability and predictive validity (de Jong, Lehmann, and Netzer 2012). Another aspect of this carry-over effect is fatigue. When the survey is long and the questions are similar, respondents may answer inconsistently.

This carry-over effect can be reduced by differently keying of the items (de Jong, Lehmann, and Netzer 2012). This means that the questions are randomly formulated in a negative and positive way. We don't use this technique because we expect that it would confuse the respondent and can lead to a miscomprehension of the questions (Swain, Weathers, and Niedrich 2008), especially because we use two opposite but related variables, namely perceived risk and perceived quality.

What we do to reduce the carry-over effect of the survey is that we try to limit the length of the survey and group items of the same construct together. De Jong, Lehmann and Netzer (2012) argues that above the fifty items the probability of a carry-over effect will increase very fast. In our study we use around fifty items and they are grouped.

Another bias that may occur is an order-effect. This effect occurs between subjects and may bias the analysis. If all respondents get the treatments in the same order, it might be possible that the location of the treatment might influence the effect of the treatment. To avoid this order-effect, we counterbalance the design. This means that the order of the products and the labels (treatments) are random and the order-effect will be reduced (McLeod, 2007).

The main action that we use to reduce the carry-over effect is randomizing the sequences of the treatment. This means that we counterbalance the design. When every respondent are treated with the treatments in a different sequence, the carry-over effect that might occur will be reduced across subjects. This is because

The dependent variable intent to purchase is placed at the end of the particular profile, after the constructs' items. When this variable is put in the beginning, all other variables about perceived quality and perceived risk may be completed with less focus and a bias based on choice of the purchase intention question. The respondent is firstly asked about the perceived risk and perceived quality, and then asked about the purchase intention. We expect that the intent of purchasing is based on a thought-out decision, so respondents are better capable to make a choice.

Secondly, we believe that it is better to start with the perceived risk construct, followed by the perceived quality construct, because a study of Snoj, Pisnik Korda and Mumel (2004) showed that perceived risk mediates the effect on the relation between perceived quality and perceived value. They have also shown that perceived risk and perceived quality are highly correlated and this might occur a question order bias. In other words, the first question influences the second question. Grouping the items of the constructs is a solution for this bias (Pew Research Center, 2018). Because perceived risk mediates the effect of perceived quality on perceived value and because it is our most important variable, we have decided to put the construct perceived risk in the beginning of the questionnaire to reduce the influence on our most important variable.

The dependent variable product market performance is measured by the intention to purchase. Research has shown that there is a positive correlation between purchase intention and purchase behavior (Morwitz and Schmittlein, 1992; Morwitz et al., 2007). Because this study is an experimental survey, this is a proper way to measure the product market performance. This dependent variable is measured by a 10-point Likert scale (Girotra, Terwiesch and Ulrich 2010), a more precise measurement.

3.1.1. Control variables

The model also includes some control variables that might influence the effect on product market performance. The general usage of this product category is a variable that influences the purchase intention, because consumers who are more into consumer electronics are more likely to purchase a product in this category. Another reason for this is because the products that are used for this survey are obtained from an online store. The way that these products are presented to the respondents are similar to the way products are online presented. It is likely that respondents recognize the environment which the products are presented. Therefore it is important that the respondents attitude towards online purchasing will be measured as a control variable, because research has shown that people still experience risk when purchasing online (Nielsen, 2016b), around 57% of e-consumers doubt that e-commerce sites will protect their privacy. Online trust is an important influencer on consumers behavior and technology adoption (Faqih, 2016) and acts as solution for perceived risk (Kim, Dan, Ferrin, & Rao, 2008). The effect of trust on purchase intention also depends on gender, the effect of trust on their purchase intention is stronger for women to shop online (Neveen F. Awad and Arik Ragowsky, 2008). Therefore we will control for gender.

We also control for the individual's general attitude towards risk. It is important to know what the attitude of the individual is towards risk, because it influences the risk perception (Mullins and Forlani 2005). For example, a respondent that is risk-averse is more likely to enlarge the negative outcomes of a purchase and overestimate the probability of a loss relative to the probability of a benefit. Cho & Lee (2006) developed a measurement for this risk propensity, in order to control for the effect of consumer personality.

In many papers about perceived risk, the variable price sensitivity is included. This is important because it influences the general decision to purchase of the respondent. Van Westendorp's price sensitivity meter (1976) is a proper measure to control for price, but this will add a lot of questions to the survey. To avoid a questionnaire that is too long, we will control for price sensitivity by estimating the price elasticity based on the Gabor-Granger model (1966). The willingness to buy will be examined for a sample product with five different pricing levels, resulting in a price elasticity estimate for every respondent.

We also control for the level of employment, because that indicates a specific need or context regarding to the presented products. There will also be controlled for age and product category.

3.2. Study

All data is obtained with Qualtrics and exported to SPSS. Because we have eight different surveys the data had to be reorganized and coded in SPSS. The variable 'Labels' is converted into dummy variables (0/1), just like most of the control variables (product category, employment and gender). Price sensitivity is measured by regressing the log_price on log_willingness and took these coefficients as parameter for the price sensitivity for every respondent (Gabor-Granger, 1966). See appendix 2.3. for the SPSS coding scheme.

The variables mentioned above that are included in this study are displayed in the regression model (figure 8) and the described in the table (figure 9) below.

$$Y_1 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{14} X_{14} + \varepsilon$$

Figure 8: Regression equation

Variable Overview		
Variable/Construct	**Variable Question**	**Source**
Dependent variable		
Y1: Product market performance/purchase intention (10-points Likert scale)	I would seriously consider purchasing this product	Girotra, Terwiesch and Ulrich (2010)
Independent variables		
X1: Label manipulation of the crowdsourced new products	1. Created by customers 2. Chosen by customers 3. Created and chosen by customers 4. No label	
Construct perceived risk		
X2: Functional risk (7-points Likert scale)	1. When buying the product, I would worry about how reliable the product will be. 2. I would be afraid that the product would not provide me with the level of benefits that I expected it to. 3. I would be concerned that I may not get my money's worth from the product when buying it.	Jacoby and Kaplan (1972)
X3: Psychological risk (7-points Likert scale)	1. When thinking about buying the product, I would experience tension. 2. The thought of buying the product, would make me feel uncomfortable. 3. The thought of buying the product would fill me with anxiety. 4. I would worry a lot when buying the product.	Jacoby and Kaplan (1972)
X4: Social risk (7-points Likert scale)	1. My friends' and co-workers opinion about my buying the product would cause me to feel concern. 2. When buying the product, I would be concerned about what people whose opinion was of value to me, would think of me, if I made a bad choice. 3. My purchasing the product, would cause me concern about my friends would think of me, if I made a bad choice	Jacoby and Kaplan (1972)
Construct perceived quality		
X5: Usefulness (7-points Likert scale)	1. The product would be beneficial 2. The product fulfills a need	Moldovan, Goldenberg and Chattopadhyay (2011)
X6: Novelty (7-points Likert scale)	1. The product is unique 2. The product is original 3. The product is one of a kind	Dahl, Chattopadhyay and Gorn (1999)
Control variables		
X7: Online purchase behavior (7-points Likert scale)	I purchase electronical products always online	

X8: Purchase behavior consumer electronics (7-point Likert scale)	I spent a lot of money on electronical products	
X9: Risk propensity (7-point Likert scale)	I am willing to take substantial risks to do online shopping.	Cho & Lee (2006)
X10: Price sensitivity (7-point Likert scale) (log willingness, log price)	How likely are you willing to buy a mobile phone case at the price of: a) €5 b) €10 c) €15 d) €20 e) €25	Gabor & Granger (1966)
X11: Product categories	1. Cord & Cable management 2. Power Strips & Extenders 3. Lighting 4. Computer Accessories	Quirky
X12: Gender	1. Male 2. Female	Neveen F. Awad and Arik Ragowsky (2008)
X13: Age	1. Under 18 2. 18 - 24 3. 25 - 34 4. 35 - 44 5. 45 - 54 6. 55 - 64 7. 65 - 74 8. 75 - 84 9. 85 or older	Qualtrics
X14: Employment	1. Employed full time 2. Employed part time 3. Unemployed looking for work 4. Unemployed not looking for work 5. Retired 6. Student 7. Disabled	Qualtrics

Figure 9: Overview variables

3. Results

In this chapter we will present the results of this study, we will discuss the data and the hypotheses.

4.1. Descriptive Statistics

The survey is fully completed by 70 respondents. All partial completed surveys are excluded in this study. Because every respondent has been manipulated with all treatments, there are 280 rows. This means that we have 70 respondents per treatment.

51% of the respondents happens to be male and 49% female. The majority of the respondents belongs to the age group 18-24, 60% of all respondents. 37% belongs to the age group 25-34. The majority of the respondents were students (71%). This means that we have excluded 'unemployed not looking for work', 'unemployed looking for work', 'disabled' and 'disabled' from the model.

The variances are not significantly different from zero for all four groups (appendix 3.1.), Levene's Test shows p=0,151>0,05, with respect to the control variables. We didn't violate the assumption of homogeneity of the variance, i.e. the variance for all labels with respect to the control variables, is identical for all groups. This indicates that we have successfully randomized the assigned treatments. In figure 10, model 1 we see that the variables Male_dummy (p=0,033<0,05) is statistically significant, which means that males are less intended to purchase crowdsourced products. We also see the product categories Power Strips & Extenders (p=0,076<0,1) and Lighting (p=0,063<0,1) are marginally significant, which means that these product categories influence the purchase intention negatively relative to Computer Accessories. We will include the gender and product categories in the regression model. All other control variables are not statistically significant and will be excluded from the main regression model to avoid any multicollinearity. We see in figure 10 that model 2 is marginally significant (F=1,749; p=0,098<0,1) and R Square is quite low (0,043). This means that labels do not affect purchase intention overall nor individually, which we will elaborate on in the paragraph 'hypotheses testing'.

Regression Analysis – The effect of labeling strategy on Purchase Intention				
Coefficients[a]	Model 1		Model 2	
	B	Sig.	B	Sig.
(Constant)	5,586	,000	6,201	,000
generated by customers	-,325	,390	-,325	,393
selected by customers	-,549	,146	-,549	,148
generated and selected by customers	-,491	,205	-,491	,207
Control variables				
Price sensitivity	,012	,915		
Online purchase behaviour	,039	,660		
Purchase behaviour Consumer Electronics	-,003	,973		
Risk Propensity	,190	,064		
Age	,350	,103		
Male_dummy	-,624	,033	-,516	,053
Cord & Cable management	-,370	,329	-,370	,331
Power Strips & Extenders	-,672	,076	-,672	,078
Lighting	-,722	,063	-,722	,064
Employed full time	,549	,366		
Student	,571	,304		
R Square	0,077		0,043	
F	1,580		1,749	
Model Sig.	0,084		0,098	

Figure 10: Regression model; dependent variable: Purchase Intention. Model 1 control variables included; Model 2 insignificant control variables excluded

In the figures 11-13 below you'll find the means of the different labels on the variables perceived risk, perceived quality and purchase intent. There are no statistically significant differences between the means of the labels on perceived risk, perceived quality and purchase intent. The mean for the perceived risk is less than neutral ($\bar{x}=3,01<3,5$), which indicates that the products were not perceived as risky. The mean for perceived quality is more than neutral ($\bar{x}=4,32>3,5$) which indicates that the quality of the products were perceived as good.
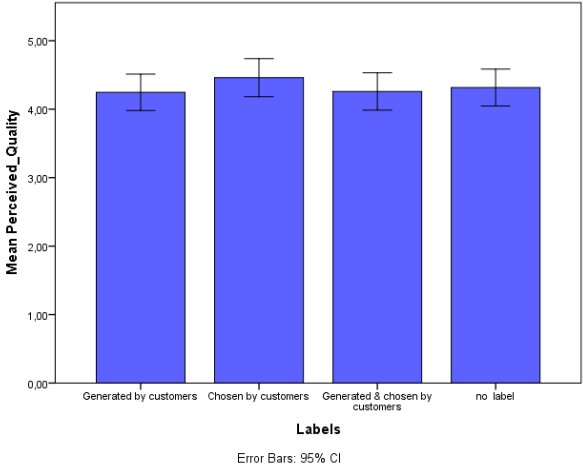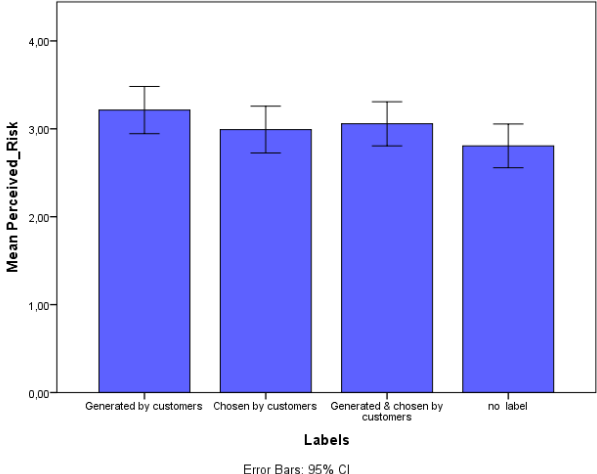

Figure 11: Labels' purchase intention means

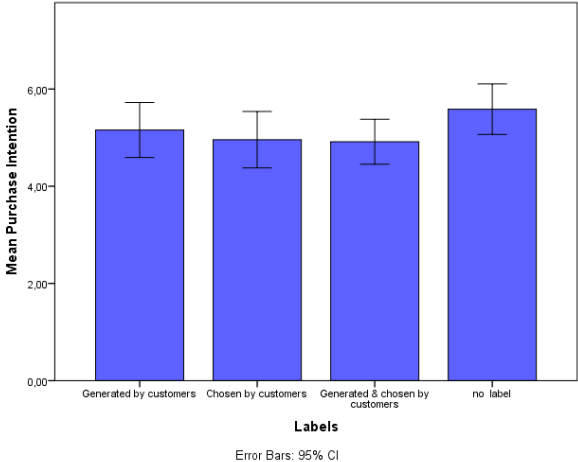
Figure 12: Labels' perceived risk means

Figure 13: Labels' perceived quality means

Pearson Correlations								
	Purchase Intention	Perceived _Quality	Perceived _Risk	Functional Risk	Psycholog ical Risk	Social Risk	Usefulnes s	Novelty
Purchase Intention	1	,612**	-,252**	-,372**	-,181**	-,045	,654**	,366**
Perceived_Quality	,612**	1	-,191**	-,236**	-,178**	-,049	,780**	,845**
Perceived_Risk	-,252**	-,191**	1	,798**	,863**	,782**	-,393**	,047
Functional Risk	-,372**	-,236**	,798**	1	,576**	,330**	-,366**	-,045
Psychological Risk	-,181**	-,178**	,863**	,576**	1	,585**	-,357**	,037
Social Risk	-,045	-,049	,782**	,330**	,585**	1	-,236**	,128*
Usefulness	,654**	,780**	-,393**	-,366**	-,357**	-,236**	1	,325**
Novelty	,366**	,845**	,047	-,045	,037	,128*	,325**	1
** Correlation is significant at the 0.01 level (2-tailed).								
* Correlation is significant at the 0.05 level (2-tailed).								

Figure 14: Correlation matrix

In the correlation matrix in figure 14 we see that all variables are significantly correlated with purchase intention, except for social risk. In this study we find no relationship between social risk and the purchase intention. An explanation for this could be that the products that were used in this study are not experienced by the respondents as socially risky.

Purchase intention is positively correlated with perceived quality (0,612**) and negatively correlated with perceived risk (-0.252**). Also the dimensions of the constructs show similar correlations with purchase intentions, except for social risk.

Perceived quality is negatively correlated with perceived risk (-0.191**) and the dimensions, just as expected according to the literature, again except for social risk.

There is no significant correlation between perceived risk and novelty, nor for the dimensions of perceived risk, except for social risk. It is happens to be that the novelty of the products is positively correlated with social risk. People experience social risk when a product is perceived as novel, i.e. people might be anxious of the reactions of their social environment when purchasing a novel crowdsourced product.

4.2. Principle component analysis

The constructs that we have used in this study consists of several items. Using principle component analysis (Varimax with Kaiser normalization) and Cronbach's Alpha we have confirmed that the items fit the constructs. Therefore we are able to use the item averages for the regression analysis.

4.2.1. Construct perceived risk

The overall construct perceived risk in this study, obtained from the literature, consists of three constructs; social risk, functional risk and psychological risk. We have tested the items on the different variables with principle component analysis, rotation method. The items of the variables items of these constructs load high on the different factors after rotation (appendix 3.2.). The differences between the constructs is highly visible, so the items fit the constructs, confirmed by principle component analysis. The Kaiser-Meyer-Olkin measure verified the sampling adequacy, KMO = 0.871 (appendix 3.3.) which is 'marvelous' (Hutcheson & Sofroniou 1999). The three factors explains more than 80% of the variance (appendix 3.3.). The eigenvalue of the first two factors are above Kaiser's limit of 1, but the third factor is right under 1. Because this value is almost 1 and it explains almost 10% of the variance, we consider this as a separate factor.

This means that the items we have preliminary obtained from the literature and used in this study, are suitable to measure the overall construct perceived risk.

The overall reliability of the scale is measured by Cronbach's Alpha. All the items of the constructs are consistent with each other, because the values are between 0,8 and 1 (appendix 3.4.). According to Kline (1999) this indicates a good reliability. The items of 'social risk' even have an excellent reliability.

4.2.2. Construct perceived quality

The overall construct 'perceived quality' consist of two constructs (usefulness and novelty), obtained from the literature. The items load on different factors after rotation (appendix 3.5.) . KMO = 0.712 (appendix 3.6.), which is above the limit of 0.5 (Field 2013). The two factors have an eigenvalue of more than 1 and is above Kaiser's limit of 1. The total variance explained by the two factors is 84,9% (appendix 3.5.). The items of novelty and usefulness obtained from the literature load on the preliminary constructs. Cronbach's alpha of novelty is 0.914 and of usefulness is 0.804 (appendix 3.7.), i.e. the items are consistent and reliable (Kline, 1999).

4.3. Hypotheses testing

Regression Analysis – The effect of labeling strategy, perceived risk and perceived quality on Purchase Intention										
	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	sig	B	sig	B	sig	B	sig	B	sig
(Constant)	6,201	,000	7,395	,000	,787	,109	7,662	,000	-,043	,931
generated by customers	-,325	,393	-,179	,631	-,199	,500	-,109	,761	-,188	,504
selected by customers	-,549	,148	-,500	,179	-,700	,018	-,482	,178	-,676	,016
generated and selected by customers	-,491	,207	-,460	,226	-,350	,247	-,570	,120	-,412	,152
perceived risk			-,472	,000						
perceived quality					1,241	,000				
Functional Risk							-,617	,000		
Psychological Risk							,005	,976		
Social Risk							,141	,208		
Usefulness									1,006	,000
Novelty									,303	,000
Controls										
Male_dummy	-,516	,053	-,416	,112	-,117	,577	-,031	,907	-,171	,390
Cord & Cable management	-,370	,331	-,378	,309	-,516	,082	-,341	,340	-,207	,469
Power Strips & Extenders	-,672	,078	-,544	,145	-,974	,001	-,442	,220	-,609	,036
Lighting	-,722	,064	-,359	,360	-1,002	,001	-,015	,968	-,563	,060
R Square	0,043		0,090		0,424		0,164		0,482	
F	1,749		3,346		24,975		5,292		27,936	
Model Sig.	0,098		0,000		0,000		0,000		0,000	

Figure 15: regression analysis; dependent variable: Purchase Intent

H1: Customer selected and generated products that are labeled as such may increase the product market performance

We see in figure 15, model 1 that the labels don't have a statistically significant effect on purchase intention. The effect of the first label 'generated by customers' is statistically not different from zero on purchase intent (p=0,393>0,05). Also the label 'selected by customers' is not statistically significant (p=0,148>0,05). The label 'generated and selected by customers' also appeared not to be statistically significant (p=0,207>0,05). This means that the crowdsourcing labels don't have a significantly different effect on purchase intention relative to no label.

Prior literature shows similar results. The study of Nishikawa, Schreier & Fuchs (2017) didn't show a direct significant effect of the label 'generated by customers' on product market performance. We also found that this label didn't have a direct effect on purchase intention.

Perceived risk as potential mediator

Regression Analysis - The effect of labeling strategy and perceived risk dimensions on Purchase Intention						
	Model 1		Model 2		Model 3	
	B	Sig	B	Sig	B	Sig
(Constant)	7,871	,000	6,348	,000	6,386	,000
generated by customers	-,095	,791	-,311	,415	-,303	,422
selected by customers	-,481	,178	-,547	,151	-,553	,141
generated and selected by customers	-,537	,142	-,479	,220	-,590	,116
Functional Risk	-,566	,000				
Social Risk			-,059	,540		
Psychological Risk					-,339	,004
Controls						
Male_dummy	-,094	,718	-,527	,049		
Cord & Cable management	-,348	,331	-,371	,329		
Power Strips & Extenders	-,447	,213	-,666	,081		
Lighting	-,021	,956	-,527	,074		
R Square	0,158		0,044		0,044	
F	6,337		1,574		3,154	
Model Sig.	0,000		0,132		0,015	

Figure 15: Regression analysis; dependent variable: Purchase Intent

Regression analysis								
	Model 1		Model 2		Model 3		Model 4	
Dependent variable	Perceived risk		Social risk		Functional risk		Psychological risk	
	B	Sig	B	Sig	B	Sig	B	Sig
(Constant)	2,728	,000	2,334	,000	3,510	,000	2,339	,000
generated by customers	,320	,069	,239	,314	,427	,071	,294	,113
selected by customers	,107	,541	,040	,867	,128	,586	,154	,406
generated and selected by customers	,085	,632	,208	,389	-,045	,851	,093	,619
Purchase behaviour Consumer Electronics	,105	,007	,005	,926	-,161	,005	-,152	,001
Risk Propensity	-,103	,018	,015	,779	,156	,003	,143	,001
Lighting	,683	,000	,360	,069	1,087	,000	,601	,000
Cord & Cable management	-,017	,922	-,031	,899	,039	,869	-,060	,745
Power Strips & Extenders	,271	,124	,097	,685	,398	,092	,319	,085
R square	0,122		0,021		0,156		0,123	
F	6,318		0,969		8,409		6,385	
Model Sig.	0,000		0,446		0,000		0,000	

Figure 17: Regression analyses; dependent variable: perceived risk (model 1), social risk (model 2), functional risk (model 3), psychological risk (model 4)

H2: Customer selected and generated products that are labeled as such may lead to higher product market performance by reducing the perceived risk associated with such products

We hypothesized an indirect effect due to perceived risk, a potential mediating variable. We see in figure 15 model 2, where we added the variable perceived risk that the overall model becomes statistically significant (F=3,346; p=0,000<0,05).

Some control variables regressed on perceived risk were statistically significant. In appendix 3.8. we see that the control variable Purchase behavior Consumer Electronics has a statistical significant effect on perceived risk (p=0,043<0,05). The coefficient is positive which indicates that people who buy more consumer electronics are experiencing a higher perceived risk. Also the product that was categorized in the product group Lighting has a significant effect on perceived risk (p=0,000<0,05). The coefficient is positive which means that the perceived risk of this product is significantly higher than the other products. There are several motivations for this. Firstly this product was the most expensive product, which means that this may lead to a higher perceived risk. The other motivation could be that this product was not properly understood by the respondents. The last control variable that is statistically significant is risk propensity (p=0,021<0,05; B=-0,107). This was just as expected, because respondents who were more willing to take risks experience less perceived risk. As mentioned in the experimental design chapter, we expected that gender would also be significant, but we didn't find any significant differences between males and females.

We see in figure 15 model 2, that perceived risk is statistically significant (p=0,000<0,05) with B=-0,472. This means that perceived risk has a significant negative direct effect on purchase intent, i.e. when the perceived risk increases the intention to purchase will decrease. Because the R Square of this model is relatively low (9%), we have to be careful interpreting these results. We also see that the labels are still statistically insignificant.

To check officially for a mediation effect, we have regressed the labels on perceived risk[3] (figure 17 model 1). None of the labels were statistically significant, except the label 'generated by customers' is marginally significant (B=0,320; p=0,069<0,1). This indicates that there is a positive effect between this label and perceived risk, this label increases the perceived risk of the products. In other words, there is a non-direct mediation effect. Customer selected and generated products that are labeled as 'generated by customers' lead to lower intention to purchase, because it increases the perceived risk associated with such products. In the next section we will dig deeper in the underlying motivation of this mediation effect.

Figure 15 (model 4 & 5) shows the regression analysis of the different dimensions of perceived risk and perceived quality. In model 4 we have specified the perceived risk construct. The model is statistically significant (F=5,292; p=0,000<0,05), but the R Square (0,164) which indicates that these variables don't explain very much of the total variance.

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[3] Insignificant control variables are excluded from this model

H2a: Customer selected and generated products that are labeled as such may lead to higher product market performance by reducing the social risk associated with such products

We see in figure 15 model 4 that there is no statistically significant effect of social risk on purchase intent (p=0,208>0,05). The purchase intent of crowdsourced consumer electronics is not being influenced by the effect of social risk. In figure 17 model 2, we see that none of the labels have a statistically significant effect on the perceived social risk. People don't experience much social risk in the purchase process for these kind of products as we have seen in figure 16, model 2 that the R Square is very low (0,044). We reject H2a.

H2b: Customer selected and generated products that are labeled as such may lead to higher product market performance by reducing the functional risk associated with such products

We see in figure 15, model 4 that the variable functional risk has a statistically significant effect (p=0,000<0,05) on the purchase intent. The B=-0,617 which indicates that when the perceived functional risk of the product increases, the intent to purchase decreases. In figure 16 model 1, we have regressed only functional risk on purchase intent. The model is statistically significant (F=6,337; p=0,000<0,05) and the R Square is 0,158. This means that an increase of functional risk statistically significantly lead to a decrease of purchase intent. Functional risk has the greatest influence of the risk variables on purchase intent.

Regression analysis of the labels on the dependent variable functional risk has revealed that there is a mediation effect. In figure 17, model 3 you'll find that the model is statistically significant[4] (F=8,409; p=0,000<0,05) and the R Square is 0,156. We see a marginal significant effect of the label 'generated by customers' on functional risk (p=0,071<0,1). This coefficient (B=0,427) indicates that there is a positive effect of this label on functional risk, i.e. crowdsourced products that are labeled as 'generated by customers' will increase functional risk.

Because functional risk is also a significant influencer on purchase intent, there is an indirect-only mediation effect. When the label 'generated by customers' is attached, the intent to purchase decreases, because the functional risk is perceived higher with this label, i.e. people are less intended to purchase crowdsourced products when the label 'generated by customers' is attached because they doubt the functionality of these products.

Prior literature found opposites findings. Nishikawa, Schreier & Fuchs (2017) found that when the label 'generated by customers' is attached to crowdsourced products it increased the product market performance due to the fact that the quality perception on these products increases, in particular the usefulness and novelty. Their study doesn't measure the perceived functionality of the product. We found that there are some concerns about the functionality of the product when this label is attached.

H2c: Customer selected and generated products that are labeled as such may lead to higher product market performance by reducing the psychological risk associated with such products

We see in figure 15, model 4 that psychological risk doesn't have a statistically significant effect on purchase intention (p=0,976>0,05). In figure 16, model 4 we see that when only this variable is added to the model, it seems statistically significant (p=0,004<0,05), but in figure 15 this significant effect has disappeared and captured by functional risk. This means that the purchase intent of the products that we have used in this study aren't affected by the psychological risk. In figure 17, model 4 we see that none of the labels have a statistical significant effect on psychological risk. Psychological risk doesn't play a role in the purchase decision process for these products. We reject H2c.

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[4] Insignificant control variables are excluded from this model

Perceived quality as potential mediator

Regression analysis - The effect of labeling strategy and perceived quality dimensions on Purchase Intention				
	Model 1		Model 2	
	B	*Sig.*	*B*	*Sig.*
(Constant)	,426	,386	3,984	,000
generated by customers	-,206	,482	-,267	,444
selected by customers	-,634	,029	-,652	,061
generated and selected by customers	-,474	,109	-,360	,313
Usefulness	1,129	,000		
Novelty			,614	,000
Controls				
Male_dummy	-,275	,176	-,252	,308
Cord & Cable management	-,005	,986	,718	,042
Power Strips & Extenders	-,333	,250	-1,156	,001
Lighting	-,247	,406	-1,257	,001
R square	0,449		0,200	
F	27,579		8,456	
Model Sig.	0,000		0,000	

Figure 18: Regression analysis; dependent variable; Purchase Intention

Regression analysis						
	Model 1		Model 2		Model 3	
Dependent variable	Perceived quality		Usefulness		Novelty	
	B	*Sig.*	*B*	*Sig.*	*B*	*Sig.*
(Constant)	4,315	,000	4,800	,000	3,831	,000
generated by customers	-,069	,720	-,171	,431	,033	,896
selected by customers	,145	,451	,021	,922	,269	,292
generated and selected by customers	-,057	,767	-,121	,577	,007	,978
Lighting	,225	,259	-,421	,062	,871	,025
Cord & Cable management	,118	,546	-,332	,131	,567	,002
Power Strips & Extenders	,244	,259	-,300	,171	,787	,001
R square	0,013		0,018		0,054	
F	0,586		0,853		2,603	
Model Sig.	0,741		0,530		0,018	

Figure 19: Regression analysis; dependent variable: perceived quality (model 1), usefulness (model 2), novelty (model 3)

H3: Customer selected and generated products that are labeled as such may lead to higher product market performance by increasing the perceived quality associated with such products

When we add the variable perceived quality into the model, we see something interesting. We also want to check for a mediation effect with the variable perceived quality. Model 3 in figure 15 has become statistically significant (F=24,975; p=0,000<0,05). The R Square is 42,2%, which means that the perceived quality variable explains much more of the total variance than the model with the variable perceived risk. We see that perceived quality is statistically significant (p=0,000<0,05). Perceived quality has a high coefficient (B=1,241), which indicates that perceived quality has a highly positive direct effect on purchase intent. In other words, how higher the quality perception is for a crowdsourced product, how more likely the intention is to purchase.

We see in figure 15 model 3, that the label 'selected by customers' has become statistically significant (p=0,018<0,05). The coefficient (B=-0,700) is negative, which indicates that this label has a negative effect on purchase intent. In the first model this label was insignificant and has become significant. A reason for this is that the coefficient of this label is negative, while the perceived quality has a positive effect on the purchase intent. The label didn't have a significant effect in the first model, because the perceived quality effect has captured (negatively) the effect of the labels. We regressed the label on perceived quality[5] (figure 19, model 1), but there was no statistically significant relationship. This means that there is no mediation effect, but we can conclude that the negative effect of the label 'selected by customers' has been neutralized because the perceived quality of the crowdsourced products has a much greater effect.

H3a: Customer selected and generated products that are labeled as such may lead to higher product market performance by increasing the usefulness associated with such products

We see in figure 15 model 5, that the variable usefulness is highly significant (p=0,000<0,05). The positive coefficient (B=1,006) indicates that an increase of the perceived usefulness of the product, increases the purchase intention. The coefficient of usefulness has by far the greatest influence on the purchase intent, which indicates that usefulness is the best predictor of the purchase intent for these crowdsourced products. We see in figure 18 model 1, that the label 'selected by customers' (p=0,029<0,05) has become statistically significant when usefulness is added to the model. The negative sign indicates that this label statistically significantly reduces the purchase intention of such crowdsourced products.

We have regressed the labels on usefulness to check formally for a mediation effect. In figure 19 model 2, we see that there is no statistical significant effect of the labels on usefulness, which means that there no mediation effect. Because usefulness has such a great positive effect on the purchase intention, the effect of the label 'selected by customers' on purchase intention has been neutralized. The negative effects of the label 'selected by customers' on purchase intentions will be neutralized when the product is perceived as useful.

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[5] Insignificant control variables are excluded from this model; none of the control variables were statistically significant (appendix ..)

H3b: Customer selected and generated products that are labeled as such may lead to higher product market performance by increasing the novelty associated with such products

We see in figure 15 model 5, that the variable novelty is highly significant (p=0,000<0,05). The positive coefficient (B=0,303) indicates that an increase of the perceived novelty of the product, increases the purchase intention. We see in figure 18 model 2, that the label 'selected by customers' (p=0,061<0,05) and has become marginally significant when novelty has been added to the model.

To test for a formal mediation effect, we have regressed the labels on novelty (figure 19, model 3) The labels didn't have a statistical significant effect on novelty. This means that there is no mediation effect. It means that the effect of this labels is also neutralized by the effect of novelty on purchase intention. The label 'selected by customers' has a negative effect on purchase intention, but the effect of novelty neutralizes this negative effect on purchase intention.

In summary, we can say that crowdsourced products that are generated and selected by the crowd and labeled as such don't have a direct statistical significant effect on the purchase intention. When crowdsourced products are labeled as 'generated by customers', the purchase intention decreases because the functional risk of the products increases, i.e. the label 'generated by customers' will lead to a lower intent to purchase because people perceive the product's functionality as uncertain. Besides that, crowdsourced products that are generated and selected by customers and labeled as 'selected by customers', affects the purchase intent negatively. This effect neutralizes when such products are perceived as useful and novel.

5. Conclusion and Discussion

We can conclude that there is no direct significant effect of the various crowdsourcing labels on purchase intention. We hypothesized a mediation effect of the label 'selected by the crowd' on purchase intention due to a reduced perceived risk. We did found a negative effect of perceived risk on purchase intention, i.e. when the perceived risk of a product increases, the intention to purchase decreases. But we didn't find a negative effect between the label 'selected by the crowd' and perceived risk, i.e. crowdsourced products that are generated and selected by the crowd and labeled as 'selected by the crowd' don't lead to a reduced perceived risk and ultimately don't lead to an increased purchase intent.

What we did find was the exact opposite of what we would have expected. We found an indirect-only mediation effect. A product that is generated and selected by customers and is labeled as 'generated by the crowd', actually affects the intention to purchase negatively due to an increased perceived risk. This is because consumers perceive these products with this label as less reliable and doubt the functionality more than when this label is not attached.

We hypothesized that crowdsourced products that were labeled as 'generated by the crowd', increased the intention to purchase due to an increased perceived quality. We found that the perceived quality positively affects the purchase intention. This effect can be explained because the usefulness and novelty of the products positively affects the purchase intention. We didn't find the hypothesized mediation effect, that the label 'generated by customers' attached on crowdsourced products would increase purchase intention due to an increase of perceived quality.

Contradictory of what we concluded previously, we did find a marginally significant direct effect of the label 'selected by customers' on purchase intention. Consumers are less intended to purchase crowdsourced products that are labeled as mentioned, but this effect has been neutralized by the perceived quality. When consumers perceive these kind of products as novel and useful, the negative effect of the label disappears.

In the experimental design section we expected that the constructs of perceived risk and perceived quality could be correlated. We found that when consumers perceive more risk, this will negatively affect the intention to purchase crowdsourced consumer electronics. Elaborating on that, an increase of the perceived quality also lead to a higher intention to purchase crowdsourced consumer electronics. The effect of perceived quality is far greater than the effect of the perceived risk.

We found that functional risk, psychological risk and social risk are all negatively correlated with perceived usefulness. This means that when the perceived usefulness of a product increases, all aspects of perceived risk decreases. We also found that perceived novelty is positively correlated with social risk. This means that when consumers consider these products as novel, they perceive more social risk.

5.1. Contribution and implications

Prior research on crowdsourcing and labeling strategies have been focusing on one aspect of crowdsourcing, namely idea generation. In this study we have extended the existing literature by focusing on the other aspect of crowdsourcing, namely idea selection. We add to the literature that labeling crowdsourced products as 'customer selected' don't have to lead to a higher intention to purchase. There is even a marginal negative effect, but this is neutralized by the usefulness and novelty of the products.

We do also extend the existing literature on labeling crowdsourced products by our analysis of perceived risk. Nishikawa, Schreier & Fuchs (2017) found that crowdsourced products that were

labeled as 'customer generated' could be used as a marketing tool and lead to higher purchase intentions due to an increase of perceived quality. We add that this label could also negatively influence purchase intentions, because we have shown that people might doubt the functionality/reliability of the product. Our findings are contradictory to prior work of Nishikawa, Schreier & Fuchs (2017). Their findings do not seem to be applicable to all consumer electronics categories. Our negative effect of the label 'generated by customers' on the purchase intent of four consumer electronical categories shows that the positive effect of this label on purchase intent that Nishikawa, Schreier & Fuchs (2017) argue, is not generalizable for all consumer electronical categories.

We have shown in this study a more holistic view on labeling strategies for crowdsourced products and that the labels might not always be beneficial for the product market performance. Consumer electronical companies who decide to let consumers select the new product development still can pursue this option, but it might not be beneficial for marketers to label these new products as customer selected. At least they have to communicate and highlight the usefulness and novelty of the consumer electronical products. Marketers should also be aware of the fact that when they involve the crowd in the new product development process for idea generation and label these products as such, the consumer might be questioning the functionality/reliability of the product.

5.2. Limitations and further research

We find contradictory results regarding to prior research. Prior work has been able to conduct field experiments to measure the effect of the crowdsourcing label on actual sales. We measure purchase intention rather than real choices because we were able to identify the underlying motivations for the decision making process at the same time as the purchase intention. We know that actual sales are correlated with purchase intention (Morwitz and Schmittlein, 1992; Morwitz et al., 2007), but there is a difference in asking the people to their purchase intention and their actual purchases.

Future work can improve upon this study by taking the following steps. The fact that our results differ from the extended literature might be because of different interpretations of the labeling strategies. Our label 'selected by customers' is derived from eWOM labels as 'rating stars' and 'online reviews'. Future research should investigate the positioning and interpretation of different crowdsourcing labeling strategies.

Elaborating on that, future research should also examine the relationship with branding strategies. Existing literature shows that brands do influence the perceived risk and quality on products (Snoj, PisnikKorda, Mumeland; 2004) and we have seen that labeling crowdsourcing fashion is not beneficial for luxury goods (Fuchs, Prandelli, Schreier & Dahl; 2013). Further research should investigate what the effect of different branding strategies are on crowdsourced consumer electronics and the attached labels.

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Appendix

1. Literature

1.1. Fiat Mio

The Fiat Mio is showed in the picture below. Designed by the people of Brazil, the main preferences that are involved in the designing process are that the car should be fit for the busy metropoles as Sao Paolo (Autocar, 2010).

Fiat Mio

2. Experimental Design

2.1. Information products used in experiment

Contort USB Hub – €12.99

Flexible USB Hub.

This portable plastic hub with built-in cord management features four accessible USB ports, protected from breaks by a flexible rubber neck with 360-degree mobility.

Available in Grey or Green

Dimensions: 14.22cm length x 3.3cm width x 2.3cm height
Materials: plastic, rubber

Switchflip – €29.99

Control all your Outlets with one Switch

Control any light using your existing wall switch, No app, no installation. Just simple lighting automation. Everyone has experienced the pain of arranging a room only to find that the outlet you want to use is in the exact wrong spot? Switchflip™ was designed to let you decide which outlets in your house or apartment will be controlled by your existing wall switch.

Comes with 1 Transmitter and 1 Receiver

Dimensions: 8 cm"L x 11 cm"W x 3.5 cm"H

Specifications: Electrical ratings: 125V AC, 10A, 60Hz, 1250W/625W (Tungsten)
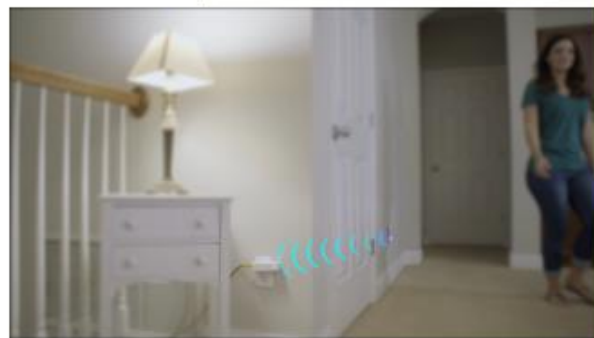
Prop Power – €19.99

Wrap-Around Extension Cord.

The extension cord provides flexibility to wrap power around a ladder, table leg, sawhorse - or even a lofted dorm-room bed. Prop Power Pro offers enough reach and versatility to prop 3 AC outlets where they're needed Features:

- 3 AC outlets (two at front one at back)

- 45 cm flex cord bends, props and clamps around objects.

Dimensions: - AC Head: 11 cm length x 5 cm width x 3.3 cm depth

       - Extension cord: 182 cm

Materials: Plastic, Rubber, Conductive Wiring

Twig Earbud Organizer (Pack of 3)

€5.99

Earbud Holder.

Twig is the smallest cord management system you will ever see. Clipping discreetly onto the base of your headphone cable, Twig can remain unseen while you are listening to music. Once it comes time to wrap things up, simply clip your earbuds into the device's two "branches" to keep your buds in place and your wire untangled.

Colors may vary.

Dimensions: 13.2cm length x 2cm width x 0.8cm depth

Materials: plastic

2.2. Survey

Q1 Dear participant,

Thank you in advance for participating in this study.

In this survey you will evaluate <u>four</u> consumer electronical products. Every product consists of several questions where you have to evaluate the presented product. Read the descriptions properly! At the end you'll be asked some general questions.
This questionnaire takes approximately 10 minutes to complete.

Your data will be treated confidentially and not shared with third parties. Your participation is completely anonymous. For questions and/or comments about the research you can always contact me via: 352346bm@student.eur.nl

Your help is highly appreciated!

Kind regards,
Berend Meenderink

End of Block: Intro

Start of Block: product 1!

Q3 When buying **Twig Earbud Organizer**, I would worry about how reliable it will be.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q4 I would be afraid that the **Twig Earbud Organizer** would not provide me with the level of benefits that I expected it to.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q5 I would be concerned that I may not get my money's worth from the **Twig Earbud Organizer** when buying it.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q6 When thinking about buying the **Twig Earbud Organizer**, I would experience tension

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q7 The thought of buying the **Twig Earbud Organizer**, would make me feel uncomfortable

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q8 The thought of buying the Twig Earbud Organizer would fill me with anxiety.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q9 I would worry a lot when buying Twig Earbud Organizer.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q10 My friends' and co-workers opinion about my buying the Twig Earbud Organizer would cause me to feel concern.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q11 When buying the Twig Earbud Organizer, I would be concerned about what people whose opinion was of value to me, would think of me, if I made a bad choice.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q12 My purchasing the Twig Earbud Organizer would cause me concern about my friends would think of me, if I made a bad choice.

	Strongly disagree (13)	Disagree (14)	Somewhat disagree (15)	Neither agree nor disagree (16)	Somewhat agree (17)	Agree (18)	Strongly agree (19)
(1)	○	○	○	○	○	○	○

Q13 Complete the statements below: 'The **Twig Earbud Organizer**

	Strongly disagree (13)	Disagree (14)	Somewhat disagree (15)	Neither agree nor disagree (16)	Somewhat agree (17)	Agree (18)	Strongly agree (19)
would be beneficial (1)	○	○	○	○	○	○	○
fulfills a need (2)	○	○	○	○	○	○	○
is unique (3)	○	○	○	○	○	○	○
is original (4)	○	○	○	○	○	○	○
is one of a kind (5)	○	○	○	○	○	○	○

Q14 I would seriously consider purchasing this product

	Strongly disagree (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	Strongly agree (10)
(1)	○	○	○	○	○	○	○	○	○	○

Q16 When buying **Prop Power**, I would worry about how reliable it will be.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q17 I would be afraid that the **Prop Power** would not provide me with the level of benefits that I expected it to.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q18 I would be concerned that I may not get my money's worth from the **Prop Power** when buying it.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q19 When thinking about buying the **Prop Power**, I would experience tension

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q20 The thought of buying the **Prop Power**, would make me feel uncomfortable

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q21 The thought of buying the **Prop Power** would fill me with anxiety.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q22 I would worry a lot when buying **Prop Power**.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q23 My friends' and co-workers opinion about my buying the **Prop Power** would cause me to feel concern.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q24 When buying the **Prop Power**, I would be concerned about what people whose opinion was of value to me, would think of me, if I made a bad choice.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q25 My purchasing the **Prop Power** would cause me concern about my friends would think of me, if I made a bad choice.

	Strongly disagree (13)	Disagree (14)	Somewhat disagree (15)	Neither agree nor disagree (16)	Somewhat agree (17)	Agree (18)	Strongly agree (19)
(1)	○	○	○	○	○	○	○

Q26 Complete the statements below: 'The **Prop Power**

	Strongly disagree (13)	Disagree (14)	Somewhat disagree (15)	Neither agree nor disagree (16)	Somewhat agree (17)	Agree (18)	Strongly agree (19)
would be beneficial (1)	○	○	○	○	○	○	○
fulfills a need (2)	○	○	○	○	○	○	○
is unique (3)	○	○	○	○	○	○	○
is original (4)	○	○	○	○	○	○	○
is one of a kind (5)	○	○	○	○	○	○	○

Q27 I would seriously consider purchasing this product

	Strongly disagree (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	Strongly agree (10)
(1)	○	○	○	○	○	○	○	○	○	○

Q29 When buying **Switchflip**, I would worry about how reliable it will be.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q30 I would be afraid that the **Switchflip** would not provide me with the level of benefits that I expected it to.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q31 I would be concerned that I may not get my money's worth from the **Switchflip** when buying it.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q32 When thinking about buying the **Switchflip**, I would experience tension

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q33 The thought of buying the **Switchflip**, would make me feel uncomfortable

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q34 The thought of buying the **Switchflip** would fill me with anxiety.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q35 I would worry a lot when buying **Switchflip**.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q36 My friends' and co-workers opinion about my buying the **Switchflip** would cause me to feel concern.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q37 When buying the **Switchflip**, I would be concerned about what people whose opinion was of value to me, would think of me, if I made a bad choice.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q38 My purchasing the **Switchflip** would cause me concern about my friends would think of me, if I made a bad choice.

	Strongly disagree (13)	Disagree (14)	Somewhat disagree (15)	Neither agree nor disagree (16)	Somewhat agree (17)	Agree (18)	Strongly agree (19)
(1)	○	○	○	○	○	○	○

Q39 Complete the statements below: 'The **Switchflip**

	Strongly disagree (13)	Disagree (14)	Somewhat disagree (15)	Neither agree nor disagree (16)	Somewhat agree (17)	Agree (18)	Strongly agree (19)
would be beneficial (1)	○	○	○	○	○	○	○
fulfills a need (2)	○	○	○	○	○	○	○
is unique (3)	○	○	○	○	○	○	○
is original (4)	○	○	○	○	○	○	○
is one of a kind (5)	○	○	○	○	○	○	○

Q40 I would seriously consider purchasing this product

	Strongly disagree (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	Strongly agree (10)
(1)	○	○	○	○	○	○	○	○	○	○

Q42 When buying **Contort USB Hub**, I would worry about how reliable it will be.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q43 I would be afraid that the **Contort USB Hub** would not provide me with the level of benefits that I expected it to.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q44 I would be concerned that I may not get my money's worth from the **Contort USB Hub** when buying it.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q45 When thinking about buying the **Contort USB Hub**, I would experience tension

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q46 The thought of buying the **Contort USB Hub**, would make me feel uncomfortable

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q47 The thought of buying the **Contort USB Hub** would fill me with anxiety.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q48 I would worry a lot when buying **Contort USB Hub.**

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q49 My friends' and co-workers opinion about my buying the **Contort USB Hub** would cause me to feel concern.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q50 When buying the **Contort USB Hub**, I would be concerned about what people whose opinion was of value to me, would think of me, if I made a bad choice.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
(1)	○	○	○	○	○	○	○

Q51 My purchasing the **Contort USB Hub** would cause me concern about my friends would think of me, if I made a bad choice.

	Strongly disagree (13)	Disagree (14)	Somewhat disagree (15)	Neither agree nor disagree (16)	Somewhat agree (17)	Agree (18)	Strongly agree (19)
(1)	○	○	○	○	○	○	○

Q52 Complete the statements below: 'The **Contort USB Hub**

	Strongly disagree (13)	Disagree (14)	Somewhat disagree (15)	Neither agree nor disagree (16)	Somewhat agree (17)	Agree (18)	Strongly agree (19)
would be beneficial (1)	○	○	○	○	○	○	○
fulfills a need (2)	○	○	○	○	○	○	○
is unique (3)	○	○	○	○	○	○	○
is original (4)	○	○	○	○	○	○	○
is one of a kind (5)	○	○	○	○	○	○	○

Q53 I would seriously consider purchasing this product

	Strongly disagree (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	Strongly agree (10)
(1)	○	○	○	○	○	○	○	○	○	○

Q54 How likely are you willing to buy a **mobile phone case** at the price of:

	Extremely unlikely (20)	Moderately unlikely (21)	Slightly unlikely (22)	Neither likely nor unlikely (23)	Slightly likely (24)	Moderately likely (25)	Extremely likely (26)
€5 (1)	○	○	○	○	○	○	○
€10 (6)	○	○	○	○	○	○	○
€15 (2)	○	○	○	○	○	○	○
€20 (7)	○	○	○	○	○	○	○
€25 (3)	○	○	○	○	○	○	○

Q55 To which extent are the statements below applicable for you?

	Strongly disagree (15)	Disagree (16)	Somewhat disagree (17)	Neither agree nor disagree (18)	Somewhat agree (19)	Agree (20)	Strongly agree (21)
I always purchase electronical products online (1)	○	○	○	○	○	○	○
I spent a lot of money on electronical products (2)	○	○	○	○	○	○	○
I am willing to take substantial risks to do online shopping (3)	○	○	○	○	○	○	○

Q56 Gender

○ Male (1)

○ Female (2)

Q57 Age

○ Under 18 (1)

○ 18 - 24 (2)

○ 25 - 34 (3)

○ 35 - 44 (4)

○ 45 - 54 (5)

○ 55 - 64 (6)

○ 65 - 74 (7)

○ 75 - 84 (8)

○ 85 or older (9)

Q58 Employment

○ Employed full time (1)

○ Employed part time (2)

○ Unemployed looking for work (3)

○ Unemployed not looking for work (4)

○ Retired (5)

○ Student (6)

○ Disabled (7)

2.3.   SPSS Coding scheme

In the table below is the SPSS coding scheme described. In the variables 'QPROD' is mentioned, this stands for Quirky Products, i.e. the products that are used for this experimental survey.

Variable	Label	Value	Measure
Dependent variable			
PurchaseIntent	Purchase Intention	{1,00, Strongly disagree} {2,00, 2} {3,00, 3} {4,00, 4} {5,00, 5} {6,00, 6} {7,00, 7} {8,00, 8} {9,00, 9} {10,00, Strongly agree}	Scale
Independent variables			
Labels	Labels	{1,00, Generated by customers} {2,00, selected by customers} {3,00, Generated & selected by customers} {4,00, no label}	Nominal
Label1	generated by customers	{,00, no}{1,00, yes}	Nominal
Label2	selected by customers	{,00, no}{1,00, yes}	Nominal
Label3	generated and selected by customers	{,00, no}{1,00, yes}	Nominal
Label4	no label	{,00, no}{1,00, yes}	Nominal
FunctionalRisk_1	When buying QPROD , I would worry about how reliable QPROD will be	{1,00, Strongly disagree} {2,00, disagree} {3,00, Somewhat disagree} {4,00, Neutral} {5,00, Somewhat agree} {6,00, Agree} {7,00, Strongly agree}	Scale
FunctionalRisk_2	I would be afraid that the QPROD would not provide me with the level of benefits that I expected it to.	{1,00, Strongly disagree} {2,00, disagree} {3,00, Somewhat disagree} {4,00, Neutral} {5,00, Somewhat agree} {6,00, Agree} {7,00, Strongly agree}	Scale
FunctionalRisk_3	I would be concerned that I may not get my money's worth from the QPROD when buying it.	{1,00, Strongly disagree} {2,00, disagree} {3,00, Somewhat disagree} {4,00, Neutral} {5,00, Somewhat agree} {6,00, Agree} {7,00, Strongly agree}	Scale

PsychologicalRisk_1	When thinking about buying the QPROD, I would experience tension	{1,00, Strongly disagree} {2,00, disagree} {3,00, Somewhat disagree} {4,00, Neutral} {5,00, Somewhat agree} {6,00, Agree} {7,00, Strongly agree}	Scale
PsychologicalRisk_2	The thought of buying the QPROD, would make me feel uncomfortable	{1,00, Strongly disagree} {2,00, disagree} {3,00, Somewhat disagree} {4,00, Neutral} {5,00, Somewhat agree} {6,00, Agree} {7,00, Strongly agree}	Scale
PsychologicalRisk_3	The thought of buying the QPROD would fill me with anxiety.	{1,00, Strongly disagree} {2,00, disagree} {3,00, Somewhat disagree} {4,00, Neutral} {5,00, Somewhat agree} {6,00, Agree} {7,00, Strongly agree}	Scale
PsychologicalRisk_4	I would worry a lot when buying QPROD.	{1,00, Strongly disagree} {2,00, disagree} {3,00, Somewhat disagree} {4,00, Neutral} {5,00, Somewhat agree} {6,00, Agree} {7,00, Strongly agree}	Scale
SocialRisk_1	My friends' and co-workers opinion about my buying the XPROD would cause me to feel concern	{1,00, Strongly disagree} {2,00, disagree} {3,00, Somewhat disagree} {4,00, Neutral} {5,00, Somewhat agree} {6,00, Agree} {7,00, Strongly agree}	Scale
SocialRisk_2	When buying the QPROD, I would be concerned about what people whose opinion was of value to me, would think of me, if I made a bad choice	{1,00, Strongly disagree} {2,00, disagree} {3,00, Somewhat disagree} {4,00, Neutral} {5,00, Somewhat agree} {6,00, Agree} {7,00, Strongly agree}	Scale
SocialRisk_3	My purchasing the QPROD would cause me concern about my friends would think of me, if I made a bad choice	{1,00, Strongly disagree} {2,00, disagree} {3,00, Somewhat disagree} {4,00, Neutral} {5,00, Somewhat agree} {6,00, Agree} {7,00, Strongly agree}	Scale
Usefulness_1	QPROD would be beneficial	{1,00, Strongly disagree} {2,00, disagree} {3,00, Somewhat disagree} {4,00, Neutral}	Scale

		{5,00, Somewhat agree}	
		{6,00, Agree}	
		{7,00, Strongly agree}	
Usefulness_2	QPROD fulfills a need	{1,00, Strongly disagree}	Scale
		{2,00, disagree}	
		{3,00, Somewhat disagree}	
		{4,00, Neutral}	
		{5,00, Somewhat agree}	
		{6,00, Agree}	
		{7,00, Strongly agree}	
Novelty_1	QPROD is unique	{1,00, Strongly disagree}	Scale
		{2,00, disagree}	
		{3,00, Somewhat disagree}	
		{4,00, Neutral}	
		{5,00, Somewhat agree}	
		{6,00, Agree}	
		{7,00, Strongly agree}	
Novelty_2	QPROD is original	{1,00, Strongly disagree}	Scale
		{2,00, disagree}	
		{3,00, Somewhat disagree}	
		{4,00, Neutral}	
		{5,00, Somewhat agree}	
		{6,00, Agree}	
		{7,00, Strongly agree}	
Novelty_3	QPROD is one of a kind	{1,00, Strongly disagree}	Scale
		{2,00, disagree}	
		{3,00, Somewhat disagree}	
		{4,00, Neutral}	
		{5,00, Somewhat agree}	
		{6,00, Agree}	
		{7,00, Strongly agree}	
Functional_Risk	Functional Risk	{1,00, Strongly disagree}	Scale
		{2,00, disagree}	
		{3,00, Somewhat disagree}	
		{4,00, Neutral}	
		{5,00, Somewhat agree}	
		{6,00, Agree}	
		{7,00, Strongly agree}	
Psychological_Risk	Psychological Risk	{1,00, Strongly disagree}	Scale
		{2,00, disagree}	
		{3,00, Somewhat disagree}	
		{4,00, Neutral}	
		{5,00, Somewhat agree}	
		{6,00, Agree}	
		{7,00, Strongly agree}	
Social_Risk	Social Risk	{1,00, Strongly disagree}	Scale
		{2,00, disagree}	
		{3,00, Somewhat disagree}	
		{4,00, Neutral}	
		{5,00, Somewhat agree}	
		{6,00, Agree}	
		{7,00, Strongly agree}	
Usefulnes	Usefulness	{1,00, Strongly disagree}	Scale

		{2,00, disagree}	
		{3,00, Somewhat disagree}	
		{4,00, Neutral}	
		{5,00, Somewhat agree}	
		{6,00, Agree}	
		{7,00, Strongly agree}	
Novelty	Novelty	{1,00, Strongly disagree}	Scale
		{2,00, disagree}	
		{3,00, Somewhat disagree}	
		{4,00, Neutral}	
		{5,00, Somewhat agree}	
		{6,00, Agree}	
		{7,00, Strongly agree}	
Perceived_Quality	Average Usefulness + Novelty	{1,00, Strongly disagree}	Scale
		{2,00, disagree}	
		{3,00, Somewhat disagree}	
		{4,00, Neutral}	
		{5,00, Somewhat agree}	
		{6,00, Agree}	
		{7,00, Strongly agree}	
Perceived_Risk	Average Functional risk + Social risk + psychological risk	{1,00, Strongly disagree}	Scale
		{2,00, disagree}	
		{3,00, Somewhat disagree}	
		{4,00, Neutral}	
		{5,00, Somewhat agree}	
		{6,00, Agree}	
		{7,00, Strongly agree}	
CONTROL VARIABLES			
Product_Category	Product Category	{1,00, Twig Earbuds}	Nominal
		{2,00, Prop Power}	
		{3,00, Switchflip}	
		{4,00, USB Contort Hub}	
Price_sensitivity	Price sensitivity	None	Scale
Online_Purchase_Behaviour	Online purchase behaviour	{1,00, Strongly disagree}	Scale
		{2,00, disagree}	
		{3,00, Somewhat disagree}	
		{4,00, Neutral}	
		{5,00, Somewhat agree}	
		{6,00, Agree}	
		{7,00, Strongly agree}	
Purchase_Behaviour_CE	Purchase behaviour Consumer Electronics	{1,00, Strongly disagree}	Scale
		{2,00, disagree}	
		{3,00, Somewhat disagree}	
		{4,00, Neutral}	
		{5,00, Somewhat agree}	
		{6,00, Agree}	
		{7,00, Strongly agree}	
RiskPropensity	Risk Propensity	{1,00, Strongly disagree}	Scale
		{2,00, disagree}	
		{3,00, Somewhat disagree}	
		{4,00, Neutral}	
		{5,00, Somewhat agree}	
		{6,00, Agree}	

		{7,00, Strongly agree}	
Gender	Gender	{1,00, Male}{2,00, Female}	Nominal
Age	Age	{1,00, Under 18} {2,00, 18-24} {3,00, 25-34} {4,00, 35-44} {4,00, 45-54} {6,00, 55-64} {7,00, 65-74} {8,00, 75-84} {9,00, 85 or older}	Scale
Employment	Employment	{1,00, Employed full time} {2,00, Employed part time} {3,00, unemployed looking for work} {4,00, unemployed not looking for work} {5,00, Retired} {6,00, Student} {7,00, Disabled}	Nominal
Twig_dummy	Cord & Cable management	{,00, no}{1,00, yes}	Nominal
Proppower_dummy	Power Strips & Extenders	{,00, no}{1,00, yes}	Nominal
Switchflip_dummy	Lighting	{,00, no}{1,00, yes}	Nominal
USB_dummy	Computer Accessories	{,00, no}{1,00, yes}	Nominal
empl_fulltime_dummy	Employed full time	{,00, no}{1,00, yes}	Nominal
empl_parttime_dummy	Employed part time	{,00, no}{1,00, yes}	Nominal
unempl_lookingforwork_dummy	Unemployed looking for work	{,00, no}{1,00, yes}	Nominal
unempl_notlookingforwork_dummy	Unemployed not looking for work	{,00, no}{1,00, yes}	Nominal
Retired_dummy	Retired	{,00, no}{1,00, yes}	Nominal
Student_dummy	Student	{,00, no}{1,00, yes}	Nominal
Disabled	Disabled	{,00, no}{1,00, yes}	Nominal

3. Results

3.1. Levene's test

Levene's Test of Equality of Error Variances[a]			
Dependent Variable: Purchase Intention			
F	df1	df2	Sig.
1,782	3	276	,151
Tests the null hypothesis that the error variance of the dependent variable is equal across groups.			
a Design: Intercept + Product_Category + Price_sensitivity + Online_Purchase_Behaviour + Purchase_Behaviour_CE + RiskPropensity + Gender + Age + Employment + Labels			

3.2. Principle component analysis perceived risk

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,424	54,244	54,244	5,424	54,244	54,244	2,838	28,379	28,379
2	1,710	17,098	71,342	1,710	17,098	71,342	2,635	26,348	54,727
3	,935	9,354	80,696	,935	9,354	80,696	2,597	25,969	80,696
4	,430	4,302	84,998						
5	,358	3,584	88,582						
6	,303	3,027	91,609						
7	,259	2,592	94,201						
8	,235	2,353	96,553						
9	,198	1,979	98,532						
10	,147	1,468	100,000						

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component		
	1	2	3
• When buying the product , I would worry about how reliable QPROD will be	,284	,084	,809
• I would be afraid that the product would not provide me with the level of benefits that I expected it to.	,167	,117	,880
• I would be concerned that I may not get my money's worth from the product when buying it.	,216	,165	,850
• When thinking about buying the product, I would experience tension	,704	,144	,469
• The thought of buying the product, would make me feel uncomfortable	,803	,229	,346
• The thought of buying the product would fill me with anxiety.	,836	,346	,130
• I would worry a lot when buying the product.	,795	,349	,192
• My friends' and co-workers opinion about my buying the product would cause me to feel concern	,318	,812	,132
• When buying the product, I would be concerned about what people whose opinion was of value to me, would think of me, if I made a bad choice	,198	,913	,118
• My purchasing the product would cause me concern about my friends would think of me, if I made a bad choice	,265	,882	,137

3.3.   KMO & Bartlett's test on perceived risk

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,871
Bartlett's Test of Sphericity	Approx. Chi-Square	1982,617
	df	45
	Sig.	,000

3.4.   Reliability analysis functional risk, psychological risk and social risk

Reliability Statistics – functional risk

Cronbach's Alpha	N of Items
,864	3

Reliability Statistics – psychological risk

Cronbach's Alpha	N of Items
,898	4

Reliability Statistics – social risk

Cronbach's Alpha	N of Items
,906	3

3.5.   Principle component analysis perceived quality

Rotated Component Matrix[a]

	Component	
	1	2
QPROD would be beneficial	,187	,894
QPROD fulfills a need	,115	,910
QPROD is unique	,905	,189
QPROD is original	,930	,199
QPROD is one of a kind	,898	,079

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,934	58,685	58,685	2,934	58,685	58,685	2,537	50,741	50,741
2	1,311	26,228	84,913	1,311	26,228	84,913	1,709	34,172	84,913
3	,338	6,751	91,664						
4	,281	5,618	97,282						
5	,136	2,718	100,000						

Extraction Method: Principal Component Analysis.

3.6. KMO & Bartlett's test on perceived quality

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,712
Bartlett's Test of Sphericity	Approx. Chi-Square	824,614
	df	10
	Sig.	,000

3.7. Reliability analysis usefulness and novelty

Reliability Statistics

Cronbach's Alpha	N of Items
,804	2

construct usefulness

Reliability Statistics

Cronbach's Alpha	N of Items
,914	3

construct novelty

3.8. Regression analysis. Dependent variable: Perceived risk

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,981	,436		4,543	,000
	generated by customers	,309	,177	,123	1,752	,081
	selected by customers	,106	,176	,042	,600	,549
	generated and selected by customers	,064	,180	,026	,356	,722
	Price sensitivity	-,037	,054	-,041	-,676	,500
	Online purchase behaviour	,014	,042	,021	,337	,737
	Purchase behaviour Consumer Electronics	,091	,043	,139	2,133	,034
	Risk Propensity	-,112	,048	-,154	-2,347	,020
	Age	,162	,100	,106	1,622	,106

		B	Std. Error	Beta	t	Sig.
	Male_dummy	,075	,136	,034	,553	,581
	Cord & Cable management	-,017	,176	-,007	-,098	,922
	Power Strips & Extenders	,271	,176	,108	1,539	,125
	Lighting	,771	,180	,306	4,272	,000
	Employed full time	,068	,283	,026	,240	,810
	Student	,288	,259	,119	1,112	,267

a. Dependent Variable: Perceived_Risk

3.9.   Regression analysis. Dependent variable: Perceived quality

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,408	,475		9,280	,000
	generated by customers	-,101	,192	-,039	-,527	,599
	selected by customers	,121	,192	,046	,633	,527
	generated and selected by customers	-,113	,196	-,043	-,578	,564
	Price sensitivity	,045	,059	,048	,758	,449
	Online purchase behaviour	,064	,046	,093	1,409	,160
	Purchase behaviour Consumer Electronics	-,047	,047	-,069	-1,017	,310
	Risk Propensity	,043	,052	,056	,822	,412
	Age	-,167	,109	-,105	-1,529	,128
	Male_dummy	-,263	,148	-,116	-1,779	,076
	Cord & Cable management	,118	,192	,045	,613	,541
	Power Strips & Extenders	,244	,192	,093	1,269	,206
	Lighting	,225	,196	,086	1,145	,253
	Employed full time	,078	,308	,028	,253	,801
	Student	,174	,282	,069	,618	,537

a. Dependent Variable: Perceived_Quality