Erasmus University Rotterdam

Erasmus School of Economics

Master thesis

How to implement social proof online effectively

Ruben Hazelzet

Student ID: 400514rh

Supervisor: Tong Wang

MSc Economics & Business

Behavioral Economics (marketing track)

July 2014

Abstract

Online, more and more forms of social proof can be found, however are firms implementing it effectively? This thesis delivers useful insights on the online implementation of social proof, which is relatively unique, because not much research has been conducted yet in this field. The main emphasis in this thesis lies on possible methods to strengthen the message that an online social proof design communicates, making it appear more trustworthy and hence increasing the likelihood of an online purchase. To establish this, the working conditions of social proof and the three main components of trust (benevolence, ability and integrity) will be carefully analyzed. This research is divided in three main parts. In the first section, a thorough literature analyses will contribute to developing a broad understanding of social proof, trust and the online market environment. Then, an online survey will act as a preliminary analysis, delivering interesting insights about a consumer's state of mind online and the effect of specific social proof designs. Third, a field experiment will be set up, in cooperation with Philips, discovering whether social proof connected to consumer reviews and an inclusion of the three components of trust can positively influence its effect and eventually persuade more consumers to buy a Philips airfryer. The results are obtained through a conducted A/B test at Philips and the social proof designs are created together with the persuasive design company Buyerminds. All in all, these three sections are constructed to find an answer on the main research question: *Can the effect of social proof on the decision processes of consumers online, be positively influenced, by connecting it to consumer reviews and incorporating components of trust in the design?*

The outcome of this research is that implementing a social proof design linked to consumer reviews in a promotional email, can significantly increase its amount of click-throughs. With this email, in combination with a landing page that also displays a strong form social proof, managers can significantly reduce the bounce rate on their product page as well, while consumers will be more certain about the product. However, implementing a social proof design, with the three characteristics of trust, on a product page does not significantly increase its conversions.

Keywords

Social proof, consumer reviews, benevolence, integrity, ability, search goods, peer power, experience goods, elaboration likelihood model

Preface

During my bachelor in International Economic Studies I developed an interest in marketing and behavioral economics. In this period I had several jobs as a marketer and I wrote my bachelor thesis on a behavioral economics topic. Eventually, these things made me decide to do my masters in Behavioral Economics with a marketing track at the Erasmus University. Here, I learned about behavioral theories that could influence people's decision making processes, which contributed to my perception on how to implement marketing. One of these behavioral theories evolved around the principle of social proof, which intrigued me a lot, while it plays such an important role in our daily life. I immediately understood that social proof could also be a very persuasive tool for influencing consumers' behavior online.

Halfway during my masters, I decided that I wanted to write my thesis at a company, who could possibly help me with my topic. Via a friend, Martijn Spaargaren, I came in contact with the persuasive design company Buyerminds. Together, we decided that a research about the implementation of social proof online would be interesting to conduct. Buyerminds stimulated me to read the works of Cialdini (2001), who presents social proof as one of the six principles of persuasion. His work gave direct rise to the subject of this thesis. Meanwhile, I was also in negotiation with Philips, about possibly implementing my thesis there. Finally, we agreed that I would do an internship at Buyerminds, who would supervise and help me to redesign the obtained form of social proof from the online survey, which would be implemented in a promotional campaign for the Philips airfryer. This enabled me to work both with a company that was specialized in online persuasion (Buyerminds) and a company that would provide a platform to test my thesis on (Philips). During my literature research I found interesting work from Mayer et al. (1995) on the main characteristics of trust, I decided to incorporate these, linked to consumer reviews, in my social proof design to see whether this design would be trusted more and would influence consumers' decision processes. The aim of my research was to find a social proof that could positively influence consumers' decision processes online and be implemented in various situations.

Acknowledgements

This research could not have been realized without the help of others.

Firstly, I would like to thank my thesis supervisor Tong Wang for her great help and useful feedback. Also, for her flexibility and patience, because of the often changing timeframe, I'm very grateful. This happened several times, because of complications with the promotional Philips campaign.

Overall, I would like to thank Buyerminds for their cooperation and time they invested in this research, however, a special thanks goes to Joris Groen (Creative Director of Buyerminds). His input was essential, while he gave me fresh insights on persuasion, especially on the implementation of social proof. Additionally, he assisted me with the wireframes for the email and the two product pages of the Philips airfryer. At Buyerminds, I would also like to thank Demmy Onink (Visual Designer at Buyerminds), for designing the three social proof designs.

In general, I would like to thank Philips, without their support could this research not have been realized. In particular, I would like to thank Jemima de Reus (CRM Manager Benelux at Philips) for her support and creative solutions that made this research happen. Also, I'm grateful for the help of Maarten Haperen (Business Engineer at Philips), who played an essential role, supervising and distributing all the work within Philips. Finally, I would like to thank Jeroen Schuitemaker (Senior Marketing Director at Philips), for his interest in this research and support.

Lastly, I would like to express my gratitude to my parents, sister, girlfriend and friends, for their unlimited amount of support during my whole studies.

Table of Contents

1. Introduction

1.1. Background

Why do travelers, when confronted with two unknown rather similar looking restaurants, always go on average for the one that is the most crowded compared to the other restaurant? It could be the case that the restaurant that is less crowded actually has better food and maybe even offers this food at a better price. Many times, people do not even take this second possibility into account. The reason for this is that, we believe that our behavior is correct in a given situation to the degree that we see others performing it (Cialdini, 2001). Often, it is also a preference for shortcuts, when a lot of people are doing something it must be the right thing to do (Cialdini, 2001). Thus, when a restaurant is very crowded, people will often presume that this restaurant is a perfect pick. As demonstrated in this example, people are especially in uncertain or unfamiliar situations likely to look for social proof. Another example is when many people recommend you to go to a specific restaurant and the more people are telling you this the more likely you will be visiting it. This exhibits the power of word of mouth communication (WOM), which is an important factor that regularly influences our decision making process and it can be seen as a form of social proof. One can think of many unfamiliar or uncertain situations, where people are confronted with in their daily lives, wherever they will incorporate behavior of their significant others, either consciously or unconsciously, hoping to make the 'right' decision.

Nowadays, people spend a considered amount of time online, where they also face unfamiliar or uncertain environments. These environments can vary from web-shops to social platforms or informative pages and obviously also here can various forms of social proof arise. For instance, are people more motivated to 'like' a post, on Facebook, of somebody who already received many 'likes', in contrast to a post that is less socially approved? Or in general, are consumers in web-shops more likely to buy a much bought, highly rated product than one that has not been bought that often? It is interesting that in web-shops there is actually even more uncertainty than in normal stores, since consumers need not only to worry about the product quality but also about the sellers (Dimoka et al., 2010). Thus, web-shops seem to be excellent environments to implement social proof on, to reduce this high level of uncertainty and possibly increase sales.

Many forms of social proof can be found online, however, it seems that there is not yet a general consensus amongst firms about displaying or using it. The product type and consumer

group, for example, are extremely important factors to take into account when selecting a social proof design for an online environment. In addition to that, the current variety of social proof designs makes it difficult for consumers, because some designs might feel trustworthy, whereas others seem less genuine. Constantly they have to decide which designs to trust and which not. A standard form of social proof that is often found online is an indication of how many people would buy the product again. Social proof in the form of how many people wrote a positive product review might provide a stronger proof, since people are directly able to check this evidence by looking at published consumer reviews on the website. In general, consumers trust each other more, in the form of reviews, than the actual brand that they are buying from (Utz et al., 2011). Online consumer reviews can be regarded as online word of mouth communication (E-WOM), because people are communicating and recommending online with each other. All and all, for both the supplier and the buyer there still seems to be room for improving their knowledge and understanding of social proof online. However, the firms should be the ones to improve their understanding first, since they implement the social proof design on their websites. By incorporating key factors of trust and working conditions of social proof, firms can possibly use social proof designs online more to their benefit.

1.2. Objective

Cialdini (2001), studied the use of social proof extensively, and recognizes social proof as one of the most effective methods of persuading people to obtain a specific behavior. It appears that many firms have embraced this point of view, by using social proof online, but they might know little about its actual effects. This research focuses on extending the knowledge of social proof online, possibly improving its implementation and with that its effect on sales. Literature will be reviewed to study whether the online environment is suited for the implementation of social proof, by analyzing social proof and the online market place.

Since there are many different ways to present social proof, this research will highlight the most popular ones found online and analyze them on what they communicate and how they can be implemented. However, the main focus of this research will be on one type of social proof that actually presents the proof in such a way, that it is accessible for consumers and that it can be implemented by firms on a wide variety of products. This type of social proof is related to consumer reviews, basically E-WOM. Literature will be analyzed to carefully examine how reviews are often constructed, the effect of displaying reviews for firms and how it suits different type of consumers and goods. Finally, all the relevant factors will be taken from this analysis to implement in social proof designs.

When firms want to use social proof online, to persuade consumers in buying their product, the message that it communicates must be trusted. According to Mayer et al. (2007), trust is directly related to the amount of risk you are willing to take. Consumers can have different risk attitudes and thus increasing the levels of trust in a social proof design could have a positive effect. By studying the three working conditions of trust that a trustee needs to have, following the ideas of Mayer et al. (1995), this research tries to capture elements that makes a social proof design not only tangible for consumers, but also trustworthy. Especially in a climate where many claims are made about products, there is need for information that is credible, understandable and objective (Lee et al., 2008). By combining the studies of social proof, consumer reviews and trust, this research will construct several social proof designs that will be tested through an online survey. In this survey respondents are asked to answer relevant questions related to their online purchasing behavior. After analyzing the survey, a social proof design will be selected and implemented in a commercial email of Philips, together with a web-shop environment. This set-up will test whether social proof can persuade more people to click through (from the email) and if a strengthened social proof design outperforms a standard social proof design in a web-shop environment. The designs will be constructed together with the persuasive design company Buyerminds. A/B testing will be used to extensively analyze the results and extract managerial implications that deliver managers handful insights on how to implement social proof online effectively.

1.3. Research Question

1.3.1. Main Research Question

Cialdini (2001), presented social proof as one of the 6 persuasive methods to influence decision processes of individuals. This thesis tries to find an effective form of social proof that can be implemented online on a wide variety of products and in various situations. To achieve this, working conditions of social proof and trust will be analyzed and incorporated in the social proof designs, to see whether this increases its persuasive effect on consumers.

In general this thesis gives answer to the following research question:

- *Can the effect of social proof on the decision processes of consumers online, be positively influenced, by connecting it to consumer reviews and incorporating components of trust in the design?*

For answering the main research question, several sub-questions are formulated and described in the next paragraph.

1.3.2. Sub-Questions

The sub-questions are both practical and theoretical, and form the basis for answering the main research question. The theoretical questions will be answered by analyzing the relevant literature, whereas the practical questions will be answered by reviewing the survey and analyzing the results of the A/B test conducted at Philips. The theoretical sub-questions are as following:

1. *How can social proof be defined and what are its working conditions?*
2. *What are the traditional and behavioral economic perspectives on social proof?*
3. *Is the online environment suitable for implementing social proof?*
4. *What do consumers use as a key reference to reduce uncertainty, when buying products online?*
5. *How consumer reviews are build up and for which products and consumers can they be used?*
6. *Which key characteristics does a trustee need to have to appear trustworthy?*

The practical sub-questions that can be answered by looking at the survey results are as following:

7. *What do consumers use as a key reference to reduce uncertainty, when buying products online?*
8. *How do consumers feel when shopping online?*
9. *When are consumers inclined to write a product review?*
10. *For which type of products will consumers use reviews for their purchase decision process?*
11. *Does social proof become more trustworthy, by adding three working conditions of trust and a form of peer power?*

Other practical sub-questions that can be answered by conducting A/B tests at Philips are:

12. *Can a strengthened social proof design increase click-throughs and conversions in a web-shop environment of an innovative product?*
13. *Are consumers more inclined to look for peer power when confronted with a soft form of social proof or a strong form?*

1.4. Relevance

In contrast to academic research about social proof offline, the amount of research about social proof online is very limited. This is odd since social proof is implemented already online by firms in multiple ways. In many web-shops social proof designs are projected, but the question of whether they are using it correctly and effectively is not investigated. Subsequently, we spend more and more of our lives online, meaning that we will have to look for trustworthy online social proof increasingly. As said before, this research will mainly focus on the presentation of a social proof design in the form of consumer reviews. The reason why this is relevant comes from the fact that studies have shown that a large majority of consumers first check for consumer reviews before buying a product online (Wu et al., 2013). Korfiatis et al. (2011) found that firms can benefit, with increased sales, from adding consumer reviews in their online environment. This, incorporation of consumer reviews in a social proof design is relatively new and we will see if this can positively affect the online decision processes of consumers on a relatively new product. Furthermore, consumers are currently not that ignorant anymore and sometimes even skeptical towards certain displays of social proof online, because they seem untrustworthy. Hence, this research tries to increase the level of trust consumers have in social proof, by adding three components of trust, following the research of Mayer et al. (1995). Incorporating components of trust to social proof is also a new line of research. So, all things considered is this research relevant, since it will give guidance to business managers for effectively implementing trustworthy social proof designs online, that will give consumers the ability to make the best purchase decision.

1.5. Structure

Chapter 2 of this paper carefully analyze the true meaning of social proof, presenting all the relevant information, displaying theories of traditional and behavioral economics on social proof. Chapter 3 studies the online market place, looking at e-commerce and E-WOM. Subsequently, Chapter 4 explains the true meaning of reviews, how they are constructed, their effects and which reviews to include. Chapter 5 defines trust and its three working conditions. Then, Chapter 6 presents the multiple ways of social proof that can be found currently online. Chapter 7 connects the chapters of social proof, consumer reviews and trust to create multiple social proof designs, the effects of which are investigated in an online survey. Chapter 8 presents the results of this survey. Chapter 9 introduces Philips in general and examines their usage of social proof. Then, Chapter 10 introduces the social proof A/B Test conducted at

Philips and presents its results and limitations. Chapter 11 presents the overall conclusion, gives limitation and directions for future research and poses managerial implications.

2. Social Proof

2.1. Key working conditions of social proof

As stated before, social proof is the process of individuals adapting their behavior, feelings and actions as a result of interaction with other individuals (Amblee et al., 2011). Individuals are more willing to look for social proof when they are in an unfamiliar or uncertain situation. If this is the case, they tend to believe that they are less likely to behave inappropriately when they copy the behavior of the people surrounding them (Cialdini, 2001). Hence, uncertainty is the first key working condition of social proof. Robert Cavett stated that since 95 percent of people are imitators and only 5 percent are innovators, people are more likely to be influenced by their peers than by any other evidence we can offer (as cited in Cialdini, 2001, p. 101). Therefore, social proof operates most powerfully when we are observing the behavior of people just like us; their actions give us the greatest insight into what constitutes to be correct behavior for ourselves (Cialdini, 2001). This makes similarity also an important working condition of social proof and together with uncertainty, they are the two main working conditions, which provides an answer to sub-question 1.

In a review Cialdini (2001) states that testimonials from satisfied consumers work best when the satisfied consumers share similar characteristics with the potential consumers. Therefore, the effect of social proof could be possibly improved by implementing a form of peer power in the design. In a way social proof can be seen as an automatic pilot that helps us smoothly run our lives, often unconsciously. In situations like deciding on a purchase or on how much to give to charity, powerful effects of social proof have been found on compliance (Cialdini, 2001). All and all, implementing social proof correctly can be a very effective and persuasive tool for firms to increase sales of a product.

2.2. Traditional and behavioral economic perspectives

Cialdini (2001) describes that social proof influences decision processes and preferences of individuals in many occasions. This assumption is contradictory to traditional economic theory, which postulates the ‘economic individual’. The ‘economic individual’ is expected to be fully rational, having full knowledge of all the relevant aspects in his environment (Simon, 1955). Additionally, traditional economic theory assumes that individuals have a stable

system of preferences that give them the ability to maximize their utility, by evaluating every alternative available course of action (Simon, 1955). To evaluate every single action, individuals need to know with certainty or a probability distribution the payoffs, basically knowing which course of action has what return. When they know which action maximizes their payoff, they can initiate their decision of behavior. These facts show that traditional economic theory of the 'economic individual', leaves no room for the concept of social proof, because these individuals always know which decision or action to initiate. Hence, they will never be uncertain in any situation, which makes the copying of behavior of others irrelevant.

However, this theory of the 'economical man' seems more and more outdated. Behavioral economic theory does not support this concept, and it assumes that individuals are rationally bounded. Simon (1957) proposed that an individual's decision process is rationally limited by the amount of information available, the level of information that the individual can actually cognitively process and by the finite time individuals often have to make a decision. Consumers will probably be more likely to be rationally bounded when they are in an uncertain or unfamiliar decision making situation, which is one of the working conditions of social proof. Thus, since in these uncertain decision-making situations the amount of available information is probably either too little or too elaborate to cognitively process, consumers might build their decisions on social proof. All and all, this projects a clear connection between bounded rationality and social proof.

Malhotra (1982), confirmed the theory of Simon (1957), providing interesting evidence which showed that individuals tend to make poorer decisions, when confronted with information overload. In this case individuals have limited procession capacity for all the available information, because they just cannot analyze everything. Bettman et al. (1991) presented four situations that increase the difficulty of an individual's decision process, claiming that in some cases different attributes apply to different alternatives of choice. They took for example holiday trips, where each alternative destination had different attributes included like a five star hotel with a pool, or camping out in the desert for a few days. Basically, Bettman et al. (1991) showed how information overload and uncertainty during a decision making process can occur. They stated that an individual's decision process can become more difficult when the number of alternatives and attributes increase, specific attribute values are hard to process, if there is uncertainty about the values of many attributes, and the number of shared attributes becomes smaller under the alternatives (Bettman et al., 1991). It seems that factors as information overload and uncertainty are especially in our current decision making process

present, as we are having unlimited amount of information available. In conclusion, this analysis provides a good answer to sub-question 2.

2.3. Social proof in different types of societies

One can imagine that the principle of social proof is better applicable on certain individuals. Social proof is mainly about copying the behavior of the herd, so it is not remarkable that there are different effects found on individualistic and collective individuals. Cialdini et al. (1999) stated that in individualistic societies their members define the self autonomously, whereas in collective societies members define the self more in terms of group membership. So in individualistic societies personal goals differently prioritized above group goals, whereas in collective societies these are closely related (Cialdini et al., 1999). Han and Shavitt (1994) found suggestive evidence that social proof works better in collective societies, when comparing the effect of advertisements that promoted group benefits in South Korea (collective) and the United States (individualistic). Cialdini et al. (1999) provided similar evidence about the effectiveness of social proof in different societies. They studied the effectiveness of social proof in Poland (collective) and the United States (individualistic) and found that social proof, although it was influential in both societies, was more effective in Poland (Cialdini et al., 1999). However, these studies did not conclude that social proof is not effective in individualistic societies; it can still be effectively applied, since people will always follow the behavior of others in uncertain situations.

2.4. Possible negative effects of social proof

Unfortunately, there are also situations where social proof has less positive effects. There are two cases where poor data causes the principle of social proof to give bad behavioral directions. The first situation is when social evidence is projecting a false image. Luckily, this kind of social proof is often relatively transparent, making it easy to control or counterfeit (Cialdini, 2001). In this specific case, individuals should be aware of the bad social proof and temporarily switch off their automatic pilot. Firms should always be cautious not to project false images of social proof. The second situation when social proof could have harmful effects happens when many people are puzzled about a situation and are looking at each other to see what everybody else is doing (Cialdini, 2001). In this case many people fail to realize that those around them are looking for the same social evidence. This phenomenon goes by the name of pluralistic ignorance. This is most likely to occur when there are many strangers in a crowd. In times of danger this can be especially problematic, because, since nobody is doing anything, everybody will believe nothing is wrong (Latane & Darley, 1968b). We can

determine from this that crowds are sometimes mistaken, because their members do not have any additional information about how to act; they are just reacting as everybody else to the principle of social proof (Cialdini 2001). Therefore, people should not always fully trust an automatic pilot device as social proof, since it sometimes can direct behavior that is actually not suited for the specific situation.

3. Online market place

3.1. E-commerce

Online shopping has become part of our daily lives. However, people would shop online even more if they would feel less uncertain and would trust the e-commerce environment more (Utz et al., 2011). This uncertainty is basically due to the limited amount of information that is available online. Every consumer online is confronted with asymmetric information, since the seller has more knowledge about the quality of the product than the buyer (Utz et al., 2011). This asymmetric information increases the purchase uncertainty for consumers. Dimoka et al. (2012) presented two forms of information asymmetry where consumers are confronted with online, seller and product uncertainty.

In a normal store a consumer can effectively assess the quality of a product, but online he is partly dependent on the honesty and trustworthiness of the seller. Buyers can only assess the quality of the product via an internet interface, which cannot perfectly convey the true characteristics of the product. Dimoka et al. (2012) stated that it is difficult for consumers online to assess the physical experience, credence and durability of the product. Also, the consumer does not know if the seller is portraying his real characteristics (adverse selection) nor does he know if the seller is acting opportunistically (moral hazard) (Dimoka et al., 2012). However, it is too one-sided to assume that the seller knows everything about his product as well, because it can also sometimes be the case that sellers are unaware of certain defects that their products carry. Furthermore, online purchases are often only one-shot relationships, since the buyer and the seller often live in different places, lowering their commitment to each other. Thus, besides the quality could there also be problems with shipments and customer service.

Therefore, purchase uncertainty is higher in online markets compared to offline markets, because offline there is only uncertainty in the product alone, whereas online this uncertainty is related to both the product and the sellers (Wu et al., 2013). All things considered, the

online environment is a good place to implement social proof on, since uncertainty which is one of its working conditions is so apparent, answering sub-question 3.

3.2. Online communication

WOM communication is always considered to be a powerful tool to influence the beliefs and behavior of people (Sen & Lerman, 2007). When they are shopping offline, consumers are passive information searchers; they are targeted by marketers in the form of, for example, advertising and sampling (Wu et al., 2013). Here, it is important that sellers give consumers the opportunity to test and verify the quality of the product and the reputation of the seller through WOM communication (Wu et al., 2013). Since interpersonal information is often hard to justify, or constrained by the social network of the consumer, searching for information is limited (Wu et al., 2013). The purchase environment is more safe and certain, but its search costs are high.

The current status of innovative technology in the world increased the power of WOM communication tremendously, since people can now share information to anyone in the world in a heartbeat. This phenomenon goes by the name of E-WOM (Sen & Lerman, 2007). The increasing ease of sharing information makes the world way more transparent and should give consumers more certainty in the uncertain online environment. This makes consumers online active information searchers, because of these lowered search costs (Wu et al., 2013). However, as mentioned before an enormous amount of information online is not necessarily a good contributor to an individual's decision process. Individuals can be puzzled by the overload of information, leaving them clueless and in doubt about which decision to take.

The increased transparency pushes firms to deal more carefully with their products and consumers, since news spreads quickly. Amazon is currently only focusing on consumer reviews; they eliminated their budgets for TV-advertisements, since they believe that consumers trust other consumer opinions more than advertisements (Sen & Lerman, 2007). In essence, consumers are looking for WOM communication when inquiring information to make the best online product decision. Online blogs, but especially consumer reviews are good examples of an online bundle of WOM communication. Nowadays, these forms of information are believed to be even more trustworthy than sources of information in the printed press (Korfiatis et al., 2011). However, consumers are alerted for genuineness of online consumer reviews, so for firms it is extremely important to have a clear strategy in how and which reviews to communicate (Sen & Lerman, 2007). Information system literature

defines the quality of information in terms of its objectivity, timeliness, understandability, sufficiency and credibility (Lee et al., 2008). These factors will influence the perceived genuineness of the E-WOM communication. Essentially there are four aspects of online interaction that make it different from ordinary interactions: time and place, anonymity, physical appearance and physical distance (Guadagno et al., 2013). These aspects give individuals more control over their interactions, by carefully and anonymously selecting their responses. However, it also complicates the interaction process, because commitment towards each other is lower.

3.3. Online uncertainty

Online uncertainty, because of asymmetric information, pushes individuals to follow a purchase decision process that seeks to reduce uncertainty. Basically a consumers' willingness to pay for a product is determined by the consumers expected utility when the purchase decision is under uncertainty (Wu et al., 2013). Mudambi & Schuff (2010) state that the total cost of a product does not only consist out of its own costs but also out of the cost of search. The nature of the product under consideration affects the amount of uncertainty tremendously and thus the search costs involved. Product uncertainty is more salient, for example, when a consumer evaluates an innovative or a complex product. Wu et al., (2013) also included the evaluation of the seller to this purchase decision process; this evaluation is partly constructed by the prior evaluation of the product. This confirms the theory of Dimoka et al. (2010) who claimed in their paper that consumers are confronted online with product and seller uncertainty and both of these factors need be evaluated prior to purchase.

Currently, consumers tend to search for experiences from other consumers, related to the product, often in the form of consumer reviews. These reviews are easy to access (often on the website itself), which therefore can decrease consumers search costs. Consumer perceptions of the usefulness and social presence of the website can be improved through consumer reviews as well (Mudambi & Schuff, 2010). Therefore, it is extremely important for sellers to know how consumers talk about their products, because in general consumers' post purchase opinions are the ones that determine their loyalty and satisfaction towards the product and possibly firms.

4. Consumer Reviews

4.1. Reviews in general

Utz et al. (2011) stated that nowadays consumers put even more trust in online store reviews than in the store's overall reputation. This research regards consumer reviews as peer-generated product evaluations posted on company or third party websites (Mudambi & Schuff, 2010). Nowadays, the availability of consumer reviews is widespread, which causes the focus to shift from the mere presence of consumer reviews to the consumer's evaluation and the perceived usefulness of the review (Mudambi & Schuff, 2010). In essence, consumer reviews provide the same information as the information received from sellers. However, consumer reviews are more consumer oriented, whereas sellers focus more on product-oriented information (Lee et al., 2008). Basically, consumer reviews look with a user perspective at product attributes and performance. Furthermore, they could provide additional attribute-value information that sellers are unwilling to mention (Lee et al., 2008). All and all consumer-created information considered is found to be more credible and trustworthy (Park et al., 2007).

The main purpose of reviews is either to recommend (providing positive arguments) or discourage (providing negative arguments) others from buying a product (Sen & Lerman, 2007). Consumer reviews also generate more traffic to websites, increase the time consumers spend on the site and create a sense of community among the e-shoppers (Mudambi & Schuff, 2010). Also, consumers' purchasing intentions increase together with the number of reviews, as this indicates that the product is popular and bought by many significant others (Park et al., 2007). A research from the Business Week (October 2009) showed that 70 percent of the American population checks consumer reviews prior to purchase (Wu et al., 2013), which provides an answer to sub-question 4. Therefore, it is not remarkable that websites with a large number of user-supplied reviews tend to have an increased number of sales (Korfiatis et al., 2011).

4.2. How are consumer reviews constructed

Usually, reviews contain three elements: the first element is the reviews rating (number of stars), second is the review content and the last element is the helpfulness of the review (Korfiatis et al., 2011). The star ratings are a form of review extremity, which communicates whether a review is positive or negative. By itself, this element of reviews seems not that explanatory yet for consumers. Therefore the review content is there to add meaning to the

specific product rating. This is important since consumers find concrete experiences that are described in texts about the product very informative and useful. Hence, it is evident that consumers perceive reviews with depth more helpful. Tversky & Kahneman (1983) confirm this, as they found that the more reasons available for a decision, the more the decision maker's confidence will be increased. When a firm wants to eliminate or reduce purchase uncertainty, the quality of information is critically depending on the online consumer reviews (Mudambi & Schuff, 2010). Objective and specific reviews make the review of high quality and therefore more persuasive then low-quality reviews (Lee et al., 2008). These type reviews are clear and persuasive and will have a strong positive effect on purchasing intentions (Park et al., 2007).

The third review element is also crucial, because it gives a form of social proof to new visiting consumers that the specific review is worthwhile or not. This reduces the amount of time consumers have to seek for relevant and helpful reviews; looking at all reviews would merely be impossible for consumers (Sen & Lerman, 2007). Firms can also expect sales to be positively influenced when including helpfulness votes to their web-shops (Mudambi & Schuff, 2010). This third element of reviews is related to product diagnosticity, which is a reflection of the amount of help the website delivers to consumers for evaluating the true product quality (Mudambi & Schuff, 2010).

E-commerce websites like Amazon or Bol.com ask their consumers whether the specific review was helpful. This gives these firms the ability to order reviews based on their helpfulness, so that consumers are immediately confronted with reviews that actually can contribute to their purchase decision process. This ordering reduces the consumer's product search costs. Providing easy access to reviews can be a point of differentiation for firms (Mudambi & Schuff, 2010). Mudambi & Schuff (2010) defined a helpful consumer review as a peer-generated product evaluation that helps consumers with their purchase decision process.

4.3. The effect of reviews on different product categories and consumers

The effect of reviews on sales is dependent on the type of good in question. Mudambi & Schuff (2010) introduce two types of goods: search goods and experience goods. Experience goods are basically goods where the quality and utility for a consumer can only be determined upon consumption (Korfiatis et al., 2011). Thus, requiring information about experience

goods is often a difficult and costly process before a purchase (Mudambi & Schuff, 2010 Search goods are goods for which the consumer has the ability to require information about the quality of the product prior to purchase (Mudambi & Schuff, 2010). Finding information on product quality of search goods is relatively easy, which makes involved search costs also lower. The perceived quality of search goods are often attributes of an objective nature, whereas for experience goods it more depends on subjective attributes that are related to personal taste (Nelson, 1974). According to Sen & Lerman (2007), consumers assign greater value to hedonic attributes than to the concrete product attributes, when evaluating experience goods.

Since experience goods have a subjective nature, depending on personal taste, their reviews show often extreme ratings. However, this is not very helpful for consumers, because a personal taste is probably too subjective. Therefore, it is apparent that consumers find moderate ratings of experience goods a better indicator, since they project probably more objective assessments (Mudambi & Schuff, 2010). For search goods, reviews will probably project more specific tangible aspects of the product and an indication of its overall performance. In this case extreme claims about these tangible attributes are more easily made and therefore can be perceived as credible (Mudambi & Schuff, 2010). Sen & Lerman, (2007) stated that consumers are more likely to consider reviews for search products rather than for experience products in their purchase decision process. A study from Zhu et al. (2009) indicated that product reviews might work as well better on niche products, due to scarcity of available information.

The elaboration likelihood model can be used to explain the effect of reviews on consumers by focusing on information processes that are responsible for changing attitudes and for enhancing the strength of attitudes (Lee et al., 2008). An individual's level of involvement and its ability to process information influences the likelihood of elaboration. Lee et al. (2008) noted that there is a strong relationship between involvement and information processing; as the level of involvement increases, consumers have greater incentives to comprehend the information delivered by the reviews. Thus, it is apparent that more compelling arguments will increase the persuasiveness of the review for consumers with a high level of involvement (Lee et al., 2008). However, the number of reviews also positively affects highly involved consumers (Park et al., 2007). For less involved consumers only the quantity of the reviews is relevant and effective (Park et al., 2007). A high number of reviews also cause the product

rating to converge to the true quality (Zhu et al., 2009). On the whole this basically indicates that it is always good for a firm, to have a big number of high quality reviews.

4.4. The effect of positive or negative reviews on consumers

The analysis above showed that adding a large number of high quality reviews will be effective on consumers. However, this does not explain the effect of the message that these reviews carry. Research has shown that negative information carries more value to the receiver of WOM communications than positive information. This is called the negativity effect (Sen & Lerman, 2007). Lee et al. (2008) confirm this by stating that negative reviews are more diagnostic and informative. This is especially the case when the purchase decision process is focused on the content of the message (Lee et al., 2008). This negativity effect comes from the fact that in a consumer's social environment there is a greater number of positive cues than negative, meaning that when they are faced with negative cues they are perceived as counter normative (Sen & Lerman, 2008). Firms have to be wary for too many negative reviews, since consumers conform to online consumer reviews and they might develop a negative attitude as the number of negative reviews increases (Lee et al., 2008).

Furthermore, consumers are likely to anticipate a positive mood when reading the reviews of experience goods, since they are looking forward to owning the product, which could make them discount negative reviews as a result of the affect confirmation process (Sen & Lerman, 2007). These consumers basically put greater weight on information that is consistent with their mood and expectations (Sen & Lerman, 2007). For search products the situation is different, since consumers are primarily concerned with the immediate consequences of consumption (Sen & Lerman, 2007). Problems or difficulties with the products are relevant, because it will affect their utility. Sen & Lerman (2007) found that there is a negativity bias for search products but not for experience products, for those products it is more likely that there is a positivity bias. These results imply that marketers for experience goods do not have to worry that much about the presence of negative reviews in their shop environment. Opposed to that, a marketer for search goods will have to manage negative reviews carefully. Due to the primacy effect should they for example never post a negative review as the first message, because this could unconsciously set the tone for the other reviews the consumers will read (Lee et al., 2008). By first displaying a persuasive and positive review, this could anchor consumers for subsequent reviews and then negative reviews may be assessed in a more biased manner (Lee et al., 2008). All and all, the analysis above delivers a concise answer to sub-question 5.

5. Trust

5.1. Trust in general

Trust is an essential ingredient of social interaction which has a true impact on the area of communication and is therefore important to analyze when studying consumer reviews and social proof. Mayer et al. (1995) proposed a definition of trust as the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor (a trusting party), irrespective of the ability to monitor or control that other party (the trustee). This definition incorporates vulnerability, which basically implies that the trustor is willing to take a risk. The level of trust is an indication of the amount of risk that somebody is willing to undertake (Mayer et al., 2007). If there is a situation where the level of perceived risk is higher than the level trust, a control system could bridge this difference by lowering the perceived risk that can be managed by the amount trust available (Mayer et al., 2007). When looking at trust there are basically two parties to analyze: the trustor and the trustee.

According to Mayer et al. (1995) the propensity to trust is the main factor that influences the likelihood of a party to trust another party. This willingness to trust others depends on the individual's experiences, personality and cultural background. However, just looking at the propensity to trust of a trustor is not enough, because it is likely to believe that a trustor has different levels of trust for different trustees. One can assume that an individual trusts a recommendation from his family more than from somebody he does not know. The amount of trust that a trustor has in a trustee depends on how trustworthy the trustee is perceived to be. Research proposes three characteristics that a trustee must have to appear trustworthy: ability, benevolence and integrity (Mayer et al., 1995).

5.2. Ability

Ability is seen as a group of skills, competencies, and characteristics that enable a party to have influence in a certain domain (Mayer et al., 1995). Trustees must give individuals the ability to share their thoughts in specific domains and trust them on it. In the produced literature about trust, ability is seen as an essential element. To apply this to a market situation, where the seller or the company is the trustee, it is essential for them to give the buyer or consumer the ability to share his or her experience. By doing this, firms signal the amount of trust they have in the consumer. Simultaneously they manage to appear to be trustworthy as well, when making these experiences accessible for other consumers.

5.3. Benevolence

The second characteristic that a trustee must have is benevolence, which is the extent to which the trustee is believed to want to do good to the trustor (Mayer et al., 1995). The positive intentions of the trustee must appear to be only in the best interest of the trustor; they should not be connected to the trustee's agenda. In this way the trustee seems altruistic and with that trustworthy. Linking the concept of benevolence to a market situation, firms should always promote that they want to help consumers and that the things they do are in the best interest of the consumers. Therefore it is crucial, for example, that there are help applications available in web-shops that clearly explain to the consumer how to proceed or guide the consumer in finding the best suitable product. When virtual help is not explanatory enough consumers should be able to contact helpdesks as well that can produce the answers they need. One can state that benevolence is found in the way consumer service is organized by the firm and this is especially online when there is no face to face contact with consumers extremely important.

5.4. Integrity

Integrity acts as a third characteristic that a trustee must have. This is the case when the trustor's perceives that the trustee adheres to a certain set of principles that are acceptable to the trustor (Mayer et al., 1995). If a party wants to show that they have a high level of integrity, they should make consistent actions and produce credible communications towards trustee's that are in line with the expectations that the trustee's has with the involved party (Mayer et al., 1995). By doing this the party will be perceived as trustworthy. In a market situation, it is extremely important for firms to have a high perceived level of integrity. If a consumer has the feeling that a firm only wants to make profit, and this is not in line with what the consumer expects, it could harm the firm. In a firm's web-shop there should be clear, consistent and credible communications that are in line with the principles that the consumer expects there to be.

5.5. Overall analysis

The three characteristics that trustee's must obtain to appear trustworthy, may vary for every firm. They are maybe not dependent on each other, but certainly not unrelated (Mayer et al., 1995). For example a firm that communicates to be highly transparent and wants to sustain a high level of integrity, must also give a high level of ability to consumers to share their thoughts or expertise on products. By giving these consumers the ability to share their thoughts about a product, the firm should also be benevolent, by helping to answer questions and solving problems of consumers. Through this strategy they would be able to maintain a

high level of integrity and thus perceive to be trustworthy by consumers. As one can see these characteristics of trust can be closely related. It is therefore possible that trust in a firm can be decreased, when they lack or start lacking in one of these characteristics. Thus, it is also essential for firms to understand that their trustworthiness is a continuum, since the three characteristics can fluctuate over time (Mayer et al., 1995). In the relationship between the consumer and the firm, judgments about the integrity and ability of the firm, can be formed rather quickly, whereas the perception about the firm's level of benevolence will take longer (Mayer et al., 2007). All things considered, the analysis above gives a clear answer to sub-question 6.

6. Social proof online

6.1. General background

Social proof online has the same meaning as offline; individuals look for behavior of others to decide on which behavior to follow, in uncertain situations and ambiguous contexts (Guadagno et al., 2013). Mayer et al. (2007) proposed that when in a situation the perceived risk is higher compared to the amount of trust, a control system could bridge this gap. As said before, online market places carry more uncertainty and with that more risk, so this seems an excellent area for social proof to act as a control system, bridging the perceived risk and the amount of trust closer to each other. Guadagno et al. (2013) found that in online interactions, individuals decision making processes are significantly influenced by the others. Their study mainly focused on text-based interactions, which can be directly linked to reviews as well. However, there are many other ways and situations where social proof is implemented online.

6.2. Online social proof examples

One of the most standard methods of displaying social proof online is done by stating that x number of people would buy the product again. This is a very clean and simple way of recommending a product to a consumer, which could reduce his concerns and possible doubts about the product. While answering the question whether he would buy the product again is fairly easy for consumers, it is not producing that much proof for new consumers. As explained before, a product rating is also a form of social proof that is often found online, this is done in the form of stars or a possibly a grade. This type of social proof gives a quick indication about the quality of the product and is often linked to reviews.

Showing where in the world people already bought the product is another way of implementing social proof. Particularly to companies that want to communicate that they are accurate with shipments of packages, this type of social proof can be extremely effective, because it validates to the consumer that it does not matter where in the world you order, your package will always be safely delivered. Besides this fact, it also shows that people everywhere in the world have faith in the quality of the products. Although this social proof is rather strong, it cannot be implemented on every single product. A form of social proof that is also presented often is a live feed that displays the consumers that just bought, shared, tweeted or loved the product. Essentially these consumers are building up social proof and visiting consumers are witnessing this at the same time. The live feed verifies that these types of social proof are actually real and that new visiting consumers can also contribute to it. If the live feed is indicating the latest purchases, it also sets a deadline besides providing social proof; consumers might feel the urge to make a purchasing decision fast, because other consumers are buying the product and they might miss out. Often booking websites for flights or hotels implement this persuasive tool.

Another way of portraying some form of social proof is to show which product is the best seller of the stock. Although this clearly indicates to people that this specific product is liked by many people and that they can trust the quality, the social proof itself is not that trustworthy. It is not so hard for a firm to place a best seller sticker on a product, if they want to put this product in the picture. For consumers it is hard to check the validity of the claim that a certain product is a best seller, therefore the design could be perceived as not that trustworthy. An advantage for the firm is that this type of social proof can be easily implemented and on a large variety of products.

One fact, which is already implemented by some firms, applies to all these types of social proof designs, namely that including information about the consumers that contributed to the social proof, contributes a lot to its effectiveness. This gives consumers the ability to see whether these reviewers are similar to them. If this is the case, consumer reviews work even more effective, as was also mentioned by Cialdini (2001). Thus, short profile descriptions of the contributors can strengthen the peer power component and with that also the social proof, since it is one of the key working conditions of social proof. This type of information is often found in the review section of the web-shop, not on the landings page.

7. Construction of designs

7.1. Bringing it all together

The main goal of this paper is to create an effective social proof design that is implementable for firms in different online areas and on a wide variety of products, transmitting relevant and trustworthy information about the products to consumers. These designs should, following information system literature, appear to be credible, understandable and objective for consumers (Lee et al., 2008). To achieve this, it is important that we analyze the two working conditions of trust, uncertainty and peer power. Uncertainty is more related to the feelings of consumers in online environments than that it can function as a component in social proof designs. However, the online environment and especially the online market place still is an unfamiliar and uncertain habitat for a consumer. This makes it an excellent environment to implement social proof on. The second working condition of trust can be integrated into social proof designs, which will be discussed later.

By incorporating the three characteristics of Mayer et al. (1995), we can possibly increase the persuasiveness and level of trustworthiness of our social proof design. Since we know that with a high level of trust consumers are willing to take more risk, our social proof design could persuade them to buy a product with an increased likelihood. We connect the three characteristics of Mayer et al. (1995) to E-WOM, in the form of consumers' reviews. The reason for this is that consumers tend to trust each other more online than the brand they are buying from (Utz et al., 2011). Research also indicated that online a large majority of consumers search for consumer reviews prior to purchase (Wu et al., 2013). Thus, it seems legitimate and effective to connect the three characteristics of trust with online consumer reviews.

7.2. Social proof, benevolence and consumer reviews

The social proof designs can appear to be benevolent by giving consumers the ability to read consumer reviews. This basically communicates to consumers that the firm wants to help them, has no hidden agenda and performs in the best interest of the consumer. It also tells the consumer that the specific firm has lots of confidence in the quality of the product, since they give the consumer the possibility to read objective third party opinions.

7.3. Social proof, ability and consumer reviews

The second characteristic of trust, ability, could be incorporated by giving the consumer the possibility to share his thoughts about the product through a consumer review. This expresses

the trust that the firm has in the consumer, by giving him the ability to share his thoughts and experiences. By clearly showing this ability in the social proof designs, consumers might trust it more, since they feel trusted by the firm.

7.4. Social proof, integrity and consumer reviews

The third characteristic of trust is integrity. A firm has integrity when they are consistent and credible with their actions and communications. Linking this to consumer reviews, firms can work on their credible and consistent communication, by showing also critical reviews to the consumer in the social proof design. This has two effects, first consumers see that they are able to criticize product as well. This shows that the firm is consistent when giving the consumer the ability to share his experiences; positive but also negative reviews will be published online. Furthermore, the social proof seems more credible, as consumers are not only confronted with extreme positive reviews. Connecting integrity with social proof in the form of consumer reviews seems extremely efficient, since it incorporates in a certain way the other two characteristics of trust as well. Namely, by showing positive as negative reviews, a firm also appears benevolent and shows as well that it gives consumers the ability to truly write their product experiences. However, firms have to be careful with integrity; it cannot be used all the time. In a situation where a firm has too many 'negative reviews' it can backfire naturally. The amount of positive reviews must always outweigh the negativity effect. As said before, consumers take negative reviews more seriously, when making a purchase decision (Lee et al., 2008). Also, the firm should set strict rules about the content and language that can be used in the reviews. When these problems are dealt with effectively, integrity could be a great inclusion for the social proof design.

7.5. Social proof, peer power and consumer reviews

Unlike uncertainty the second working condition of social proof, peer power, can be integrated in social proof designs. Cialdini (2001) stated that testimonials or consumer reviews work better when a consumers is reading reviews of other consumers that share similar characteristics. To obtain peer power in social proof, we can give consumers the ability to look at peer reviews or we can add small testimonials of people and make sure that the content consists of relevant information regarding the characteristics of the reviewer. Besides the characteristics of the reviewer, these testimonials should also give short product descriptions, indicating in what way the product can be used. A very soft form of implementing peer power in social proof designs can be achieved by adding to a short text the name of the person that wrote it. Nowadays, there are also many online testimonials, where

people explain their experiences in video clips. Naturally, these are forms of peer power that present the experiences of peers very tangibly, because people can not only analyze the specific peer, but also can see relevant examples of product usage. For firms it is important though that the person that is presenting his experiences appears to be normal and natural, because many consumers will be skeptical in the sense that they will believe that these consumers are just actors hired by the firm.

7.6. The social proof designs

With the three characteristics of trust and one of the working conditions of social proof we can make a total of 11 combinations that presumably can improve the effect and persuasiveness of social proof online and are therefore interesting to construct. A grand total of 15 different combinations could have been constructed, however as said before some characteristics are already incorporated in other characteristics. The 11 social proof designs were included in two types of social proof. The first type of social proof communicates a percentage of how many people who bought product would buy it again (see appendix D, figure 2). This type of social proof is common and it can be found in many web-shops next to product offers. The second form of social proof that is enriched by the 11 combinations is related to consumer reviews. This social proof namely communicates the percentage of people that wrote a positive product review (see appendix D, figure 3.). This type of social proof is relatively new online and therefore also interesting to analyze. It is common to use reviews as a form of social proof, but using it in a social proof text is new. In total this thesis constructed 22 different social proof designs. All the 11 designs related to the social proof type that communicates the percentage of people that wrote a positive product review, can be found in Appendix D, figure 1.

8. Online survey

8.1. Introduction

The online survey conducted for this research acted as a preliminary analysis, in order to get a broad understanding about how people behave and feel online. The second purpose of the survey was to study which type of social proof designs are perceived the most trustworthy and could therefore also influence the purchase decision process of the consumer. Thus, this survey, together with the prior literature analysis, will determine which type of social proof design is best to implement on a wide variety of products and in multiple online

environments. Besides this functionality, the survey is also used for confirming or disconfirming the prior literature research.

8.2. Sample and Method

In total, 143 respondents filled out the survey (95 males and 48 females), of which 125 finished all the questions (see Appendix A, Table 1 and 2). The mean age of the respondents was around 27 years old, ranging from 19-78. All respondents indicated that they made an online purchase at least once and actually more than 75 percent indicated to be buying sometimes or even often products online (see Appendix A, Table 3). As an introduction, respondents received a brief explanation about the meaning of the word peer. This was implemented to make sure that respondents would understand the term peer power. Each respondent faced 21 questions, 10 questions asked for some personal information but the majority of these questions were related to the respondent's online shopping behavior and experiences. Two questions out of the 10 were intentionally displayed at the end of the survey. One asked consumers when they would write product reviews and it was placed at the end to be sure that this would not influence the respondents. The other question was placed at the end on purpose, so that the previous questions would help the respondents to picture for which product they would look for experiences of other consumers. These 10 questions were mostly multiple-choice and had either scale, nominal or ordinal measures.

Respondents faced in question 8 a vital question, asking which of the two displayed indications would deliver the most trust in a web-shop to them, an indication of how many people would buy the product again or an indication that would communicate the amount of people who wrote a positive product review. This question basically asked them which of the two types of social proof would give them the most trust. If they would go for the indication that projected the amount of people that would buy the product again, they had to answer 11 questions about the 11 different constructed social proof designs, connected to this type of social proof. When notifying that they received more trust from an indication of the amount of people that wrote a positive product review, they would answer 11 questions linked to this type of social proof. The social proof designs in both sections were randomized in the same order; to make sure that the situations were the same and that there was no learning in the survey. Facing the social proof designs, the respondents had to imagine that they were seeing this design (depicted in the survey) next to a product in a web-shop and to what extent they trusted the design to be true. They could indicate this by rating the social proof designs with a

1-7 Likert scale, where 1 was no trust at all and 7 indicated total trust. All these Likert scale questions had naturally ordinal measures.

8.3. Descriptive analytics

8.3.1. Online state of mind of consumers

As said before, everybody in the sample is familiar with buying products online. This is extremely important since all the respondents were confronted with online shopping questions. One of these questions, asking about how the respondents felt when shopping online, is connected to the first key working condition of social proof which is uncertainty. As Table 4 indicates, more than half of the respondents feels secure when shopping online. One third answered that they feel neutral and a little bit under ten percent said still to feel insecure shopping online. This is a relatively small amount of people that still feels uncertain online and it contradicts in a way research of Utz et al. (2011), who stated that there was still lots of uncertainty present in online shopping. One reason for the survey result could have been that our sample contained quite young and experienced online shoppers. However, still, if firms manage to make these 10 percent of respondents more confident online through social proof, it can have a profound effect on their sales.

Table 4. Descriptive statistics of the online survey

Q4. How do you feel when shopping online?		
Answers	**Frequency**	**Percent**
Very Insecure	1	,7
Insecure	10	6,9
Neutral	49	34,0
Secure	76	52,8
Very Secure	7	4,9
Total	143	99,3
Missing system	1	,7
Total	144	100,0

All and all these results express that there is still some room for improvement, influencing the consumers' state of mind when shopping online, answering sub-question 8. Achieving this might also affect the level of satisfaction after purchase, because expectations are more realistically set.

8.3.2. Buyer's regret

When people are not truly convinced about buying a specific product online, they might regret their purchase later. Therefore, the possible regret that a consumer could have after buying online is also interesting to analyze. Table 5, displayed below, indicates that one third of the respondents regret certain purchases online, and only around 20 percent of the respondents indicated that they have never regretted an online purchase. Reasons for this could be directly linked to the presence of asymmetric information online. A strong form of social proof (control system) might decrease this level of asymmetric information and with that also affecting the average level of regret consumers have when buying online. Which people or other references could form an online social proof that delivers more trust to a product so that consumers want to buy online?

Table 5. Descriptive statistics of the online survey

Q6. Did you ever regret shopping online?		
Answers	**Frequency**	**Percent**
Never	32	22,2
Rarely	62	43,1
Sometimes	42	29,2
Often	7	4,9
Total	143	99,3
Missing System	1	,7
Total	144	100,0

8.3.3. Who or what can deliver the most trust online

Respondents in the survey (just under 40 percent of the total) indicated that they received the most trust from consumer product reviews, when shopping online, as one can see in Table 6 presented below. Secondly, a recommendation of a friend or family delivers the most trust, which can be evaluated as something similar as consumer reviews, since it is also some kind of testimonial. An interesting fact that we already can deduce from these two things is that consumers apparently trust third-party reviews more than a recommendation of somebody close to them. One reason for this might be that for certain products, family or friend recommendations are harder and therefore more costly to require. The brand reputation of a specific product was indicated by 25 percent of the respondents to deliver the most trust. The first three results of this question are in line with research of Utz et al. (2011) who also found that consumers trust reviews more than a store's or brands reputation.

Table 6. Descriptive statistics of the online survey

Q5. What do you trust more when buying a product online?		
Answers	**Frequency**	**Percent**
The products brand reputation	37	25,7
A recommendation of an expert	12	8,3
Consumer reviews about the product	54	37,5
A recommendation of a friend or family	40	27,8
Total	143	99,3
Missing System	1	,7
Total	144	100,0

Table 6 also illustrates that only around 8 percent of the respondents received the most trust from a recommendation of an expert. This last finding is in line with studies of Cialdini & Guadagno (2005), who showed that authority, as a form of social influence, is not effective in computer mediated communications. These findings are interesting, since they communicate in a way that consumers have a skeptical attitude towards the firm itself and proclamations made by product experts. Presumably, one reason for this could be that the interests and motives of other consumers, friends or family are more in line with those of the online shopping consumer. Experts have to appear to be objective, but it could be the case that many consumers might feel that these experts were hired by the firm, representing the best interest of the firm rather than that of the consumers.

Fundamentally, answering sub-question 7, what we can deduce from these results is that linking social proof to consumer reviews might be an extremely effective method to influence the consumers' state of mind when shopping online.

8.3.4. Which type of social proof

To test whether social proof linked to consumer reviews is more preferred by consumers, we asked the consumers which type of social proof indication would deliver them more trust in a web-shop. Table 7 shows that around 60 percent of the respondents clearly preferred an indication that communicated the amount of positively written product reviews, to 40 percent of the respondents that preferred an indication of the amount of people that would buy the

product again. This result is in line with prior research of Wu et al. (2013), who indicated that the majority of consumers first check consumer reviews online, before making a purchasing decision. This result stipulates again, that the effect and persuasiveness of social proof designs might be improved, when they are being linked to consumer reviews.

Table 7. Descriptive statistics of the online survey

Q8. What would give you more trust in a webshop?		
Answers	**Frequency**	**Percent**
An indication that the majority of people, who bought the product, would buy it again	59	41,0
An indication that the majority, who bought the product, wrote a positive review about it	84	58,3
Total	143	99,3
Missing System	1	,7
Total	144	100,0

8.3.5. When do consumer write a review

If consumer reviews are actually that important in the purchasing decision process for consumers online, it is crucial for firms to know in which scenario consumers are likely to write a review. Table 8 indicates (displayed below) that consumers either will write a review when they are very dissatisfied or when they are extremely satisfied with a product. Even so, most of the consumers indicated that they would write a review when they are very dissatisfied. This result delivers an important guideline for firms, basically indicating that they should always handle reviews with care and deliberation. When firms are confident about the quality of their product, they should definitely publicly publish their reviews and thus give consumers also the ability to share their experiences. In this case, firms can expect beforehand that the consumers will be satisfied with their product and thus are also more inclined to write a positive review. However, when firms sell products that are cheap and of low quality it might be wise to refrain from publishing reviews, because in this case firms can assume that if they give consumers the ability to share reviews, they will be probably negative. As we know from research of Lee et al. (2007), consumers are sensitive for negative reviews and likely to adapt their behavior or opinion to the specific review. To summarize, this particular analysis clearly indicates in which situation consumers will write a review, answering sub-question 9.

Yet, the product type also might influence consumers in taking consumer reviews into account or writing them.

Table 8. Descriptive statistics of the online survey

Q20. When do you write a review about a bought product?		
Answers	**Frequency**	**Percent**
0	2	1,4
When I truly dislike the product	69	47,9
When I moderately dislike the product	10	6,9
When I'm indifferent about the product	5	3,5
When I moderately like the product	3	2,1
When I truly like the product	36	25,0
Total	125	86,8
Missing System	19	13,2
Total	144	100,0

8.3.6. For which products are experiences of other consumers important

Another important factor in this research is that specific type of goods can influence the likelihood that consumers will take experiences or opinions of other consumers into account. From Table 9 (projected below) we can deduce that people are particularly prone to taking experiences of other consumers into account for their purchase decision process, when buying electronic gadgets or household appliances. These two types of products can be categorized under search goods, since consumers are able to gather lots of information about the product prior to the purchase. Hence, these findings are in line with prior research of Sen & Lerman (2007), who stated that consumers take experiences of other consumers more into account when buying search goods. Table 9 also shows that this is less likely to happen when consumers want to buy jewelry and clothing or lifestyle accessories. This is rather straightforward, because people want to differentiate from others with the help of these products, making them less likely to evaluate experiences of others or even to consider buying the product if there are many people who have bought it. These types of goods are more related to experience goods, where the amount of utility generated by the product is more likely to be determined after purchase. What we can conclude from this is that social proof is

more suited to be implemented on search goods, for example, electronic gadgets or household appliances, answering sub-question 10.

Table 9. Descriptive statistics of the online survey

Q21. For which product category would you definitely take experiences of other….		
Answers	**Frequency**	**Percent**
Jewelry and Clothing	5	3,5
Electronic gadgets	97	67,4
Home and kitchen appliances	13	9,0
Lifestyle accessories	5	3,5
5	5	3,5
Total	125	86,8
Missing System	19	13,2
Total	144	100,0

8.4. Inferential Statistics

8.4.1. Test set-up

Previous literature and the conducted survey clearly indicate that consumers receive the most trust from consumer product reviews, when shopping for a product online. Hence, this analysis will examine only the social proof designs where the content was linked to the amount of positive written reviews. To achieve this, an appropriate statistical test is required to obtain the social proof designs that generated the most trust. The respondents could rate the social proof designs with a 1-7 Likert-scale, so the dependent variable being measured was ordinal. As this specific study looks for differences in the effect of 11 different social proof designs, we can use the Friedman test. The Friedman test is a non-parametric test, which is used for detecting differences between groups when the dependent variable is ordinal.

This test enables us to determine whether certain social proof designs communicate a more trustworthy message than others. Before starting with the analysis, we have to check whether all the assumptions of the Friedman test hold. The first assumption states that one group should be measured on three or more occasions, which is the case in our analysis, because we actually analyze one group in 11 occasions. Secondly, the group should be a random sample obtained from the population. Although we saw that we have a quite young sample we still

can assume that this assumption holds. The third assumption expresses that the dependent variable should be measured at ordinal or continuous level and this is also the case in our analysis, since a 1-7 Likert-scale (ordinal) was used. Also the fourth assumption, samples do not need to be normally distributed, naturally holds. Thus, we can conclude that all the Friedman assumptions hold and that we can use it for our analysis. To check whether there are differences between the designs in the amount of trust that they generate we test the following hypothesis:

H0: The rankings are equal at every social proof design

8.4.2. Analysis

For our test we take alpha equal 0.05 with 10 degrees of freedom. If we get a p lower than 0.05 we will reject H0 and continue the analysis by making pair wise comparisons, using Wilcoxon signed ranks tests, investigating which designs are different from others. Table 11 presents the results of the Friedman test, three designs (number 14, 15 and 21) clearly perform better than the others, based on their mean. Design 14 contains all the three components of trust and also peer power (see Appendix D, Figure 4.). In design 15 we see the characteristics of integrity and peer power and in the third top design, number 21, there is integrity, but also ability (see Appendix D, Figure 5 and 6.).

Table 11. Friedman test, descriptive statistics of the online survey (social proof designs, connected to consumer reviews)

Designs	N	Mean	Std. Deviation	Minimum	Maximum
Design 12	76	4,67	1,248	1	7
Design 13	76	3,26	1,360	1	6
Design 14	**76**	**5,07**	**1,398**	**1**	**7**
Design 15	**76**	**5,14**	**1,392**	**1**	**7**
Design 16	76	4,86	1,430	2	7
Design 17	76	3,92	1,412	1	7
Design 18	76	4,75	1,387	1	7
Design 19	76	4,51	1,483	2	7
Design 20	76	4,84	1,307	2	7
Design 21	**76**	**4,99**	**1,381**	**1**	**7**
Design 22	76	4,70	1,307	1	7

Table 12 shows Friedman's test ranks, from which we can conclude that also here the mean ranks of design 14, 15 and 21 are the highest. Overall, design 15 is ranked in both analyses the highest. Together with these results we found a P of 0.000, enabling us to reject H0. This implies that the means or typical rankings are not equal at every social proof design and that in our interest, some of the designs are probably better than others.

Table 12. Friedman's test ranks of the social proof designs

Designs	Mean Rank
Design 12	6,05
Design 13	2,59
Design 14	**7,66**
Design 15	**7,88**
Design 16	6,38
Design 17	3,89
Design 18	6,23
Design 19	5,45
Design 20	6,55
Design 21	**7,18**
Design 22	6,15

Since H0 is rejected we have to perform a pairwise analysis using Wilcoxon signed rank tests to determine which designs are different from the others. This is a popular test to detect whether two paired samples come from the same population. It is applied to within-subject experiments and the data is required to be ordinal. Both assumptions hold in our experiment. As we are looking for designs that generate the most trust, we perform the Wilcoxon signed rank tests for the top three designs number 14, 15, and 21 against the 10 other designs. With each of these three designs we will construct 10 pairwise tests, to see whether they are significantly different from the others or the same.

8.4.3. Pairwise analysis

Performing a pairwise Wilcoxon signed rank test for design 14 shows that, to almost all designs, it is significantly different and thus better. However, only when pairing it to design 15, 16 and 21 there is no significant difference, as you can see in Table 13a, 13b, and 13c (see Appendix C). When conducting the test for design 15 we see the same pattern, it is

significantly different and better then almost all designs, but design 14, 16 and 21 appear to have the same effect (see Appendix C, Table 14a, 14b and 14c). We can deduce from this that the produced effect of these two designs is fairly close. The pair-wise Wilcoxon test for design 21 indicates a slightly different pattern. Although, the design is still different to the majority of the other designs, it is not significantly different to design numbers 14, 15, 16 and 20 as one can see in Table 15a, 15b, 15c and 15d (see Appendix C).

8.4.4. Results and Discussion

What we can infer from this analysis is that design 14 and 15 stand out in comparison to the others and we use them for further analysis. Design 21 is not significantly different from design 14 and 15, but performs less good comparing it to the other designs. Finding no significant difference between design 14 and 15 is pretty straightforward, since they essentially communicate the same message. Namely, design 15 also communicates benevolence and ability indirectly. Showing to consumers that they can read negative, positive and peer reviews, actually also communicates that they can read all reviews (benevolence) and that they can leave a review (ability). Design 15, which was ranked the highest in the Friedman test, shows a method to include all components, without using too much words or space. This can be important, since information overload could distract the consumer and cause the social proof design to have a less profound effect.

Figure 5. (design 14)

Figure 6. (design 15)

The reason that design 16 is not significantly different to designs 14, 15 and 21 could be because of a little spillover effect generated by designs 14 and 15. Respondents ranked these designs rather high, which could have mildly anchored them when rating design 16. Interesting is the fact that the mean of the standard design, number 13 (see Appendix D, Figure 3) was rated the lowest of all 11 designs. This indicates, that adding any characteristic

of trust or the component peer power, significantly improves the perceived trustworthiness of the design. Although the designs were randomized, it could have been the case that respondents felt that the more information was projected in the designs the more trustworthy they appeared to be. However, if this would have been the case, design 21 would not have been rated so high. Another interesting analysis that can be deduced from the table is that the characteristic of integrity has a truly positive effect on the perceived trustworthiness of the designs. All the designs that included integrity scored high on trustworthiness (see Appendix B, Table 11). Apparently, showing also negative or less positive reviews transfers lots of trust to the consumer.

8.4.5. Implications

These findings indicate that adding the characteristics of trust and possibly a form of peer power to social proof design, could improve its perceived trustworthiness, answering sub-question 11. This is conform the research of Mayer et al. (1995), who proclaimed that the characteristics of trust are not totally dependent on each other, but certainly not unrelated. In our social proof designs it appears that the characteristics of social proof are related, since adding characteristics reinforces the perceived trust that the social proof communicates. When firms want to implement a social proof design in the form of reviews online, that is perceived to be true by consumers, they have to include these components. These social proof designs should be implemented on landing pages of web-shops or on specific product pages in the web-shop (as was communicated in the survey), and consumers should be directly confronted with the social proof design when looking at a product. The designs could lower the amount of asymmetric information present in a web-shop, because consumers can check immediately via the buttons on the social proof design, whether the product claims made by the firms are true. Product and seller uncertainty is lowered as well for consumers and thus their search costs. Research conducted by Mayer et al. (2007) explained that the level of trust is an indication of the amount of risk somebody is willing to undertake. Since these designs generate more trust, consumers might be willing to take more risk in their purchase decision process.

For firms, these designs can be a point of differentiation, providing easy access to reviews already in an early stage of the buying process. Furthermore, this can probably be implemented on a wide variety of search products. Nowadays, every firm focuses on requiring consumer reviews at one point, so it is relatively easy to mould these reviews also into a social proof design, visible in an early stage of the buying process. To study the effect

of these social proof designs (design 14 and 15) on consumer behavior online, this research is followed by conducting a real-time online implementation at Philips.

9. Philips analyses

9.1. General background and connection with this research

Philips is a known Dutch multinational founded in 1891, which expanded through the sales of light bulbs. Nowadays, the company is recognized for its meaningful innovative products over a period of 120 years, contributing to people's well-being, healthcare and environment. In 2013, Philips adopted a new brand strategy communicating the brand line "innovations and you". With this, Philips expresses its belief in innovations that have a true impact on the desires and needs of consumers. Thus, Philips mainly produces innovative products that are of high quality and therefore also a little bit higher priced than standard products.

Innovative products are new, which increases the amount of product uncertainty and the need for social proof, which can function as a control system that increases the level of trust a consumer has in the product. One can assume that the amount of seller uncertainty, presented by Dimoka et al. (2010), is reasonably low, as Philips has proven over the years to be a reliable and good firm. In addition, Philips produces for the most part search goods, for which the consumer has the ability to require information about the quality of the product prior to the purchase, as Mudambi & Schuff (2010) presented in their research. Sen & Lerman (2007) indicated that consumers are more likely to consider reviews for search products than for experience goods. Moreover, one could expect that consumers, shopping for a Philips product online are likely to be highly-involved consumers. As they are planning to make a serious investment they will be keen on finding information that could contribute to their purchase decision process. Lee et al. (2008) indicated that highly involved consumers are positively affected by the number of reviews and the quality of the reviews. All the presented factors above make Philips an interesting company for studying the online implementation of social proof. Although Philips mainly places its products in external shops, it also makes direct sales through their web-shops.

9.2. Social proof and review analysis in Philips web-shop environment

9.2.1. Web-shop flow

The Dutch web-shop environment of Philips communicates several things about its products. For example, on the cooking landing page, multiple cooking products are listed. Per product Philips displays a product image, key features, the price, transaction information, stock information and a button that directs consumers to a more detailed and specific product page (see Appendix E, figure 7). Furthermore, Philips gives consumers the ability to search on specific product categories, sort products on price and also compare them. Aside from all these features, there is no form of social proof displayed. The 'more information' button the leads the consumer to a specific product page that shows more general product information, images, specific features, reviews and reasons why Philips is a good brand to buy from (Appendix E, figure 8). However, as one can see in figure 8 (see Appendix E) also forms of social proof are projected on this page, namely, a product rating and characteristics of trust, in the form of giving the consumer the opportunity to read (benevolence) and write (ability) reviews. Also, when sliding over the stars, the page delivers an indication of the average product rating. When sliding over a small search sign displayed next to the star rating consumers are confronted with a pop-up, showing how many people wrote a review and how they rated them, which is a form of integrity.

It is relevant to analyze the consumer review setup in the Philips web-shop, while reviews are an important aspect of this research. When clicking on this feature consumers are first confronted with information that was projected already in the pop-up, at the beginning of the page. But, they do add a further explanation about how the product ratings are build up and indicate how many people would recommend the product, which is a pretty standard form of social proof that can be found online (see Appendix E, figure 9). Scrolling down, consumers can read the full consumer reviews. Each consumer review contains a product rating, a short analysis of the product and an elaborate explanation describing product experiences. Furthermore, review characteristics, his pros and cons and possible recommendation, are displayed.

9.2.2. Social proof establishments

Overall Philips is doing a good job on implementing social proof. They connect their social proof to reviews, which seems a good strategy, since research from Wu et al., (2013) indicated that the majority of consumers search for consumer reviews prior to purchase. This

is also in line with the analyzed literature in this research and the conducted survey. In addition, Philips also reasonably incorporates the characteristics of trust in their presented form of social proof. This is visible for consumers at the second page of the purchase flow. By connecting benevolence, ability and integrity to reviews they follow a strategy that is also proclaimed by this research. Namely, this set-up corresponds with design 14 that was ranked the highest together with design 15 and 21 in the survey, although in the survey a text was included that indicated how many consumers wrote a positive product review, displaying no star ratings.

Philips consumer reviews are first-class, because they convincingly justify product ratings and add clearly written experiences of consumers. Kahneman & Tversky (1983) found that as more reasons are presented for a decision to a consumer, the more confidence he will gain for making the decision. Consumers also receive thorough instructions on how to write their reviews, which makes them clearer and specific (see Appendix E, figure 10). This is important, because as Lee et al. (2008) indicated, these are the more persuasive type of reviews. By displaying characteristics of the reviewer, which can be seen as some kind of peer power, Philips acts on the presented similarity condition of social proof by Cialdini (2001). Giving consumers the ability to provide short pros and cons about the product, contributes to the integrity of Philips, clearly stipulating that consumers are allowed to be negative as well. All these features show that Philips is performing well in the review set-up and that there is no need for improvement in that area.

9.2.3. Possible social proof improvements

Philips can still improve their implementation of social proof in the Philips web-shop. To encounter social proof in a web-shop of Philips you have to land on the second page of purchase flow, the product landing page. In the overview page of Philips web-shop there is not yet an indication of social proof. However, consumers are confronted with the price that they have to pay for the product. By giving no indication about how other consumers feel about the product, Philips might lose potential consumers in an early stage. This could happen while most Philips products are reasonably priced because of their high-quality. However, the consumers might not be aware of this yet and could be immediately discouraged to proceed, hence not landing on the product page where social proof is provided. Taking this into consideration, one can assume that the level of uncertainty is still relatively high in Philips' web-shop. Creating a form of social proof on this page might increase click-through rates to the product landing page. Philips could, for example, include (as displayed in the survey

designs) already on the product landing page an indication of how many people wrote a positive review. This could then function as a bridge to the product landing page where the product star-rating and the characteristics of trust are displayed.

On the product landing page we discovered that Philips actually applies social proof in a similar way that is proclaimed by this research. However, there are some elements that leave room for improvement. Philips presents the product star-rating as its main form of social proof, yet they forget to clearly display what the actual star-rating is (by holding your cursor for some time on the stars, it finally displays the average rating). In addition, it is not immediately clear how many consumers contributed to this product rating. Only when sliding over the small search button, a pop-up will show the number of written reviews and an indication of integrity. Overall this pop-up presents a problem, because many consumers might fail to spot this application, let alone the fact that on tablets and mobile devices this application does not function.

In addition, how Philips presents its integrity could be improved, by attaching words to the product rating. For example, instead of mentioning how many consumers gave 5, 4, 3, 2 or 1 star, Philips could attach verbal statements to the stars. 5 stars could indicate the amount of consumers that were ‘extremely positive’, 3 or 4 stars would show how many were ‘positive’ and 1 or 2 stars how many consumers were critical about the product. Using words instead of a diagram could make the presented evidence more concrete and therefore more profound. Furthermore, the two links, read all reviews (benevolence) and write a review (ability) are displayed in a different style than the other components of social proof, which might negatively influence the effect on people. All and all, one can derive from this analysis that Philips is not yet presenting its social proof perfectly. The presented method above for displaying integrity would use less space and could therefore be implemented in an immediately visible social proof design together with the product star rating and the other two characteristics of trust. By clearly grouping these together Philips might strengthen its displayed social proof and make it appear more trustworthy.

10. Social proof experiment at Philips

10.1. Selected Philips product

10.1.1. Product information

To test whether connecting social proof to consumer reviews and the three characteristics of trust would strengthen its effect, an appropriate Philips product needed to be selected. Therefore, together with Philips we decided to implement the social proof design on the Avance Collection Airfryer XL (see figure 11 below). This is a relatively new and innovative product. It basically uses rapid air technology to prepare food that traditionally would be prepared with a deep fat fryer. The Airfryer does not need any frying oil; it only uses circulating hot air to prepare food, for example, fries. Philips claims that this new way of cooking produces up to 80 percent less fat than traditional fryers. The Avance Collection Airfryer XL is the newest version, following up the previous two Viva Collection Airfryers. The product is sold for a price of €279.99 in the Philips web-shop. It has a product rating of 4.7/5, formed by 84 reviews, of which almost all are positive or even extremely positive. The next section shows whether the airfryer is suited for testing social proof.

Figure 11.

10.1.2. The airfryer and social proof

As said before, the Avance Collection Airfryer XL is an extremely innovative product. Hence, it probably attracts highly-involved consumers that are likely to take consumer reviews into account when making a purchase decision. Table 9 (displayed on p. 32), indicated that consumers are most likely to take experiences of other consumers into account when buying

electronic gadgets or home and kitchen appliances online. One could state that the airfryer is a combination of these two categories and therefore suited for a social proof experiment. While this type of airfryer is relatively new, it does not have that many reviews yet. However, this fact is actually interesting, because this gives us the opportunity to see if social proof already can positively influence the decision processes for new products, in an early stage. As presented in the section above, Philips has an excellent review environment, displaying all the features that are known for positively influencing purchase decision processes of consumers. Thus, for the airfryer, connecting social proof and the components of trust with consumer reviews seems effective. Although the components benevolence (read reviews) and ability (write reviews) are mainly present in the social proof design to make consumers trust the message that the social proof communicates, Philips' excellent consumer review environment could as well contribute to their functioning.

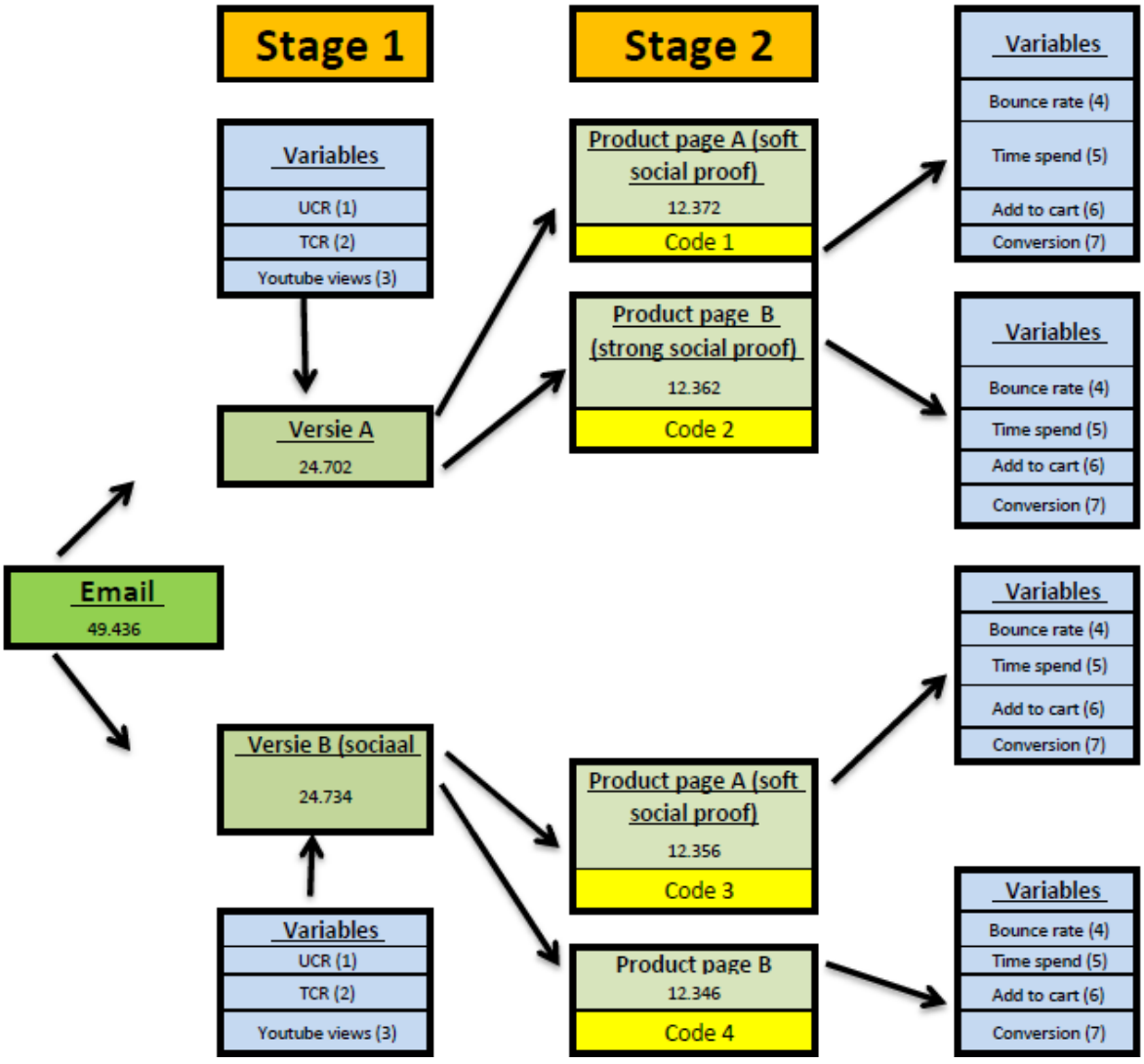
This research assumes that the airfryer is for the most part a search good, since consumers can collect lots of information about the product prior to purchase. It carries some features of an experience good, in the sense that people can determine only the taste of the food that it produces after the purchase. However, all things considered we will regard the airfryer as a search good, because most reviews project specific tangible aspects and an indication of its overall performance and taste. For search goods, extreme product ratings are perceived to be credible, because extreme claims about tangible attributes are more easily made as Mudambi & Schuff (2010) presented in their research. The Avance Collection Airfryer XL has mostly extremely positive product ratings (65 reviewers gave 5 stars and 17 reviewers gave 4 stars), only two reviewers rated the product below 3 stars. We can infer from this, based on previous presented literature, that consumers will find the reviews and product rating of Avance Collection Airfryer XL credible. The integrity component, on Philips product page, is directly related to these product ratings and consumer reviews. Lee et al. (2008) stated that negative reviews are more likely to influence a consumer's attitude towards a product. However, since the majority of the reviews is positive (only two are negative), it makes including also negative reviews seemingly harmless, although adding them does contribute to the integrity component and could make the social proof design as a whole more trustworthy and hence more persuasive.

10.2. Constructed social proof designs at Philips

10.2.1. Set-up

Directly implementing two forms of social proof (a weak and strong version) on the product page of the Avance Collection Airfryer XL was unfortunately not realistic, because of time constraints and the available capacity. Thus, after several meetings with Philips, we agreed to conduct the experiment in two stages, in an email environment and on an especially build product page as one can see in figure 12 below.

Figure 13. Philips experiment set-up



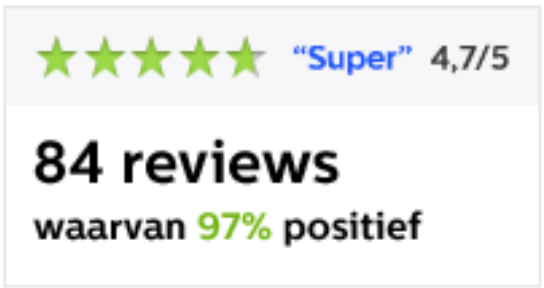
Half of the consumers in the Philips consumer database would receive a promotional airfryer email offering €50 discount, containing a social proof design (email B). The other half of the consumers would receive the same email, without any social proof (email A). If the consumers would click-through (from email A or B) they would land on either a product page

with a strong form of social proof (product page B) or on a product page with a weaker form of social proof (product page A). This set-up enabled us to perform A/B tests, to see the effects of social proof (the different test that can be conducted will be explained later). However, because there were now two stages (a consumer journey), we had to modify the top designs delivered by the survey. Given the fact that we were looking for the most effective social proof designs through A/B testing, we had to create a situation where we would have the most control. Therefore, we decided not to include an application of peer power in the social proof designs in our treatment groups (email B and product page B), giving us the opportunity to cleanly test whether including the three components of trust in a social proof design would lead to more click-throughs and purchases. However, by projecting video testimonials in both emails, it enabled us to track in which situation consumers were more likely to look for this soft form of peer power. This means that we integrated all the features of design 14 and 15 obtained from the survey, but not entirely in its original form. In total three social proof designs were created, one for the email and two for the product pages. Together with Buyerminds the following designs were created.

10.2.2. Social proof designs for both stages

For the first stage, the promotional email, a form of social proof had to be designed (for email B) that would possibly increase the amount of trust consumers would have in the airfryer and persuade them to click-through to the product page. Together with Buyerminds and Philips, we decided to implement social proof in the form of a text that would communicate the amount of consumers that wrote a positive product review. This text functioned in the survey as the standard form of social proof (see appendix D, figure 3.). As one can see in figure 13, together with the text we included the average product star rating and attached a statement (super) to make the product rating more tangible. The product star ratings are already presented in the first phase, because this is the main form of social proof that Philips uses on its product pages and this makes possible consumers already familiar with them. The social proof design was placed under the product image in email B (see Appendix F, figure 16).

Figure 13. Social proof design email B



This social proof should be effective, because consumers are likely to consider consumer reviews in their purchase decision for the airfryer. While an airfryer can be considered as a search good and since it is a reasonable investment, consumers probably want certainty about the quality of the product. In a way, indicating that not all reviews are positive (3 percent is negative), is already a form of integrity and could increase the trustworthiness of the displayed social proof design in email B. Furthermore, this design is consistent in the consumer journey to product page A (with a weak form of social proof) and also to product page B (with a strong for of social proof).

For product page A, a soft form of social proof needed to be designed, to make the flow from email A or B logical. Therefore we decided to create a form of social proof, as one can see in figure 14 that only displayed the product star ratings with its average and the same statement (super) as implemented in email B. The social proof design was placed under the product image on product page A (see Appendix F, figure 17). Philips displays product star-ratings as their primary form of social proof on product pages. Thus, this design is related to what Philips normally incorporates. Landing from email A should feel natural, while consumers are confronted with a soft form of social proof, a small amount of extra information that could contribute to their purchase decision. Arriving from email B on this page also makes sense, because consumers are confronted with part of the same form of social proof that they already saw in their email. Furthermore, this design acts a good control group to see whether a strengthened social proof design, with the three characteristics of trust (treatment group), has a more persuasive effect on consumers.

Figure 14. Social proof design product page A

Figure 15. Social proof design product page B

Figure 15 illustrates the social proof design that is implemented on product page B. Besides having the same product star rating seen on product page A, this social proof design incorporates the three characteristics of trust in a clean, compact and connected way. As one can see the integrity component is implemented by calling a 5 star rating extremely positive, a 3-4 star rating positive and a 1-2 star rating critical. A consumer can immediately see how many consumers wrote a review and how many were positive or negative about the product. The buttons read and write reviews, should generate lots of trust, because they show consumers that they can read all the reviews (also the negative ones) and that they are trusted to share either their positive or negative experiences. To make the product rating and the information on the reviews even more comprehendible, this design also displays a real testimonial of a woman (Hester), who expresses her satisfaction with the airfryer. The social proof was displayed under the product image on product page B (see Appendix F, figure 18). As well as for the social proof design on product page A, this design is also closely related to what Philips currently incorporates. Yet, this design seems more accessible, connected and comprehendible for consumers, since it is nicely grouped in a rectangle and all its components seem to reinforce each other. Consequently, this design could easily be implemented on multiple products and online environments. Although arriving on product page B from email A and B is both sound, the landing from email B on product page B should be softer and could possibly have a bigger persuasive effect. The social proof design for product page B gives us the possibility to perform multiple controlled A/B tests which could show that a strengthened form of social proof on a product page will be more persuasive and therefore could also generate more click-throughs and purchases.

10.3. A/B test set-up

10.3.1. Sample and method

The A/B test at Philips was conducted with a total sample of 49.436 people, of which 24.702 received email A (without social proof) and 24.734 received email B (with social proof). The number of people in each email group was not exactly the same, because not all emails arrived in each group, which produced small differences between them. The sample consisted of people that either once bought kitchen appliances or floor appliances and other products of Philips. All the people in the sample were above 14 years old and emails were randomly assigned to them. Subsequently, email A and B were split in two, to measure all the interactions. For example, for email A, 12.372 people received the email with a link that would direct them to product page A and 12.362 people received the email with a link to

product page B. The same set-up was used for the 24.734 people that received email B. Thus, as one can see in figure 13 (displayed above), in total 4 emails were sent that differed either on contents (social proof or not) or on the attached links (going to product page A or B).

In total the experiment ran over a period of 6 days. This is justified, because people are not likely to open an email after that amount of time, and the first couple of days are the most important. Taking everything into consideration, we can state that the set-up was closely related to a field experiment. Namely, our subjects were real people, they were confronted with the email and product page in their own natural and uncontrolled environment and lastly our subjects were not aware that they were participating in an experiment. This means that we can assume that people behaved as they always would do.

10.4. A/B test stage 1: emailing

10.4.1. Hypotheses

As figure 13 illustrates (displayed above), the two emails will be examined on 3 variables. The unique click rate (UCR), the total click rate (TCR) and the amount of Youtube views will be analyzed in the first stage. From these three variables is the UCR the most important one for this research, while it measures how many unique people clicked on all the links present in the email (see Appendix F, figure 16). For the UCR we constructed the following hypothesis:

H1: the unique click rates on all the displayed links are equal in both emails

As an alternative hypothesis we expect that email B stimulated more unique click-throughs than email A, because of the presence of the social proof design. The TCR measures the total amount of people that clicked on the displayed links in email A and B. It differs from the UCR, because some people clicked several times on links in their email, or clicked more often because they reopened their email. Hence, for this variable it is a little bit harder to generate a probability of how many people clicked on the links presented, but it still can be used as a good indication for this analysis. For the TCR we analyze three hypotheses, one related to the TCR on all the presented links, one connected to the TCR on links that directed consumers to product page A or B (header image, header text, product image, buy now button, product image and social proof design) and lastly one on the TCR of the buy now button:

H2a: the total click rates on all the displayed links are equal in both emails

H2b: the total click rates on links that lead to product page A or B are equal in both emails

H2c: the total click rates on the 'buy now' button are equal in both emails

As for the UCR, we construct the same alternative hypotheses for the TCR, expecting that email B caused a higher TCR than email A. The third variable, Youtube views, analyzed how many people viewed the Youtube testimonials. For this variable we construct the hypothesis:

H3: the total views rate of the Youtube testimonials is equal in both emails

For the Youtube views we expect that people were more likely to look at the testimonials when there was no social proof design displayed in the email (email A). Based on the working conditions of social proof a consumer should have felt more uncertain in email A, because besides the two video testimonials, there was no direct visual indication of how other consumers felt about the product. Therefore, as an alternative hypothesis, we expect that people in email A people are more inclined to watch the video testimonials. With all these three hypotheses we analyzed the first stage of the experiment.

10.4.2. Descriptive statistics

The main purpose of stage 1 was to study whether adding a social proof design would increase the amount of trust people would have in the airfryer and basically persuade them to click-through to find more about it. The social proof design could also possibly give an indication about the effectiveness of linking social proof to reviews. The first column describes the four different emails that were sent: email A going either to product A or B and email B linking either to product page A or B. The total open rate for all the emails was considerably high with 96.4 percent. More interesting though is the fact that the unique opens for all the emails were extremely high with 56.4 percent (see Appendix D, Table 16). Hence, it is not a surprise that the UCR was significantly high as well, with 12.28 percent. The same can be said for the TCR, averaging out on 16 percent.

To test whether there is a significant difference between email A and B we require two groups. To achieve this, the results in Table 16 (see Appendix D) of email AA and AB are combined and those of email BB and BA as well. This produces the following Table 17 (displayed below).

Table 17. Descriptive statistics UCR and TCR in stage 1

Email name	Total delivered (n)	Total click throughs	Total click through rate (p)	Unique click throughs	Unique click through rate (p
Email A	24734	3774	15.26%	2981	12.05%
Email B (social proof)	24702	4111	16.64% (+1.38 pp)	3091	12.51% (+0.46 pp)

It seems that email B, based on the descriptive statistics performed better, with the unique click through rate increasing with 0.46 percentage point (indicated as pp in the tables) and the total click-through rate with 1.38 percentage point, however to know for sure we need to test them on significance. To go more in depth we also analyze the total clicks on links that directed the consumers to the different product pages. From a specific click through report we derived table 18 that enables us to test the last hypotheses of stage 1. Table 18 presents three interesting variables the TCR to product pages, the TCR to product pages via the 'buy now' button and the Youtube views rate. Requiring unique click rates here was not possible (reasons for this can be found in the limitation section of stage 1), but since the TCR are more specified, they are still interesting to analyze. Considering the last three variables, it seems that email B was performing better at the first two variables. The TCR to the product pages increased with 1.63 percentage point in email B, whereas the TCR to the product pages via the 'buy now' button increased with 0.27 percentage point.

Table 18. Descriptive statistics specified TCR in stage 1

Email name	Total delivered (n)	Total click throughs to product pages	TCR to product pages (p)	Total click throughs buy now button	TCR to product pages buy now (p)	Total Youtube views	Youtube views rate (p)
Email A	24734	2734	11.05	2081	8.41	574	0,0232 (+0.18 pp)
Email B (social proof)	24702	3134	12.68 (+1.63 pp)	2145	8.68 (+0.27 pp)	528	0,0214

10.4.3. Inferential statistics

We can assume, using central limit theorem, that because of our big sample size the UCR, TCR and Youtube views rate follow a normal distribution. This allows us to conduct an independent sample t-test, where we compare whether 2 normal-distributed samples have the same mean (p). We only care about the positive tail of the distribution, when testing the UCR, TCR and Youtube view rates hypotheses. Thus, when testing the first two hypotheses, we only reject the null hypothesis if the rates of email B are higher than email A and for the third hypothesis when the rates of email A are higher than email B. We will obtain a 95 percent confidence interval. The general hypotheses, formulas for the standard error and t-test, analyzing the three variables, are as following:

General hypothesis for the UCR and TCR hypotheses

$\mathrm{H0: p(B) - p(A) \leq 0}$ and $\mathrm{Ha: p(B) - p(A) > 0}$

Formula 1. **Formula 2.**

$$SE = \sqrt{\frac{p(1-p)}{n}} \qquad t = \frac{p(B)-p(A)}{\sqrt{SE(B)^2+SE(A)^2}}$$

The p in the hypotheses (and in the formulas) refers to the means of the different variables, the n is related in stage 1 to the total number of delivered mail (also indicated in Table 17 above) and SE refers to the standard error for that variable in email A or B. Only when calculating the t statistic for the rate of Youtube views the hypothesis is different, because we expect that there will be more Youtube views in email A ($\mathrm{Ha: p(A) - p(B) > 0}$), naturally this also mildly changes the t-score formula.

We start by analyzing the UCR, since its t-score, 1.56 < 1.645 we cannot reject *H1* (see table 19). However, with 10 percent significance we can reject *H1* (p-value: 0.0594). Thus, although we cannot strongly proclaim that the social proof design in email B stimulated more unique click throughs, we can with reasonable confidence.

Table 19. T-scores and p-values for the tested variables in stage 1

	UCR in email	TCR in email	TCR to product pages	TCR to product pages buy now	TCR to Youtube testimonials
Email A-B	1.56 **0.0594 (accept H0)**	4.19 **0.0000 (reject H0)**	5.6 **0,0000 (reject H0)**	1.08 **0,1401 (accept H0)**	1.2 **0.1151 (accept H0)**

We can reject *H2a* (p-value: 0.0000), meaning that there were significantly more total click through rates in email B. As one can see in table 19 we can also reject *H2b* (p-value: 0.0000), which means that in email B there were significantly more total click throughs on links that leaded to product page A or B . Besides the influence of the social proof design could part of this result be explained by the fact that in email A people only could have landed on the product pages by clicking on four links, whereas in email B people could have landed on the product pages also by clicking on the social proof design (5 links). Table 20 shows all the clicks on the different links separately, that directed consumers to the product pages. We can see here that on each link consumers clicked more in email B and by including the social proof design email B generated 257 clicks extra, which is an interesting result.

Table 20. Total clicks on the presented links in the email

Email name	Header image	Header text	Buy now (button)	Airfryer image	Social proof design
Email A	173	102	2081	269	**X**
Email B (social proof)	298 **(+72.25%)**	132 **(+29.41%)**	2145 **(+3.08%)**	302 **(+12.27%)**	257

For the TCR analysis connected to the 'buy now' button, we cannot reject *H2c*, with a p-value of 0.1401 (see table 19 above). This means that the total click through rates on the 'buy now' button were the same for both emails. We can conclude from this result that although it did increase the amount of clicks, the social proof design in email B did not significantly stimulate more clicks on the 'buy now' button.

As one would assume, are their more Youtube views by people that received email A (see table 18 above). In email A was no social proof design presented, only the Youtube testimonials functioned as a form of peer power, so that would possibly mean that consumers were more likely to watch them in comparison with email B, where there was a social proof design displayed. However, we did not find any proof for this (p-value: 0.1151), hence we cannot reject *H3* (see table 19 above). People were not more motivated to look for experiences of peers if there was less social proof available in the email.

10.4.4. Discussion of stage 1

Table 21 illustrates only the p-values connected to the generated t-scores of stage 1. As one can see, with 10 percent significance we can state that email B generated more unique click throughs. For the TCR in the email and TCR on links that directed people to the product pages, we did find evidence that email B performed significantly better than email A.

Table 21. P-values stage 1

	UCR in email	TCR in email	TCR on links directing to product pages	TCR on 'buy now' link	Youtube views rate
p-values	0.0594	0.0000	0,0000	0,1401	0.1151

This result is partially explained by the fact that the social proof design delivered an extra motivation booster for consumers that reduced their uncertainty and persuaded them to click more on the displayed links in the email B. Furthermore the extra link, that leaded consumers to the product pages, incorporated in the social proof design, might also explain part of the significantly higher TCR in email B. Apparently, adding the social proof design motivated consumers to click on it, probably with the purpose to find more information on its construction and about the product. This is an interesting result, because this would mean that firms can possibly increase click-through rates by including a social proof design, directing more consumers to their product pages and making them consider the product in their purchase decision process. Unfortunately we did not find any significant proof that people clicked more on the 'buy now' link in email B. Furthermore, the lack of social proof in email A did not significantly push people to watch more Youtube testimonials, providing an answer to sub-question 13.

All things considered, we can state with some confidence from the unique click through results, that including a social proof design, connected to consumer reviews, in the first phase of the buying process could be an effective tool for increasing click-throughs to possible product pages. Although, the TCR results are less profound, they also confirm, together with the descriptives, that a social proof design could be an effective method for stimulating more click throughs. These results make us conclude that online social proof is especially important in this first phase of the buying process, to give some extra certainty about the product quality. In addition, linking a social proof text to the amount of positive written reviews

appears to be also an effective strategy. However, for stimulating people to click on a direct call to action, the 'buy now' button, it has not yet a profound effect.

10.4.5. Limitations of stage 1

The main limitation that is present in the first stage of this research is related to the message that the airfryer email communicated. The whole email campaign was namely based on a €50 discount on the Advance Collection Airfryer. This created a problem, while consumers, when reading the subject line of the email and the content, might have been hugely triggered to click-through only because of the discount. It could have been such a huge trigger that it might have reduced the profound effect of the social proof design presented in email B. Taking this into account, the significant results in stage 1 are even more interesting. Furthermore, this limitation could have had such a big effect on the results that possibly the results could have been more significant, especially the unique click rate with a p-value of 0.0594.

Philips uses an external program that produces the click through reports, however, this program did not specify whether the specific click through results on the different links were unique clicks or not. This produced a limitation, because it forced us to treat them as total clicks, which means weaker statistical TCR results, because their probabilities are harder to interpret. Luckily, were the UCR results with 10 percent (p-value 0.0594) significant, meaning that social proof in a promotional email can have a positive effect on the amount of click-throughs. Another limitation in stage 1 is related to the amount of links presented in the email. Namely, in email A four links were presented, whereas in email B five links were displayed. Especially, when testing for clicks on the clearest call to action in the email, the 'buy now' button, this might have hampered its result. Although in all the emails, the majority of people still clicked on the 'buy now' button, we possibly would have found more interesting results if this button would have been the only way to land on the product pages. On the other hand these extra links might have increased the total click rates. Also the extra link in email B provided more total click-throughs and an interesting insight is that people are likely to click on a displayed social proof design to find more about it.

10.5. A/B test stage 2: product pages

10.5.1. Hypothesis

Then at stage 2, this research analyzes 4 variables: bounce rate, time spent, add to cart and conversion. The first variable that is going to be analyzed by this research, the bounce rate, measures the effectiveness of our email and product pages in encouraging potential consumers to continue with their visit. Basically, the bounce rate shows the percentage of consumers that entered the website and immediately left the site again. The time spent measures the amount of time a consumer stayed on the product page. For this variable only the descriptive statistics will be analyzed, because of missing data, for the other three variables there will be hypothesis testing. Significant for this research is the 'add to cart' variable, which shows how many consumers added the airfryer to their cart. This variable takes the unique clicks on the 'add to cart' button into account. Subsequently, the fourth variable, conversion, is the most interesting variable, because it measures how many consumers bought the product or not. This could be tracked through the unique voucher codes consumers received in the email, which provided also information on the path they took. The bounce rate, the 'adds to cart' rate and the conversion rate can be studied via seven tests that present different paths, from the email to the product page. The following paths can be studied: AA to BB (email A to product page A compared with email B to product page B), AA to BA, AA to AB, BB to AB, BB to BA, AB to BA and the overall results of product page A to product page B (this is naturally not a path). Table 22 illustrates all the alternative hypothesis tests constructed for the three different variables. This means that in total 20 different tests will be conducted to analyze the 3 variables and all the different paths.

Table 22. Hypotheses of stage 2

Paths	Bounce Rate	Add to cart	Conversion
A-B	**X**	p(B)-p(A)>0	p(B)-p(A)>0
AA-BB	p(AA)-p(BB)>0	p(BB)-p(AA)>0	p(BB)-p(AA)>0
AA-BA	p(AA)-p(BA)>0	p(BA)-p(AA)≠0	p(BA)-p(AA)≠0
AA-AB	p(AA)-p(AB)≠0	p(AB)-p(AA)>0	p(AB)-p(AA)>0
BB-AB	p(AB)-p(BB)>0	p(BB)-p(AB)≠0	p(BB)-p(AB)≠0
BB-BA	p(BA)-p(BB)≠0	p(BB)-p(BA)>0	p(BB)-p(BA)>0
BA-AB	p(AB)-p(BA)>0	p(BA)-p(AB)≠0	p(BA)-p(AB)>0

For the first variable, the bounce rate, we generally assume that the bounce rate for consumers, who arrived on the product pages (either A or B) via email B, was lower compared to consumers that entered the product pages via email A. This means that the bounce rate for consumers, that landed either on product page A or B via email A, should have been the same. Email B should have made consumers more certain about the airfryer and its quality, because they received also more information, through the social proof design, about the airfryer. These facts should have made them less inclined to immediately leave the website again. Only comparing product page A and B in general, seems irrelevant, because this does not take the paths of consumers to the product pages into account. Therefore, we only perform 6 tests for the bounce rate variable and these can be grouped under one hypothesis, differentiating on two alternative hypotheses (for all hypotheses see table 22):

H4: the bounce rate for both paths is the same

H4a (1): the bounce rate for paths that start at email A are higher (1-tailed)

H4a (2): the bounce rate for both paths is not the same (2-tailed)

Although for the time spent variable we are not conducting a hypotheses test, it would also be hard to make any assumption about paths that possibly stimulated a longer or shorter time spent on the product page. While, one could argue for example that the product page with social proof, motivated consumers to read more, however it could also have been the case that the social proof design communicated so much trust and certainty about the product quality that consumers were not interested in reading the product features. Thus, we expect to find not many differences in the descriptive statistics of the time spent variable

The third variable, ‘add to cart’ clicks; we expect several things to happen. In general we assume that consumers who landed on product page B, either form email A or B, were more likely to add the airfryer to their cart than consumers that landed on product page A. The assumption behind this, is that consumers probably had more product certainty on product page B and were therefore more likely to click on the ‘add to cart' button. Furthermore, we assume that there is no difference between paths that landed on the same product page. For the ‘add to cart’ variable we have one special case where we expect that the compared paths AB to BA would generate the same amount of add to cart clicks. The reason for this is that these consumers encountered either in the email stage or the product page stage an indication of social proof and thus are likely to have the same amount of product certainty. For this

variable we conduct 7 tests and these can be grouped under one hypothesis, differentiating on two alternative hypotheses (see table 22 above):

H5: the total 'add to cart' clicks are the same for both paths

H5a (1): the total 'add to cart' clicks are higher for paths that land on product page B (1-tailed)

H5a (2): the total 'add to cart' clicks are not the same for both paths (2-tailed)

For the last variable, the conversions, we basically expect two things to happen. On the whole we assume that paths that landed on product page B would generate more conversions than paths that ended on product page A. This means that we believe that the social proof design in the email had a less profound persuasive effect on the consumer's willingness to buy the product. The social proof design on product page B was still visual for the consumer when deciding to click on the 'add to cart' button, whereas the social proof design in email B was not. This fact explains as well that we presume that there was no difference between the clicks on the 'add to cart' button for consumers that landed on the same product page, regardless of which email they came from. To test these assumptions, we carry out 7 tests and these can be grouped under one hypothesis, differentiating on two alternative hypotheses (see table 22 above):

H6: the amount of conversions is the same for both paths

H6a (1): the amount of conversions is higher for paths that land on product page B (1-tailed)

H6a (2): the amount of conversions is not the same for both paths (2-tailed)

10.5.2. Descriptive statistics

Table 23 presents the general descriptives of product page A and B. These descriptives give already an indication of the performance of product page A and B and it seems that some variables present surprising results. What stands out is the high bounce rate in both emails. Furthermore what is remarkable is that people stayed on average almost 75 seconds longer on product page A. We can use these decriptives for finding the t-scores in stage 2.

Table 23. Descriptive statistics of product page A and B

Paths	Total Visits (n)	Unique Visitors (n)	Bounce Rate (p)	Average Time Spent on Site (sec)	Add to cart	Conversion
AA	1308	1191	0,886	249	27	2
BA	1777	1630	0,866	248	44	4
BB	1430	1313	0,826	167	21	4
AB	1508	1390	0,857	183	23	2

In table 24 (displayed below) we find the descriptives of the four different paths, its results were generated via four special tracking codes. This table enables us to perform multiple crosstab calculations as presented in table 22, testing the three variables thoroughly. It seems that only the results of the bounce rate are meeting our expectations, when looking at its descriptives. Apparently, there is a difference in time spent for the two product pages, because consumers stayed more than a minute longer on product page A compared to product page B, either landing from email A or B. Also the amount of 'adds to cart' are higher on product page A arriving either from email A o B. Although the total of conversions are the same for product page A and B, interesting is that consumers from email B bought twice as much as compared to consumers from email A. To test these results, we perform the 20 different tests in the next section.

Table 24. Descriptive statistics stage 2

Product page	Total visits	Unique visits	Bounce Rate (p)	Average time spent on site (sec)	Add to cart	Conversion
Product page A (weak form of social proof)	3085	2821	87.6%	249	71	6
Product page B (strong form of social proof)	2938	2703	84.5% **(-3.1 pp)**	175 **(-29.72%)**	44 **(-38.03%)**	6 **(0%)**

10.5.3. Inferential statistics

We can assume, as we did in stage 1, using central limit theorem, that because of our big sample size all the variables follow a normal distribution, therefore, we conduct here an independent sample t-test. To attain all the t-scores and connected p-values we incorporated the same formulas, used in the stage 1's inferential statistics section. Only in this stage we

take for the bounce rate total visits as our n, whereas for the other two variables we take unique visits as our n. Although, they do not differ that much, it seems accurate to take this more specified n for our other two variables. Furthermore, does p stand for the bounce rate, 'add to cart' rate and conversion rate. Table 25, presents all the t-scores, p-values and indications about whether to reject or accept H0, for the 20 conducted tests.

Table 25. T-scores and p-values for the tested variables in stage 2

Paths	Bounce Rate	Add to cart	Conversion
A-B	**x**	-2,36 **(0.9893) Accept H0**	0,024 **(0,4904) Accept H0**
AA-BB	4,51 **(0,000) Reject H0**	-0,86 **(0.8051) Accept H0**	0,72 **(0,2358) Accept H0**
AA-BA	1,68 **(0,0465) Reject H0**	1,11 **(0,2670)* Accept H0**	0,46 **(0,6456)* Accept H0**
AA-AB	2,3 **(0,0214)* Reject H0**	-0,77 **(0.7794) Accept H0**	-0,15 **(0.5596) Accept H0**
BB-AB	2,3 **(0,0107) Reject H0**	-0,018 (1)* Accept H0	0.88 **(0.3789)* Accept H0**
BB-BA	-3,11 **(0,002)* Reject H0**	-2,07 **(0.9808) Accept H0**	0,31 **(0.3783) Accept H0**
BA-AB	- 0,73 **(0.7611) Accept H0**	-1,99 **(0.0466)* Reject H0**	-0.63 **(0.7357) Accept H0**

* indicates a two sided test (t-value = 1.96, p-value is multiplied by 2), the other results are one sided (t-score = 1.645)

As one can see, the bounce rate delivers interesting results. Path B to B has compared to all paths significantly the lowest bounce rate. In table 24 we see that the H0 of BB-BA is rejected (the bounce rates of the two paths are not the same). When we conduct an extra one sided t-score, with an alternative hypothesis that path BA has a higher bounce rate, we find proof for this (p-value: 0.001). This delivers evidence for our presumption that consumers who arrived on the product pages (either A or B) via email B had a lower bounce rate compared to consumers that entered the product pages via email A. However, it is not only related to the emails, because, for example, path A to B also generated a low bounce rate, which makes it perform better than AA and the same as BA. Table 25 illustrates that AA-AB do not have the same bounce rates (H0 is rejected here), which seems plausible since the bounce rate of AA was 0.886; while the bounce rate of AB was 0.857. For BA-AB we have to accept the H0, since$p(A) - p(B) < 0$, which means that these paths shared similar bounce rates. Taking this into account makes us believe that not only the email influenced the bounce rate, but also the product page where consumers landed on.

The third variable analyzed the amount of clicks on the 'add to cart' button. We expected that consumers who would land on product page B, either from email A or B, would be more likely to add the airfryer to their cart than consumers that would land on product page A. However, as we already could see in the descriptives (Table 23 & 24), it seems that overall people added the airfryer more to their cart on product page A. To test this we calculated an extra one sided t-score, with an alternative hypothesis, which assumed that product page A had a higher add to cart rate and we found significant proof for this (p-value: 0.0091). What more can be concluded form table 25 is that it seems that the path BA stimulated the most click throughs. When conducting one sided tests for this path, we discovered that it actually performed significantly better than BB and AB (p-value: 0.0233 & 0.0192) but the same as AA (p-value: 0.1335). However, still it is safe to assume that that overall BA performed the best, with 44 add to carts as we saw in the descriptives of table 24.

The last and maybe most important variable of stage 2, the conversions, showed in the descriptives no difference. On forehand we expected that product page B would generate more sales than product page A. However, as we can see in table 25 (displayed above) we did not find any evidence for this. Although it is interesting to see that paths that started with email B produced twice as many conversions compared to email A, we did not find any significant evidence for this. One reason for this could be that the amount of conversions is too small to see spectacular differences between the two product pages.

10.5.4. Discussion of stage 2

As mentioned before the main purpose of stage 2 was to test whether a social proof design, strengthened by the three characteristics of trust, performed better, finding possibly an answer for sub-question 12. From the bounce rate results we can infer that email B and product page B created more product certainty about the quality of the airfryer and overall interest in the airfryer, which motivated consumers to stay on the product pages. However, ultimately the effect of email B was higher than the effect of product page B on the bounce rate. This delivers an interesting result that apparently consumers were more influenced in the evaluation stage (stage 1) by social proof, when deciding to continue on a product page, than by the social proof presented on the landing page. What has to be said, is that the analysis of the product page was presumably shorter than in the email (otherwise it is not considered as a bounce); therefore it is in a way straightforward that the effect of the email was higher. As said before, consumers could also land on the product pages by clicking on the social proof design in email B. Interesting is the fact that the bounce rate of consumers (120), who landed

via the social proof design on product page B, is considerably low, with only 50 percent. Naturally, this is more than 30 percent difference with the average bounce rate on product page B not totally compatible, while only 120 consumers took this path. Yet, it is interesting and seems to indicate that when consumers wanted to find more information about the social proof they were satisfied with the strengthened extension of the social proof on product page B. Striking as well was that a sale was made on these small group of consumers that entered product page B via the social proof design in email B.

Our second variable showed against our expectations, based on descriptive statistics that people were likely to spend more time on product page A than on product page B. On forehand we presumed that there would not be any difference between the pages, because it seemed hard to pin point why consumers would stay longer or shorter on the product page. However, since people stayed longer on product page A, there should be a reason for this. Interesting is that more people also added the airfryer to their cart on product page A, but eventually the product pages made an equal amount of sales (both 6). Hence, it is not as if product page B underperformed, more that it increased the speed of the buying process. Potential consumers that were confronted with the social proof design on product page B possibly decided faster whether they wanted the airfryer or not. The design gave them the amount of trust or certainty needed to consider the product or not, while potential consumers that landed on product page A, did not receive this straightaway indication and therefore had to spend more time on the page looking for information and clues that would help them in their decision process. This could be an explanation of the difference in time spent on both the pages, however as said before it is hard to find one explanation with these results.

For the third variable, ‘add to cart’ clicks, we assumed that consumers, who would land on product page B either from email A or B, would be more likely to add the airfryer to their cart than consumers that would land on product page A. Yet, as was already mentioned in the previous section, the ‘add to cart’ rate was significantly higher on product page A, which presented a weak form of social proof. This partially answers sub-question 12. Based on our theory there should have been a higher level of uncertainty on product page A, which could have caused them to stay longer on the page. However, more consumers added the airfryer to their cart on product page A, but eventually the same amount of airfryers were sold on the two pages. An explanation for this could be that consumers on product page B were more certain when clicking through to the buy environment, generated by the strong form of social proof, however, there is no evidence found for this, in this research. Another interesting aspect of

variable three was that path BA caused significantly the most ‘add to cart’ clicks. This shows that a social proof is maybe the most effective in the first encounter with the consumer, which was here the email. Together with path BB it also generated the most sales, four pieces.

The conversion variable was the last one that we analyzed. We assumed based on our research that paths that would land on product page B would generate more conversions than paths that would enter product page A. While on product page B a stronger form of social proof was presented to consumers, the level of uncertainty would be lower and therefore the possible sales of the airfryer higher. Unfortunately we did not find any evidence that product page B performed better, because they actually delivered the same amount of sales. This answers together with the results found in the ‘add to cart section’, sub-question 12. Attention grabbing is the fact that path BB delivered the most sales with the least add to cart clicks, one on 5 consumers that clicked on the add to cart button actually bought the product, whereas only one on fourteen consumers, following path AA, bought the airfryer. It seems that this could proof that the most natural path of social proof had the lowest level of uncertainty and therefore performed the best on this ratio, yet we could not find any evidence for this in our research.

10.5.5. Limitations of stage 2

As discussed as one of the main limitations of stage one, also the communicated discount in stage two is a problem. This discount might have influenced possible consumers to behave slightly differently compared to their normal online shopping behavior. Nevertheless, often consumers online are confronted with discounts, hence it should not be completely out of their conform zone. A bigger concern is that the majority of the consumers were not totally motivated to be on the product page. The email raised their curiosity to click-through or accidently click-through (on a product image or heading), but did not persuade all of them to stay on the presented product page. This could also explain the reasonably high bounce rate. While we were constrained by the amount of available time and capacity, the email functioned as a tool to lead as many people as possible to the created product pages, but if they really had an internal incentive to be there is questionable. Thus, this is a limitation, because the strengthened social proof design on product page B might possibly have worked better when the consumers would have been highly-involved and internally motivated on the product pages.

The limited amount of capacity and time delivered another problem, because the social proof design on product page B was not totally up to date with the total amount of reviews. There was no time to program it interactively with the actual amount of reviews. Hence, when the experiment started, a week later than planned, six extra positive reviews were written, which caused a difference in numbers between the designs and the actual situation. This could have decreased the trust possible consumers had in the design. Luckily, these extra reviews were all positive and presumably not many people actually clicked on the ‘read all reviews’, thus we think that it did not hamper the results that much. The designs were also both pasted directly on the two product pages, which made them not totally uniform with the total page make up. This could also slightly have affected the amount of trust people received from the designs.

11. Overall Conclusion

11.1. Conclusion

This research has provided an in-depth analysis on the persuasive workings of social proof, inspired by research conducted by Cialdini (2001). Subsequently, we examined trust and consumers reviews and their possible grouped implementation with social proof in the online environment. One of the main purposes of this research was to find a social proof design, which was trusted by consumers and could be implemented on a wide variety of products and in multiple online shopping environments. Nowadays, many different forms of social proof can be found online; however, the amount of research conducted on its online implementation is limited. Through an online survey we tested the effects of multiple social proof designs. We discovered that consumers received the most trust from a social proof design in an online shopping environment, connected to consumer reviews, displaying the three characteristics of trust and peer power. The survey also presented useful insights that social proof would work the most effectively online for electronic gadgets and kitchen appliances. These products can be considered as search goods, and previous research showed that for this type of goods consumers were highly likely to search for consumer reviews. Hence, running a field experiment with a Philips airfryer (a search good) was extremely suited for this research. Together with Philips, we designed a campaign around the Avance Collection Airfryer XL, to test the best performing social proof design in the survey, which was redesigned together with Buyerminds in an extremely compact way, so that it can possibly be implemented on a wide variety of online environments. On the whole, we believe that our social proof designs communicate high-quality information, because they are credible, understandable, objective and timeless for consumers.

All these steps in the research helped to **answer the Main Research Question:**

- *Can the effect of social proof on the decision processes of consumers online, be positively influenced, by connecting it to consumer reviews and incorporating components of trust in the design?*

The limited amount of time and capacity forced us to split the experiment with the airfryer in two stages. In the first stage emails were sent to a big sample of possible consumers; one email (treatment) included a social proof design that was connected to consumer reviews of the airfryer, and the other one contained no social proof (control). All things considered the experiment showed that the presented social proof acted as a kind of control system that

stimulated click-throughs significantly. This result partially answers the main research question, because the social proof design connected to consumer reviews, positively affected the decision process of consumers in the airfryer email, stimulating them to click-through. As the online survey also indicated that peer power should be adopted in the design, we tried to incorporate it in the first stage of the experiment. We could not include it in our treatment email, because this would decrease the level of control in the experiment. Hence, we implemented it in both the emails to see in which situation consumers would be more likely to look for video testimonials. We expected that more consumers would watch the Youtube testimonials in email A, because there was a higher level of uncertainty, yet these results were not significant.

In the second stage, consumers either landed on product page A displaying a weak form of social proof (control) or product page B presenting a strong form of social proof incorporating the three characteristics of trust (treatment) with consumer reviews. For this stage it is difficult to state whether the social proof with the three components of trust positively influenced the online decision process of consumers. It did significantly persuade people, to stay on the page (lower bounce rate) arriving from email B, but on average shorter than consumers that landed on product page A. Although, on product page A also more consumers added the airfryer to their cart, eventually both pages reached an equal number of sales (6 each). This could indicate that there was a lower amount of uncertainty on product page B, but we could not test for this. All in all, we cannot state that our design positively influenced the decision process of the consumers online; consumers were not willing to take more risk in their purchase decision process, but it certainly did not negatively influence them either in stage 2. Due to a stock problem, the experiment was conducted on the newest version of the airfryer, which was more expensive and had a relatively small amount of reviews in comparison with the older airfryer. Yet, what we can infer from our Philips experiment is that for an innovative product, a social proof design linked to the amount of reviews can increase its click-throughs in the first product evaluation phase, which was in our case a promotional email. It appears that presenting solid social proof in the first online encounter with consumers is effective, although strengthening the social proof design with the characteristics of trust did not have a profound persuasive effect in our research in the second stage of our experiment. However, while we encountered several limitations, this method could still be interesting to possibly increase the trustworthiness and effect of social proof on innovative products online.

11.2. Limitations and directions for future research

In a way this thesis provides a good starting point for future research on the implementation of social proof online, because it consists of some limitations that can be exploited in future research. The first limitation can be found in the conducted online survey, because the sample is slightly thin, one could say. The reason for this reasonably small sample was that it meant as a preliminary analysis, to get an indication about how consumers feel online and which social proof designs were perceived to be trustworthy. In a way this online survey on itself could already be an interesting research to conduct. Another limitation is related to the airfryer, because although it is a search good and therefore suitable for a social proof experiment it is still a serious investment for consumers, especially if you consider that consumers were triggered and pushed by the email to consider the airfryer in the first place. In the email no price was mentioned, but when consumers were confronted with the price on the product pages many probably bounced off, while € 229.99 is a big investment for many consumers. This was unfortunate, because this caused them not to consider the social proof designs on the product pages. Hence, for future research it is probably wise to select a search good that requires not an investment as big as with the airfryer, or test on multiple products at the same time.

Our first intention was to implement the social proof design on an older version of the airfryer. Besides the fact that it was € 100 cheaper, it also carried ten times more reviews than the Avance Collection Airfryer XL. However, unfortunately there was no stock for this product, so we decided to conduct the research on the newest airfryer, which naturally had a smaller amount of reviews. Although it was interesting to conduct an experiment on a relatively new product with a smaller number of reviews, the effect of the social proof design could possibly have been more profound for this older model. Therefore, researching the effect of the amount of consumers' reviews is another interesting topic for future research. A further important limitation of this research was the dividing of the experiment in two stages. Ideally, we would have implemented design 14 or 15 minus the peer power component, straightaway on a product page; however because of the limited amount of capacity and time this was not feasible. For future research it would probably be recommendable to implement the social proof design on a live product page, running two pages at the time, one with social proof and one without. Through this, a clean A/B test could be constructed over a long period of time. This would possibly create a situation where consumers are more highly-involved and internally motivated to be at the specific product page, without needing a motivation

booster, as a discount. Lastly, what struck me as interesting material for future research was the fact that path BB had the most sales compared to the amount of clicks on the 'add to cart' button. It seemed that consumers who received email B and landed on product page B were the most certain about possibly buying the airfryer, when clicking on the 'add to cart' button. For future research it would be interesting to analyze whether a product page with a strengthened social proof design would make consumers more certain about buying or not buying the product. This could be achieved by looking at the eventual sales and the amount of people that click on a 'buy now' (or 'add to cart') button. All in all, there are many limitations present due to the limited amount of time and capacity and because the connection of social proof to trust and consumers reviews was relatively new. However, these limitations can be easily solved and analyzed in future research.

11.3. Managerial implications

This research provides useful insights for managers, giving directions on how to implement social proof online effectively and ideas for performing multiple A/B tests. First of all, it is important for managers to realize what type of products they sell online. If they are search goods, it is very effective to include consumer reviews on the product page, while with experience goods this effect is less profound. In our online survey we found that for electrical gadgets and household appliances (examples of search goods) consumers are likely to take reviews into account. When including reviews, managers should try to collect in-depth and high-quality reviews, Philips procedure can be taken as an example for this (see Appendix F, Figure 10). Furthermore, for managers it is essential to understand the degree of involvement of their potential consumers. Consumer reviews tend to work better when consumers are highly-involved. These conditions that improve the effectiveness of presented consumer reviews online are important for managers to understand, especially if they want to connect their social proof to their reviews. The first stage of this research presents a method for managers to increase the amount of click-throughs in a promotional email. This can be achieved by placing a social proof design in the email, which indicates the amount of positively written reviews and a product star rating (see Figure 13). This research does not make any claims that this specific social proof design is the most effective; however if a firm has a reasonable amount of positive reviews, this method can be effective to increase click-throughs from the email to the products online shopping environment.

With the email, in combination with a landing page that also provides a strong form social proof, managers can significantly reduce the bounce rate on their product page. Other

managerial implications are hard to derive from stage 2. Yet, the results give an interesting point for a possible A/B test that managers can conduct on their online shopping environment. We found that path BB delivered the most sales with the least ‘add to cart’ clicks, one out of five consumers that clicked on the ‘add to cart’ button actually bought the product. Whereas, for example, only one out of fourteen consumers following path AA eventually bought the airfryer. Hence, it could be interesting for managers to test a strengthened social proof design and see if this makes consumers more certain about buying their product. Besides the possibility that this could eventually increase sales, it is on its own already an interesting piece of information for managers to acquire. Besides all these things does this research also provide two interesting social proof designs, of email B and product page B (figure 13 & 15), that can be used as a good example, when a manager wants to implement social proof online.

12. References

Amblee, N., & Bui, T. (2011). Harnessing the influence of social proof in online shopping: The effect of electronic word of mouth on sales of digital microproducts. *International Journal of Electronic Commerce*, *16*(2), 91-114.

Bettman, J. R., Johnson, E. J., & Payne, J. W. (1991). Consumer decision making. *Handbook of consumer behavior*, *44*(2), 50-84.

Cialdini, R. B., Wosinska, W., Barrett, D. W., Butner, J., & Gornik-Durose, M. (1999). Compliance with a request in two cultures: The differential influence of social proof and commitment/consistency on collectivists and individualists. *Personality and Social Psychology Bulletin*, *25*(10), 1242-1253.

Cialdini, R. B. (2001). Harnessing the science of persuasion. *Harvard Business Review*, *79*(9), 72-81.

Cialdini, R. B. (2001). *Influence: Science and practice*. Boston, MA: Allyn and Bacon.

Dimoka, A., Hong, Y., & Pavlou, P. A. (2012). On Product Uncertainty in Online Markets: Theory and Evidence. *MIS Quarterly*, *36*(2).

Guadagno, R., & Cialdini, R. B. (2005). Online persuasion and compliance: Social influence on the Internet and beyond. *The social net: Human behavior in cyberspace*, 91-113.

Ho-Dac, N. N., Carson, S. J., & Moore, W. L. (2013). The Effects of Positive and Negative Online Customer Reviews: Do Brand Strength and Category Maturity Matter?. *Journal of Marketing*, *77*(6), 37-53.

Kahneman, D., Slovic, P., & Tversky, A. (1982). *Judgment under uncertainty: Heuristics and biases*. CUP, Cambridge.

Korfiatis, N., García-Bariocanal, E., & Sánchez-Alonso, S. (2012). Evaluating content quality and helpfulness of online product reviews: The interplay of review helpfulness vs. review content. *Electronic Commerce Research and Applications*, *11*(3), 205-217.

Lee, J., Park, D. H., & Han, I. (2008). The effect of negative online consumer reviews on product attitude: An information processing view. *Electronic Commerce Research and Applications*, *7*(3), 341-352.

Malhotra, N. K. (1982). Information load and consumer decision making. *Journal of consumer research*, 419-430.

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review,* 20: 709–734.

Mudambi, S. M., & Schuff, D. (2010). What makes a helpful online review? A study of customer reviews on Amazon. com. *MIS quarterly*, *34*(1), 185-200.

Nelson, P. (1974). Advertising as information. *The Journal of Political Economy*, *82*(4), 729.

Park, D. H., Lee, J., & Han, I. (2007). The effect of on-line consumer reviews on consumer purchasing intention: The moderating role of involvement. *International Journal of Electronic Commerce*, *11*(4), 125-148.

Schoorman, F. D., Mayer, R. C., & Davis, J. H. (2007). An integrative model of organizational trust: Past, present, and future. *Academy of Management review*,*32*(2), 344-354.

Sen, S., & Lerman, D. (2007). Why are you telling me this? An examination into negative consumer reviews on the web. *Journal of interactive marketing*, *21*(4), 76-94.

Simon, H.A., (1955). A Behavioral Model of Rationai Choice. *Quarterly Journal of Economics, 69,* 99-118.

Simon, H. (1957). A behavioral model of rational choice. In H. A. Simon (Ed.), *Models of man, social and rational: Mathematical essays on rational human behavior in a social setting* (241–260). New York, NY: Wiley.

Zhu, F., & Zhang, X. (2010). Impact of online consumer reviews on sales: The moderating role of product and consumer characteristics. *Journal of Marketing*, *74*(2), 133-148.

13. Appendices

A. Descriptive statistics of first 10 survey questions

Table 1. Descriptives for the 10 questions unrelated to the social proof designs

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q31	Q32
N	143	143	143	143	143	143	143	143	125	125
Missing	1	1	1	1	1	1	1	1	19	19
Mean	1,34	26,64	3,03	3,55	2,68	2,17	1,97	1,59	2,26	2,37
Median	1,00	24,00	3,00	4,00	3,00	2,00	2,00	2,00	2,00	1,00
Mode	1	24	3	4	3	2	2	2	2	1
Std. Deviation	,474	7,544	,745	,729	1,142	,831	,556	,494	,774	1,798
Minimum	1	19	2	1	1	1	1	1	1	0
Maximum	2	78	5	5	4	4	3	2	5	5

Q1. What is your gender?

Q2. What is your age?

Q3. How often do you shop online?

Q4. How do you feel when shopping online?

Q5.What do you trust more when buying a product online

Q6.Did you ever regret shopping online

Q7.In general, what do you consider yourself to be, when it comes down to buying products?

Q8.What would give you more trust in a webshop?

Q31.When do you write a review about a bought product?

Q32.For which product would you definitely take experiences of other consumers into account, to be sure you are making the right buying decision?

Table 2. Descriptive statistics of the online survey

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	95	66,0	66,4	66,4
Female	48	33,3	33,6	100,0
Total	143	99,3	100,0	
Missing System	1	,7		
Total	144	100,0		

Table 3. Descriptive statistics of the online survey

Q3 How often do you shop online?				
Answers	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Rarely	33	22,9	23,1	23,1
Sometimes	76	52,8	53,1	76,2
Often	30	20,8	21,0	97,2
All of the time	4	2,8	2,8	100,0
Total	143	99,3	100,0	
System	1	,7		
Total	144	100,0		

B. Friedman test

Table 11. Descriptive statistics related to the 11 social proof design questions

Designs	**N**	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
Design 12	76	4,67	1,248	1	7
Design 13	76	3,26	1,360	1	6
Design 14	**76**	**5,07**	**1,398**	**1**	**7**
Design 15	**76**	**5,14**	**1,392**	**1**	**7**
Design 16	76	4,86	1,430	2	7
Design 17	76	3,92	1,412	1	7
Design 18	76	4,75	1,387	1	7
Design 19	76	4,51	1,483	2	7
Design 20	76	4,84	1,307	2	7
Design 21	**76**	**4,99**	**1,381**	**1**	**7**
Design 22	76	4,70	1,307	1	7

C. Wilcoxon signed rank test: results

Table 13a. Significance results

Test Statistics[a]	
	Design 14 compared to design 15
Z	-,846[b]
Asymp. Sig. (2-tailed)	,398

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Table 13b. Significance results

Test Statistics[a]	
	Design 14 compared to design 16
Z	-1,781[b]
Asymp. Sig. (2-tailed)	,075

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Table 13c. Significance results

Test Statistics[a]	
	Design 14 compared to design 21
Z	-,804[b]
Asymp. Sig. (2-tailed)	,422

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Table 14a. Significance results

Test Statistics[a]	
	Design 15 compared to design 14
Z	-,846[b]
Asymp. Sig. (2-tailed)	,398

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Table 14b. Significance results

Test Statistics[a]	
	Design 15 compared to design 16
Z	-1,856[b]
Asymp. Sig. (2-tailed)	,063

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Table 14c. Significance results

Test Statistics[a]	
	Design 15 compared to design 21
Z	-1,602[b]
Asymp. Sig. (2-tailed)	,109

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Table 15a. Significance results

Test Statistics[a]	
	Design 14 compared to design 21
Z	-,804[b]
Asymp. Sig. (2-tailed)	,422

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Table 15b. Significance results

Test Statistics[a]	
	Design 15 compared to design 21
Z	-1,602[b]
Asymp. Sig. (2-tailed)	,109

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Table 15c. Significance results

Test Statistics[a]	
	Design 16 compared to design 21
Z	-1,110[b]
Asymp. Sig. (2-tailed)	,267

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Table 15d. Significance results

Test Statistics[a]	
	Design 20 compared to design 21
Z	-1,397[b]
Asymp. Sig. (2-tailed)	,162

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

D. Descriptive statistics stage 1

Table 16. Descriptive statistics report Stage 1

Email Name	Total Delivered	Total Opens	Open Rate	Total Click throughs	Click through Rate	Unique Opens	Unique Click throughs	Unique Open Rate	Unique Click through Rate
Email A to product page A (AA)	12372	11402	92,16%	1743	14,09%	6839	1377	55,28%	11,13%
Email A to product page B (AB)	12362	12508	101,18%	2031	16,43%	7226	1604	58,45%	12,98%
Email B to product page B (BB)	12346	11395	92,30%	1822	14,76%	6768	1460	54,82%	11,83%
Email B to product page A (BA)	12356	12368	100,10%	2289	18,53%	7049	1631	57,05%	13,20%
Total	**49436**	**47673**	**96,43%**	**7885**	**15,95%**	**27882**	**6072**	**56,40%**	**12,28%**

E. Social Proof designs

Figure 1. The 11 presented social proof designs

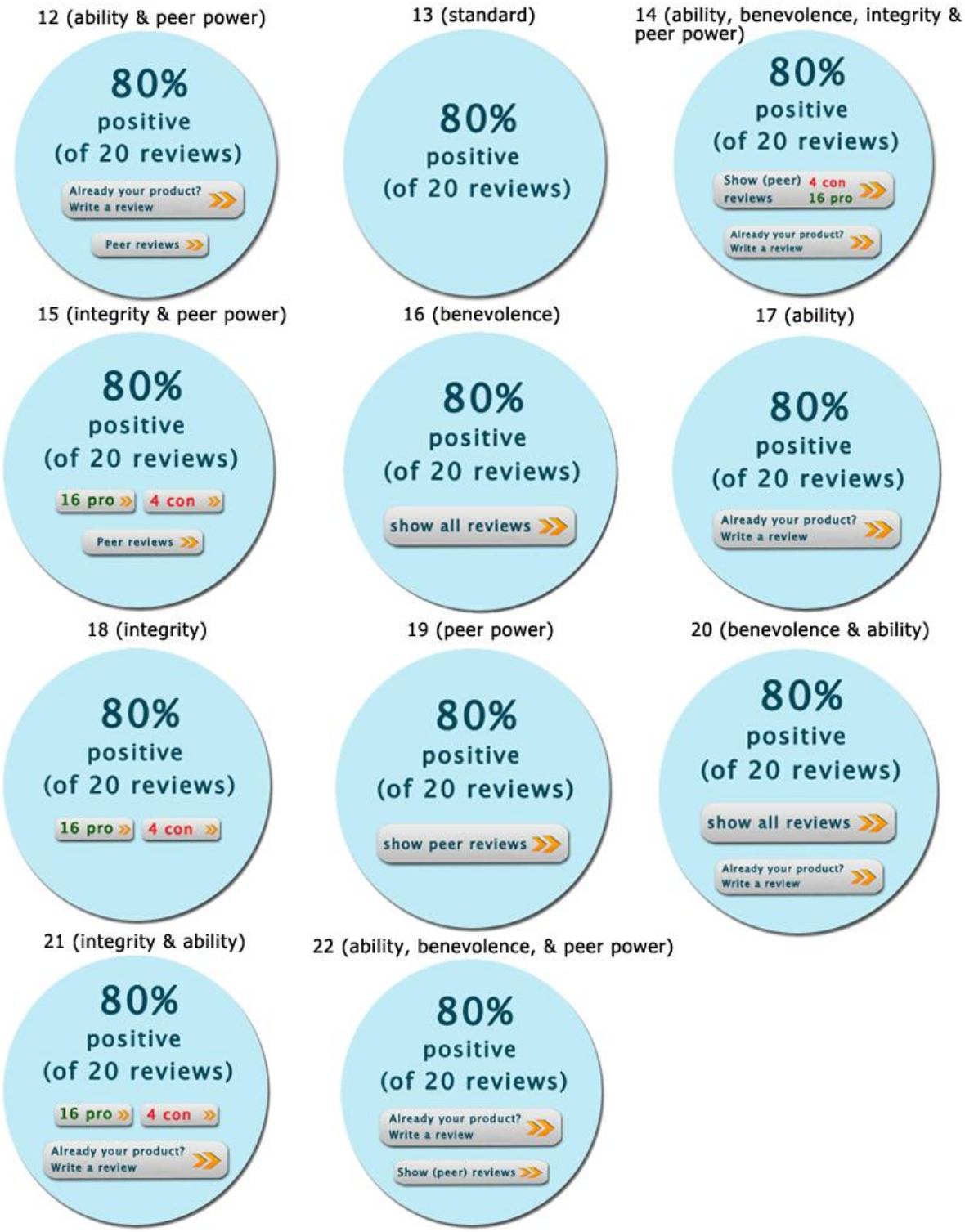


Figure 2. Social proof connected to purchases

Figure 3. Social proof connected to reviews

Figure 4. (benevolence, ability, integrity & peer power)

Figure 5. (integrity & peer power)

Figure 6. (integrity & ability)

F. Philips web-shop environment

Figure 7. Product landing page (category: cooking)

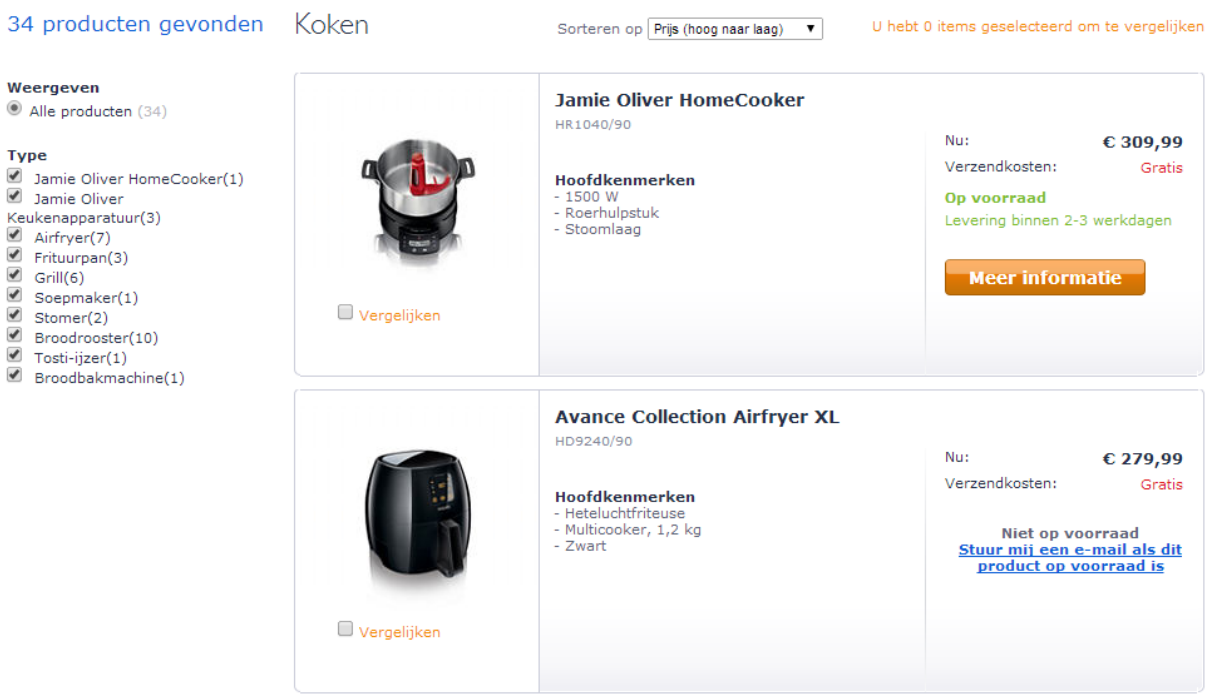


Figure 8. (product page, with integrity & review pop-up)

Figure 9. Product page (consumer review department)

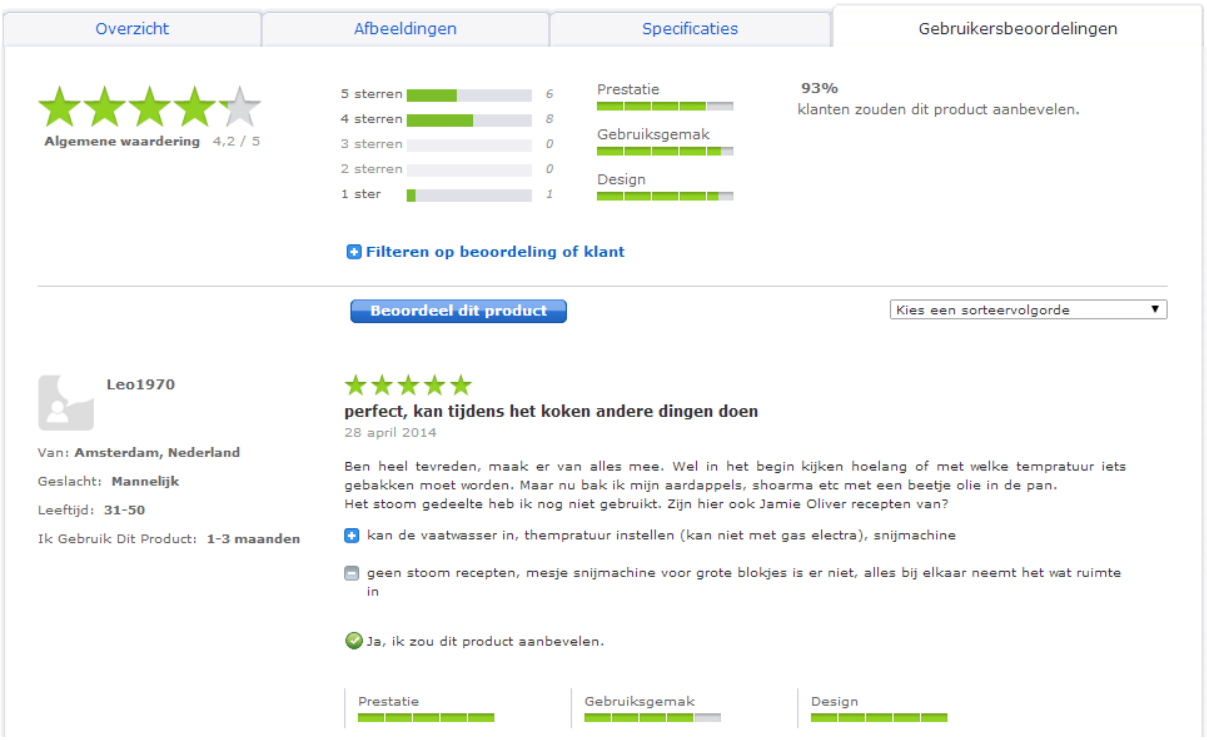


Figure 10. Product page (consumer reviews writing department)

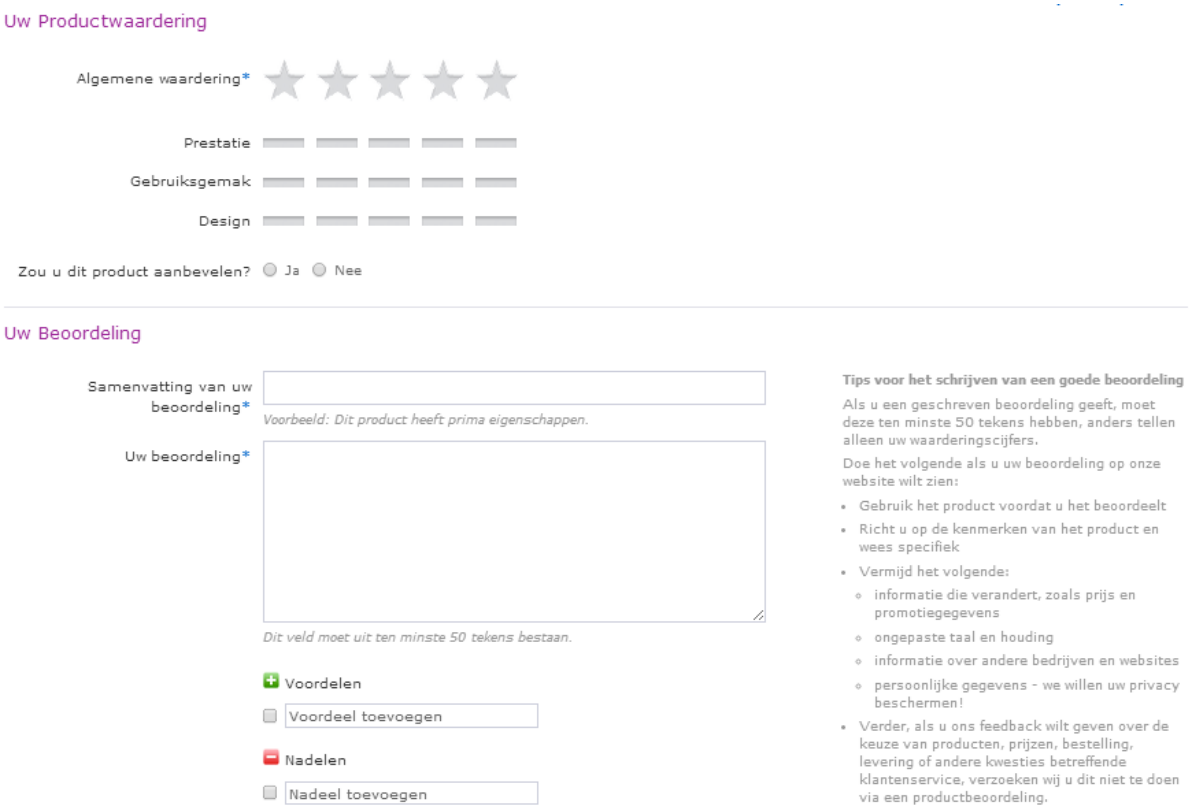


Figure 11. Airfryer product page

G. Philips email (B) and product pages (A & B) with social proof

Figure 16. Promotional airfryer email B (with social proof)

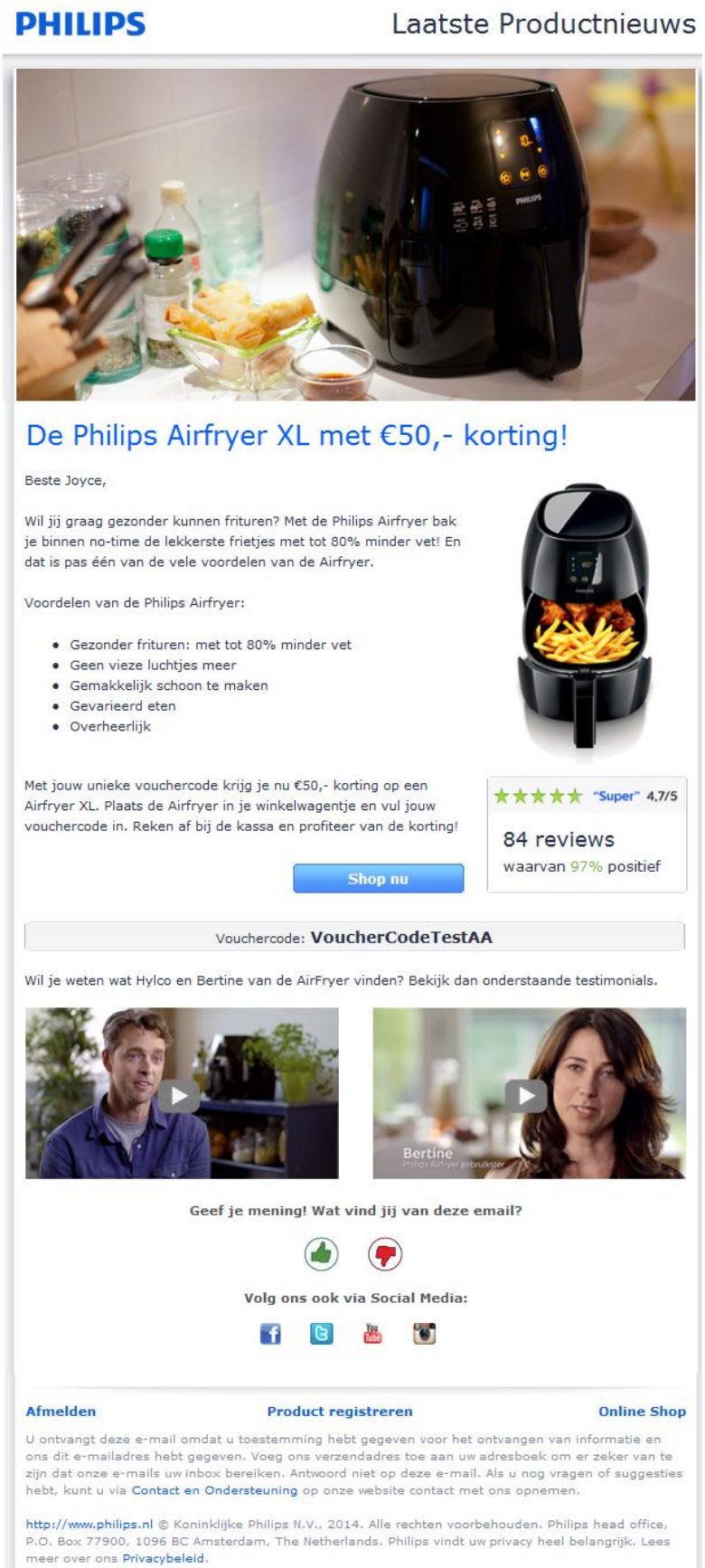


Figure 17. Product page A of the aifryer (soft form of social proof)

Figure 18. Product page B of the airfryer (with a strong form of social proof)