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**FACULTY OF BEHAVIOURAL MANAGEMENT AND SOCIAL SCIENCES**

## **Relationship between the quality of the online after-sale service and customer loyalty**

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I hope you will enjoy reading my master thesis.

Leyla Karimli

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## MANAGEMENT SUMMARY

**Introduction:** Since the internet has become the primary source for information, online customers should not be only considered as shoppers, but also as information seekers. Customers can experience a problem with a product or a service and evaluate how the problem handled by the company. While receiving service, the perceived service quality can affect customer emotions and their level of satisfaction, also influence the purchase intention and willingness to recommend the product or the brand to others, as an act of behavioural loyalty. Most studies in customer loyalty related to service are examined in service industries, rather than after-sale service in tangible product domain.

**Purpose:** This research aims to understand the relationship between perceived service quality and customer loyalty through the positive emotion and service satisfaction in the domain of after-sale online service of the tangible product. Therefore, the research question of this paper is: *How does the quality of the after-sale service provided through the website for domestic technology product affect customer loyalty?*

**Methodology:** In order to test the hypotheses and answer the research quantitative research is used as a main data collection method. As a data collection method, an online survey is used and in total 250 respondents participated. Five hypotheses are proposed and tested. Moreover, qualitative research as the secondary method in data collection is used. Due to the lack of literature review related to online after-sale service, exploratory interviews are conducted with three experts.

**Conclusion:** Looking at the regression analysis, the positive relationship between the all three perceived service quality characteristics, which are ease of navigation, and perceived needed time to reach the desired result, have a positive relationship with positive emotion, while ease of navigation has the highest effect. Further, positive emotion has a positive relationship with service satisfaction, and service satisfaction has a positive relationship with customer loyalty. Therefore, the relationship between service quality and customer loyalty can be considered same in online after-sale service for a product as well as in service industries. In the interviews, it is learned that usage of online service is increasing, and users visit the online after-sale pages in the pre-sale stage, which adds extra insight into the topic and further research.

**Keywords:** Customer loyalty, after-sale online service, perceived quality, customer emotion, service satisfaction

## Table of Content

1.	INTRODUCTION .....	7
1.1.	Problem Indication .....	7
1.2.	Problem Statement and Research Question.....	8
1.3.	Research Design .....	10
1.4.	Theoretical and Managerial Relevance .....	12
1.5.	Thesis Structure .....	12
2.	THEORETICAL FOUNDATION .....	14
2.1.	Service Quality .....	14
2.1.1.	Accessibility of the service.....	15
2.1.2.	Ease of navigation .....	17
2.1.3.	Perceived needed time.....	17
2.2.	Customer Emotion.....	19
2.2.1.	Negative Customer Experience .....	20
2.2.3.	Positive Customer Experience.....	20
2.3.	Satisfaction and Customer Loyalty .....	21
2.4.	Conceptual Model .....	22
3.	METHODOLOGY .....	25
3.1.	Research Setting .....	25
3.2.	Research Approach.....	25
3.3.	Working Method .....	26
3.3.1.	Literature Review .....	26
3.3.2.	Define and Design .....	27
3.3.3.	Prepare, Collect and Analyze .....	27
3.3.3.1.	Exploratory Interviews.....	28
3.3.3.2.	Survey .....	29

3.3.3.2.1. Sample .....	29
3.3.3.2.2. Cronbach's Alpha.....	31
3.3.4. Analyze and Conclude.....	32
4. RESULTS.....	33
4.1. Results of Survey.....	33
4.1.1. Mean scores .....	33
4.1.2. Assessment of Assumptions of the Regression model.....	33
4.1.3. Regression analyses.....	36
4.2. Results of Interviews .....	38
5. DISCUSSION AND CONCLUSION .....	42
5.1. Contribution to theory and practice.....	44
5.2. Limitations and further research.....	45
5.3. Conclusion.....	46
6. BIBLIOGRAPHY .....	48
6. APPENDICES .....	54
6.1. Appendix A .....	54
6.1.1. Survey.....	54
6.2. Appendix B.....	60
6.2.1. Linearity of Regression Model.....	60

## **List of Figures**

Figure 1 - Research Design.....	11
Figure 2- The building blocks of service on the web. (Voss, 2000).....	15
Figure 3 – Conceptual Framework .....	23
Figure 4 – Working Method .....	26
Figure 5 – Homoscedasticity .....	34
Figure 6 – Normal Distribution.....	36
Figure 7– Relationships in Conceptual Framework.....	42

## **List of Tables**

Table 1 - Prior empirical studies examining emotions .....	19
Table 2 – Demographics of Interviewees .....	28
Table 3 – Demographics of the Respondents .....	30
Table 4 – Newly Created Variables and Cronbach’s Alpha .....	32
Table 5 – Mean and Standard Deviation.....	33
Table 6 – Correlation Matrix .....	35
Table 7 – Collinearity Statistics.....	35
Table 8 – Regression analysis.....	37
Table 9 – Former studies on emotions and satisfaction.....	43

## **1. INTRODUCTION**

### **1.1. Problem Indication**

In the recent years, the internet has become the primary source for information retrieval and appeasement for businesses, as well as the customers (Flavian-Blanco et al., 2011). Companies mainly use internet for online advertisement, communication, and online sales. However, the understanding of the online customer experience is insufficient (Shobeiri et al., 2015). Online customers should not be only considered as shoppers because they are also information seekers and users of technology (Cho & Park, 2001). Therefore, online customer experience is not only limited to shopping. Another critical aspect of customers experience is after-sales support. According to McLean & Wilson (2016), we have little understanding about the need for online customer support in relation to the online customer experience.

With high-technological products, because of the complexity, the consumer can face issue more often, and it is harder for them to solve the issue. Steenhuis and de Bruijn (2006), defines high technological products by distinguishing two different aspects. First is the level of complexity, which relates to both complexity of a product and the process by which this product is produced. The second, the newness, which refers to a demand to continually update the products or processes. Nowadays, we have high-technological products in our everyday life, mainly as domestic technology. Domestic technology is the incorporation of applied science in the home (Colvine, 2008). When faced with a problem, customers can interact through two channels to solve it. These are online and offline channels. Phone calls can be an example of offline channels. After the call, customers' problems may be solved, or product may be taken for the repair. Social networks and company support pages are examples of online channels. Developing strong online support page can save companies from spending a lot of money on call centers. When looking at the literature, the most of the articles that are about customer online experience, are mainly focusing on understanding and improving decision-making and purchase stages and their relationships to the customer



loyalty. Moreover, customers can experience a problem with a product and evaluate how the problem reported to and handled by the company. The positive experience even can increase their commitment (Nenonen, 2008).

Therefore, this thesis is attempting to understand the relationship between the loyalty of customers and provided after-sale support through the online website of the company. The research takes place in the business group (BG) coffee within Philips Personal Health and seeks to accomplish the task of thesis submission as a part of strategic marketing and business information track of the business administration master program. Further part of the report will introduce the research question related to the research, define the scope of the research, discuss the preliminary literature review, propose a conceptual model based on findings in the academic and professional literature and explain the research design.

## **1.2. Problem Statement and Research Question**

This paper aims to add extra insight into customer behavior. That is why several studies of customer behavior were studied to find the research gap in customer behavior and loyalty caused by provided service. Service loyalty can be referred as the degree to which a customer exhibits customer repeat purchasing behavior from a service provider, possesses a positive attitudinal disposition toward the provider, and considers using only this provider when a need for this service arises (Gremler & Brown, 1996).

Moreover, advanced technologies increase customers' expectation within the online environment with also the high expectation of quality of online service (Gronroos & Voima, 2013). However, even though the technology enables new online service delivery channels, little is known about what has an effect on the online customer experience (McLean & Wilson, 2016). In the online environment, customers are left to service themselves (Shank, 2013). Therefore, there often exists a gap between the provision of information in the website and the users' natural process of information search and use (McLean & Wilson, 2016). As a result, customers may not found the

needed information, even though it exists online. To solve this problem, the company should understand customers' online behavior and what they value when looking for information on the website.

According to McLean & Wilson (2016), there were over 1 billion searches world-wide each month for the support information. The internet-based services are often regarded as a low cost means delivery and a direct channel to communicate with customers (Chang & Chen, 2008). Therefore, with the increased online service quality the cost of the call center can be reduced. Liou et al. (2011) claims that there is no standard definition of service quality, because it takes a different meaning in different industries. Therefore, service quality is context-dependent and measurements should reflect the viable circumstances under consideration. This research aims to highlight the importance of online service quality as well.

An extensive qualitative study of how customers interact with, and evaluate, technology-based products (Mick and Fournier, 1995) suggest that customer satisfaction with this kind of products involves a highly complex, long-term process which might vary across different customer segments. Therefore, this research focuses on domestic technology to get more insight about customers after sale support interaction of such products and satisfaction they receive.

According to White & Scandale (2005), there has been done little to focus on customer satisfaction with the service level, and even fewer have examined the impact of emotion on consumer loyalty. In examined papers, there is a difference in findings, while some agree that emotions are a good indicator of loyalty (Yu & Dean, 2001), some have contradictory findings that emotions are not the best predictors of loyalty intentions for those in bad moods (White, 2006).

During finding literature gap, it has been observed that most of the papers (Han et al., 2008; Al-Msallam, 2015, Ou & Verhoef, 2017) in customer loyalty in service observed companies in the service industry, and there is little focus on service provided through online channels in tangible product domain in after-sale stage. Kolesar and Galbraith (2000) observed service in e-retailing and its relation to customer loyalty, by

analyzing search facility of the website, online purchase function and product delivery capability of the e-retailer as an service. After analyzing the issues of the discussed topic, the research question that will be answered in this thesis is developed as below.

*RQ: how does the quality of the after-sale service provided through the website for the tangible product affect customer loyalty?*

Consequently, in order to answer the research question the following sub-questions have been derived:

- *What affects the quality perceptions of the customers who are looking for online after-sales support?*
- *How does high quality perception of the online after-sale service website affect emotions and satisfaction of customer?*
- *Do positive affects cause customer loyalty?*

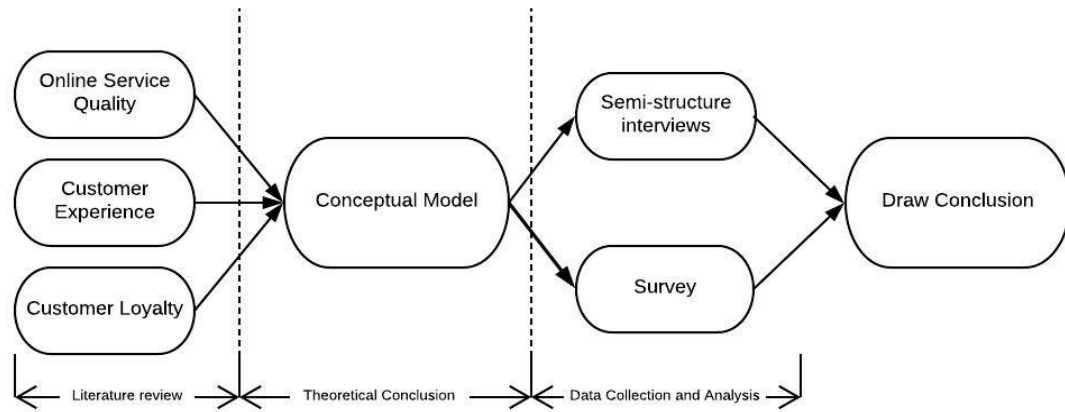
By answering these questions, it is expected to have a wider understanding of the online customer behavior. This research has two aims; to bridge literature gap on customer loyalty related to customers' after-sales experience and derive pragmatic implications for Philips BG Coffee to give better online after-sales support for customers.

Followed in this chapter, research design, contributions of this study and thesis structure are described.

### **1.3. Research Design**

Described in the research setting part, this research takes place at market-to-order team in BG Coffee at Philips Amsterdam. In order to answer the research question and

perform an adequate study of the relationship between online after-sale service and customer loyalty, the following research model was designed:



**Figure 1 - Research Design**

Initially, to grasp an idea about the relevant research field for this thesis, a literature review has been performed. The main topics of research have been identified as following: online service quality; customer experience and customer loyalty. All the literature findings have been analyzed and reported in Chapter 2, theoretical foundation. Academic literature on service loyalty related to after-sale support of products has proven not to be sufficient. Therefore, exploratory interviews have taken place in order to provide an extensive and vivid picture for a researcher.

Having a theoretical understanding of the relationship between online service provided and customer loyalty, further, exploratory interviews are performed as a supportive data collection method. The interviews are instructed, and sub-questions of main research question are used as a starting point. The interviews are recorded for further process of transcribing.

The main research approach for this study is of quantitative nature, adopting systematic empirical nature for investigation the research field. An online questionnaire will be used to collect data. The participants will be chosen as the representatives of the target group of BG Coffee Philips full automatic coffee machines. The survey will

be constructed based on the findings from the literature review and recorded interviews, and measurement will be done with the use of Likert scale (Likert, 1932). It is a psychometric scale that commonly used in surveys or questionnaires. The collected data is analyzed by using regression analyses with the help of SPSS statistical analysis software.

#### **1.4. Theoretical and Managerial Relevance**

From the academic perspective, the result of this thesis can add more insight into the understanding of customer behavior while looking for after-sale support in the online environment, and customer loyalty due to received service. Moreover, this study can provide a basis for future researches in the developing field of customer online behavior and loyalty.

On the other hand, the practical implication of this research is to highlight more aspects of customer behavior in an online service environment, and indicate the empirical importance of the online service quality, and its relation to loyalty for the organizations.

#### **1.5. Thesis Structure**

The structure of this thesis is constructed of five chapters that also has a chronological essence.

The first chapter includes an introduction to the background of the research field, with the problem statement and research question and sub-questions, research design and outline, and also theoretical and managerial relevance.

The second chapter outlines the literature review and conceptual model. It provides a broad insight into main relevant research fields. Additionally, it integrates the

findings in relation to online service quality and customer loyalty into a conceptual model that is further tested and analyzed via the prism of this research context.

The third chapter explains what kind of methodology is chosen to perform data collection and analyses of the data to answer the defined research question and its sub-questions. The main data collection method is performed by online questionnaire. Unstructured interviews are conducted to get more insight about the relevant topics as well as the understanding of the relevance of literature findings embedded into the conceptual model.

The fourth chapter describes the results of the analyses. The research uses multiple regression analysis and simple regression analysis to interpret the collected data through the online survey. Transcribed interviews are shown in this chapter.

Fifth chapter, being the last one, discusses the results obtained during data collection and analyses, draws conclusions, reports discussion of theoretical and managerial implications, and proposes limitations with future research suggestions.

## 2. THEORETICAL FOUNDATION

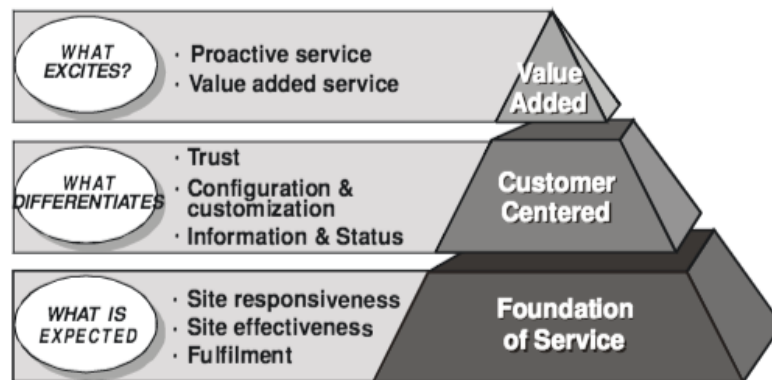
### 2.1. Service Quality

Online service is the delivery of service using new media such as personal computers but also via other technologies such as digital TV, mobile phones, and PDAs (personal digital assistants). The most critical thing in service management is the matching level service process and service consumption to each other, so that consumers perceive good service quality and therefore willing to continue their relationship with the company (Grönroos, 2000, pp 13-16). Online services can be divided into two main dimensions, in which first would be functional, that is what is delivered in terms of service outcome and second would be technical that is how it is delivered in terms of service process (Bauer et al., 2006) which is the main focus of this literature review. The quality of the service has been seen as a cognitive evaluation of the performance of a service or a provider (Brady & Cronin, 2001; Oliver, 1997). Service quality is always should be seen as the customers' perception (Grönroos, 2000, pp 63). Service quality is linked to activities, interaction, and solutions to customer problem (Edvardsson, 2005). According to Meyer and Schwager (2007), nowadays customers are seeking more than simply quality service, because of the increasingly standardized service quality across organizations. Customers are looking for an experience that they can be part of and actively participate in co-creating value (Vargo & Lusch, 2006). Focus on the customer experience can also provide a superior competitive advantage (Verhoef et al., 2009). Johnston & Clark (2005) define service experience as the customer's direct experience of the service process and concerns the way the service provider deals with the customer. It contains how service channels interact with customers as well as the customer's experience of the organization and its facilities. The customer experience is the combination of all cues and touch points with the organization (Payne et al., 2008). In the scope of this study, these facilities are observed in the online interaction channel, a website of the organization. Some aspects of the service experience are the extent of personalization of the process, the responsiveness of the service organization, the ease of access to service personnel or information systems (Johnston & Clark, 2005). Not all service

experiences are favorable. However, both favorable and unfavorable experiences tend to stay in the customers' memory. These experiences will have a strong impact on customers' perception of quality (McLean & Wilson, 2016).

### 2.1.1. Accessibility of the service

Voss (2000) put the factors of online service into three layers pyramid (Figure 2).



**Figure 2- The building blocks of service on the web. (Voss, 2000)**

The first layer is the foundation of service, including responsiveness, effectiveness and the fulfillment of the website. According to Johnston & Clark (2005), responsiveness is the timeliness of service delivery. Customers' perception of responsiveness of service will influence their assessment of service quality (Kolesar and Galbraith, 2000). The service environment and facilities should provide physical comfort. Customers can access online service and request information at all times. They are able to gather information from their home or office, or wherever they feel comfortable. Online service enables electronic communication, information gathering, transaction processing and data interchange within and between different parties across time and space (Featherman & Pavlou, 2002). The availability of service, staff, and goods to the customers is also the indicator of service quality. In the environment, availability includes staff to customer ration, in other words, the amount of time each staff has avail-



able to provide service to each customer and quantity and range of product made available for the customers. In an online environment, there is immediate access for customers. They can visit websites at any time of day. The websites do not have to be staffed for 24 hours a day, but there is the opportunity for customers to make contact at any time (Johnston & Clark, 2005). The service, particularly service person, have to either provide help to the customer or give the impression of being interested in the customer and show a willingness to serve to increase the perceived quality of the service. It can be enabled through the availability of vast amount of information for current as well as the potential customers on a website of the organizations. This is an advantage for customers because they will be able to choose what to view and what to which is frequently. During receiving an online service, customers have perceived control. They can decide at their leisure what they want to do and browse websites at their own discretion, without from other customers in a queue (Johnston & Clark, 2005).

The second level is customer centralized service, including trust, configuration, and information. The maintenance of confidentiality and personal safety are very crucial in a service environment. The study of the customers' benefits of maintaining a relationship with a service provider concluded that feeling of trust to the service provider creates confidence and reduces the anxiety (Gwinner et al., 1998). Customer quality evaluation also includes the components of the service package, appearance, and ambiance of the service environment and presentation of service. During receiving an online service, customers form an impression of an organization from its website and the information it contains and presents opportunities (Johnston, & Clark, 2005).

The final level is value added service. The cleanliness, neat and tidy appearance of the tangible components of the service package, including the service environment, facilities, goods and contact staff is another factor in service quality (Johnston, & Clark, 2005). In an online environment, this impression can be created by including limited information on each page, developing a logical and intuitive structure to the pages, and a consistent approach throughout the site (Voss, 2000). The warmth and personal approachability of the service, including a cheerful attitude and the ability to make the customer feel welcome also add value to the experience (Johnston, & Clark, 2005). In

an online environment, it can be provided by a range of supportive opportunities and features such as games, music, other links, or additional information, can enhance a customer's experience of a site. Because, customers satisfaction with the experience of the site may not simply be limited to the above points but may also include the enjoyment of the experience itself, which will encourage customers to return to the site (Voss, 2000).

### **2.1.2. *Ease of navigation***

Ease of navigation was found to be a major determinant of customer satisfaction with a website and continues to be important (Rose et al., 2012). The physical approachability of the service location is one of the quality factors of service defined by Johnston & Clark (2005). This includes the ease of finding one's way around the service environment and also the clarity of the route. In an online environment, customers form an impression of an organization from its website and how easy it is to navigate through. The willingness of the service worker adjust and amend the nature of the service to meet customer needs. There is an opportunity to build links between websites of complementary service providers. This creates the ability to form service alliances to increase the range of choice for customers. Service facilities, goods, and staff should be reliable; service should be delivered punctually and have the ability to keep to agreements made with the customer. These can be provided by the consistent approach throughout the website (Voss, 2000). Sites that easily communicate service information according to the customer's search process will strengthen feelings of confidence and calm (Rose et al., 2012). Customers' perceived ease of use also can be determinant of customers' behavioral intention to use the service (Davis et al., 1989).

### **2.1.3. *Perceived needed time***

It has been highlighted that customers became unaware of their passing time in the online environment (Fan et al., 2013). In another study, time distortion is referred

as the sense of distortion on time perception, where the customers are not aware of time spent, so that time appears to pass more quickly and to an extent unconsciously to the customers and this process results in positive customer experience (Hoffman & Novak, 2009). In contrast, Klaus (2013) highlights that customer experience may be context specific, meaning that in goal-directed functional activity, customers may actually be more time conscious rather than unaware of time passing (McLean & Wilson, 2015). Functionality, defined as the serviceability and fitness for purpose or quality of service facilities and goods, can affect the perceived quality of the service. The time required to perform the tasks on the web and the satisfaction with the service outcome is an indicator of the functionality of the online service (Johnston & Clark, 2005). Mclean & Wilson (2016) have found that customers are time conscious during a goal-directed search for online support information and services, and they are not willing to spend longer than perceived necessary time on a support website. The capability of the service to respond promptly to customer request, with minimal waiting and queuing time is a role player in perceived quality (Johnston & Clark, 2005). If customers are required to extend beyond the length of time perceived necessary to complete the targeted task, they will become dissatisfied with their experience (McLean & Wilson 2015).

Several studies have found a direct relationship between the quality and customers' emotions (Price et al., 1995; Meirovich & Bahnan, 2008). Based on discussed topics above; accessibility, navigation and perceived needed time, three hypotheses are developed and can be seen below.

**H1:** *Accessibility of the online after-sale service of the tangible product has a positive relationship with customer's positive emotions.*

**H2:** *Ease of navigation of the online after-sale service website has a positive relationship with customer's positive emotions.*

**H3:** *Perceived needed time spent on the online after-sale service to find a solution to issue related to the tangible product has a positive relationship with customer's positive emotions.*

## 2.2. Customer Emotion

The primary distinction between service quality and customer experience is the acknowledgment of customer emotions within the customer experience (Edvardsson, 2005). Emotion can be defined as a type of feeling that can arouse, organize and guide the people's perceptions, thoughts, and behaviors (Izard, 1997). The emotional state of mind is affected when it receives an environmental stimulus, which causes the behavioral response of either approach or avoidance (Mehrabian & Russell, 1974). Customer's emotions are an essential influencing factor of customer's decision-making and behavior during a search for information (Kuhlthau, 2004). Emotions tend to have an influence on quality perceptions and customer behavior (Liljander and Strandvik, 1997). Mclean and Wilson (2015) found out that a customer's emotions have an effect on the level of satisfaction regarding the experience during a goal-directed utilitarian context. Customers' experience of strong emotional reactions in return to service failures consequently decides whether to maintain their relationship with the organization (Smith & Bolton, 2002). In the customer decision-making process, emotions can be divided between the two incompatible forms of positive emotion and negative emotion (Laros and Steenkamp, 2005). Prior empirical studies examining the relation of positive and negative emotions to the customer satisfaction and loyalty is shown in the Table 1.

Emotion	Study
Positive	
happy, pleased, satisfied	Babin & Darden, 1996; Kempf, 1999; Han et al., 2008; Ou & Verhoef, 2017
interest, joy	Westbrook, 1987; Oliver, 1993; Homburg et al., 2006
Negative	
unhappy, unsatisfied, annoyed	Babin & Darden, 1996; Kempf, 1999
anger, sadness, contempt	Westbrook, 1987; Oliver, 1993; Ou & Verhoef, 2017

**Table 1 - Prior empirical studies examining emotions**

The main focus of this study is positive emotions, and they are considered as happy, pleased and satisfied.

### ***2.2.1. Negative Customer Experience***

In their study on a role for online customer support, McLean and Wilson (2016) have found that negative emotions generated by the perceived length of time spent to be too long on the website have a significant negative effect on the customer experience. As a result of negative experience, customers will abandon their search on the website (McLean & Wilson, 2016). Similarly, overly complicated navigation, as well as the information overload, disrupt the emotional state and likelihood of a re-purchase intention (Rose et al., 2012). Service failures are one of the issues that trigger customers' emotion. Customers who react to service failures with negative emotion will be less satisfied with the service encounter (Smith & Bolton, 2002). Moreover, when customer experience negative emotions to the extent of rage associated, they tend to engage in potentially destructive behaviors towards the company, including exit and negative word of mouth (McColl-Kennedy et al., 2009).

### ***2.2.3. Positive Customer Experience***

The outcomes of positive customer experience have been identified as the satisfaction, trust, re-visit intention, re-purchase intention, and loyalty of the customer (Badgett et al., 2007; Verhoef et al. 2009). Customers' positive emotion experience will result in overall satisfaction with the service (McLean & Wilson 2016). Satisfaction is the feeling of pleasure that can be the result of a customer's overall judgment of a service, based on a comparison of their expectations and performance of delivered service (Johnston & Clark, 2005; Anderson and Sullivan, 1993; Tse and Wilton, 1988). Customer satisfaction is a post-decision experience. Therefore, received service quality and customer satisfaction are closely related (Jiang & Zhang, 2016). Based on discussed topic, following hypothesis can be formulated.

**H4:** *Positive emotions caused by perceived online after-sale service quality have a positive relationship with service satisfaction.*

### 2.3. Satisfaction and Customer Loyalty

Loyalty can be referred as the degree to which a customer exhibits repeat purchasing behavior from a service provider, possesses a positive attitudinal disposition toward the provider, and considers using only this particular provider when there is a need for this service (Gremler and Brown, 1996, p. 173). Customer loyalty is a valuable intangible asset to any organization since it is a source of competitive advantage (Cossío-Silva et al., 2016). Oliver (1999), defines customer loyalty as a deeply held commitment to re-buy and re-patronize a preferred product or service continually in the future. The commitment of consumer can be defined as a desire to maintain a valued relationship and having the motivation to some extent to do business with the (Gronroos, 2007).

Oliver (1997) identifies four distinct, sequential phases in building customer loyalty. First, the cognitive loyalty which refers to the existence of beliefs that a brand is preferable to its alternatives and loyalty is based on brand belief only. Second, the affective loyalty which reflects a favorable attitude or liking based on satisfied usage. Third, the conative loyalty which constitutes the development of behavioral intentions characterized meaning that consumer desires to repurchase, however, this desire can be unrealized action. Finally, the action loyalty relates to the conversion of intentions to action, accompanied by a willingness to overcome obstacles that could prevent action. Even though these are the phases that follow each other, a customer can become loyal and locked at each of these phases. Customer's loyalty intentions are a direct effect of affective loyalty and an indirect effect of cognitive loyalty. Therefore, the focus of this thesis study is more on the affective loyalty. The finding of various studies about service loyalty determinants can be identified as quality, value, satisfaction, relationship-quality, and relationship-benefits (Han et al., 2008). This research focuses on quality and satisfaction, which typically studies the satisfaction as it mediates the effect of quality on loyalty (Cronin et al., 2000). Customers' continuance intention to re-visit or re-purchase can be determined by their level of satisfaction (Tsiotsou, 2006; Chiou and Pan, 2009). Chen (2012) has found a direct and positive effect of customer satisfaction on customer loyalty in the e-service context. According to several studies,

loyal customers are willing to recommend their service provider to others by spreading positive word of mouth (Kumar et al., 2013; Žabkar et al., 2010).

Zehir and Narcikara (2016) found a significant relationship between perceived value and loyalty intention, as well as the between electronic service quality and loyalty intention. In this study e-service quality is seen as web store functionality, product attribute description, ownership conditions, delivery, customer service and security rather than only after-sale service provided through online channel. Moreover, customers' perceived value positively contributes to loyalty by reducing their need to search for alternative service providers (Chang et al. 2009). Goode et al. (2014), in their study related to application service providers, have found that service quality generates greater customer satisfaction which in return encourage loyalty. Similarly, Cronin et al. (2000) have found an indirect positive effect of service quality on loyalty through satisfaction. In contrast, in their research of online service dynamics, Harris and Goode (2004) found a positive and significant relationship between service quality, satisfaction, and loyalty only one of the two studied websites. Therefore, perceived quality and its effect on satisfaction and loyalty is context dependent. This study formulates hypothesis that after-sale service satisfaction has a positive relationship with the customer loyalty.

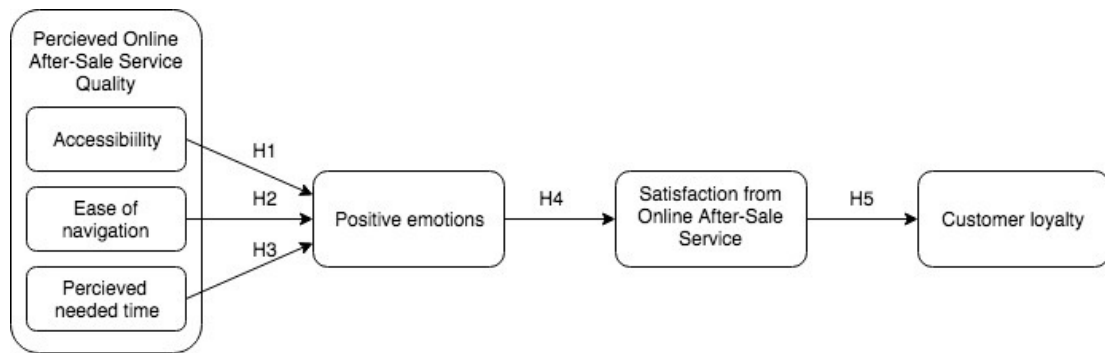
**H5:** *Service satisfaction from online after-sale service for a tangible product has a positive relationship with customer loyalty.*

## 2.4. Conceptual Model

Gronroos (2000) identified three main characteristics of service as (1) the processes consisting of activities, or a series of activities rather than things, (2) at least to some extent produced and consumed simultaneously, and (3) the customer participates in the service production process at least to some extent. Since service is the process consisting of series of activities but not a thing, it is difficult to manage quality control, because there is no preproduced quality to control before the service is supplied and consumed. Therefore, it can be concluded that every service provider is unique and

different from the other one. However, if the service provider understands how customers will evaluate the received service, they can identify ways of managing these evaluations and even more; they can influence them in the desired direction (Gronroos, 2000).

There has been much literature on the relationship between perceived service quality, customer satisfaction, and loyalty. However, empirical evidence from online after-sale service regarding satisfaction and loyalty is lacking. This master thesis focuses only on online after-sale service, meaning the information available on the website of the organization, which customer can use as self-service and find a solution for product related issues. Therefore conceptual framework including five hypotheses is developed (Figure 3).



**Figure 3 – Conceptual Framework**

Below, the list of all five hypotheses can be seen.

H1: Accessibility of the online after-sale service of domestic technology product has a positive relationship with customer's positive emotions.

H2: Ease of navigation of the online after-sale service has a positive relationship with customer's positive emotions.

H3: Perceived needed time spent on the online after-sale service to find a solution to issue related to domestic technology product has a positive relationship with customer's positive emotions.

H4: Positive emotions caused by perceived online after-sale service quality have a positive relationship with satisfaction.



H5: Satisfaction from online after-sale service has a positive relationship with customer loyalty related to domestic technology product.

### **3. METHODOLOGY**

This chapter will give an in-depth explanation about the methodological processes performed for this thesis research.

#### **3.1. Research Setting**

The research is conducted in the Royal Philips, Amsterdam, within market-to-order (M2O) team of Business Group (BG) Coffee. Royal Philips is a leading health technology company focused on improving people's health, which has two main businesses, Health systems and Personal health. Globally, Royal Philips has more than 73 million employees, and yearly income is amounted to EUR 1.9 billion as of December 2007 (Royal Philips, 2018).

BG Coffee is part of Personal Health and provides technological full-automatic coffee machines to make it easy for customers to enjoy coffee at minimum effort at their homes. As a multinational technology company, Philips cares about customer experience with the product, as well as with the provided service.

#### **3.2. Research Approach**

There is a general difference of research nature, being either qualitative or quantitative since different studies require different methods (Brownell, 1993). Glesne and Peshkin (1992) discussed various characteristics of quantitative and qualitative research. In quantitative research, the variable can be identified, and relationship can be measured while in qualitative method variables are complex, interwoven and difficult to measure. Purpose of quantitative research is the prediction and causal explanations rather than understanding actor's perspective and interpretation as of qualitative research. Service quality, customer satisfaction, and loyalty have been interesting for researchers for a long time. However, since these variables are context-dependent, there is a limitation of scope and results of studies cannot be generalized. This research aims

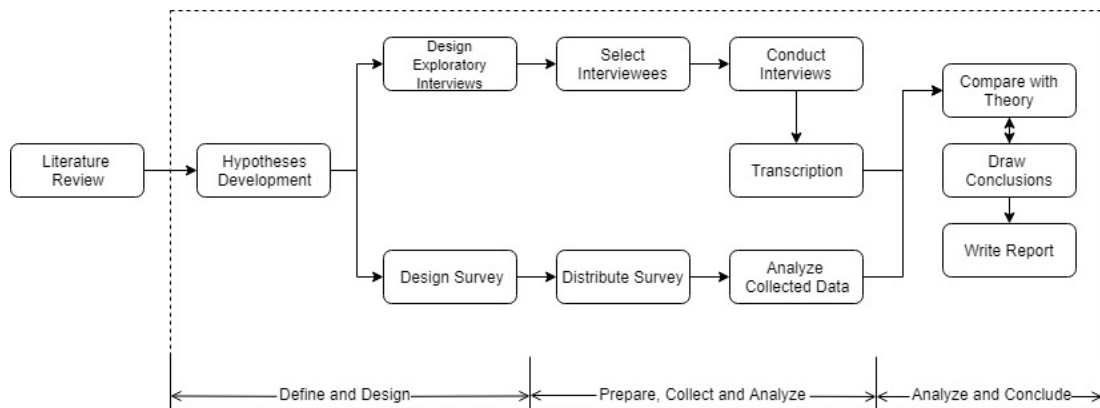
to learn casual explanation of given variables, thus adopting the quantitative approach. On the other hand, since variables of this research is context-dependent, and literature on online after-sale service is scarce, qualitative research method was used to expand the interpretation of variables.

### 3.3. Working Method

The first step in the research is developing a theoretical foundation and landing a clear understanding of the researched field. Further, in order to answer the research questions and test the hypotheses, various research tasks will be performed. The research process will be divided into three logical stages (Yin, 2009):

- 1) Define and Design
- 2) Prepare, Collect and Analyze
- 3) Analyze and Conclude

Later in this section, the scope of literature review and research process steps will be discussed in more detail.



**Figure 4 – Working Method**

#### 3.3.1. Literature Review

In order to develop the theoretical foundation, chosen literature topics were selected and read. Main research topics in this area are:

- 1) Customer perceived service quality;
- 2) Customer emotions;
- 3) Customer satisfaction;
- 4) Customer loyalty.

The relevant literature search was performed using library databases of University of Twente. Keywords used for literature search are as following; service quality; online service; customer emotions on service; customer satisfaction on service; e-service; service loyalty. Additionally, backward and forward citation methods have been used to review more relevant literature. Backward citation required checking with articles published earlier, while forward citation included more recent relevant publications, which were considered useful for this research.

### ***3.3.2. Define and Design***

After literature review has been performed and a theoretical foundation built, the stage of hypotheses development took place. The outcome of the literature review provided a theoretical background and identified the relevant factors in relation to customer service loyalty in an online environment. Based on found factors five hypotheses developed in the area of online after-sale service in the context of domestic technology.

### ***3.3.3. Prepare, Collect and Analyze***

This stage describes how the data collection methods and its analyses have been developed and designed. Two different procedures will be performed at this stage.

- 1) Auxiliary method: Unstructured exploratory interviews;
- 2) Main method: Survey.

More detailed explanation of each type of data collection is described in further subsections.

### 3.3.3.1. Exploratory Interviews

In addition to the literature review, in order to get a more comprehensive view of customer loyalty and satisfaction related to online after-sale service in the context of domestic technology products, exploratory interviews are performed. The intention to conduct these interviews was to provide a researcher a deeper understanding of online customer service and satisfaction from different perspectives. The initial purpose is to gain an understanding of what online after-sale service quality is, how it is related to customer emotions, and how these emotions affect satisfaction to which level. Interviews and online survey are conducted at the same time. Therefore, there is no biased effect between interview questions and survey. Also, survey results have no effect on manipulation of the interview.

These interviews are held with online customer experience specialists (Table 2). The type of interview nature is unstructured. According to Cohen and Crabtree (2006), this type of interview is a highly beneficial approach for understanding a not completely understood culture, setting or experience. Unstructured interviews can also create an opportunity for a researcher to test the initial understanding of the field or explore new perspectives. There is not an interview guide, but sub-questions of the main research questions is the starting point in interviews. In total, three interviews are performed. They are recorded to be analyzed later and to be used in discussion further in this research. The results of the interviews can be found in Chapter 4.

	Gender	Position
<b>Interviewee 1</b>	Male	Senior Product Owner for Web within Consumer Experience
<b>Interviewee 2</b>	Male	Consumer Analyst within Consumer Experience
<b>Interviewee 3</b>	Female	Digital Manager for Web-care

**Table 2 – Demographics of Interviewees**

### **3.3.3.2. Survey**

The research approach for this study is of quantitative nature, and the online survey is used as data collection method. Intention to survey was to understand the relationship between perceived online after-sale service quality, positive emotions, service satisfaction and loyalty from the customer perspective. Survey questions related to online service quality are developed based on a widely accepted multiple-item scale, E-S-QUAL (Parasuraman et al., 2005). In loyalty, it is crucial to understand the importance of the way of measuring (Al-Msallam, 2015). There are three approaches to measure loyalty; behavioral, attitudinal and composite approaches. However, most researchers employed attitudinal approach with the measurement of intention to repurchase and intention to recommend as an indicator of loyalty (Zehir et al., 2014). This research also adopted attitudinal approach on the survey. To gather information from the respondents Likert scale was used, starting with “Strongly disagree” statement, to “Strongly agree”. This psychometric scale is most suitable and used method in researches involving surveys or questionnaires (Likert, 1932). The survey was distributed to customers or/and potential customers of domestic technology products through the online channels. The survey consisted of 37 questions which refer to each variable in the developed conceptual framework and demographics of the respondents. However, only responses to 28 of these questions are analyzed in this research. Other questions are observatory for the company. Moreover, at the beginning of the survey, participants are introduced to the case and asked to fill the questionnaire based on a given situation. They are also requested to visit online after-sale support page to have the feeling of the real experience, even though questionnaire can be filled without visiting the website. Survey questions can be found in Appendix A.

#### **3.3.3.2.1. Sample**

The questionnaire is implemented with the Qualtrics software. In the online survey, there is a threat of multiple entries by one participant. However, used software

prevent this situation and allows only one entry by each participant. Respondents attended voluntarily and were made sure that collected data will be kept anonymously and only will be used for this study. A total of 250 respondents participated in the survey, while 107 of those filled out it completely. A sample of 107 respondents represents a population of 147 people (Kortlik & Higgins, 2001). Concerning generalizability, the ratio of the observations to the number of independent variables should be above 5:1 and desired number of observations should be more than 15 for an independent variable. There will be a risk of overfitting the model to reality if this rule is not met (van den Boomen et al., 2007). The number of observations in this study is 107, and there are five independent variables. The ratio of observations to the number of independent variables (107:5) is more than the needed minimum, and for each independent variable, there are 21 observations which are more than the desired amount. Therefore, the researcher does not risk overfitting the model into reality.

Characteristics of the sample are shown in the Table 3. Looking at this table, it is possible to ascertain that most respondents were male (63.6%). Moreover, the age of the majority of the respondents is between 18-24 years old (49.5%). However, at the same time, it can be interpreted that most of the participants are 25 years or older (50.5%). Furthermore, 61.7% of the respondents use online service at least once a month (35.5%).

Demographics		Frequency	Percent	Cumulative Percent
<b>Gender</b>	Male	68	63.6%	63.6%
	Female	39	36.4%	100%
<b>Age</b>	18-24 years older	53	49.5%	49.5%
	25-34 years older	45	42.1%	91.6%
	35-44 years older	7	6.5%	98.1%
	45 years and older	2	1.9%	100%
<b>Online service usage</b>	More than once a week	5	4.7%	4.7%
	Once a week	4	3.7%	8.4%
	Once in every few weeks	19	17.8%	26.2%
	Once a month	31	35.5%	61.7%
	Never	41	38.3%	100%

Note: N=107

**Table 3 – Demographics of the Respondents**

### 3.3.3.2.2. Cronbach's alpha

After collecting data, items in the questionnaire were used to create six new variables shown in the conceptual model of this research (Figure 2). These variables are Accessibility, Navigation, Perceived Needed Time, Positive Emotion, Service Satisfaction and Customer Loyalty. To check the internal consistency of the variables within each newly created variable, Cronbach's alpha ( $\alpha$ ) was measured (Table 4). Cronbach's alpha indicates if all items in the scale are measuring the same concept. In general, the variables are acceptable when  $0.6 < \alpha < 0.7$ , good when  $0.7 < \alpha < 0.9$ , and excellent when  $\alpha > 0.9$  (Hsu & Sanford, 2007).

In this study, Perceived Needed Time variable only consists one item. For this reason, Cronbach's alpha for this variable was not needed. Looking at the Table 4, it can be observed that lowest  $\alpha$  is 0.6 for Navigation variable, which is acceptable. For the Accessibility ( $\alpha = .741$ ), Positive Emotion ( $\alpha = .844$ ) and Service Satisfaction ( $\alpha = .894$ ) variables Cronbach's alpha value is good. The Customer Loyalty variable has the  $\alpha$  level of .905, which is excellent. Therefore, it can be concluded that all items in the newly created variable are consistent with each other.

Variable	Item	Cronbach's Alpha
<b>Accessibility</b>	ACC1- The website makes it easy to do self-service	.741
	ACC2- Information on this site is well organized	
	ACC3- The website and information it contains are accessible through all devices easily	
<b>Navigation</b>	NAV1- The website makes it easy to find what I need	.600
	NAV2- The website is simple to use	
<b>Perceived Needed Time</b>	TIM1 - I spent no more than the expected time to find the information that I am looking for	-
<b>Positive Emotion</b>	PEM1- The site makes it easy to find what I need	.844
	PEM2- It is easy to get anywhere on the website	
	PEM3- The information on the site is well organized	
	PEM4- The website is easy to use	
	PEM5- The website and information it contains are accessible through all devices easily	
	PEM6- I spent no more than the expected time to find the information that I am looking	
<b>Service Satisfaction</b>	SAT1- I am happy about the quality of the website	.894
	SAT2- I am pleased with the website as a service for self-helping	
	SAT3- I can find the needed information on the website	



Variable	Item	Cronbach's Alpha
<b>Customer Loyalty</b>	SAT4- I look back on this as a good online support experience	.905
	SAT5- This online support experience meets my expectations	
	SAT6- I achieved the desired results	
	LOY1-It is highly likely that I will say positive things about this brand to other people	
	LOY2- It is highly likely that I will say positive things about this product to other people	
	LOY3- It is highly likely that I will recommend this brand to someone who seeks my advice	
	LOY4- It is highly likely that I will encourage friends and others to buy this product	
	LOY5- It is highly likely that I will consult these online support pages every time I need	
	LOY6- Compared to other online services I use to fix my other domestic appliances, I prefer this one more	
	LOY7- It is highly likely that I would purchase another product from this company/brand	

**Table 4 – Newly Created Variables and Cronbach's Alpha**

The collected data through survey were analyzed with the Statistical Package for the Social Sciences (SPSS) version 25 software. With the help of the SPSS, in this study, single regression and multiple regression analyses are used. To understand the collected data through the online survey, first of all, a descriptive analysis was observed. Secondly, reliability and correlation were analyzed to understand the relationships between variables and to assess the overall model fit. Moreover, assumptions of regression analysis were checked and confirmed. Finally, multiple regression and single regression analyses were performed to test each of the hypotheses. Interviews are transcribed and used as an additional insight. All results can be found in Chapter 4.

### **3.3.4. Analyze and Conclude**

After analyzing the quantitative data and interviews, results are discussed and compared to the existing literature. Based on these analyzes, theoretical and practical impact, limitations and further research are discussed. Thereafter, conclusions are drawn and reported in Chapter 5.

## 4. RESULTS

### 4.1. Results of Survey

#### 4.1.1. Mean scores

Table 5 represents the mean and standard deviation (SD) of the variables. It can be observed that mean score of all variables are between 4 and 5 in Likert scale, whereby 4 means “somewhat agree” and 5 “strongly agree”. This is the indicator of high positive emotion, satisfaction and loyalty intentions related to the online after-sale support website. Moreover, looking at the independent variables (accessibility, navigation, perceived needed time) that is used in multiple regression analysis, it can be observed that among them, navigation has the highest mean ( $M = 4.364$ ). This can be interpreted that navigation increases customers positive emotions more.

	Mean	SD
Customer Loyalty	4.012	.782
Service Satisfaction	4.328	.751
Positive Emotion	4.352	.694
Accessibility	4.271	.725
Navigation	4.364	.814
Perceived Needed Time	4.270	.996

**Table 5 – Mean and Standard Deviation**

#### 4.1.2. Assessment of Assumptions of the Regression model

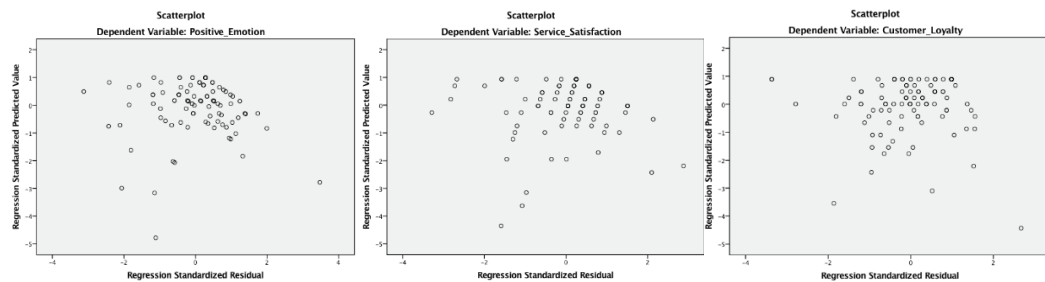
To conduct a regression analysis, four assumptions have to be confirmed (Hair et al., 2014; van den Boomen et al., 2007). These are:

- 1) The linearity of parameters,
- 2) Homoscedasticity,
- 3) The absence of multicollinearity,

#### 4) Normal distribution.

The linearity of parameters assumes that a change in the independent variable is related to a change in the dependent variable. To check the relationship between independent and dependent variable scatter plot is used and can be seen in Appendix B. Based on this scatter plots, it is possible to deduct that relationship between independent and dependent variable is linear, and therefore, the first assumption is confirmed.

Homoscedasticity of the variables means that a constant variance of error terms across all values of the independent variable is present. In the case of violation of this assumption, heteroscedasticity is present, which can be observed by a triangle-shaped pattern in the residual plot. Figure 5 represents scatter plot for each of the regression analyses and shows that the homoscedasticity is present. Therefore, the second assumption is fulfilled.



**Figure 5 – Homoscedasticity**

The absence of multicollinearity between the independent variables means that the predicted value is not related to any other prediction. The Pearson's correlation matrix is performed with the use of the SPSS software to analyze the correlation between different variables and seen in the Table 6.

It is recognizable that all variables have a significant positive correlation ( $p < .01$ ) with each other. Significant correlation means that the variables are interrelated and may overlap each other. The highest correlation can be examined between Positive Emotion and Service Satisfaction (.796). Moreover, the major independent variables, Accessibility, Navigation and Perceived Needed Time are highly correlated with each

other. A high correlation (.90) indicates multicollinearity. In multiple regression analysis, it is assumed that independent variables highly correlate with the dependent variable, in contrast, have little correlation among themselves (van den Boomen et al., 2007). In this study, the correlation among all variables is less than .90; therefore there is no troublesome multicollinearity.

Scale	1	2	3	4	5	6
1. Customer Loyalty	-					
2. Service Satisfaction	.395**	-				
3. Positive Emotion	.449**	.796**	-			
4. Accessibility	.334**	.646**	.660**	-		
5. Navigation	.312**	.599**	.687**	.688**	-	
6. Perceived Needed Time	.421**	.579**	.523*	.494**	.447**	-

Note: N=107; \*\* Correlation is significant at the .01 level (2-tailed)

**Table 6 – Correlation Matrix**

Another indicator of multicollinearity is tolerance and variance inflation factor (VIF). Tolerance is the amount of variability of the selected independent variable not explained by other independent variables, and indicates multicollinearity if the value is low ( $t < .1$ ) (Hair et al., 2014; van den Boomen et al., 2007). Variance inflation factor is inverse of tolerance value and acceptable up to the value of three (van den Boomen et al., 2007). These values are tested only for Model 1, which is multiple regression analysis. The other two models are simple regression analysis. Both values support the absence of multicollinearity (Table 6). It can be concluded that the third assumption of regression analysis is met.

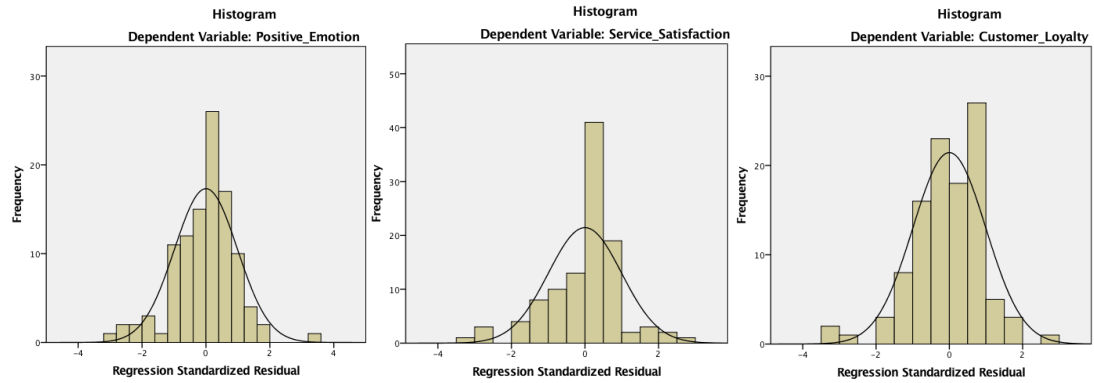
Model 1	Tolerance	VIF
(Constant)		
Accessibility	.486	2.056
Navigation	.515	1.944
Perceived Needed Time	.734	1.362

Dependent variable: Positive Emotion

**Table 7 – Collinearity Statistics**

To check the normal distribution assumption, the normal distribution of standardized residuals are analyzed. It can be visually observed on histograms (Figure 6). The

shown graphs allow the researcher to conclude that the data is close to normal distributed data and final assumption is confirmed.



**Figure 6 – Normal Distribution**

All of the four assumptions of regression analysis are fulfilled, and researcher can conduct regression analysis.

#### **4.1.3. Regression analyses**

In order to test the five hypotheses of this research, a multiple regression analysis and two simple regression analyses are conducted.

The first analyzed model is multiple regression analysis to check the relationship between perceived quality and positive emotion (Table 8). The dependent variable (DV) of the model is Positive Emotion, and independent variables (IV) of the model is Accessibility, Navigation and Perceived Needed Time. Adjusted R-square defines how dependent variable can be explained by the independent variables. In this model, 55.7% of the variation in positive emotion can be explained by the accessibility of the website, navigation of the website and achieving perceived needed time (Adjusted R-square = .557). From the Table 8, it is observed that all of the independent variables have significant positive relation with positive emotion. Navigation has the highest positive significant ( $B = .343$ ,  $p = .000$ ) with the positive emotion. This model supports the following hypotheses:

**H1:** *Accessibility of the online after-sale service of domestic technology product has a positive relationship with customer's positive emotions.*

**H2:** *Ease of navigation of the online after-sale service has a positive relationship with customer's positive emotions.*

**H3:** *Perceived needed time spent on the online after-sale service to find a solution to issue related to domestic technology product has a positive relationship with customer's positive emotions.*

The second model of this analyses observes the relationship between Positive Emotion (IV) and Service Satisfaction (DV). In this model, 63.1% of the variation in service satisfaction can be explained by positive emotion (Adjusted R-square = .631). Table 8 indicates that positive emotion ( $B = .862$ ;  $p = .000$ ) found to positively influence the service satisfaction. The model supports the following hypotheses:

**H4:** *Positive emotions caused by perceived online after-sale service quality have a positive relationship with satisfaction.*

	<b>B</b>	<b>Sig.</b>	<b>Adjusted R-square</b>
(1) Relationship between Perceived Quality and Positive Emotion			.557
Positive Emotion (Constant)	1.091	.000	
Accessibility	.272*	.003	
Navigation	.343*	.000	
Time Spent	.141*	.008	
(2) Relationship between Positive Emotion and Service Satisfaction			.631
Service Satisfaction (Constant)	.576	.043	
Positive Emotion	.862*	.000	
(3) Relationship between Service Satisfaction and Customer Loyalty			.148
Customer Loyalty (Constant)	2.331	.000	
Service Satisfaction	.411*	.000	

Note: Dependent variable: (1) Positive Emotion; (2) Service Satisfaction; (3) Customer Loyalty

\* significant at the .05 level

**Table 8 – Regression analyses**

The final model analyzes the relationship between Service Satisfaction (IV) and Customer Loyalty (DV). In this model, 14.8% of the variation in customer loyalty can be explained by service satisfaction from online after-sale service (Adjusted R-square = .148). Service satisfaction has significant positive ( $B = .411$ ,  $p = .000$ ) relation with customer loyalty. The model supports the final hypotheses:

**H5:** *Satisfaction from online after-sale service has a positive relationship with customer loyalty related to domestic technology product.*

## 4.2. Results of Interviews

Next to online survey, exploratory interviews are held, to understand more about the online after-sale service and related customer behavior. Interviews and survey are conducted in parallel. Therefore, survey results have no manipulation effect on interview questions.

When asked what the most important thing in the online after-sale journey is and what triggers positive emotion, customer experience team provided different answers. Interviewee 1 describes mainly the accessibility (responsiveness, friendliness) of the website, while interviewee 2 and interviewee 3 describe the navigation of the website and needed time to finalize the goal.

*“It is how we set up the journey, moving from one generic approach for all customers to more personalized experience. We look completeness of the page by not hiding certain possible issues that we have with products.. The thing with support page is that the majority of the customers visiting support page have issues. They have a product that does not work in a way they want, or they do not understand how to use the product.. In general, yes, they enter unhappily. What triggers (positive emotion), I think we try to have very open and friendly start.”* – interviewee 1

*“It has to be fast and easy to find, easy to spot where the next step should be. Speed triggers the positive emotion more. No matter how bad the website is, if users can find an answer in a minute, they will leave happy.” – interviewee 2*

*“The most important part is that we can help the consumer in a most efficient way to fix the issue that they have. Customers are happy when they find information quickly without effort and hustle. Navigation should be clear for consumers. Time is also important. We see it in mobile use increase.” – interviewee 3*

However, when it comes to emotions, it is hard to interpret and come to conclusion in online environment.

*“There is the difference in personal contact that you would have with a person, with offline service. With offline service, you can better see the reaction of the consumer, when you are giving or providing service. With the contact channels, with chat or e-mail you can also feel the tone of voice, but perhaps it is more difficult to really feel the interaction.”- interviewee 3*

Even though previous literature suggests that quality of the service can directly or indirectly affect the customer loyalty, there is not enough evidence of loyalty related to online after-sale support in tangible product domain. However, interviewees suggested a possible relationship based on their expertise. Customer experiencing the online after-sale service journey, and leaving it satisfied would return to the page, also consider brand or product as preferred option.

*“Once you know in the website, where the right information is, that is where you could come back. If you have another question, a month later, it would be easiest to go to care page if you have already been there.” – interviewee 2*

*“If the experience is negative, they (customers) go for another brand, and would never buy again (from the same brand). If they have a positive experience, if they fixed the issue that would have a positive effect (on loyalty).” – interviewee 2*



*“Of course people are not that loyal to brands than they were before, because there are a lot of options nowadays, to buy products from various brands. I think service can really make differentiation.. With the product that you have, you recognize it is very easy to get a contact with the company, to find the solution online, it would definitely have a big impact when you like to choose another product or next coffee machine.” – interviewee 3*

The most interesting result of the interviews is that many people are visiting the online after-sale service website before even purchasing the product and the website affect their decision-making. These users are mainly looking for what kind of issues the product may have in the future, and how the company will handle them.

*“We also have a lot of visitors that come from pre-sale reasons, and I think that goes back to loyalty again.. Consumers actually want to see before they purchase a product, that in case my product fails, you have a contact option, you have the trouble-shooting articles, you are the place for me to go in case I have an issue.. They look for the trust (in the company). They do visit support pages before they go to sales journey”- interviewee 1*

*“(Pre-sale visit) affects their decision making positively.” - interviewee 2*

*“They (pre-sale visitors) need some support in which product I should buy” – interviewee 3*

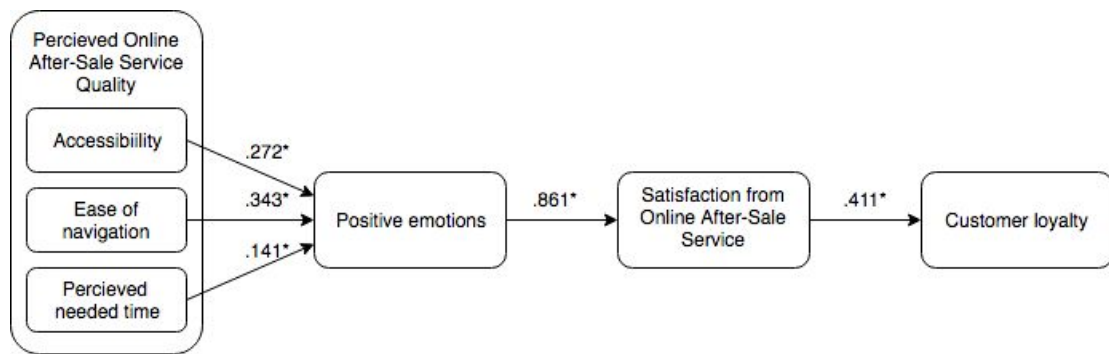
Based on responses, it can be concluded that experts are aware of the importance of the webpages. However, currently, offline after-sale channels are more popular. There are several reasons explained by interviewees, and one of them is the perceived low quality of the online after-sale service website, and choose to interact with the company through the offline channels.

*“Most of the people that contact to call center have already visited the website. They are not completely satisfied what they found online, or the navigation is not correct.” – interviewee 1*

In the next chapter of this research results of the survey, interviews will be discussed and be compared to previous literature.

## 5. DISCUSSION AND CONCLUSION

The primary purpose of this research is to answer how the quality of the online after-sale support page for domestic technology affects customer loyalty, through triggering positive emotion and service satisfaction of customers. Answering this question will fill a gap in the existing literature, which is the lack of evidence that online after-sale service of the tangible product has an effect on general customer loyalty. The question is examined in an example of domestic appliances, full-automatic coffee machine. Therefore, five hypotheses were proposed and tested. All of the five hypotheses are supported by the collected data through the online survey. The conceptual framework of this study with the shown relationship between variables can be found in Figure 7.



Note: \* significant at the .05 level

**Figure 7– Relationships in Conceptual Framework**

Interviewees stated that completeness and openness of the online after-sale service website, ease of finding the information, navigation through the page are important factors of the better journey, and they trigger positive emotions. These suggestions are consistent with literature review that accessibility (availability, informative content; mobile-friendly), navigation (easy to find; effortless) and time (fast to find) are the main characteristics of the website of high quality (Voss, 2000; Johnston & Clark, 2005; Rose et al., 2012; McLean & Wilson, 2015). In our model, the highest effect on positive emotion is observed from navigation through the website. Previous studies in customer loyalty indicate that perceived ease of use can be determinant of customer

loyalty (Davis et al., 1989). In this study, an indirect relation between navigation through the website and customer loyalty is confirmed.

The relationship between customer emotions and the level of satisfaction was previously observed within the goal-directed context, and a positive effect was found (McLean & Wilson, 2015). Consistent with previous literature this study observes a significant positive relationship between positive emotion and service satisfaction. Table 9 represents recent studies on emotions and their relations to satisfaction, and indirectly to customer loyalty.

Study	Study Samples	Finding
Han et al., 2008	Hotels Airlines Hospitals Banks etc.	Positive relation
Ou & Verhoef, 2017	Health Bank Airlines etc.	Positive relation
Schoefer, 2008	Holiday (package) Airplane etc.	Positive relation
Harris & Goode, 2004	Flight Book	Positive relation No relation

**Table 9 – Former studies on emotions and satisfaction**

It can be seen from the Table 9, previous studies focused on service industries, rather than after-sale service of the product, as the current study. In this study, we can see that positive emotion and service satisfaction has the strongest relation ( $B = .861^*$ ) (Figure 7). The main finding of this research is that customers' emotions from online after-sale journey affect their level of satisfaction, as in service industries.

Previous studies observing service satisfaction and loyalty found a positive relationship (Chang et al., 2009; Groode et al., 2014), and proposed satisfaction as a mediator of service quality and loyalty (Cronin et al., 2000). In their research on online service dynamic, Harris and Goode (2004) found no significant relationship between service quality and satisfaction, and between satisfaction and loyalty in online flight

ticket provider, while they found significant positive relationships in online book provider. Therefore, satisfaction and loyalty is context dependent. Consistent with many existing studies, this research shows that significant positive relation between service satisfaction and customer loyalty exists, also in online after-sale support, observed in the scope of domestic appliances, in an example of a full-automatic coffee machine.

Further, in this chapter, theoretical and practical contributions of this thesis, and limitations further research suggestions will be discussed.

### **5.1. Contribution to theory and practice**

To the knowledge of the author, this is the first research related to customer loyalty conducted within the scope of online after-sale service of the tangible product. The closest research belongs to Mclean and Wilson (2016), which analyzes the relationship between perceived needed time, emotion and satisfaction, but does not analyze the impact of those on customer loyalty. Customer loyalty is one of the sources of competitive advantages, therefore considered as a valuable intangible asset (Cossío-Silva et al., 2016). This study contributes to a better understanding of the relationship between the quality of the online after-sale support website, positive emotion, service satisfaction, and customer loyalty. First of all, the main theoretical contribution is that quality of the online after-sale support of product affects loyalty, as same as quality of the provided service in both online and offline environment as previously studied.

Secondly, the current study used an additional qualitative method, interview, to understand the online after-sale support of product and its impact. In the interviews, another essential impact of online support page is recognized. Knowing that many people visit online after-sale support pages, even before purchasing the product, adds extra insight into the importance of these pages, and new theoretical subject to learn and analyze.

In practice, this research shows that online after-sale support page has an impact on customer loyalty, and therefore companies should focus more on improving the support websites. Especially improving the website navigation and accessibility, companies can satisfy their customers and therefore, increase loyalty. Looking at the demographics of the respondents (Table 3), it can be observed that majority of the participant are below the age of 35 (91.6%) and use online after-sale service website (61.7%). It can be interpreted that younger generation prefers to use online service, and companies need to keep up with them to keep them loyal. As interviewee 3 said, customers are not loyal to brands as before, because of the variety of available brands, but differentiation can create value. Moreover, improving the quality of the online after-sale service website, companies can decrease the cost of the contact center, since most of the people contacting the call center have already visited the website, but was not satisfied with the journey (interviewee 1). Finally, during the interviews, the effect of online after-sale service page on pre-sale stage is observed. This means that, by increasing the quality of these websites, companies can add value to the purchasing journey of the customers.

## **5.2. Limitations and further research**

Despite the positive results and impactful contributions, this study is subject to several limitations, which should be taken into consideration. First of all, the current study is only looking online after-sale support of domestic appliances, in the scope of the full-automatic coffee machine. With different products, like electronics, white goods, personal care electronics, etc., the results can be different. Secondly, the collected data does not wholly represents real product owners who have issues related to their products and want to solve them. This also affects the third limitation. In the questionnaire, respondents were asked questions related to their feeling. Their answers may not always represent the reality, since they were not really in the situation given in the case. For this reason, this study only focuses on positive emotion rather than both positive and negative emotion.

Therefore, further research with product owners who really have issues can be conducted with the help of neuromarketing tools, such as electroencephalography, which allow the researcher to conduct emotion response analysis (ERA). With this tool it is possible to identify the emotional response of the participant to the experience, can provide better results and help understand both positive and negative emotions related to the online after-sale service journey.

Finally, during the interviews importance of online after-sale support pages in the pre-sale stage is realized. Further research can be conducted to analyze the relationship between decision making of the customers and online after-sale support pages. This would add extra insight into literature, also may indicate the value of these pages to the companies.

### **5.3. Conclusion**

This study investigated the relationship between online after-sale service and customer loyalty. By analyzing existing literature, indirect effect between these two variables found through emotions and satisfaction. Therefore, this study hypothesizes that positive emotion and service satisfaction are mediators between online after-sale service quality and customer loyalty in tangible technological product domain. To analyze the model, online survey is used as data collection method. Due to lack of the literature in customer loyalty related to online after-sale service of a product, exploratory interviews are held to understand the topics further. Based on regression analyses, all proposed hypotheses are supported. Therefore, quality of the online after-sale service website has a positive impact on customer loyalty through triggering positive emotion and accordingly, service satisfaction. Among three quality characteristics of the website; which are accessibility, ease of navigation and perceived needed time to reach the goal, navigation has the highest significant effect on positive emotion, followed by accessibility. This is consistent with shared information by the customer experience experts in the interviews. The main findings of this study are consistent with the most of the similar models in literature review based on service industries in both online and

offline environment. Moreover, during the interviews, this study observed another unobserved impact, which is on the pre-sale. This means that potential customers visit online after-sale service website as a part of sales journey. The findings fills the gap of lack of evidence in customer loyalty related to online after-sale service in tangible technological product domain, in the existing literature. Simultaneously, provides background to further research, since the relationship between satisfaction and customer loyalty is context dependent.



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## **6. APPENDICES**

### **6.1. Appendix A**

#### **6.1.1. Survey**

##### **Customer Loyalty**

Dear respondent,

Thank you for agreeing to take part in this survey. The aim of the survey is to gain insights in customer loyalty related to online after-sale service quality. This survey will take 10 minutes to complete. Your participation in the survey is completely voluntary, and all of your responses will be kept strictly confidential. No personally identifiable information will be associated with your responses to any reports of these data. Please use your computer to fill the survey. If you are going to fill it on mobile, please use Chrome as a browser.

Please click “->” to begin.

Please read the case and try to imagine the situation as if it were your own personal experience and answer questions based on that.

Case:

You are the proud owner the following domestic appliance product: a full-automatic coffee machine.

You had spent several months to find the ideal coffee machine for your kitchen, also to serve your guests the best.

It was a bit higher than your budget, but the design and characteristics of the machine convinced you. Because with this design award-winning machine you can make different types of coffee. You can make an Espresso before leaving for work, and have a

Cappuccino in the evening while resting. Also, you can make other types of coffee to impress your guests.

In two days you will have a dinner party to celebrate a promotion at your work and you are looking forward to showing your machine to your friends. However, in the morning, when you wanted to make your espresso before work, your coffee machine suddenly had several issues:

- 1) Your machine started leaking water
- 2) Your machine gave the error code 1 of which you do not know what it means or how to resolve it
- 3) The quality of the coffee was not as good as usual

To find a solution you are going to check the Philips website.

Please go to the following website and try to find the solutions to the given issues: “Coffee Care Page”

Please do not spend more time than you think is necessary to find a solution to the given issues related to your coffee machine.

After that, please start the survey in this window and answer following questions based on your experience.

For me the website is of high quality when:

	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly agree
The website makes it easy to find what I need.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The website makes it easy to do self-service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information on this site is well organized	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



The website is simple to use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The website and information it contains are accessible through all devices easily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I spent no more than the expected time to find the information that I am looking for	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

I would feel happy/pleased if:

	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly agree
The website makes it easy to find what I need.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is easy to get anywhere on the website	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information on this site is well organized	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The website is simple to use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The website and information it contains are accessible through all devices easily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I spent no more than the expected time to find the information that I am looking for	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

I feel satisfied with the online service I received when:

	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly agree
I am happy about the quality of the website	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am pleased with the website as a service for self-helping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I can find the needed information on the website	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I look back on this as a good online support experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This online support experience meets my expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I achieved the desired results	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please **rank** to which level of happiness/pleasure you receive from the following situations (1 for lowest, 6 for highest)

	1	2	3	4	5	6
The website makes it easy to find what I need	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is easy to get anywhere on the website	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information on the website is well structured	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The website is simple to use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The website and information it contains is accessible through all devices easily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I spent no more than the expected time to find the information that I am looking for	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

During your search to fix the issues related to your coffee machine you easily landed on the page that provided sufficient information to help you to fix the issues. While looking, you did not spend time more than you expected. Besides, you learned that you need to clean your machine more often to prevent the same issues from happening in the future. There are several videos explaining how to clean your machine better.

You are relieved because your coffee machine is ready again and you are looking forward to serving your guests during the dinner party.

Please answer following questions based on given situation.

	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly agree
It is highly likely that I will say positive things about this brand to other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is highly likely that I will say positive things about this product to other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is highly likely that I will recommend this brand to someone who seeks my advice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is highly likely that I will encourage friends and others to buy this product	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is highly likely that I will consult these online support pages every time I need	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared to other online services I use to fix my other domestic appliances, I prefer this one more	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is highly likely that I would purchase another product from this company/brand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Did you go to the page mentioned at the beginning of this survey and answered questions based on your experience?

- ☐ Yes
- ☐ No

Do you own a coffee machine?

- ☐ Yes
- ☐ No

If yes, is it an espresso machine?

- ☐ Yes
- ☐ No

How often do you go online to find support or fix a problem related to your domestic appliances (kitchen appliances, washing machine, dishwasher, and etc.)?

- ☐ More than once a week
- ☐ Once a week
- ☐ Once in every few weeks
- ☐ Once a month
- ☐ Never

What is your age?

- ☐ 18-24 years old
- ☐ 25-34 years old
- ☐ 35-44 years old
- ☐ 45 years and older

What is your gender?

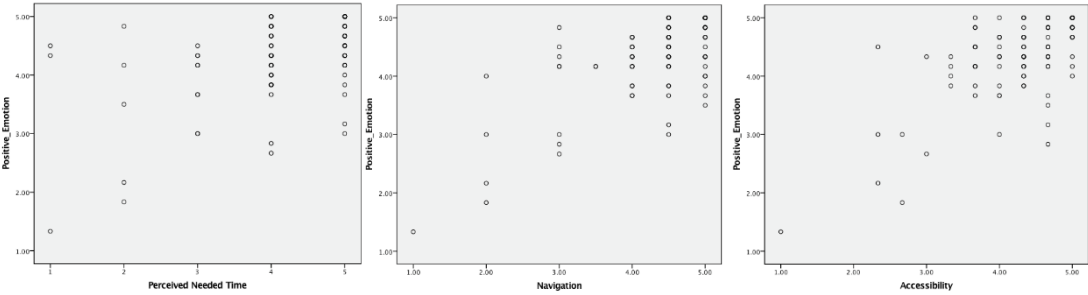
- ☐ Male
- ☐ Female
- ☐ Prefer not to say

Thank you for taking the time to complete this survey. The information you have provided is truly valued. Your responses will contribute to my thesis analysis. Should you have any comments or questions, please feel free to contact me (l.g.q.karimli@student.utwente.nl).

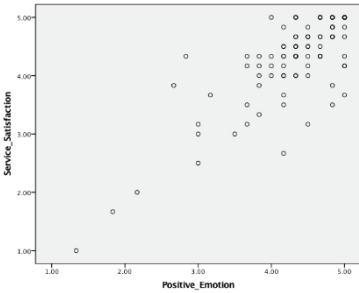
Many thanks,  
Leyla Karimli.

6.2. Appendix B

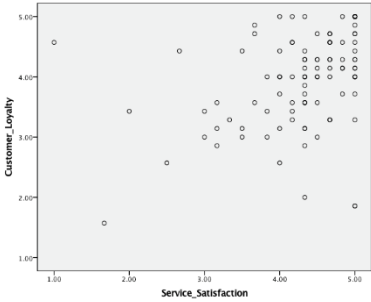
6.2.1. Linearity of Regression Model



1) Linearity of Model 1



2) Linearity of Model 2



3) Linearity of Model 3