“The effect of emoji use on customer satisfaction for different digital touchpoints”

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Abstract

Emotional connections are very important during customer-firm interactions on different touchpoints. What firms could do to establish these emotional connections in online settings is by using emojis. Recent studies have shown that customer satisfaction is perceived differently per touchpoint and emoji use by online service employees is perceived differently in terms of customer satisfaction for different situations. The research objective for this study was to find out if the effectiveness of the use of emojis on customer satisfaction differs for different digital touchpoints' chats. Therefore, the study focused on the following main question: What is the effect of emoji use on customer satisfaction for different digital touchpoints' chats?

This was tested by means of a between-subjects experiment including two types of digital touchpoints (a website live chat and a social media chat - Facebook Messenger) whereby either a chat was shown that included emojis or did not include emojis. The topic in the chat was about a customers' complaint about a disfunctional television. The analysis of the results was done with a factorial ANOVA.

First of all, the results showed a non-significant effect between emoji use and customer satisfaction for the two different digital touchpoints. This means that the effect of emoji use on customer satisfaction is not depended on the type of digital touchpoint. Besides that finding, two significant effects were found. First of all, website live chats contribute to more satisfaction than social media chats do. Secondly, emoji use negatively affects customer satisfaction (when the topic of conversation is a complaint). Potential areas for future research are: testing the effect of different types of emojis on customer satisfaction and testing more digital touchpoints than Facebook Messenger and website live chats.

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Chapter 1: Introduction

Nowadays, digitalisation and technological innovations have contributed to more customer-firm touchpoints in which customers could get into contact with firms (and the other way around) (Maechler et al., 2016; Rodrigues et al., 2017). For instance, customers can now use live chats on websites, social media platforms and e-mail communication to interact with a firm whereas in the past only physical (offline) touchpoints could be used (e.g., visiting a store, phoning a firm's call centre, use direct mail etc.) (Gebauer, 2007; Turel et al., 2013). According to scientific research firm's touchpoints have been identified as crucial in determining customer loyalty and customer satisfaction (Choi & Kim, 2020; Maechler et al., 2016). The setting of website live chats and chats via social media between customers and firms differ with respect to face-to-face conversations in physical touchpoints. In customer-firm conversations, a customer expects that the service employee "understands and interprets the customer's errand correctly" and that he/she is "knowledgeable and able to provide a solution or information again in the future" (Salomonson et al., 2012, p. 32). Customers want to experience an emotional connection as well, as it is one of the main drivers of customer loyalty and satisfaction according to Yu and Dean (2001). In online customer-firm interactions, customers have more difficulties building an emotional connection with a firm (Choi & Kim, 2020; Steinhoff et al., 2019). Although research has not examined the reasons behind this, customers might not experience an emotional connection, because they cannot see or hear if the service employee fully understands and interprets the errand correctly. Some recent studies have found that emojis could be useful in online conversations. These could among others improve the meaning of the conversation and give an emotional tone to the message in which a firm can prove that it understands the customer (Choi & Kim, 2020; Haji & Bakir, 2019). Additionally, the employee can show empathy (McLean & Osei-Frimpong, 2017) and gain trust (Vannucci & Pantano, 2019) which in turn contributes to customer loyalty and satisfaction (Leninkumar, 2017). This might hold for many different kinds of digital touchpoints and chats online.

Different studies show that customers use each type of digital touchpoint for different reasons. Website live chats are very important for customers, as this touchpoint is mainly used by customers for service-related problems or expressing complaints (MacDonald, 2021; McLean & Osei-Frimpong, 2017). Live chats are operationalised as messaging platforms (Turel et al., 2013) and enable customers to receive service-related information from a firm directly via a human service employee who helps the customer answer questions on this platform (McLean & Osei-Frimpong, 2017; Verhagen et al., 2014). Social media chats and platforms are very important touchpoints as well, because these platforms and chats are used by customers to gain more insights about a brand (e.g., by other customers' reviews) and to collect extra information from brands (Hanna et al., 2011) and so on. Social media chats are defined based on the definition of chat by Brindha et al. (2019). Social media chats are about "the process of communicating, interacting and/or exchanging messages" on specific social media platforms (Brindha et al., 2019, p. 894).

The different purposes of why customers use a specific digital touchpoint combined with the theories of how customer loyalty and satisfaction can be achieved is expected to influence the effectiveness

of emoji use on customer satisfaction in online conversations for different digital touchpoints. So far, the use of emojis in online conversations has rarely been examined thoroughly, particularly for different digital touchpoints. As a result, the current study will fill a gap in the extant literature by revealing how the effectiveness of emoji use differs with respect to the two main digital touchpoints (website live chats and social media platforms) on customer satisfaction. The next sections will elaborate more on this.

1.1 Introduction of digital and physical (offline) touchpoints

According to Choi and Kim (2020) and Maechler et al. (2016) both digital and physical touchpoints are crucial for firms in order to maximize customer satisfaction and loyalty. However, firms should note that customer-firm interactions on online chats and platforms differ in many respects to physical (offline) customer-firm interactions (Harwood & Garry, 2006; Steinhoff et al., 2019). For example, digital customer-firm relationships are mediated by internet technologies and take place in a human-to-technology setting (Steinhoff et al., 2019) whereas physical customer-firm relationships put emphasis on the interpersonal interactions that happen in a face-to-face setting (Harwood & Garry, 2006). Customers that strongly value long-term relationships with firms primarily do that in order to receive relational benefits (such as confidence, special and social treatment). A study of Gómez et al. (2017) shows that social benefits and special treatment benefits are perceived way less in online interactions than in physical (face-to-face) interactions. Another study of Choi and Kim (2020) show that regardless of the interaction being online or not, customers still value an emotional connection with a firm for long lasting firm loyalty. Firms therefore should consider how to establish strong online customer-firm relationships.

1.2 Introduction to the use of emojis

In order to create emotional connections between customers and firms in real-life settings, different tools can be used to get the point across and to express emotions and feelings, such as (hand) gestures, tone of voice, facial expressions, body languages etc. (Van den Stock & de Gelder, 2006). Most of these facets are absent in online customer-firm relationships and chat conversations. In order to express emotions firms may use emojis to do so. Emojis are "quasi-nonverbal cues employed to compensate for the lack of nonverbal channels" in online conversations (Erle et al., 2021, p. 2) (e.g., 😊, ☹️, 🍐, 🚗). Emojis are slightly different from emoticons, which are text based formats that express the quasi-nonverbal cue (e.g., :-) and :-()) (Haji & Bakir, 2019). However, emojis are very comparable to emoticons. This study will only focus on emoji use (and not emoticons) in online chat conversations. Emoji use has several advantages. For example, emojis can be used to deliver an emotional tone to a message and to avoid unfavourable judgements of customers towards the firm (Haji & Bakir, 2019).

1.3 Research relevance

Even though emojis have benefits for (online) communication, the use of emojis and their effects on customer satisfaction (and customer-firm relationships) have not been broadly studied yet. As mentioned in previous paragraphs, it is expected that the use of emojis differs in effectiveness for different types of chats on different digital touchpoints. Therefore, it is relevant to look at different digital touchpoints and to see what the effect is of emoji use and customer satisfaction per digital touchpoint. When customers need service assistance, mostly call centres, social media, face-to-face conversations (in stores), e-mails, and live chats are used (Gebauer, 2007; Turel et al., 2013). This study will focus on live chats and social media, as both highly contribute to customer satisfaction (Jan et al., 2020; "Live Chat Statistics", 2012). As the Technology Acceptance Model of Davis (1989) shows, live chats contribute to customer satisfaction because live chats are perceived as easy to use and useful to customers. Even though Davis model is derived from 1989, these two perceptions still appear to be the most influential for customer satisfaction in live chats (McLean & Osei-Frimpong, 2017). Customers can namely get an instant response which shortens waiting/response times (McLean & Osei-Frimpong, 2017) and statistics from MacDonald (2021) show that live chats have the fastest response time compared to all other digital touchpoints. Mallen et al. (2003) found that in online conversations, customers might experience worse emotional connections with a firm, possibly because customers are unable to see or hear the firm (and vice versa), making it hard to interpret the message from one another. A study by Harvard scholars revealed that establishing emotional connections not only goes hand in hand with customer satisfaction, but also seems to be the main way to maximize customer value (Zorfas & Leemon, 2016). Linking this to McLean and Osei-Frimpong (2017), emoji use in online chats can help creating these emotional connections. Emojis can improve the perceived empathy and understanding and in that way contributing to customer satisfaction as well (Choi & Kim, 2020; McLean & Osei-Frimpong, 2017).

Social media contributes to customer satisfaction as well, mainly in the areas of customer engagement and customer-firm relationships. From a firm's perspective, social media is used to attract customers and increase customer loyalty (Kim & Ko, 2021) by among others creating "upselling efforts and reducing the risk of churn" (Maecker et al., 2016, p. 133). It enables firms to communicate in multiple directions (Baumöl et al., 2016) meaning that there are not only customer-firm chat conversations, but also interactions among customers and the digital society in general, as "the posting of the users and the reaction of the company are also visible to other users" (Diedrich, 2017, p. 5). Thus, social media is related to customer satisfaction and customer engagement (Majeed et al., 2022). From a customer's perspective, social media is primarily used to get insights into products and services from other sources than the firm (because firms are biased about their own products/services) (Hanna et al., 2011). Social media platforms and chats could also be used by customers to experience personalized interactions that fit with their individual preferences (Baumöl et al., 2016). Social media enables customers to "post questions, opinions, problems, and complaints actively on the corporate social media page" of a firm (Diedrich, 2017, p. 5), but customers can also post these via the online chat. Customers like to include emojis in their messages, as they want to enhance their meaning/expression and decrease ambiguity. Social media

users might prefer messages with emojis than when the messages are written completely by text (Kukreti & Patel, 2020). However, no research has yet studied the effects of emoji use specifically in social media customer-firm conversations on customer satisfaction.

When looking at the platforms (i.e. websites and social media), there are some differences between the two. For example, the primary goal for firms' websites is to directly provide high online customer service. The live chat function on websites enables customers to start conversations that include inquiries about products, (additional) services, and information orders (McLean & Osei-Frimpong, 2017), whereas in social media chats, firms do not necessarily directly communicate with the customer when customers reach out to a firm via the online chat of the social media platform. Social media is in general used by firms to create brand communities (Maecker et al., 2016; McAlexander et al., 2002) and customer-brand relationships and customers use social media platforms to voice their own customer experiences (i.e., word-of-mouth) (Hennig-Thurau et al., 2004). Social media platforms differ from each other as well. For example, demographical variables (age, gender, income, and educational level) influence which type of customers use which specific social media platform (Blank & Lutz, 2017). Customer satisfaction is also differently evaluated between different social media platforms (Dixon, 2021). Finally, a report of Chaffey (2022) shows how/why each social media platform is used differently. For example, Instagram is primarily used by customers to get general information about products and brands, whereas Facebook is mostly used by customers stay up-to-date with everything that happens in the world.

There are some distinctive differences between live chats on websites and social media with regard to customer satisfaction. First of all, there is a high difference in response time, two minutes on a live chat compared to 10 hours on social media chats (MacDonald, 2021). Secondly, live chats represent only one-on-one customer-firm conversation, whereas a customer-firm conversation on social media can be one-on-one as well as one-to-many (Baumöl et al., 2016). Thirdly, customers use both touchpoints for different reasons. Customers use live chats mainly for service help, such as "inquiries about products, orders, shipping options and access to information" (McLean & Osei-Frimpong, 2017, p. 2) and to gain trust in the firm (Turel et al., 2013).In terms of communication, customers get in touch with firms via social media to gain general knowledge and finding gratification (Shahbaznezhad & Tripathi, 2015). Furthermore, customers use social media to satisfy their need to identify with their community (Gangadharbatla, 2008; Tardini & Cantoni, 2005). These differences ask for further elaboration as there is limited research available that compares both digital touchpoints in relation to customer satisfaction as well as the effectiveness of emoji use in online conversations for both touchpoints.

1.4 Research aim

So far, extant scientific research has not yet answered the question which (digital) touchpoints create the most customer satisfaction and what firms should do in order to organise their touchpoints in such a way that firms exert more control over these touchpoints (Fournier & Lee, 2009; Lemon & Verhoef, 2016). Additionally, extant research does not yet clearly compare the different online touchpoints and how this

influence customer satisfaction while this would be interesting to study according to McLean and Osei-Frimpong (2017). Finally, researchers stress the importance of emotional connections differently. (Choi & Kim, 2020) argue that emotional connections are crucial in online conversations, whereas Bolton et al. (2022) found that online customers weigh emotional qualities not as strong as non-online customers. All these points thus are interesting for future research. The research objective is to find out if the effectiveness of the use of emojis on customer satisfaction differs when applying different digital touchpoints (i.e., website live chats and social media platforms). Therefore, the study focuses on the following main question:

- *What is the effect of emoji use on customer satisfaction for different digital touchpoints?*

1.5 Research outline

After this introduction, the research starts with the theoretical background whereby the main concepts, central cause-and-consequences and conditions will be described. The hypotheses in this study are derived from literature and will be included in this chapter as well. Chapter 2 ends with the conceptual model. Chapter 3 elaborates on the methodology of the study and it explains how the experiment is developed. The results of the study will be presented in chapter 4 and the discussion and the conclusion will be evaluated in chapter 5. This final chapter includes the managerial and theoretical implications as well as the limitations and the suggestions for future research.

Chapter 2: Theoretical background

This chapter further explains the main topics of this research (customer-firm touchpoints and the use of emojis) and the theories of these topics that shed light on possible explanations for customer satisfaction. This helps understanding how these topics are related to each other. At first, customer satisfaction will be reflected on.

2.1 Customer satisfaction

Customer satisfaction has several definitions. Tse and Wilton (1988, p. 204) describe customer satisfaction as "the consumer's response to the evaluation of the perceived discrepancy between prior expectations (or some norm of performance) and the actual performance of the product as perceived after its consumption". Oliver (2014, p. 8) describe it as a "judgement that a product or service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfilment, including levels of under or over fulfilment". Customer satisfaction is thus influenced by both customer expectations and judgements of these expectations regarding a firm's products and services. This means that when a customer has a positive evaluation and feels that expectations are fulfilled, he or she will be satisfied with the firm's products and/or services. The same applies the other way around as well. If expectations are not met, it is likely that it makes customers unsatisfied. However, when a firm deals well with customer complaints, the firm is likely to achieve customer satisfaction (Filip, 2013). The next paragraphs will further describe how customer satisfaction is related to both emoji use and different digital touchpoints.

2.2 Digital touchpoints

First of all, there is no complete conceptualisation/definition of touchpoints in the literature. Neslin et al. (2006, p. 96) define touchpoints as: "a customer contact point, or a medium through which the firm and the customer interact". Most researchers agree that touchpoints represent customer-firm interactions (Baxendale et al., 2015; Lemon & Verhoef, 2016; Neslin et al., 2006; Yakhlef & Nordin, 2021). However, Baxendale et al. (2015) argue that the definition excludes one-way communications (e.g., television advertisements) while these also contribute to customer-firm interactions and Yakhlef and Nordin (2021) mention that customer-to-customer interactions also influence the quality of touchpoints.

Secondly, different researchers agree that the growth in number of touchpoints have made the overall customer journey and customer-firm interactions way more complex than it was in the past (Lemon & Verhoef, 2016; Rodrigues et al., 2017). Research so far has looked into different reasons why that is. The growth in complexity is partly because of: reduced firm power in managing the customer-firm touchpoints (Lemon & Verhoef, 2016; Yakhlef & Nordin, 2021); the widely shared online word-of-mouth that the firm cannot control (Libai et al., 2010) and rapid (digital) developments that made touchpoints become fluid rather than static ("Customer Touchpoints - The Point of Interaction Between Brands,

Businesses, Products and Customers", 2020).

Thirdly, different statistics show differences among the use of digital touchpoints by both firms and customers. When looking at the most used digital touchpoints by firms, the top five of these include respectively: websites, Twitter, Facebook, YouTube and LinkedIn (Straker et al., 2015). Noteworthy is that this data derives from 2015 and might have changed over time. When looking at different social media platforms of customers, this order differs. For example, Twitter is the most used social media platform by firms (Straker et al., 2015), but it is only placed as 15th most used platform for customers. According to Dixon (2022), the social media platforms that are used the most by customers are: Facebook, YouTube, WhatsApp and Instagram. A study by Blank and Lutz (2017) found that there are different user-profiles and predictors per different social media platforms. Table 1 explains which demographical characteristics influence the use of each of these social media platforms.

Table 1: *Demographical predictors of social media uses per plaform (Blank & Lutz, 2017)*

Social media platform / Demographic characteristics	**Age**	**Gender**	**Income**	**Education**
Facebook	Yes	Yes	No	No
LinkedIn	No	No	Yes	No
Instagram	No	No	No	No
Twitter	Yes	No	Yes	No

The differences per social media platform, as well as the implication that customer experience differs per touchpoint (Yakhlef & Nordin, 2021), might indicate that customer satisfaction differs for different digital touchpoints. It might also be the case that there is an interaction effect between emoji use and the type of digital platform, since in social media it is assumed that emojis are way broader used than on website live chats, so in the social media environment people might evaluate emoji use more positively.

Fourthly, online statistics show that apart from different predictors of social media use per platform, overall customer satisfaction differs per social media platform as well. It appears that all social media platforms in Table 1 are ranked lowest in customer satisfaction with social media, respectively: Twitter (lowest), Facebook, Instagram and LinkedIn (Dixon, 2021). When looking at how digital touchpoints are related to customer satisfaction, it appears that social media platforms are evaluated differently among each other in terms of customer satisfaction. No studies yet looked at a comparison of website live chats and social media chats in terms of customer satisfaction, but since there is much differences among social media chats, it is assumed that customer satisfaction will be evaluated differently for website live chats as well.

As explained in Chapter 1, customers have different purposes to choose using a firm's live chat or to start a conversation on social media. So far, most studies have primarily focused on either studying one

of the two touchpoints. When combining the two, it is expected that customer satisfaction is perceived differently. According to McLean and Osei-Frimpong (2017) customer satisfaction is determined by service quality, information quality, system quality and the kind of problem a customer is dealing with. For social media platforms, customer engagement (including the three dimensions: contribution, consumption, and creation) is the most important determinant (Majeed et al., 2022). Customer engagement is defined as: "A psychological state reflecting customers' interactive, co-creative experiences with a firm, which highlights the active role of the consumer" (De Vries & Carlson, 2014, p. 3). It is likely that because of these differences, customer satisfaction is perceived differently for social media platforms compared to website live chats. The content of conversations seems more formal and serious on website live chats (e.g. customer complaints and service-related inquiries) than on social media chats. It is assumed that when service-related problems are solved, customers will be more satisfied than when customers gain general knowledge from social media channels and chats. Besides that, live chats on websites appear to have the fastest response time by online service employees compared to all other kinds of digital touchpoints (MacDonald, 2021). Therefore the following hypothesis will be tested:

H1: *Website live chats contribute to more customer satisfaction than social media chats do.*

2.3 Use of emojis

The use of emojis in online communication has not been broadly studied yet. It is assumed that this is because emojis have been being used in online communication for little more than a decade ("Unicode Symbols - Emoji Symbols", 2021). So far, most studies about use of emojis are employing experimental research designs. First of all, Li et al. (2019) has done research about how the use of emojis by firms is interpreted by customers. They found that customers perceive service employees who use emojis in live chats to be warmer (i.e., being friendly, helpful, and social), but also lower in competence (less capabilities, skilfulness, and efficacy), so the use of emojis in online chats should be used with care and the use of emojis does not always lead to higher customer satisfaction, e.g. in situations whereby customers are unsatisfied (Li et al., 2019). Another study of Manganari et al. (2020) studied the use of emojis in an online community for booking holidays and highlighted that emoji use affects online booking intentions from customers both in case of positive and negative reviews. Even though this study did not measure customer satisfaction, it is assumed that negative reviews reflect unsatisfied customers.

Secondly, Ma and Wang (2021) found that the use of negative emojis by firms (e.g., ☹) is being seen as sincere and creates (more) forgiveness by customers when they are unsatisfied about something firm-related. This is a bit contradictory to the study of Li et al. (2019) as one of their implications is that using emojis does not work in situations whereby customers are unsatisfied because firm employees are then perceived to be lower in competence.

Thirdly, research has investigated what the contributions of emoji use in conversations are (Haji & Bakir, 2019). This study found that women use emojis more than men. The research also found that the use of emojis is influenced by the type of person with whom someone communicates. For example,

people tend to use emojis more with relatives compared to people (such as teachers) from who they are (hierarchically) distant from.

Fourthly, The use of emojis contributes to customer-firm conversations, as they: strengthen the firm's message; deliver an emotional tone to messages; avoid unfavourable judgements of customers towards the firm; express humour and transfer information (Haji & Bakir, 2019). Cui et al. (2010) and Yuasa et al. (2011) have had similar results regarding some of the advantages of emoji use in online conversations. Hsieh and Tseng (2017, p. 405) add to these advantages that the combination of "text messaging and emoticon use increases information richness, which leads to perceived playfulness" and might thus contribute to more customer satisfaction in online communication.

Fifthly, Wu et al. (2022) studied the use of emojis in customer-firm interactions as well and concluded that emojis sometimes imply different/multiple meanings and that makes it harder for the receiver of the message (either the firm or the customer) to interpret the meaning of the message. Nevertheless, Wu et al. (2022) found that emojis are seen as useful when they cannot contain multiple meanings. This could contribute to more perceived helpfulness.

Finally, no research so far has found that emojis are more used on social media (chats) than on website live chats. However, it appears that the nature of emojis are slightly informal and used in more casual settings (Haji & Bakir, 2019) than in more "serious" settings (McLean & Osei-Frimpong, 2017). Therefore, it is expected that customer will be more satisfied when the emojis are used on social media chats, because it is assumed that a social media chat evokes a more casual setting than website live chats do.

At the moment, research of emoji use has focused on some situations that require customer-firm interactions, as described in the previous sections. However, future research calls for deeper understanding of individual personality characteristics (Haji & Bakir, 2019; Hsieh & Tseng, 2017) as well as the use of which type of emoji (e.g., positive or negative emojis or non-human faced emojis) in the effectiveness of emoji use on customer satisfaction (Li et al., 2019; Ma & Wang, 2021). Additionally, the effectiveness of emoji use might differ across different media types (e.g., social media, live chats, e-mail) (Li et al., 2019). It appears that customers use live chats more for serious inquiries (e.g., product and service related questions and complaints) (McLean & Osei-Frimpong, 2017) than conversations on social media platforms, so it is expected that emoji use is more appropriate for social media rather than live chat conversations. When summarizing the literature about emoji use it seems that using emojis by online service employees has more advantages than disadvantages, although the use of emojis by employees should be done with care. The following hypotheses regarding emoji use (by service employees) are thus:

H2: *There is a positive effect of emoji use on customer satisfaction in online conversations.*

H3: *The effectiveness of emoji use on customer satisfaction is higher for social media chats than for website live chats.*

2.4 Conceptual model

Among others, Haji and Bakir (2019), Li et al. (2019) and Wu et al. (2022) have highlighted the possibility that the effectiveness of emoji use on customer satisfaction is evaluated differently and possibly with the moderating effect of type of touchpoint. For instance, it might depend on personal characteristics (Haji & Bakir, 2019; Hsieh & Tseng, 2017), the type of emoji (e.g., positively/negatively valanced emoji) (Wu et al., 2022) and the type of touchpoint (Li et al., 2019). This study will focus on the use of emojis in different digital touchpoint scenarios. According to Li et al. (2019, p. 44) if emojis are "used on Facebook, which is more informal and casual compared to some other media ... this might suggest that changing the tone of the message ... might play a role in" customer perceptions of customer satisfaction. This will be the first study that explores two different digital touchpoints and how the use of emojis affect customer satisfaction in online communication.

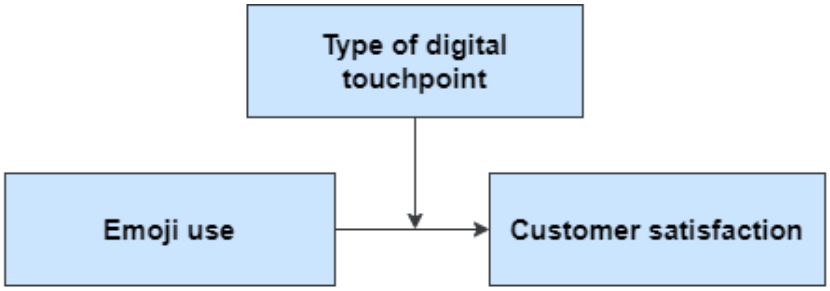

Figure 1: Conceptual model

Figure 1 contains the conceptual model of this study. It helps answering the main question: What is the effect of emoji use on customer satisfaction for different digital touchpoints? It is chosen to focus on the two digital touchpoints in which a customer-firm conversation takes place: a website livechat and a social media chat. Facebook Messenger will be the social media chat that is used for the analysis, because it appears that the most used social media platform by customers is Facebook (Dixon, 2022). Furthermore, according to Straker et al. (2015) firms see their website as one of the, if not the most important digital touchpoint and customers use website live chats in many occassions (McLean & Osei-Frimpong, 2017), so therefore Facebook Messenger and website live chats will be the touchpoints that will be studied in this research.

Chapter 3: Methodology

3.1 Research design and procedure

Since the study included two independent variables that are categorical in nature and one dependent variable, this study consisted of a factorial ANOVA (also named two-way ANOVA). When doing a factorial ANOVA, a comparison of different group means is made (Hair et al., 2018). Factorial ANOVA suited this study, as emoji use and digital touchpoints were categorical in nature and both variables were used to test customer satisfaction. Table 2 shows the four conditions of the experiment.

Table 2: *Experimental design of the study.*

		Digital Touchpoint	
		Website	Facebook
Emoji use	Yes	μ_{11}	μ_{12}
	No	μ_{21}	μ_{22}

It was chosen to do an experiment with a between-subjects design whereby the group of respondents was divided into four groups that each test one research condition, thus each person was randomly exposed to one of the four conditions(Hair et al., 2018). The goal was to analyse whether emoji use and type of digital touchpoint influenced customer satisfaction and therefore doing an experiment was appropriate.

The four conditions, as can be derived from Table 2 were: website live chats with the use of emojis, website live chats without the use of emojis, Facebook chat with the use of emojis and Facebook chat without the use of emojis. Factorial ANOVA also measures the individual relationships, namely: the relationship between emoji uses and customer satisfaction as well as digital touchpoints and customer satisfaction. Live chats are operationalised as messaging platforms (Turel et al., 2013) and enable customers to receive service-related information from a firm directly via a human service employee who helps the customer answer questions on this platform (McLean & Osei-Frimpong, 2017; Verhagen et al., 2014). Social media chats are defined based on the definition of chat by Brindha et al. (2019). Social media chats are about "the process of communicating, interacting and/or exchanging messages" on specific social media platforms (Brindha et al., 2019, p. 894).The pros and cons of an ANOVA between-subjects design were important to take into account as well. These are included in Table 3 and were dealt with during the analysis.

Table 3: *Pros and cons of Between-subjects Design in ANOVA (Charness et al., 2012).*

Pros	**Cons**
- Higher internal validity (than within-subjects design).	- It requires many participants in order to achieve high statistical power.
- Relatively simple to perform and easier to analyse.	- Each group can only provide one independent data point.
- Every survey can be relatively short, as each respondent is given only one randomly selected treatment.	

The experiment contained an online survey. An online survey was chosen, because this way of experimenting ensured participants' anonymity and the resources were available to do so. In order to receive and collect reliable self-reported data, it appears that anonymity in these kind of studies is preferred (Krohn et al., 1974). In general, online surveys have some advantages, namely: it is relatively cheap to conduct a survey, data can quickly be collected and analysed and a broad group of respondents can be achieved (Wright, 2005). These advantages played a crucial role in this research, as there was limited budget and time available to conduct the study and to analyse the results.

In the online survey, respondents got the same scenario in every condition, thus participants saw the same text that could be seen in either the Facebook chat (i.e., Facebook Messenger) or the Live chat on a website. The chat contained a conversation that was about a customer complaint. A complaint was chosen, as emojis could be perceived differently by customers when the topic of conversation is a complaint (McLean & Osei-Frimpong, 2017). The storyline was as follows: the participants had to imagine that they are a customer of the fictious local brand Specialistus. The customer have recently bought a new television. However, after two weeks the television no longer functions well and the customer decides to make a complaint about it via the firm's online chat (i.e., website livechat or Facebook chat).

It was chosen to create a fictious brand for the experiment. This was preferred over a real brand, because with real brands, people in general exhibit stronger (either positive or negative) brand associations and these (sometimes unconsciously) influence people's attitude towards the brand and purchase decisions (Keller & Swaminathan, 2020). In this research, no focus was put on brand associations and therefore this was controlled by choosing a fictious brand, so there were no brand associations that came into play, because people were unfamiliar with the brand.

A television was chosen as the main product in the experiment since worldwide, approximately 75 percent of the total world population watches television (Dixon, 2022) and in the Netherlands, around 96 percent watches television ("SKO publiceert trendrapport 'TV in Nederland 2018"', 2019), so in that way it was expected that customers could imagine how it felt if a television did not work well and for that reason used an online chat to complain about that. Thus, since the research took place in the Netherlands, it was expected that the respondents were very familiar with televisions and the situation in the chat.

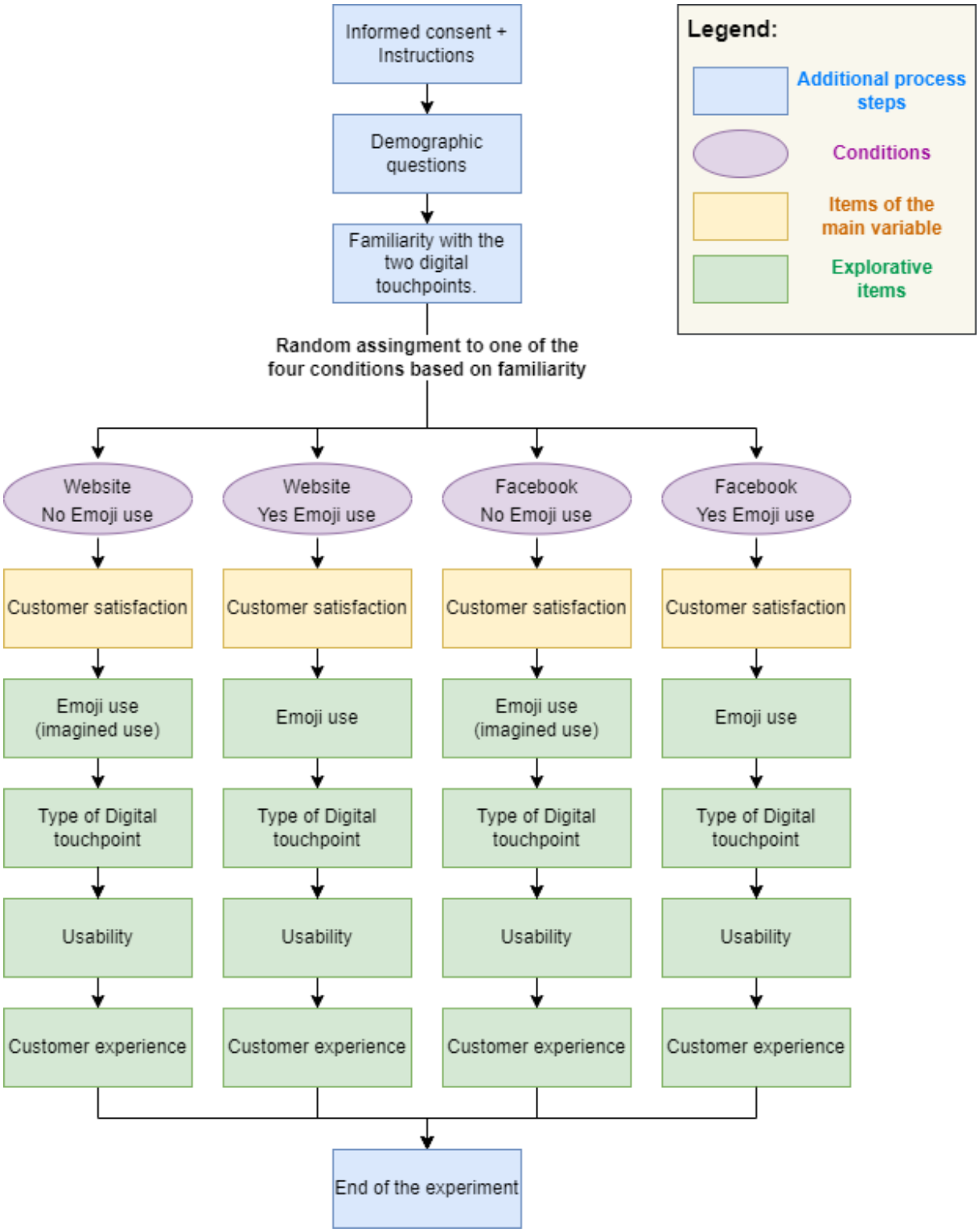

Figure 2: Experimental Design

Figure 2 gives a schematic view of the experimental design. The experiment started with instructions about the experiment. It included an informed consent that explained the terms and conditions of the study. After the participants accepted these conditions, the survey continued with general demographic questions. The general questions ended with a question about the respondents' familiarity with live chats and Facebook Messenger. Depending on how familiar they were with (either one of the) two types of digital touchpoints, they got assigned to one of the conditions. It was namely preferred that respondents were familiar with the type of digital touchpoint they got assigned to.

If it appeared that respondents were neither familiar with either Facebook Messenger nor website live chats, they still got the chance to participate in the experiment. They got the choice whether they wanted to continue (if they felt they could answer the questions) or leave the survey (when they did not think they were capable to answer the questions). Even when respondents were not familiar with these kinds of chats, it was still expected that these participants could evaluate their experience of the online customer-firm conversation, so that is why they had the opportunity to continue the experiment. After respondents got randomly assigned to one of the conditions, questions about customer satisfaction were asked first, because these were the most important in order to answer the research question. After that, some exploratory questions were asked regarding the use of emojis and type of digital touchpoint. It also contained items regarding system's usability and the overall customer experience because these are related to the main variables of the study. The goal of the exploratory items was to get a broader view of the main topics of interest in the study. Appendix A shows the complete set of items for each of the conditions, as well as the images of the chat conversations that were displayed for each individual condition. The next paragraphs will further explain the experiment.

3.2 Respondents

The research took place in the Netherlands and therefore the online survey was held in the Dutch language. Respondents were gathered via the researcher's social network, thus with invitations to participate in the research via: WhatsApp, Facebook, LinkedIn, Instagram and face-to-face conversations. The only requirement necessary to participate in the survey was that the respondent speaks Dutch. Besides this language requirement, there were no other strict restrictions regarding the group of respondents. This was because it was expected that all respondents could empathise and put themselves in the situation that was shown in the experiment. Apart from that, many respondents were required in order to achieve high statistical power and the more restrictions would be applied to participate, the harder it would have been to reach many respondents.

Respondents that were assigned to either the Facebook or website live chat group were preferred to be familiar with the digital platform they got assigned to. This was immediately checked by asking the respondents how familiar they were with Facebook and website's live chats. For example, if one respondent was familiar with a website live chat, but unfamiliar with Facebook chat, than the respondent was automatically assigned to one of the two website live chat groups. When the respondent was unfamiliar

with both Facebook chats and website live chats, the participant got an extra message in which was explained that he/she could still participate in the survey if they felt capable to evaluate the online conversation and then he/she got randomly assigned to one of the four conditions. Eventually, these respondents could still be deleted in case they compromised the validity of the results.

Some respondents were seen as the control group, namely: the groups with "no use of emojis". The groups that include "the use of emojis" were the experimental groups. The respondents taking part in the survey got randomly assigned to one of these conditions in order test whether emoji use and type of digital touchpoint (as well as the combined moderation effect) influences customer satisfaction.

It was important to get high statistical power from the number of respondents (i.e., sample size). In order to get that, it was important to have a sufficient sample size. G*Power is a software program that is able to calculate the minimum sample size in order to reach a certain amount of power while assuming a specified minimum effect size of interest. At least 171 respondents were needed in order to achieve a power 1-(beta) of 90 percent, assuming an alpha level of 5 percent and a minimum effect size to be achieved of Cohen's $f = 0.25$. This effect size was chosen because it could be argued that smaller effect sizes were of little practical relevance (Hair et al., 2018). Appendix B shows the calculation of this.

3.3 Measures

The survey was written in Dutch. The measurement scales of the study will be presented in this paragraph. Appendix A illustrates the whole list of questions for each condition (translated from Dutch to English).

3.3.1 Demographics

The survey started with some general questions about the respondents. These were as follows: gender, age, province of residence, educational level, daily life situation, familiarity with website live chats and familiarity with Facebook chat. This was done in order to get insights in whom had participated. Additionally, the results could be generalized in different categories (e.g. young vs old, male vs female etc.). After the general questions were answered by participants, they had to answer questions about the main variable and finally some exploratory items were included. The measurement scales of these variables will be explained below.

3.3.2 Measures of customer satisfaction and exploratory variables

As can be seen in figure 2 in paragraph 3.1 the scales related to customer satisfaction were asked first. This was because these items are the most important in terms of testing the hypotheses. Table 4 illustrates the measurement scales used in this study. The next pages further elaborate on the measurement scales.

Table 4: *Measurement scales of the study.*

Variable	**Source**	**Adapted scale**	**5-point Likert scale**
Customer satisfaction	McKinney et al. (2002)	How satisfied are you with the way the employee answers your question?	Not satisfied at all – very satisfied
		What emotion would predominate in you after reading the employee's messages?	
		What feeling would predominate in you after reading the employee's messages?	Very disappointed – Very content
		How pleasant are the employee's messages in your eyes?	Very unpleasant – Very pleasant
	Judd et al. (2005) and Li et al. (2019)	The employee is skilful.	Totally disagree – Totally agree
		The employee is capable.	Totally disagree – Totally agree
		The employee is competent.	Totally disagree – Totally agree
		The employee is unfriendly (reversed scale).	Totally disagree – Totally agree
		The employee is helpful.	Totally disagree – Totally agree
		The employee is social.	Totally disagree – Totally agree
Emoji use (evaluation)	McLean and Osei-Frimpong (2017)	Using emojis adds value to the conversation.	Totally disagree – Totally agree
		The use of emojis showed the employee's emotion.	Totally disagree – Totally agree
		The employee's use of emojis made the conversation feel human.	Totally disagree – Totally agree
		The conversation felt better because the employee used emojis than if the employee only expresses himself with text.	Totally disagree – Totally agree
	Ma and Wang (2021)	When an emoji is used in a message, I feel more empathy from the employee than if the employee is just expressing themselves with text.	Totally disagree – Totally agree
	Haji and Bakir (2019)	I feel taken seriously when the employee uses emojis.	Totally disagree – Totally agree

		The employee's messages are enhanced by the emojis.	Totally disagree – Totally agree
		Emojis give an emotional tone to the messages.	Totally disagree – Totally agree
	Self-developed scale	The use of emojis by companies in such a chat is appropriate.	Totally disagree – Totally agree
Usability of the digital touchpoint	Davis (1989)	With Facebook (or website) chat systems you will be helped quickly.	Totally disagree – Totally agree
		The Facebook (or website) chat system is useful.	Totally disagree – Totally agree
		Using Facebook (or website) chat is effective.	Totally disagree – Totally agree
		Using Facebook (or website) chat is productive.	Totally disagree – Totally agree
		The Facebook (or website) chat system improves my performance.	Totally disagree – Totally agree
		I would quickly use this chat as a means of getting in touch with a company.	Totally disagree – Totally agree
Customer experience	Song and Zinkhan (2008)	The chat is exactly what I need in a situation like this.	Totally disagree – Totally agree
		I am satisfied with this experience on the chat.	Totally disagree – Totally agree
		The result of the conversation turned out just as well as I had thought beforehand.	Totally disagree – Totally agree
		I look back with happiness on this experience.	Totally disagree – Totally agree
		I would definitely recommend Facebook chat to others.	Totally disagree – Totally agree

Customer satisfaction – As explained in paragraph 2.1, there are several definitions of customer satisfaction. Among others Tse and Wilson's (1988, p. 204) definition: "the consumer's response to the evaluation of the perceived discrepancy between prior expectations (or some norm of performance) and the actual performance of the product as perceived after its consumption". The different scales that were used to measure customer satisfaction were based on the measurement scales of McKinney et al. (2002) with a 5-point Likert scale. The measurement scales that were related to customer satisfaction were tested for all the four conditions.

Besides McKinney's (2002) study, Li et al. (2019) also studied how customers evaluate customer

satisfaction, but more specifically on online chats. Perceived competence and warmth of the service employee are two of the main determinants for customer satisfaction in online chats. These two dimensions are in turn developed by Judd et al. (2005). Judd et al. (2005) found that when customers make judgments of other individuals, cultures, social groups etc., it seems that these two dimensions are the most important to consider. Therefore these dimensions were used to measure customer satisfaction in this study as well. According to Li et al. (2019) skilfulness, capability, and efficacy are the main elements for perceived competence. There was no scale that tested efficacy, as in Dutch there is no exact translation for efficacy. Therefore the participants were asked to evaluate the perceived competence of the service employee as this was in line with efficacy.

Li et al. (2019) also mention perceived warmth to be an important dimension of the customer evaluation of online service employees. Perceived warmth is characterised by friendliness, helpfulness, and sociability. Therefore, an additional three items were used to measure perceived warmth with a 5-point Likert scale in order to measure customer satisfaction. Both the scales related to warmth and competence were used for all four conditions. It was interesting to know how service employees would perceive the service employee in the experiment (in terms of perceived warmth and competence), because it might be the case that emoji use has an influence on customer satisfaction (Li et al., 2019).

Emoji use (evaluation) – Emojis are conceptualised as "quasi-nonverbal cues employed to compensate for the lack of nonverbal channels" in online conversations (Erle et al., 2021, p. 2). Emoji use is one of the main independent variables and therefore additional scales were added in order to get insights in the customer evaluation of the use of emojis by the online service employee. The scales about the use of emojis are relatively new, probably since emojis are a relatively new phenomenon in online conversations. McLean and Osei-Frimpong (2017) have developed four items that measure the customers' response towards emoji use by online service employees and these items were included as well.

The respondents that were in a "yes emoji" condition (i.e., The Facebook Messenger chat with emoji use and the website live chat with emoji use) were asked how they perceive the emojis in the chat. The control groups (i.e., The Facebook Messenger chat without emoji use and the website live chat with emoji use) have tested the same scenario, but without emoji use. Instead, they were asked "what if emojis would be added", in order to get an impression of how they would evaluate emojis in online firm-customer conversations (e.g. If the employee would add emojis in online website chat conversations, it would add value to the conversation).

Besides the measurement scales that are explained above, some other authors studied customer perception about emoji use as well. First of all, McLean and Osei-Frimpong (2017) found that empathy influence customer satisfaction to a large extent, so therefore one developed item based on McLean and Osei-Frimpong (2017) about empathy is included.

Haji and Bakir (2019) found that emojis could: enhance the text messages in online conversations and give an emotional tone to messages, transfer information in a way that text only cannot do etc. Apart from the advantages of emoji use from Haji and Bakir (2019). Li et al. (2019) have found that emoji

use could work counterproductively, as emojis might be perceived as unserious by customers. Therefore, Li et al. (2019) argues that emoji use might work in some situations, but using them should be done consciously. Wu et al. (2022) found that emoji use could work counterproductively because sometimes it seems unclear what certain emojis mean for customers, because of multiple meanings. Even though these authors have not mentioned which scales they have used in their studies, some scales were included that were derived from the literature of these authors. Apart from that, it was interesting to get insights in how appropriate customers find emoji use in online firm-customer conversations by online service employees, so therefore participants were asked how appropriate they found the emojis.

Usability of the digital touchpoint – The type of digital touchpoint was one of the main independent variables in this study (apart from emoji use). Some additional items were added in order to get an impression of how the customers' evaluation of the digital touchpoint is and if that might have an affect on customer satisfaction as well. In order to measure how customers evaluate the type of digital touchpoint, it should be noted that customers find the online chat system useful and easy to use (Davis, 1989). It appears that both service, information and system quality contribute to online customer satisfaction in online chats (McLean & Osei-Frimpong, 2017), thus it might be the case that the type of digital touchpoint as an online system influences the relationship between the independent variable (emoji use) and the dependent variable (customer satisfaction). The participants only get to see images of the chat and they do not experience the online chats for real, so therefore were no scales about ease of use since that cannot be measured. Usability is defined as: "the degree to which a person beliefs that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). The exploratory scales that belonged to perceived usability also contained a 5-point Likert scale.

Customer experience - Customer satisfaction is one of the ways to assess how customers perceive their experience (Anderson et al., 2004; Lemon & Verhoef, 2016; Sharma & Chaubey, 2014; Song & Zinkhan, 2008) and therefore some exploratory questions were added since it might be the case that items related to customer experience correlate with customer satisfaction. Customer experience differs per touchpoint (Yakhlef & Nordin, 2021). Through the years, there have been many conceptualisations of customer experience. A widely used conceptualisation of customer experience is "comprised of the cognitive, emotional, physical, sensorial, spiritual, and social elements that mark the customer's direct or indirect interaction with (an)other" (De Keyser et al., 2015, p. 23). The conversation in the experiment (i.e. online customer-firm interaction) took place in one of the two digital platforms, thus customer experience was seen as important for the measurement of the type of digital touchpoint and the interaction-effect of type of digital touchpoint on the relationship between emoji use (by a service employee) and customer satisfaction, because it could be the case that some items of customer experience could also load on customer satisfaction. The measurement scales for customer experience were based on Song and Zinkhan (2008).

3.4 Research ethics

First of all, none of the respondents were forced or obliged to take part in the study and the experiment. At the beginning of the survey, respondents were given an informed consent in which was told what the study was about and the participants got the chance to decide whether or not they wanted to start with the survey. The informed consent was made in order to create transparency, Secondly, in terms of privacy and ethical reasons, no personal information was asked, such as: first and last names. Some general questions, like age, gender and nationality were asked, but it was impossible to reduce these data facts to individual participants.

Secondly, The data that was resulted from the survey was only used for the analysis of the research. Additionally, the data will not become publicly available. At best, it could become available for the researcher and people that were involved in the study. Thirdly, participants were not given too much background information in advance (such as the different experimental and control groups). This was done in order to prevent bias in the answers respondents give. Some general information about the study was given at the start of the experiment in the informed consent. This was done in order to ensure openness and transparency to the respondents because some information about the purpose and subject of the study was provided at the beginning of the survey.

3.5 Data analysis

This paragraph focuses on the steps after the data is collected. This research focused on the effectiveness of emoji use (independent variable) for different digital touchpoints (moderator) on customer satisfaction (dependent variable). As explained in 3.1, a factorial ANOVA was done with a 2x2 design. In order to put this into practice, the data collection took place in the first place via an online survey whereby the participants were divided into four groups that each represent one of the four conditions. The dataset was retrieved from Qualtrics which is an online program that enables researchers to create surveys. The retrieved data was then put into IBM SPSS Statistics 27.0 (further called SPSS), which is a software program that is able to analyse data. Before the analysis could be done in SPSS, the data preparation was done. For this dataset, it means that labels were added to each item, so that it became understandable which item belonged to which construct. Thereafter, the different items were put into the appropriate format for the analysis. Third, the assumptions of a 2x2 factorial ANOVA were checked and finally the ANOVA was executed. The results will be presented in chapter 4.

Chapter 4: Results

The data was analysed and this chapter will further elaborate on the results of the analyses. First of all, this chapter will review how the data was prepared before running the analysis. Secondly, the descriptive statistics will be explained as well as the characteristics of the research sample. Thirdly, the factor analysis for the measurement scales will be explained in order to get an overview of what factors (dimensions) come up when combining the different measurement scales of the study. The created scales will be clarified and tested in terms of reliability and validity. Fourthly, the results of the factorial ANOVA (including assumption check) will be explained which helps testing the hypothesis. Finally, some additional exploratory analysis has been done and will be shown in the final paragraph.

4.1 Data preparation

First of all, the data was converted from Qualtrics to SPSS. It appeared that there were some items in the list of the data overview that were unnecessary to keep and these were deleted since these were not relevant for the study and/or harmed the respondents' privacy/anonymity: StartDate, EndDate, Status, IPAdress, Duration_in_seconds, RecordedDate, ResponseId, RecipientLastName, RecipientFirstName, RecipientEmail, ExternalReference, LocationLatitude, LocationLongitude, DistributionChannel, UserLanguage. Secondly, the raw data had no clarity in names and labels, so after the deletion of some respondents and variables, names and labels were given to each variable in order to structure the data in a proper way.

The study consisted of a 2x2 between-subjects design. As can be derived from 3.1 (Table 2), there are four groups. In each of the four groups of respondents, the same (or very comparable) scales were used to measure the variables in the study. However, in order to run the factorial ANOVA, the scales needed to be combined. Syntax was used for this. Syntax is a programming language on SPSS that can be used as a tool to run SPSS Procedures. Via Syntax, new variables were created that combined the same scales that were used for each condition. The scales contained one reversed item: Warmth3. The scale was reversed with Syntax as well. Finally, Syntax was used to combine groups of the two main independent variables as well: emoji use and digital touchpoint. Appendix C shows the descriptive statistics of both the demographical variables as well as the main variables of the model. It appeared that there was hardly any missing data. The potential problem of missing data was also tackled by making all the survey questions obligatory to fill in.

4.2 Sample and descriptive statistics

First of all, the population consisted of 219 respondents. Out of these 219 respondents, 184 respondents ended the survey and 34 respondents did not finish the survey. Out of those 34 respondents, there were two respondents who filled in 46 percent or more of the questions. The other 32 respondents only answered approximately 6 percent maximum. Since two of the 34 respondents at least answered 46 percent, these

were still taken into account because at least some of the variables could be measured by these results. The other 32 respondents have been left out in the analysis. In order to create the final sample size, the participants who completed at least 40 percent were included and therefore pairwise deletion was applied. At the end, 186 respondents were included in the sample and the results of these respondents were used to test the hypotheses.

When looking at the descriptive statistics in Table 5 (and Appendix C), 55 men (29.6 percent) and 131 women (70.4 percent) participated in the study. The average age was found to be 32.9, with the youngest being 14 years old and the oldest being 78 years old. Most of the respondents were from generation Y (61.8 percent). Out of the sample, 98.9 percent lived in the Netherlands. Most of the respondents live in the following provinces: Limburg (50 percent) and Gelderland (25.3 percent). In terms of educational level, there was much variation. A small majority finished a Bachelor at the University of Applied Sciences (39.7 percent) as highest educational level, followed by University master students (37.7 percent).

Table 5: *Demographics of the population*

Demographics	**Categories**	**Statistics**	
Age	Range: 14-78	$M = 32.9$	
Gender	1. Male	$N = 55,$	29.6%
	2. Female	$N = 131,$	$70,4\%$
Generations	1. Gen Y	$N = 115,$	61.8%
	2. Gen X	$N = 32,$	17.2%
	3. Xennial	$N = 20,$	10.8%
	4. Gen Z	$N = 14,$	9.1%
	5. Babyboomers	$N = 2,$	1.1%
Place of residence	1. Limburg	$N = 93,$	50%
	2. Gelderland	$N = 47,$	25.3%
	3. Noord-Brabant	$N = 16,$	8.6%
	4. Other provinces	$N = 30,$	16.1%
Educational level	1. University of Applied Sciences (HBO)	$N = 74,$	39.7%
	2. University	$N = 70,$	37.7%
	3. MBO	$N = 20,$	10.8%
	4. Other	$N = 22,$	11.8%
Work-life situation	1. Student	$N = 68,$	36.6%
	2. Full-time employee	$N = 58,$	31.2%
	3. Part-time employee	$N = 49,$	26.4%
	4. Other	$N = 11,$	5.9%

Besides the demographical questions, the respondents were also asked how familiar they were with the two digital touchpoints of this study: website live chats and social media chats, more specifically

Facebook Messenger. The sample appeared to be (very) familiar to website live chats and Facebook Messenger. 97.3 percent of the sample was familiar with website live chats and 82.3 percent of the sample was familiar with Facebook Messenger.

4.3 Factor Analysis

In order to get an idea about the underlying structure of the variables in the data set, it was chosen to conduct an exploratory factor analysis. Additionally, the discriminant validity and the convergent validity of the different concepts were tested with a factor analysis. a Cronbach's alpha test was used for measuring the reliability of the different variables.

All the concepts of the study had to consist of multiple items. That was the case for all the concepts. Since there were three main variables in the study, the factor analysis had to come up with three factors, representing: customer satisfaction, evaluation of emoji use and evaluation of the type of digital touchpoint.

Oblique rotation (also known as direct oblim in SPSS) was applied as rotation method, as factors were expected to correlate with one another. Furthermore, principal components analysis was chosen as the extraction method, because it is the primary way to explore the data according to Hair et al. (2018). A correlation test was done in order to assess how the discriminant validity of the variables was. Appendix D shows the results of the factor analysis. The Kaiser-Meyer-Olkin measure (further called KMO) was analysed first and it appeared that the KMO-measure exceeded the critical value of .50 ($KMO =$, 914). KMO indicates the proportion of variance in the variables that might be caused by the underlying factor (Hair et al., 2018) and since KMO was very close to 1, the sampling adequacy was very high. In addition, the Bartlett's Test of Sphericity was significant (X^2 (406) = 3824,06, $p < .05$)). This meant that doing a factor analysis was appropriate (Hair et al., 2018). When the communalities of the factor analysis were examined, it appeared that they all exceeded the critical value of .20, meaning that none of the items shared too little variance with other variables. The first factor analysis showed five factors with Eigenvalue > 1. The factors that had Eigenvalues above 1.00 were considered to be retained (Field, 2013). However, there were several items containing cross-loaders in the factor analysis. These usually become problematic when the mutual difference is $< .2$ (Hair et al., 2018). It was decided to run the factor analysis again and to delete the items that contained a cross-loader, namely: experience_combined2 and competence_combined3. Since there were still plenty of items left for each of the factors, it was seen as acceptable to delete those two items.

The result of the second factor analysis can be seen in Appendix E. The KMO-measure again exceeded the critical value of .50 to a large extent ($KMO = .906$) and the Bartlett's Test of Sphericity was significant too (X^2 (351) = 3403.85, $p < .05$)). The communalities were still above .20 and there were again four factors having an Eigenvalue >1. In the second factor analysis, the following items contained possibly problematic cross-loaders: competence_combined3, experience_combined3 and experience_combined4 . Again, it was decided to run the factor analysis for the third time and this time the items with cross-

loaders were left out.

The third factor analysis is shown in Appendix F. The KMO-value was still significant, as it exceeded .50 ($KMO = .898$). The Bartlett's Test of Sphericity remained significant as well (X^2 (276) = 2947.01, $p < .05$). The communalities all exceeded the critical threshold of .20 again. This time, only three factors had an Eigenvalue >1. When reviewing the pattern matrix, all items clearly belonged to one factor. This meant that no cross-loaders were present in the factor analysis anymore. As a result, these three factors were saved and created into new variables.

Factor 1 included the items that are all related to the perceived quality (perceived warmth and competence) of the employee and the overall customer satisfaction. This makes sense, as warmth and competence are two main elements of customer judgements regarding customer satisfaction (Judd et al., 2005; Li et al., 2019). Therefore it was decided to name factor 1: Customer satisfaction. Factor 2 related to all the items that were about emoji use and the appropriateness of it in online chats. Therefore factor 2 was named: Evaluation of emojis. Factor 3 was related to perceived usability and customer experience. The two items that were related to customer experience represent how customers perceived the usability of one of the digital touchpoints. That is why factor 3 was named: evaluation of the digital touchpoint. Interestingly, the items about the explorative variable "Usability" that were part of this final factor analysis loaded on the factor related to the evaluation of the type of digital touchpoint. This makes sense, as it is one of the main determinants of how customers evaluate digital systems (Davis, 1989). It was expected that some of the exploratory items would also load on the main variable customer satisfaction. However, this was not the case.

4.4 Reliability

A reliability analysis was performed for the final factors in order to see if the remaining items per factor contained a high amount of useful variance in the scores. The reliability was evaluated by calculating the Cronbach's Alpha for each item that were part of the final factors. The critical threshold of the Cronbach's Alpha of .60 was used in order to keep the item in the analysis. The results for this paragraph are derived from Appendix H, which shows the SPSS-output for the reliability analysis. Table 6 shows the reliability scores for each factor and by doing this, the internal consistency of the constructs could be analysed.

Table 6: *Internal consistency and convergent validity.*

Variable	**Original # items**	**Cronbach's** α	**# items deleted**	**Cronbach's** α	**Percentage variance explained**
Customer satisfaction	10	.92	2	.90	60%
Evaluation of emojis	9	.94	0		68%
Evaluation of digital touchpoint	10	.89	3	.86	57%

Note. The items were deleted based on cross-loadings in the factor analysis. As a result, the Cronbach alpha values decreased somewhat, but they are still really high.

4.4.1 Factor 1: Customer satisfaction

Factor 1 represents Customer satisfaction. The Cronbach's alpha for factor 1 was $\alpha = .90$. This represents high reliability across the items in the model. When looking specifically at each item, it appeared that none of the items would systematically improve the Cronbach's Alpha if the item would be deleted. Only warmth_combined3 could have increased the Cronbach's Alpha by $\alpha = .001$, but since that difference was so tiny, it was decided to keep all the items in factor 1.

4.4.2 Factor 2: Evaluation of emoji use

The Cronbach's Alpha for the items in factor 2 (Evaluation of emojis) was $\alpha = .940$. This means that the items overall highly represented the factor across the items in the model. None of the items improved the Cronbach's Alpha for factor 2, so therefore none of the items were deleted.

4.4.3 Factor 3: Evaluation of the digital touchpoint

Factor 3 included the items about the evaluation of the digital touchpoint and contained an Cronbach's Alpha of $\alpha = .863$. So far, factor 1, 2 and 3 showed that the items represented each factor to a large extent. When looking specifically at each item for factor 3, again none of the items improved the Cronbach's Alpha, so none of the items in factor 3 were further deleted.

4.5 Validity

This paragraph will elaborate on the validity of the items within and between the factors that were established in the factor analysis. This paragraph will elaborate on: convergent validity, discriminant validity and face validity.

4.5.1 Convergent validity

Convergent validity is about the items that load on a specific factor indeed load on that factor (Hair et al., 2018). The discriminant validity was high for most of the items. In order to tell something about the convergent validity, all the items that belonged to one of the factors were checked via the bivariate correlation matrix including the Pearson correlation value. Appendix G shows the table of the bivariate correlation matrix. It appeared that only one of the correlations of the items within factor 1 (Customer satisfaction) could be considered weak as it did not exceed the value .3 (Hair et al., 2018). This correlation was made red in Appendix G. All the other Pearson correlations exceeded .3, which meant that the overall convergent validity was high. Another way of checking the convergent validity is by checking the percentage variance explained for each construct. These can be derived from Table 6. It appeared that the explained variance for each variable was rather high and this indicated that the convergent validity was high for the variables as well.

4.5.2 Discriminant validity

Discriminant validity means that all of the items belonging to one factor, do only load on that factor specifically (Hair et al., 2018). Appendix G illustrates which correlations could harm the discriminant validity. Factor 1 (Customer satisfaction) and factor 2 (Evaluation of emojis) only had a few items with correlations that harmed the discriminant validity, because they exceeded the critical threshold of .3. However, overall these correlations were still rather weak/moderate because the highest correlation was .347. This was not seen as problematic and therefore, no additional items were deleted. The values that exceeded .3 were highlighted red in Appendix G.

4.5.3 Face validity

Face validity is about the researcher's judgement whether the content of items fits well with the construct (Hair et al., 2018). Factor 1 was about customer satisfaction. The scales that were used for factor 1 were based on scales of McKinney et al. (2002) and Judd et al. (2005). Factor 1 involved the scales of Li et al. (2019) as well. This study focused on how customers evaluate emoticons in online service encounters and Li et al. (2019) also showed that perceived warmth and perceived competence of the (online) service employee influences customer satisfaction, so it made sense why the items that belong to factor 1 could be combined as customer satisfaction.

Factor 2 (Evaluation of emojis) involved all the items related to emoji use. It is a combination of new scales and developed scales based on studies by different researchers (Anderson et al., 2004; Lemon & Verhoef, 2016; Sharma & Chaubey, 2014; Song & Zinkhan, 2008). None of these items had to be deleted in the factor analysis and all these scales involved the customers' evaluation about emoji use and therefore the face validity was high for factor 2 as well.

Factor 3 (Evaluation of digital touchpoints) combined the items that were related to a system's

usability and customer experience. This made sense as well. It is the customer who has to feel a (digital) touchpoint useful in order to make use out of it (Davis, 1989). When the customer does not find the digital touchpoint useful to interact with a firm, he or she will not make use out of it and therefore might have zero or a negative experience with the platform. For that reason, factor 3 was seen as a construct with high face validity as well.

4.6 Outliers

The outliers of the data were checked. Outliers are extreme data points of individual respondents that lie far away from other data points in a specific sample (Hair et al., 2018). Appendix J showed the outliers for the four factors. It appeared that Customer satisfaction (factor 1) had two outliers (respondent 95 and 173). Evaluation of emojis (factor 2) had no outliers. Evaluation of digital touchpoints (factor 3) had two outliers, both in different groups (respondent 84 and 173). In short, factor 1 and 3 involved two outliers each, so when running the analysis, this was taken in account, as the outliers could negatively influence the results of the study (Hair et al., 2018).

4.7 Hypothesis testing

A factorial ANOVA was performed in order to test the three hypotheses for the independent variable (Emoji use) and the moderator (Type of digital touchpoint) on one dependent variable (Customer satisfaction), in other words a two-way ANOVA. For this factorial ANOVA, four different group means were checked and in the next paragraphs the results will be further explained. For each factorial ANOVA, the assumptions were checked first.

4.7.1 Base model: Factorial ANOVA

The study contained three hypotheses regarding customer satisfaction with two variables: emoji use and digital touchpoints. The hypotheses that were tested are as follows:
H1: *Website live chats contribute to more customer satisfaction than social media chats do.*
H2: *There is a positive effect between emoji use and customer satisfaction in online conversations.*
H3: *The effectiveness of emoji use on customer satisfaction is higher for social media chats than for website live chats.*

In order to derive results from the Factorial ANOVA, several assumptions had to be met first. According to Hair et al. (2018), the following assumptions must be met in order to continue running and analysing the factorial ANOVA:
1. Homogeneity of variance
2. Normality of sampling distribution of means;
3. Sample size must at least be 30 or higher;

4. Independence of errors;
5. Independent scores;

At the beginning, it appeared that the outliers strongly affected the Factorial ANOVA results, so it was decided to run the factorial ANOVA for Customer Satisfaction without including the outliers. For that model, the assumptions were checked. The statistics of the normality assumption are summarized in Table 7. First of all, the homogeneity of variance was analysed. This assumption means that there are equal variances (homogeneity) across groups (Hair et al., 2018). The assumption about homogeneity of variance is met when Levene's test is not significant. The result of the Levene's test was: $F(3, 178) = 2{,}21$, $p = .089$. Therefore, the first assumption was met because there are indeed equal variances across groups. Independence of errors can partly be assessed by the Levene's test as well. Since there are equal variances across groups, it was assumed that the error terms were uncorrelated as well.

Secondly, the normality of the sampling distribution assumption for customer satisfaction was analysed. This was tested with the Shapiro-Wilk test and must be insignificant, meaning that the data from the sample does not significantly deviate from normality (Hair et al., 2018). When looking at the Shapiro-Wilk test in Table 7, the no emoji website and emoji Facebook groups were normally distributed ($p > .05$), but for the emoji website and no emoji Facebook normality could not be assumed ($p < .05$). However, a rule of thumb is that when N exceeds the minimum of 30, the normality could be considered sufficient according to the Central Limit Theorem (Hair et al., 2018). This was the case for the groups in the experiment and thus this assumption held.

Finally, independent scores cannot be analysed via SPSS. Instead, these can be ensured by creating a research design in such a way that the items pertaining to one construct to a great extent also answer to another construct (Dr. V. Blazevic, personal communication, 2022). It was assumed that this assumption was met as well, so therefore the ANOVA was performed and analysed.

Table 7: *Statistics of the normality assumption for customer satisfaction by means of Shapiro-Wilk test.*

Condition	***N***	W **Statistic**	p**-value**
No emoji, Website	44	.99	.84
Emoji, Website	47	.92	.004
No emoji, Facebook	45	.95	.032
Emoji, Facebook	45	.98	.67

As can be seen in Table 8, the model became significant ($p <.\ 05$) after excluding the outliers. The base model explained 5.3 percent of the total variance ($R^2 = .05$), so emoji use by service employees could only explain 5.3 percent of customer satisfaction for the two digital touchpoints ($Eta^2 = .053$). The direct effects of emoji use and the two digital touchpoints significantly influenced customer satisfaction. No significant effect was found for the interaction effect of emoji use and digital touchpoint on customer satisfaction. According to the base model, 2.2 percent of the variance was explained by the type of digital

touchpoint ($Eta^2 = .022$) and 2.4 percent ($Eta^2 = .024$) was explained by the emojis. These insights were useful for testing the hypotheses.

Table 8: *Effects of emoji use and type of digital touchpoint on customer satisfaction.*

	Model 1: With interaction effects			
	df	F	η	p
Emoji Use (Emo)	1	4.45	.02	.036
Digital touchpoint (DT)	1	3.95	.02	.049
Emo x DT	1	1.64	.01	.202
R^2 (Adjusted R^2)	.053 (.037)			

n = 182; p<.05

Figure 3 illustrates the effect plots of both emoji use and type of digital touchpoint on customer satisfaction. This figure was insightful for testing the hypotheses and could give useful insights regarding the effects of the two variables (emoji use and type of digital touchpoint) on customer satisfaction.

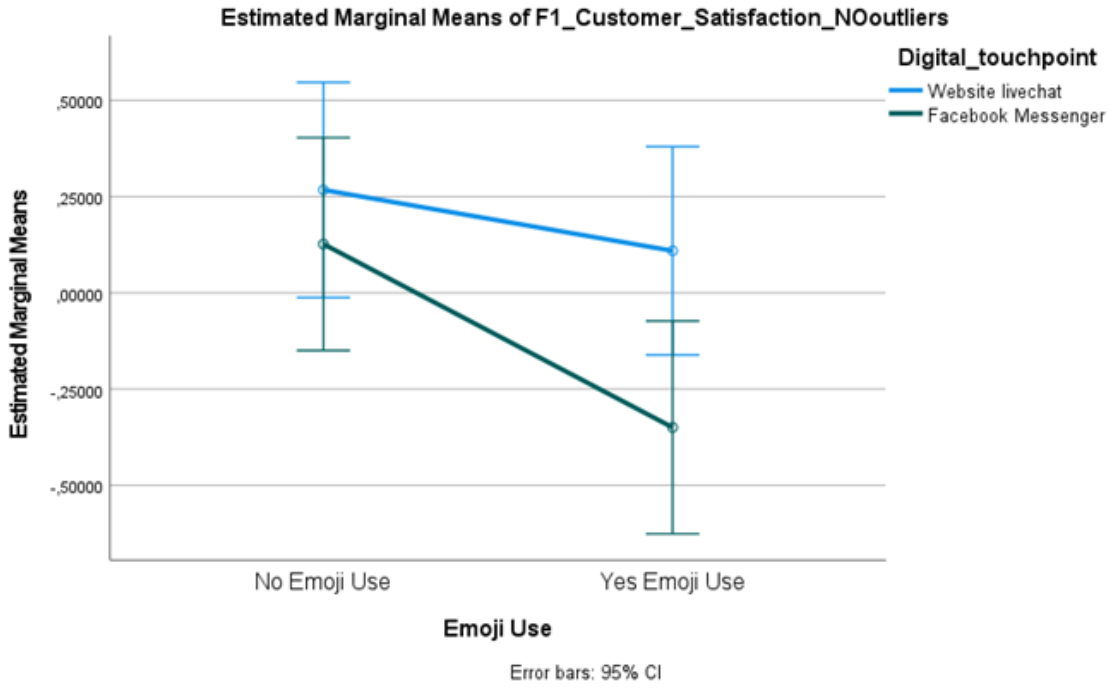

Figure 3: Effect plot of the base model

4.7.2 Hypothesis 1

When testing hypothesis 1 (website live chats contribute to more customer satisfaction than social media chats do), it appeared that this hypothesis held in the study. The type of digital touchpoint was significant ($p < .05$) as can be derived from Table 8. When specifically looking at the blue lines that represent the website live chat (light blue) and the social media chat (dark blue) in Figure 3, it appeared that website

live chats indeed contributed to more customer satisfaction than social media chats did. Hypothesis 1 is thus accepted, although it did not explain customer satisfaction to a large extent ($Eta^2 = .022$).

4.7.3 Hypothesis 2

For hypothesis 2 was tested whether emoji use had a positive effect on customer satisfaction. There was a significant effect ($F = 4.45$, $p < .05$), although, not in line with the hypothesis, as Figure 3 showed that the conditions whereby no emojis were used, the overall customer satisfaction was rated higher than with the conditions whereby the service employee used emojis. This insight held for both the website live chat and the social media chat (Facebook Messenger).

4.7.4 Hypothesis 3

Hypothesis 3 was about the effectiveness of emoji use on customer satisfaction by including the interaction-effect of type of digital touchpoint. It was predicted that the effectiveness would be higher for social media chats than for website live chats. This hypothesis could also not be accepted, since the interaction effect appeared to be insignificant ($F = 1.640$, $p > .05$).

4.8 Explorative measures

All the hypotheses of the study wee analysed. In order to retrieve more insights from the data, it was chosen to run the base model again with age as a covariate. Adding age as a covariate could improve the accuracy of the model. Besides that, the characteristics of the population of the experiment are further analysed in order to get insights about how people with e.g. different age groups, genders and work-life situations perceive emojis and how that affects customer satisfaction for the two digital touchpoints.

4.8.1 Base model with covariate age

The first explorative analysis was about running the factorial ANOVA again with the additional covariate age. Age could potentially influence the effects of emoji use and digital touchpoint on customer satisfaction, as people of higher age may have less experience with digital customer service and thus using either social media chats or website live chats, although this could not be theoretically supported. The main results are summarized in Table 9 and can also be found in Appendix K. The assumptions were all met, so the model with the covariate could be analysed. First, the correlation between age and the dependent variable —customer satisfaction— was investigated. This correlation r was found to be -.115, but non-significant. This means that if age were the only predictor of customer satisfaction in the model, the explained variance of customer satisfaction would be $R^2 = .013$, or 1.3 percent. This already indicated that age would most likely not have a noteworthy effect on customer satisfaction. However, as the R^2 of the original model without covariates was only 6.0 percent, age was found to be relevant to

include after all.

Table 9: *Effect of emoji use and type of digital touchpoint on customer satisfaction with inclusion of covariate age.*

	Model 1: With interaction effects			
	df	F	η	p
Age	1	4.28	.024	.040
Emoji Use (Emo)	1	5.19	.03	.024
Digital touchpoint (DT)	1	6.34	.035	.013
Emo x DT	1	1.54	.01	.216
R^2 (Adjusted R^2)		.081 (.060)		

n = 181; P<.05

The effect of age on customer satisfaction was indeed found to be significant (p = .04). Interestingly, adding age as a covariate still leaves the effects of emoji use and type of digital touchpoint significant on Customer Satisfaction (respectively, p = ,024 and p = ,013). The interaction effect was still insignificant.

4.8.2 Base model with demographical variables

In order to look more specifically at the results for the research population, it was decided to run the Factorial ANOVA again for the other categorical demographic variables: gender, educational level, work-life situation and place of residence (province). After running the ANOVA including these demographic variables, it appeared that none of these demographical variables had a significant effect on customer satisfaction or had results that could help further elaborate on the topics of interest in the study. This is among others due to the fact that some of the samples did not exceed the threshold of 30 and because normality was not met for any of the ANOVA tests that involved one of the demographical variables.

Chapter 5: Discussion

The aim of the study was to find whether the effectiveness of emoji use by (online) service employees contributed to more customer satisfaction for different digital touchpoints. Therefore the study's main question was: What is the effect of emoji use on customer satisfaction for different digital touchpoints' chats? This was tested by creating an experiment including two types of digital touchpoints (a website live chat and a social media chat - Facebook Messenger -) whereby either a chat was shown that included emojis or did not include emojis. By experimenting this, it could be checked if differences exist among emoji use for the two digital touchpoints. This chapter reviews the results of the study by first starting with the discussion. After the discussion, the practical and managerial implications will be explained. Finally, the chapter will end with the conclusion whereby the main findings will be summarized.

5.1 Conclusion and discussion

The main question of this research was: What is the effect of emoji use on customer satisfaction for different digital touchpoints' chats? This was tested by creating an experiment including two types of digital touchpoints (a website live chat and a social media chat - Facebook Messenger -) whereby either a chat was shown that included emojis or did not include emojis. In order to answer the main question of this study, two types of digital touchpoints were analysed and it was analysed how respondents evaluated the use of emojis for these two digital touchpoints differently in terms of customer satisfaction. The hypotheses in the study represented the direct effect of emoji use and type of digital touchpoint (separately) on customer satisfaction as well as the interaction effect of the type of digital touchpoint on the relationship between emoji use and customer satisfaction. Both effects were measured by a 2x2 factorial ANOVA design. Table 10 illustrates the summary of the results. The next paragraphs will further explain these results.

Table 10: *Summary of results*

Hypothesis	**Result**
H1:Website live chats contribute to more customer satisfaction than social media chats do.	Accepted
H2: There is a positive effect between emoji use and customer satisfaction in online conversations.	Rejected
H3: The effectiveness of emoji use on customer satisfaction is higher for social media chats than for website live chats.	Rejected

Hypothesis 1 stated that website live chats contribute to more customer satisfaction than social media chats do. This was the case and it therefore suits the study of McLean and Osei-Frimpong (2017), because live chats are used by customers if they feel the (quick) need to be helped with a product-/service-related problem and once their complaint and/or problem is solved, their expectations are met and therefore they feel satisfied. Regardless if the service employee used emojis or not, the website live chat scored higher on customer satisfaction than the social media chat (i.e., Facebook Messenger).

This could be due to the fact that "many businesses approach social media as another channel for self-promotion and don't always respond" to customers (Caramela, 2021). At the same time, live chats are characterised by a live connection with an employee from the (online) customer service department, so customers could think that they are helped quicker and thus better via website live chats. This is also in line with statistics from MacDonald (2021), because these statistics show that the waiting time for response on digital touchpoints is the lowest for website live chats. The respondents of the sample showed high familiarity with both the Facebook Messenger and the website live chat, so it is likely that customers from the sample have a lot of knowledge about the situations whereby they reach out to a firm via a website live chat or a social media chat.

Hypothesis 2 tested the direct effect of emoji use on customer satisfaction. It was expected that customers were more satisfied when emojis were used by the service employee instead of when no emojis were used by the service employee, because Haji and Bakir (2019) and McLean and Osei-Frimpong (2017) found that emojis could among others make online conversations feel more humane and it is a way to show empathy by the (online) service employee. This hypothesis appeared to work the other way around. It became apparent that when emojis are used, the overall customer satisfaction is evaluated lower. Even though, this hypothesis did not hold, it is to some extent in line with the current literature. For instance, Li et al. (2019) argue that using emojis might work negatively when the topic of interest is a complaint or a serious inquiry by the customer. According to Wu et al. (2022) emoji use could work counterproductively as well, as emojis could make it harder for the customer to understand what the message means when an emoji is used. This is because sometimes emojis can have multiple meanings (e.g. it could give the impression that the emoji can be seen as sarcastic/humorous but also as a means to show empathy). Thus, it is explainable why the hypothesis has a reversed effect. The topic of conversation in the experiment was a complaint, so that fitted a situation whereby emojis should be used very consciously.

The population consisted only of Dutch respondents. The general use of emojis is evaluated lower on customer satisfaction and it could be the case that the Dutch evaluate the use of emojis worse because the Dutch might have another communication style compared to other countries and cultures. Culture namely influences how emojis are understood (Gao & VanderLaan, 2020; Guntuku et al., 2019). The Dutch communication style is characterised by: multimodal communication (using both text, images and sounds in messages), informal communication and assertiveness/directness (Sanders & Jansen, 2011). McLean and Osei-Frimpong (2017) studied a British population and found that they evaluated emoji use slightly more positive compared to the Dutch in this study. In the United Kingdom, the communication style is characterised by: indirect communication, reserved communication, humour, politeness and self-deprecating ("British Culture", n.d.). All countries and cultures have their own ways of communicating. Even though the study of Guntuku et al. (2019) states that western countries use and evaluate emojis differently than Asian countries, it is likely that differences thus also exist within western cultures regarding the evaluation and the usage of emojis, so therefore it could mean that Dutch evaluated emoji use differently than other cultures do.

Hypothesis 3 looked into the effect of emoji use on customer satisfaction with the type of digital

platform as an interaction-effect. It was expected that emoji use contributed to more customer satisfaction on social media chats than on website live chats. It appeared that there is not a significant effect between emoji use and type of digital touchpoint, so this means that the type of digital touchpoint does not make much difference in the effectiveness of emoji use (by online service employees) on customer satisfaction for the two types of touchpoints. Emojis are slightly more informal and used in more casual settings that suit social media chats (and platforms) (Haji & Bakir, 2019) than in more "serious" settings that suit website live chat conversations (McLean & Osei-Frimpong, 2017), so therefore it was expected that the interaction-effect would have existed, but this did not have statistical support.

Even though there is no statistical support in the study, it could still be the case that the type of digital touchpoint influences the relationship between emoji use and customer satisfaction. For example, this study only included Facebook Messenger and a website live chat, whereas there are many more digital touchpoints. A big majority of the population is below the age of 30 and statistics about Dutch social media users show that Facebook use has continued to decline among younger generations but small growth for the whole Dutch population ("Social media gebruik in Nederland in 2021", 2022). It could therefore be the case that a change in the customers' evaluation of emoji use on customer satisfaction would exist when other digital touchpoints are used in future studies.

The categorical demographical variables (gender, age generations, educational level, work-life situation, place of residence) do not affect customer satisfaction, so according to this study these are not of big influence on customer satisfaction. This is among others due to the fact that the sample was not always big enough in order to achieve high statistical power. It could be the case that the (categorical) demographical variables would affect the main variables if the samples were bigger.

5.2 Theoretical implications

This research provides insights into a relatively new topic of interest in the marketing literature: emoji use. This research tried to study how emoji use by service employees affects customer satisfaction for two different digital touchpoints. The study focused on a website live chat and a social media chat (i.e. Facebook Messenger). Emojis are one of the main new elements of online communication, but so far there has not been a lot of research about emoji use in business-context. Besides that, the use of emojis has not been studied in combination with different digital touchpoints while customers use each type of digital touchpoint for different reasons. Altogether, the study adds to the literature the combined effect of emoji use and type of digital touchpoint on customer satisfaction.

First of all, this study builds on Li et al. (2019) and McLean and Osei-Frimpong (2017) in a way, as the results show that the effect of emoji use (by service employees in online conversations) affects customer satisfaction and that the type of digital touchpoint also significantly affects customer satisfaction. However, this is the first study that looks into the customers' evaluation of emoji use on satisfaction for different digital touchpoints. It appears that there is not a significant effect between emoji use and customer satisfaction for the two different digital touchpoints. This is a new insight for

the literature, because no studies have looked into the relationship of emoji use and customer satisfaction with the interaction-effect of the type of digital touchpoint while it was expected that the differences in characteristics of the type of digital platform (Maecker et al., 2016; McAlexander et al., 2002; McLean & Osei-Frimpong, 2017) would also led to differences in how customers evaluated the emojis by the online service employee. The outcome is that the type of digital touchpoint does not influence the relationship between emoji use and customer satisfaction. Since there are many digital touchpoints besides live chats and Facebook Messenger, it could still be the case that an interaction effect would exist with other types of digital touchpoints. That would be an interesting topic for future research.

This research provides insights into a relatively new topic of interest in the marketing literature: emoji use. This research tried to study how emoji use by service employees affects customer satisfaction for two different digital touchpoints. The study focused on a website live chat and a social media chat (i.e. Facebook Messenger). Emoji use indeed affects customer satisfaction. However, Li et al. (2019) found that emojis should be used consciously by service employees in online conversations as it might work counter-productively in some situations. The results of this study contribute to the current literature that the effect of emoji use (by service employees in online conversations) affect customer satisfaction for two different digital touchpoints. This is the first study that looks into the customers' evaluation of emoji use on satisfaction for different digital touchpoints. Different studies either studied the effect of emoji use on customer satisfaction (Li et al., 2019; McLean & Osei-Frimpong, 2017) or the effect of the type of touchpoint on customer satisfaction (Yakhlef & Nordin, 2021) and these studies have empirical evidence that emoji use and the type of digital touchpoint. However, no studies combined the effect of emoji use and the type of digital touchpoint on customer satisfaction while it appeared that the individual effects of emoji use and type of digital touchpoint affected customer satisfaction in prior research. Thus, that is why this study looked at the combined effect of emoji use and type of digital touchpoint on customer satisfaction including the interaction effect of the type of digital touchpoint on the direct effect of emoji use on customer satisfaction. The scenario that was tested was a chat that involved a customer-firm conversation about a complaint of a new-bought television.

There are a few main findings of this study. First of all, it appeared that emoji use had a negative significant effect on customer satisfaction. This means that when a service employee uses emojis in online conversations with customers, the customers evaluate their satisfaction more negatively than in situations whereby emojis where not used in the same scenario. This was in line with Li et al. (2019), meaning that the use of emojis could work negatively when the topic of interest in the (online) conversation is about a customer complaint.

Secondly, there is a significant effect of digital touchpoints on customer satisfaction. More specifically, customer satisfaction was (regardless of whether emojis were used or not) evaluated higher on the website live chats than the social media chat -Facebook Messenger-. This was in line with the expectations that were based on the current literature. The respondents appeared to be very familiar with both the website live chat and the social media chat and therefore, it was assumed that the respondents were very knowledgeable about the situations in which they would use either one of the two digital touchpoints.

McLean and Osei-Frimpong (2017) stated that customer satisfaction is high when their "serious inquiry" (e.g. a complaint) is solved or tackled by the service employee. Customers would use website live chats more for solving product-/service-related problems while customers use social media chats and platforms more to gain knowledge about brands (Shahbaznezhad & Tripathi, 2015). The fact that social media chats are not really focusing on solving customer complaints and other types of serious problems, might implicate that customers experience more satisfaction on website live chats. Apart from that, website live chats are known for low response times (McLean & Osei-Frimpong, 2017) and might contribute to more customer satisfaction with regard to time.

Thirdly, it appeared that there was not a significant interaction effect of the type of digital touchpoint for the relationship between emoji use and digital touchpoint. This means that the effect of emoji use on customer satisfaction does not depend on the type of digital touchpoint. This is a new insight for the literature, because no studies have looked into the relationship of emoji use and customer satisfaction with the interaction-effect of the type of digital touchpoint. Current literature only focused on either the direct effect of emoji use or the type of digital touchpoint on customer satisfaction (Bolton et al., 2022; Haji & Bakir, 2019; Li et al., 2019; McLean & Osei-Frimpong, 2017), so researchers can use this insight for future research about emoji use on customer satisfaction.

5.3 Managerial implications

This research is very relevant for marketing managers that are specialized in online customer service strategies. Emoji use might not work universally as this study and current literature shows, so marketing managers should carefully consider the implementation of emojis in online customer-firm interactions, as the research showed that when emojis are used, the overall customer satisfaction decreases. In other words, this means that the use of emojis by service employees could seriously affect how customers perceive the service in a negative way. Using emojis by service employees in online customer-firm conversations overall does not lead to more customer satisfaction in conversations whereby the topic is about a customer complaint. When service employees use emojis on website live chats, the overall customer satisfaction is still evaluated positively, but lower than when no emojis are used. However, when service employees use emojis in social media chat conversations (i.e. Facebook Messenger), the overall customer satisfaction turns from positive (in the situation whereby no emojis are used) to negative when emojis are used by the service employee. Therefore, managers should carefully think about the use of emojis in conversations that involves customer complaints.

Even though there are differences for the two digital touchpoints, the findings have shown that the effect of emoji use on customer satisfaction is not affected by the type of digital touchpoint (i.e. a website live chat and/or Facebook Messenger chat). It could still be the case that the interaction effect would exist with other types of digital touchpoints, so managers should not rule out that emoji use might work differently on customer satisfaction for different digital touchpoints. This study has only shown that there is no interaction effect for website live chats and Facebook Messenger chats on the effect of

emoji use on customer satisfaction.

Finally, when looking specifically at the different digital touchpoints firms have, the findings show that website live chats overall contribute to more satisfaction than social media chats do (i.e. Facebook Messenger), so when comparing the social media and the website live chat functions, marketing managers should primarily focus on website live chats, when their aim is to improve customer satisfaction. However, this does not mean that social media chats are not important digital touchpoints as well. As this study and current literature shows, all customer touchpoints contribute to customer-firm relationships and customer engagement, so social media chats do too.

5.4 Research limitations

There are some research limitations that will be discussed in this paragraph. First of all, this is the first study that explores how the use of emojis differs in effectiveness for two different digital touchpoints. However, due to the limited resources available, only two digital touchpoints could be compared, namely: Facebook Messenger (as social media platform) and website live chats. Noteworthy is that Facebook Messenger represents social media chats, but the generalizability of the results to other social media channels should be done consciously, as already turned out that social media platforms significantly differ from one another in the target group, demographical variables and purposes of using each platform (Blank & Lutz, 2017; Chaffey, 2022; Yakhlef & Nordin, 2021).

Secondly, in the experiment behavioural intentions were studied instead of real behaviour that customer experienced after (fictively) reaching out to a firm via either an online Facebook or website chat. Several studies in the past have shown that behavioural intentions are in line with real behaviour, but that intentions are not necessarily reflecting real behaviour (Auger & Devinney, 2007; Carrington et al., 2010). The experiment included chat messages that were created in advance, so the respondents saw the storyline of both the service employee and the customer. The respondents did not gave the answers themselves, so when respondents are able to provide the answers themselves, the chat in the experiment would have been more realistic.

Thirdly, the scenario in the experiment is based on a customer complaint, whereas there are many situations in which a customer can decide to get into contact with a firm other than customer complaints, so it might be the case that if the situations would have been differently, the effect of emoji use on different digital platforms would also be more or less effective in terms of customer satisfaction (Li et al., 2019; McLean & Osei-Frimpong, 2017).

Fourthly, the experiment took only place in the Netherlands with only Dutch participants. It could be the case that culture also affects the effectiveness and use of emojis in customer-firm conversations. For example, Guntuku et al. (2019) found that western cultures in general use emojis in conversations more than eastern cultures do. However, this has not been investigated in online customer-firm conversations.

Fifthly, the results of the study should be used with care. As it turned out, it appeared that

customer satisfaction is not that much influenced by emojis and the type of digital touchpoint. This makes sense, as emojis and the platform in itself do not solve the problems customers encounter when using products or services. It is thus very likely that other external variables had a bigger effect on customer satisfaction than emojis and the type of digital touchpoints have.

Fifthly, since the time for the research was limited, no further additional measurements were done for the exploratory variables related to emoji use and type of digital touchpoint (including usability and customer experience). Therefore, this could be a topic for future research. Additionally, this study explored how the covariate age influenced the effectiveness of emoji use and type of digital touchpoint (including interaction-effect) on customer satisfaction, as well as how the categorical demographics influenced this relationship.

5.5 Future research

Emoji use and digital touchpoints are nowadays very interesting to study in the digital marketing industry. This paragraph further elaborates on future research topics that are derived from the current literature and this study. First of all, the study only focused on whether or not emojis are used in online chats, so further investigation could be done on type of emojis (e.g. facial emojis vs. non-facial emojis, happy faces vs. unhappy faces etc.). Ma and Wang (2021) namely found that the type of emoji also affects customer satisfaction and this study only focused on type of digital touchpoints and not on the types of emojis.

Secondly, the scenario of the experiment was a customer complaint. However, as scientific research shows, there are many situations whereby emoji use could either work positively or negatively on customer satisfaction. On one hand, Li et al. (2019) found that emoji use overall does not lead to more customer satisfaction in "serious" conversations. Ma and Wang (2021) on the hand argued that (negative) emojis (e.g. unhappy faces) could convey empathy and therefore enlarge the perceived empathy and thus makes customers feel understood by the online service employee. This study showed that emoji use works negatively for customer satisfaction, but this was thus not the case for other scientific studies. Altogether, analysing emoji use for different scenarios could also bring new concrete insights into the effectiveness of emojis in online conversations.

Thirdly, only two digital touchpoints have been analysed, namely Facebook Messenger (representing the social media chat) and a website live chat. However, there are many more digital touchpoints whereby emojis could be used in online conversations (e.g. blogs, reviews, other social media platforms, online word-of-mouth etc.), so it would be interesting for future research to dive deeper into more specific digital touchpoints than Facebook (as a social media chat) and website live chats.

Finally, the participants were only from the Netherlands. It appears that western countries use emojis more in online conversations (Haji & Bakir, 2019), but this has not been broadly examined for customer-firm conversations, so it would be interesting for future research to examine the impact of emoji use on customer satisfaction for different cultures

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Appendices

Appendix A Questionnaire

General questions

- What is your gender? (Male/female/other)
- What is your age?
- which province do you live? (including the option: I live
- outside the Netherlands)
- What is your highest finished level of education?
- What is your study and/or working situation at the moment?
- How familiar are you with website online chats?
- Are you experienced with using Facebook Messenger?

After these general questions, people will be put in one of the following conditions.

Condition 1: Website without emoji use

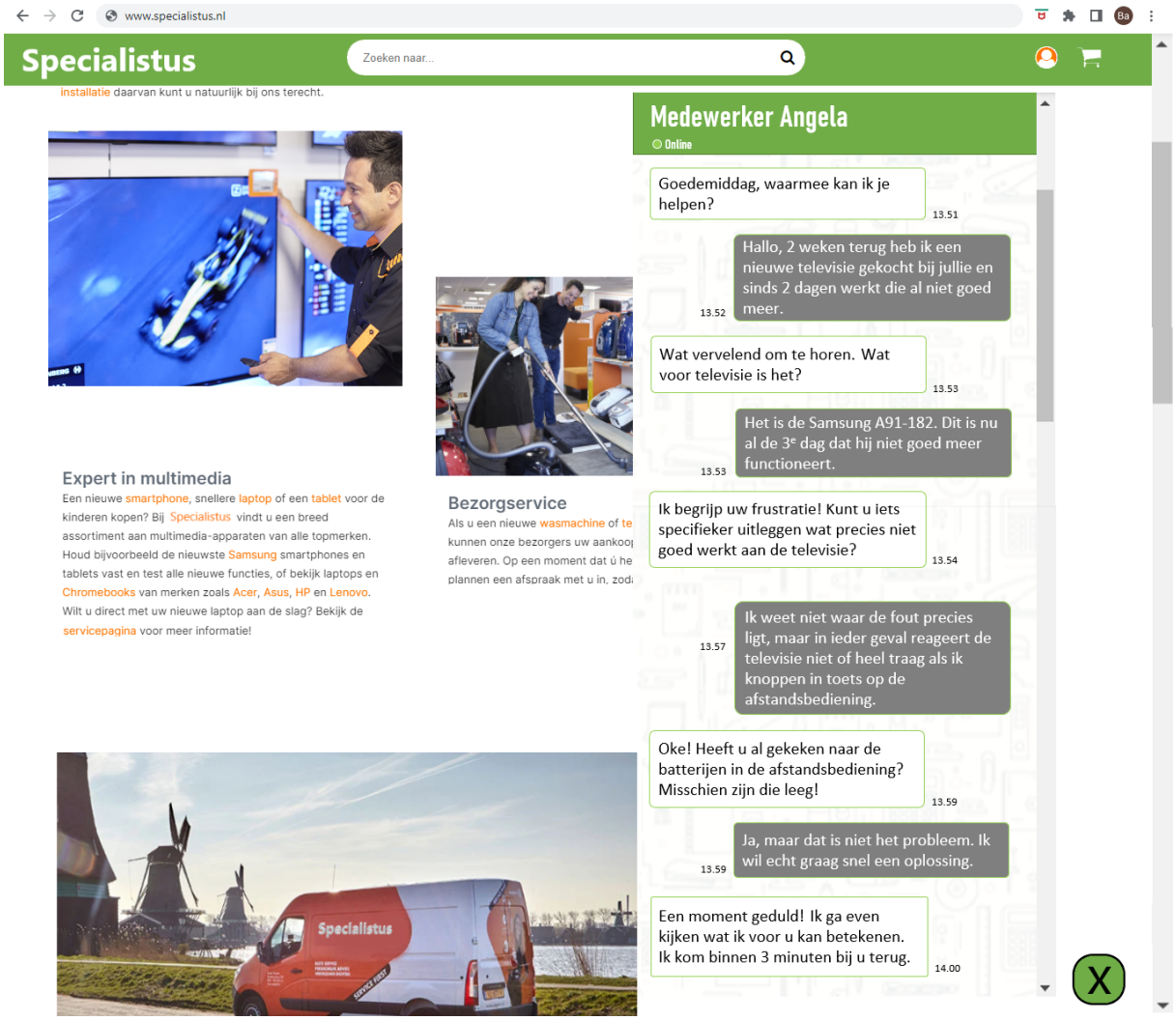


Figure 4: A screenshot of the website without emoji use.

- How satisfied are you with the way the employee answers your question? (Not satisfied at all – very satisfied)
- What emotion would predominate in you after reading the employee's messages? (Much frustration – Much happiness)
- What feeling would predominate in you after reading the employee's messages? (Very disappointed – Very content)
- How pleasant are the employee's messages in your eyes? (Very unpleasant – Very pleasant)
- How would you evaluate the employee? (Strongly disagree – Strongly agree)
  - Friendliness
  - Helpfulness

  - Social
  - Capable
  - Skilful
  - Competent

- The following questions are about the use of emojis in chat messages on websites by employees. (Strongly disagree – Strongly agree)
  - If the employee would add emojis in online website chat conversations, it would add value to the conversation.
  - Emojis can convey emotion better than when communicating is done with text only.
  - Emojis make a conversation feel more humane than communicating with text alone.
  - An online chat conversation feels better when the employee uses emojis compared to when the employee only uses text.

- Here are some statements regarding emoji use in website chats. (Strongly disagree – Strongly agree)
  - If an emoji is used in a message, I would feel more empathy from the employee than if the employee is just expressing themselves with text.
  - I feel taken seriously if the employee would use emojis.
  - The employee's messages can be enhanced by the emojis.
  - Emojis give a more emotional tone to the messages.
  - The use of emojis by companies would be appropriate in such a website chat.

- Evaluate the website chat on the following points: (Strongly disagree – Strongly agree)
  - The chat looks user-friendly.
  - The chat looks clear.
  - The chat seems easy to use.
  - The chat design is clear.

- Evaluate the website chat regarding usability: (Strongly disagree – Strongly agree)
  - With website chat systems you will be helped quickly.
  - The website chat system is useful.
  - Using a website chat is effective.
  - Using a website chat is productive.
  - The website chat system improves my performance.
  - I would quickly use a website chat as a means of getting in touch with a company.

- In which situations would you consult a company via the website chat (versus other means of contact: eg calling, e-mailing, etc.)? (Multiple answers correct)
  - If I have a complaint
  - If I have a general question about products/services
  - If I have to hurry and need a quick response by firms
  - If I have not been able to get in touch with the company after using another means of contact (e.g. calling, e-mailing or social media chat).
  - In other situation(s), namely: ... (self-written answer)
  - I would never use a website chat to get in touch with a company.
- The last questions are about the customer experience with regard to the website chat: (Strongly disagree – Strongly agree)
  - The chat is exactly what I need in a situation like the one in the picture.
  - I am satisfied with this experience on the chat.
  - The result of the conversation turned out just as well as I had thought beforehand.
  - I look back with happiness on this experience.
  - I would definitely recommend a website chat to others.

Condition 2: Website with emoji use

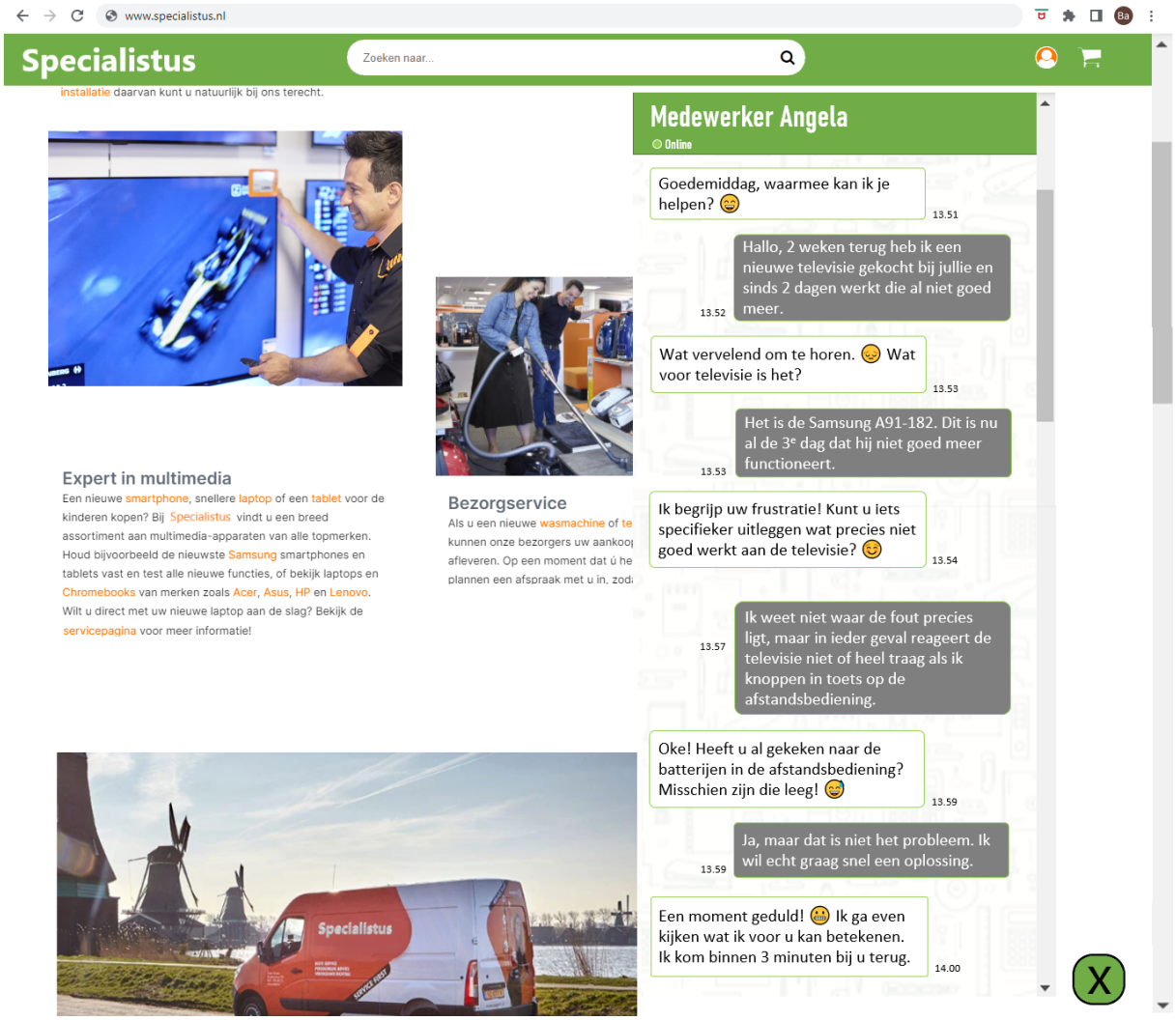


Figure 5: A screenshot of the website with emoji use.

- How satisfied are you with the way the employee answers your question? (Not satisfied at all – very satisfied)
- What emotion would predominate in you after reading the employee's messages? (Much frustration – Much happiness)
- What feeling would predominate in you after reading the employee's messages? (Very disappointed – Very content)
- How pleasant are the employee's messages in your eyes? (Very unpleasant – Very pleasant)
- How would you evaluate the employee? (Strongly disagree – Strongly agree)
  - Friendliness
  - Helpfulness

  - Social
  - Capable
  - Skilful
  - Competent

- Evaluate the employee's messages regarding the use of emojis (emojis are the pictures of the faces and hand in the chat messages, such as: [U+FFFD][U+FFFD] and [U+FFFD][U+FFFD]): (Strongly disagree – Strongly agree)
  - Using emojis adds value to the conversation.
  - The use of emojis showed the employee's emotion.
  - The employee's use of emojis made the conversation feel human.
  - The conversation felt better because the employee used emojis than if the employee only expresses himself with text.

- Here follow some statements about emoji use. (Strongly disagree – Strongly agree)
  - When a "negative" emoji is used (like: [U+FFFD][U+FFFD] , [U+2639][U+FE0F], [U+FFFD][U+FFFD]) in a message, I feel more empathy from the employee than if the employee is just expressing themselves with text.
  - I feel taken seriously when the employee uses emojis.
  - The employee's messages are enhanced by the emojis.
  - Emojis give an emotional tone to the messages.
  - It is clear what the emojis used in the chat mean.
  - I think the use of emojis by companies in a website chat is appropriate.

- Evaluate the website chat on the following points: (Strongly disagree – Strongly agree)
  - The chat looks user-friendly.
  - The chat looks clear.
  - The chat seems easy to use.
  - The chat design is clear.

- Evaluate the website chat regarding usability: (Strongly disagree – Strongly agree)
  - With website chat systems you will be helped quickly.
  - The website chat system is useful.
  - Using a website chat is effective.
  - Using a website chat is productive.
  - The website chat system improves my performance.

  - I would quickly use website chat as a means of getting in touch with a company.

- In which situations would you consult a company via the website chat (versus other means of contact: eg calling, e-mailing, etc.)? (Multiple answers correct)
  - If I have a complaint
  - If I have a general question about products/services
  - If I have to hurry and need a quick response by firms
  - If I have not been able to get in touch with the company after using another means of contact (e.g. calling, e-mailing or social media chat).
  - In other situation(s), namely: ... (self-written answer)
  - I would never use a website chat to get in touch with a company.

- In which situations do you think emoji use by employees in the website chat is appropriate? (Multiple answers correct)
  - If I have a complaint
  - If I have a general question about products/services
  - If I have to hurry and need a quick response by firms
  - If I have not been able to get in touch with the company after using another means of contact (e.g. calling, e-mailing or social media chat).
  - In other situation(s), namely: ... (self-written answer)
  - I believe emoji use by customers is not appropriate in website chats by employees.

- The last questions are about the customer experience with regard to the website chat: (Strongly disagree – Strongly agree)
  - The chat is exactly what I need in a situation like the one in the picture.
  - I am satisfied with this experience on the chat.
  - The result of the conversation turned out just as well as I had thought beforehand.
  - I look back with happiness on this experience.
  - I would definitely recommend a website chat to others.

Condition 3: Facebook without emoji use

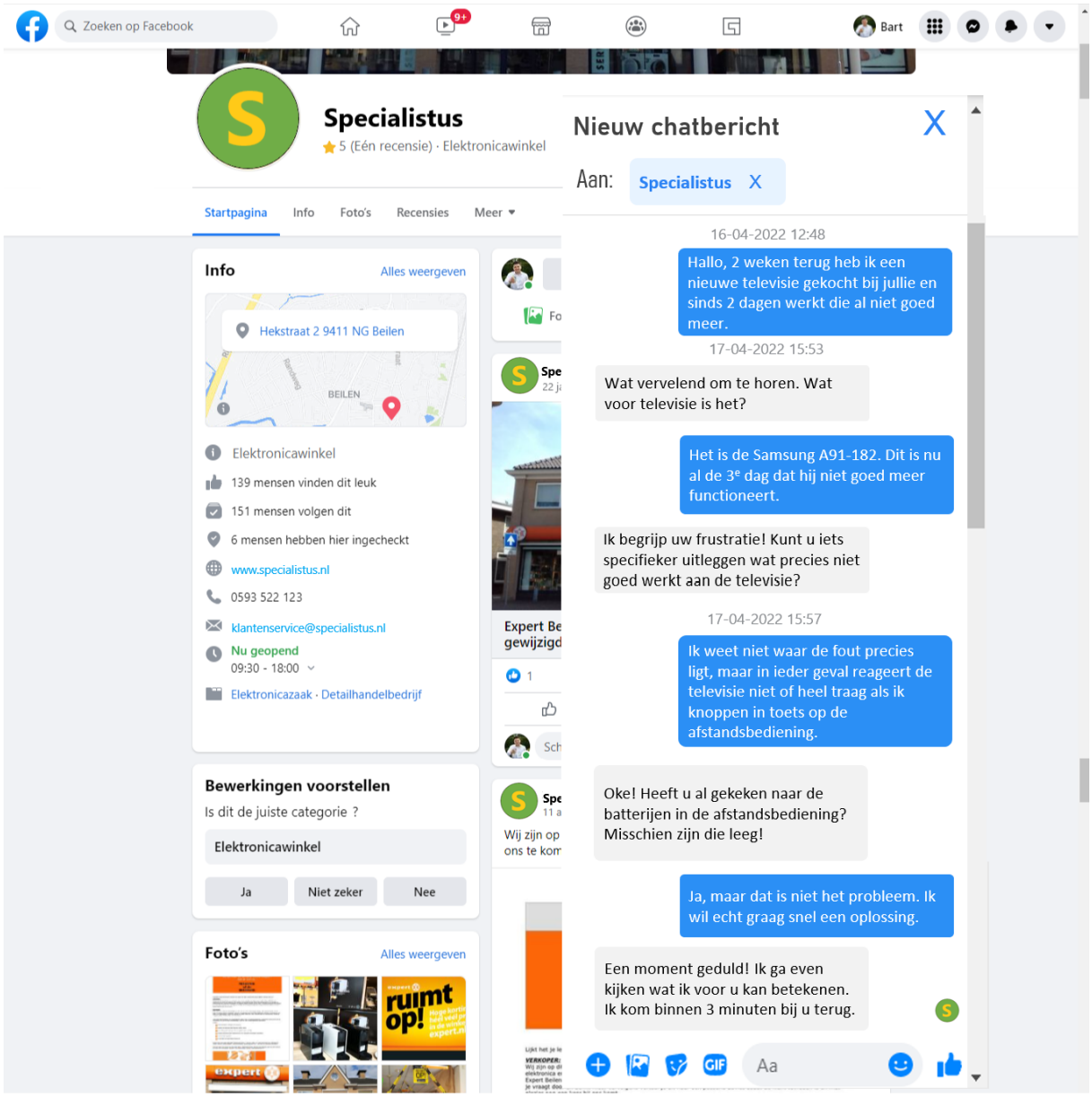


Figure 6: A screenshot of Facebook without emoji use.

- How satisfied are you with the way the employee answers your question? (Not satisfied at all – very satisfied)
- What emotion would predominate in you after reading the employee's messages? (Much frustration – Much happiness)
- What feeling would predominate in you after reading the employee's messages? (Very disappointed – Very content)
- How pleasant are the employee's messages in your eyes? (Very unpleasant – Very pleasant)
- How would you evaluate the employee? (Strongly disagree – Strongly agree)

  - Friendliness
  - Helpfulness
  - Social
  - Capable
  - Skilful
  - Competent

- The following questions are about the use of emojis in chat messages on Facebook by employees. (Strongly disagree – Strongly agree)
  - If the employee would add emojis in online website chat conversations, it would add value to the conversation.
  - Emojis can convey emotion better than when communicating is done with text only.
  - Emojis make a conversation feel more humane than communicating with text alone.
  - An online chat conversation feels better when the employee uses emojis compared to when the employee only uses text

- Here are some statements regarding emoji use in Facebook chats. (Strongly disagree – Strongly agree)
  - If a "negative" emoji is used (such as: [U+FFFD][U+FFFD] , [U+2639][U+FE0F], [U+FFFD][U+FFFD]) in a message, I would feel more empathy from the employee than if the employee is just expressing themselves with text.
  - I feel taken seriously if the employee would use emojis.
  - The employee's messages can be enhanced by the emojis.
  - Emojis give a more emotional tone to the messages.
  - The use of emojis by companies would be appropriate in Facebook chat.

- Evaluate the Facebook chat on the following points: (Strongly disagree – Strongly agree)
  - The chat looks user-friendly.
  - The chat looks clear.
  - The chat seems easy to use.
  - The chat design is clear.

- Evaluate the Facebook chat regarding usability: (Strongly disagree – Strongly agree)
  - With Facebook chat systems you will be helped quickly.
  - The Facebook chat system is useful.
  - Using Facebook chat is effective.

  - Using Facebook chat is productive.
  - The Facebook chat system improves my performance.
  - I would quickly use Facebook chat as a means of getting in touch with a company.

- In which situations would you consult a company via the Facebook chat (versus other means of contact: eg calling, e-mailing, etc.)? (Multiple answers correct)
  - If I have a complaint
  - If I have a general question about products/services
  - If I have to hurry and need a quick response by firms
  - If I have not been able to get in touch with the company after using another means of contact (e.g. calling, e-mailing or social media chat).
  - In other situation(s), namely: ... (self-written answer)
  - I would never use Facebook chat to get in touch with a company.

- The last questions are about the customer experience with regard to the Facebook chat: (Strongly disagree – Strongly agree)
  - The chat is exactly what I need in a situation like the one in the picture.
  - I am satisfied with this experience on the chat.
  - The result of the conversation turned out just as well as I had thought beforehand.
  - I look back with happiness on this experience.
  - I would definitely recommend Facebook chat to others.

Condition 4: Facebook with emoji use

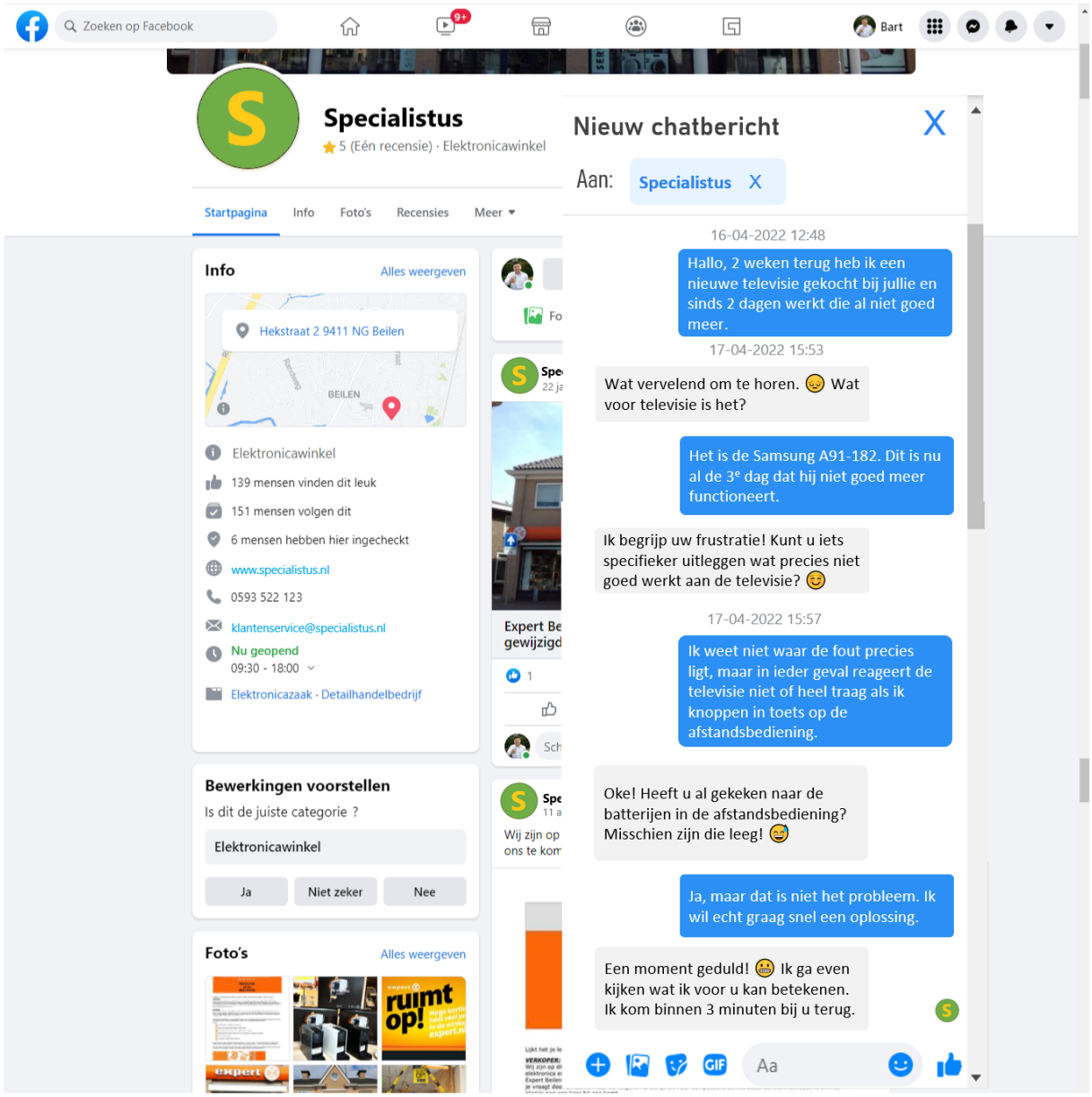


Figure 7: A screenshot of Facebook with emoji use.

- How satisfied are you with the way the employee answers your question? (Not satisfied at all – very satisfied)
- What emotion would predominate in you after reading the employee's messages? (Much frustration – Much happiness)
- What feeling would predominate in you after reading the employee's messages? (Very disappointed – Very content)
- How pleasant are the employee's messages in your eyes? (Very unpleasant – Very pleasant)
- How would you evaluate the employee? (Strongly disagree – Strongly agree)

  - Friendliness
  - Helpfulness
  - Social
  - Capable
  - Skilful
  - Competent

- Evaluate the employee's messages regarding the use of emojis (emojis are the pictures of the faces and hand in the chat messages, such as: [U+FFFD][U+FFFD] and [U+FFFD][U+FFFD]): (Strongly disagree – Strongly agree)
  - Using emojis adds value to the conversation.
  - The use of emojis showed the employee's emotion.
  - The employee's use of emojis made the conversation feel human.
  - The conversation felt better because the employee used emojis than if the employee only expresses himself with text.

- Here follow some statements about emoji use. (Strongly disagree – Strongly agree)
  - When a "negative" emoji is used (like: [U+FFFD][U+FFFD] , [U+2639][U+FE0F], [U+FFFD][U+FFFD]) in a message, I feel more empathy from the employee than if the employee is just expressing themselves with text.
  - I feel taken seriously when the employee uses emojis.
  - The employee's messages are enhanced by the emojis.
  - Emojis give an emotional tone to the messages.
  - It is clear what the emojis used in the chat mean.
  - I think the use of emojis by companies in Facebook chat is appropriate.

- Evaluate the Facebook chat on the following points: (Strongly disagree – Strongly agree)
  - The chat looks user-friendly.
  - The chat looks clear.
  - The chat seems easy to use.
  - The chat design is clear.

- Evaluate the Facebook chat regarding usability: (Strongly disagree – Strongly agree)
  - With Facebook chat systems you will be helped quickly.
  - The Facebook chat system is useful.
  - Using Facebook chat is effective.

  - Using Facebook chat is productive.
  - The Facebook chat system improves my performance.
  - I would quickly use Facebook chat as a means of getting in touch with a company.

- In which situations would you consult a company via the Facebook chat (versus other means of contact: eg calling, e-mailing, etc.)? (Multiple answers correct)
  - If I have a complaint
  - If I have a general question about products/services
  - If I have to hurry and need a quick response by firms
  - If I have not been able to get in touch with the company after using another means of contact (e.g. calling, e-mailing or social media chat).
  - In other situation(s), namely: ... (self-written answer)
  - I would never use Facebook chat to get in touch with a company.

- In which situations do you think emoji use by employees in the Facebook chat is appropriate? (Multiple answers correct)
  - If I have a complaint
  - If I have a general question about products/services
  - If I have to hurry and need a quick response by firms
  - If I have not been able to get in touch with the company after using another means of contact (e.g. calling, e-mailing or social media chat).
  - In other situation(s), namely: ... (self-written answer)
  - I believe emoji use by customers is not appropriate in Facebook chats by employees.

- The last questions are about the customer experience with regard to the Facebook chat: (Strongly disagree – Strongly agree)
  - The chat is exactly what I need in a situation like the one in the picture.
  - I am satisfied with this experience on the chat.
  - The result of the conversation turned out just as well as I had thought beforehand.
  - I look back with happiness on this experience.
  - I would definitely recommend Facebook chat to others.

Appendix B Calculation of minimum sample size by G*Power

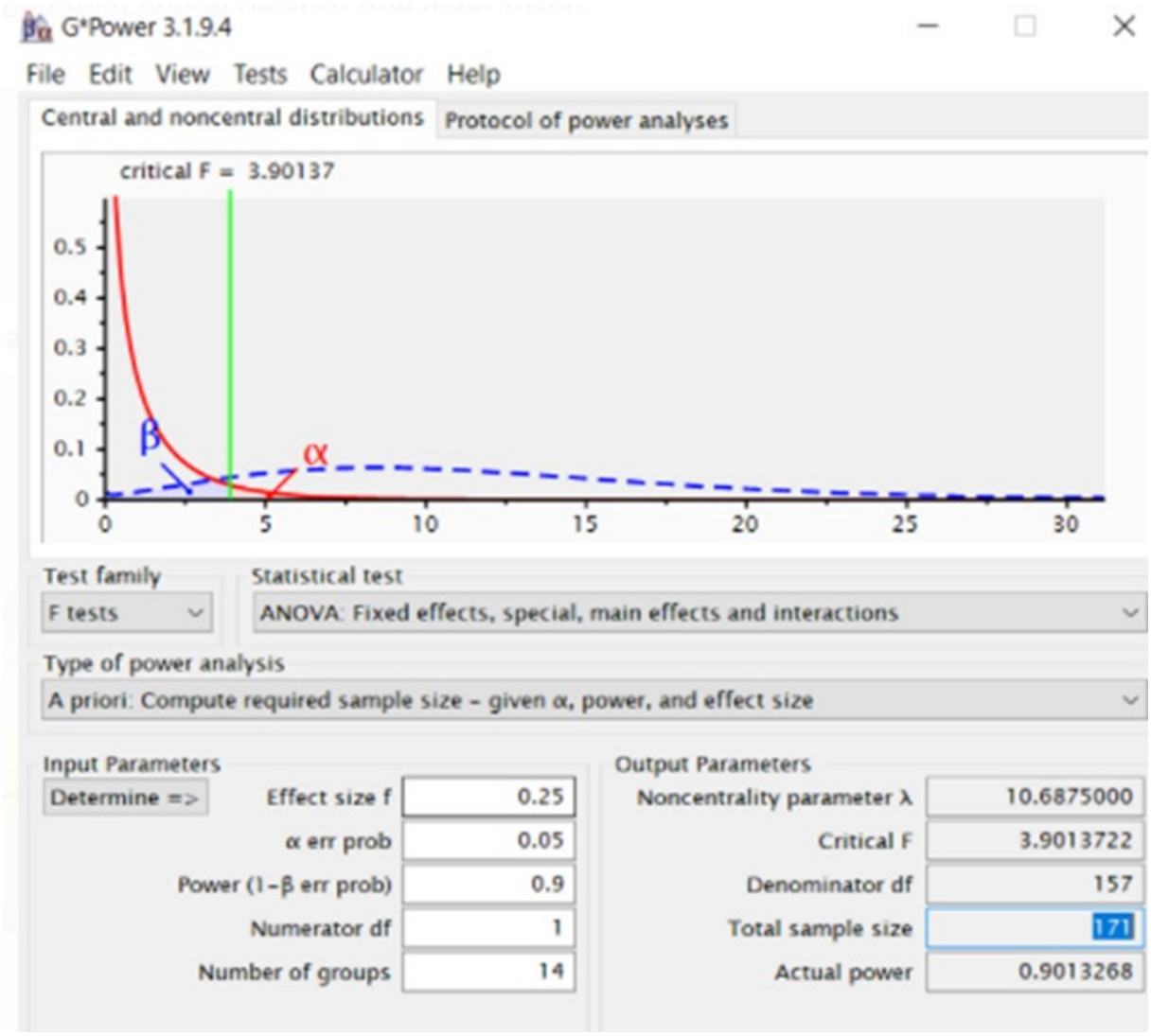


Figure 8: Calculation of the sample size by software program G*Power.

Appendix C Descriptive statistics

Frequencies

Statistics

		Gender	Age	AgeGenerations	Province	Educationallevel	Worksituation	Website_familiarity	FB_familiarity
N	Valid	186	186	186	186	186	186	186	186
	Missing	0	0	0	0	0	0	0	0
Mean		1,70	32,8978	2,39	6,30	4,13	2,19	1,9731183	1,18
Std. Error of Mean		,034	1,07389	,067	,161	,148	,097	,01189119	,028
Median		2,00	25,0000	2,00	6,00	5,00	2,00	2,0000000	1,00
Mode		2	24,00	2	6	6	1	2,00000	1
Std. Deviation		,458	14,64592	,913	2,197	2,023	1,317	,16217427	,383
Variance		,209	214,503	,834	4,828	4,091	1,735	,026	,147
Skewness		-,903	1,097	,861	1,314	-,111	1,717	-5,898	1,703
Std. Error of Skewness		,178	,178	,178	,178	,178	,178	,178	,178
Kurtosis		-1,198	-,192	-,037	1,338	-1,491	3,892	33,144	,908
Std. Error of Kurtosis		,355	,355	,355	,355	,355	,355	,355	,355
Minimum		1	14,00	1	3	1	1	1,00000	1
Maximum		2	78,00	5	13	7	7	2,00000	2

Figure 9: Frequency statistics

Frequency bar charts

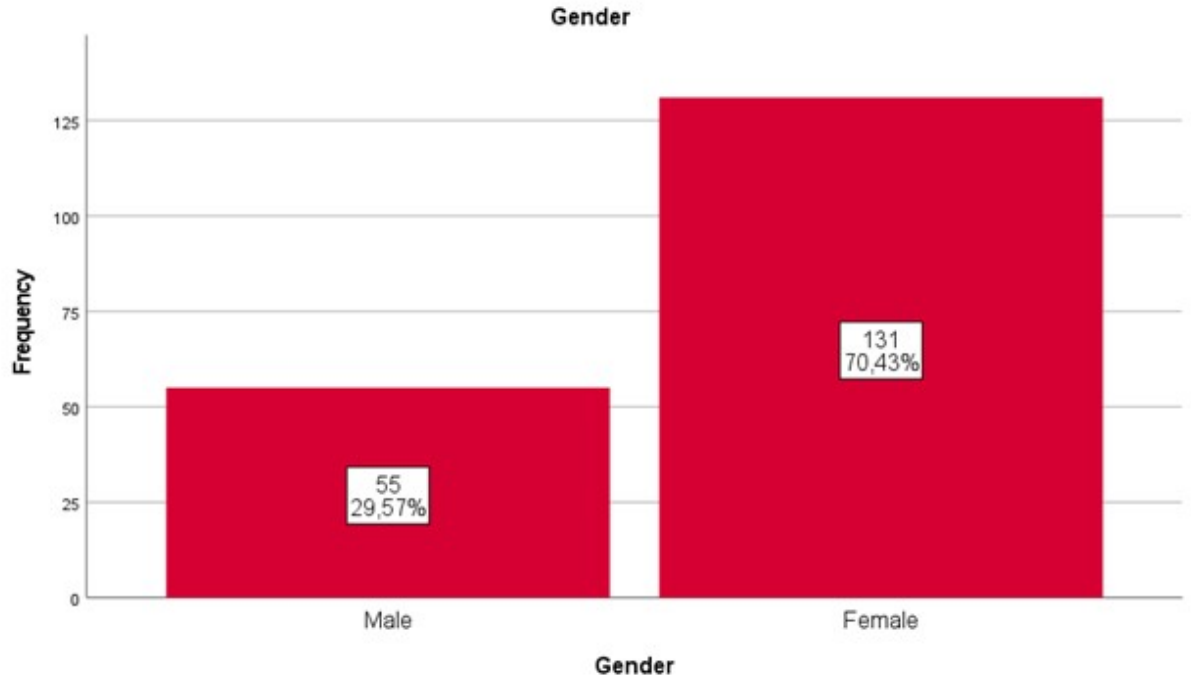


Figure 10: Gender

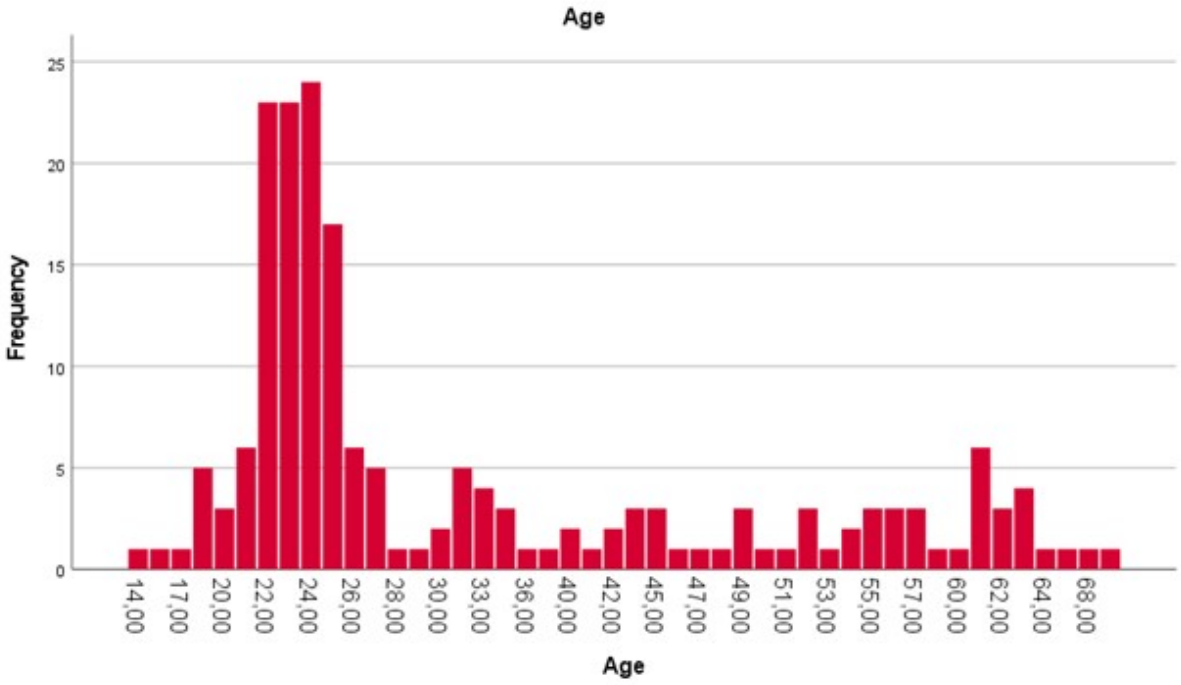


Figure 11: Age

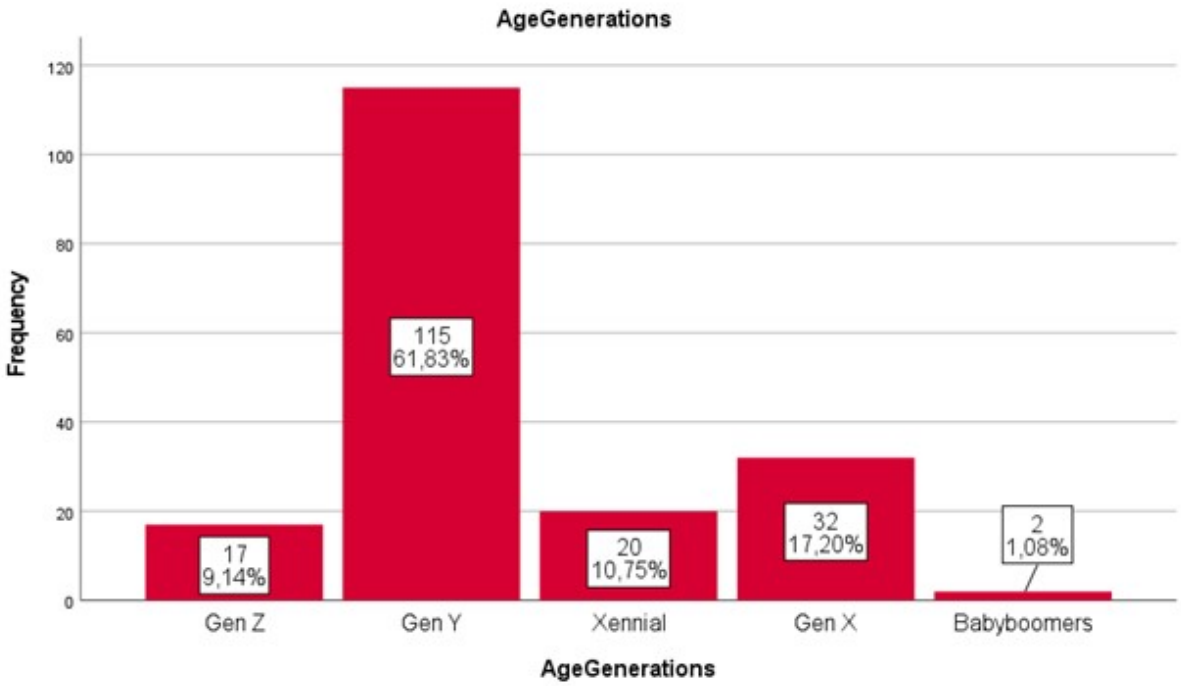


Figure 12: Age groups divided into generations

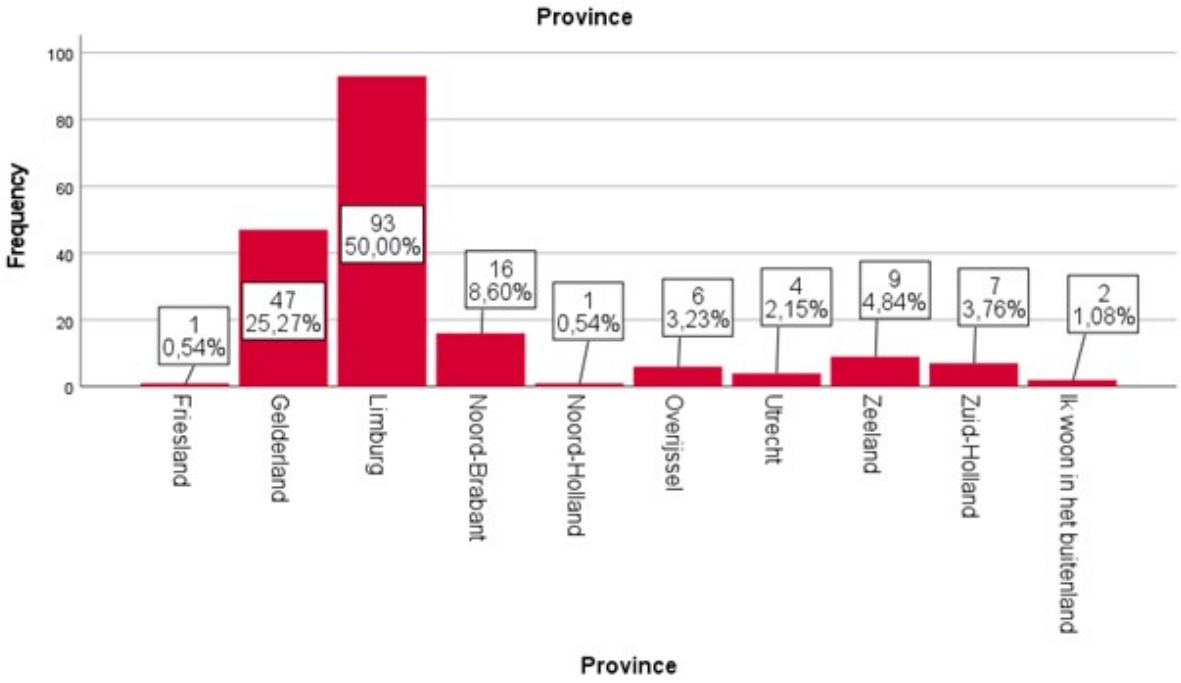


Figure 13: Province

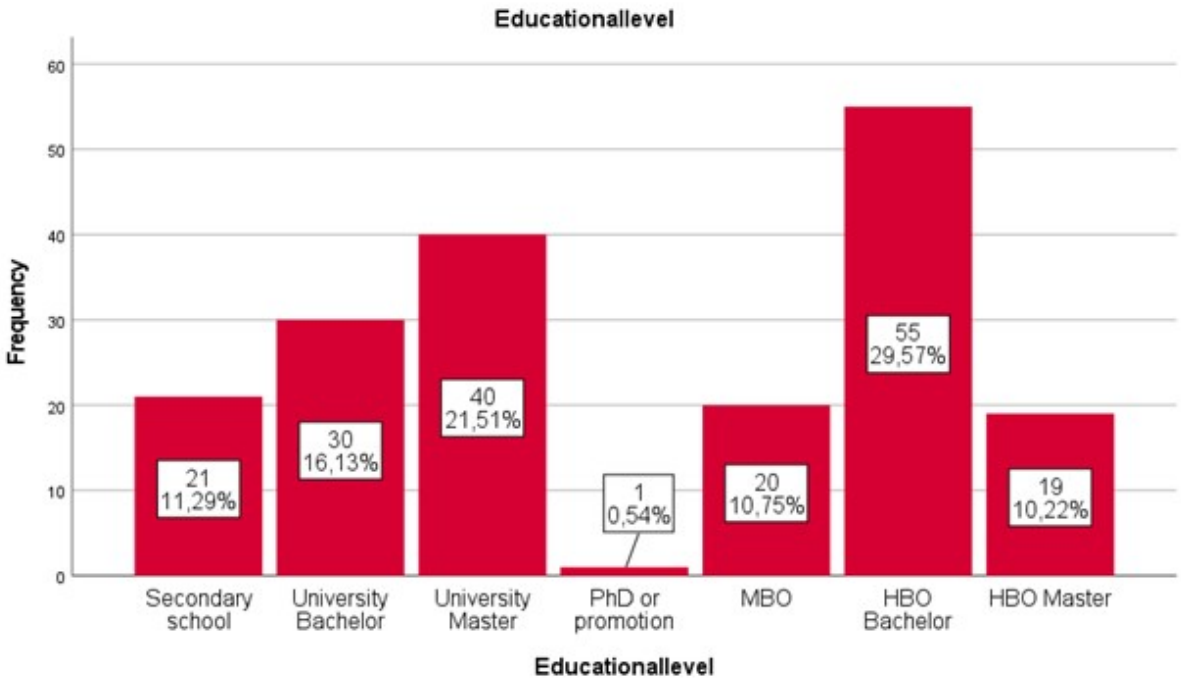


Figure 14: Educational level

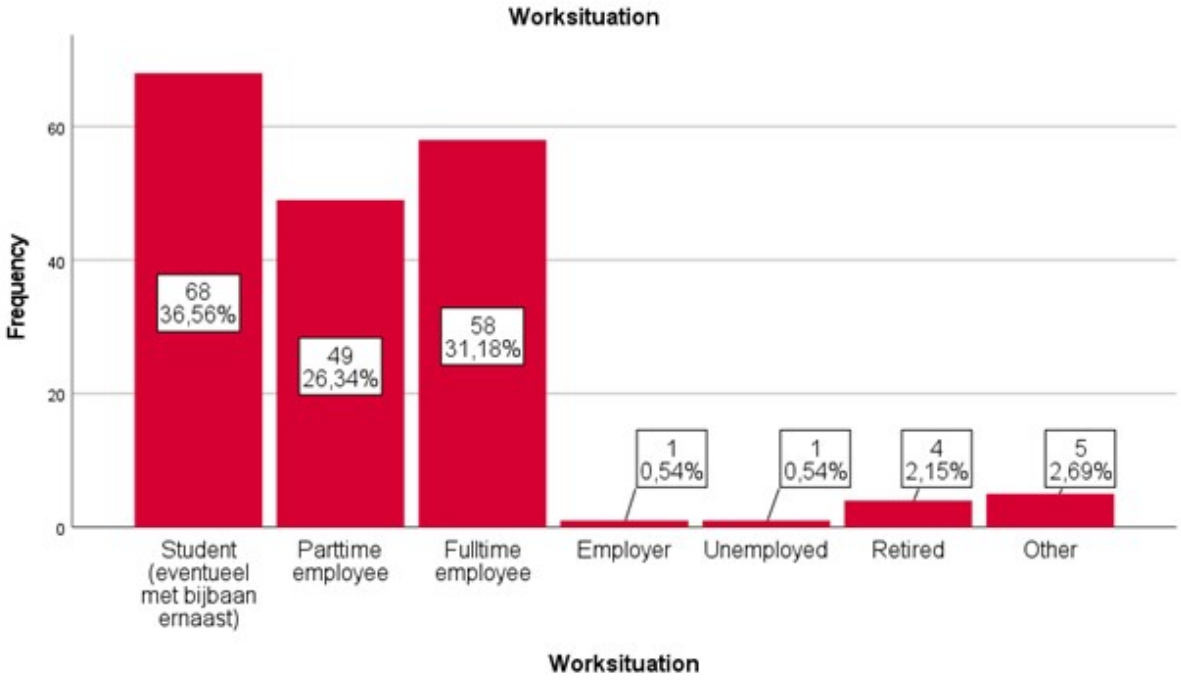


Figure 15: Work-life situation

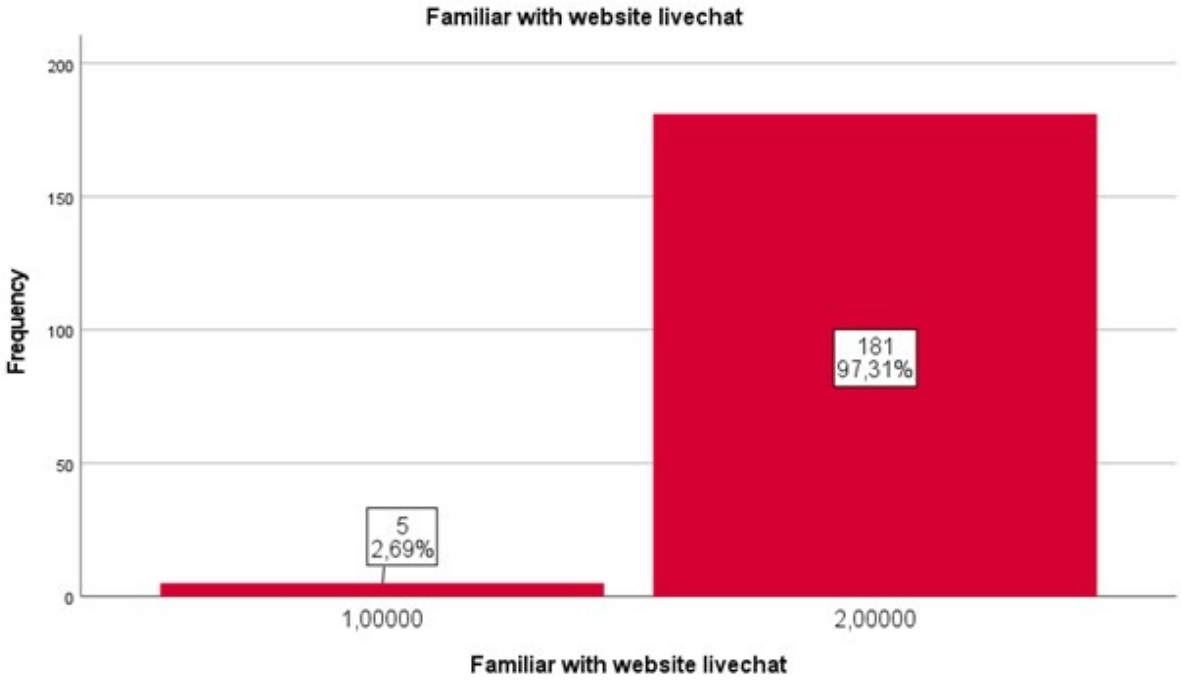


Figure 16: Familiarity with website livechat

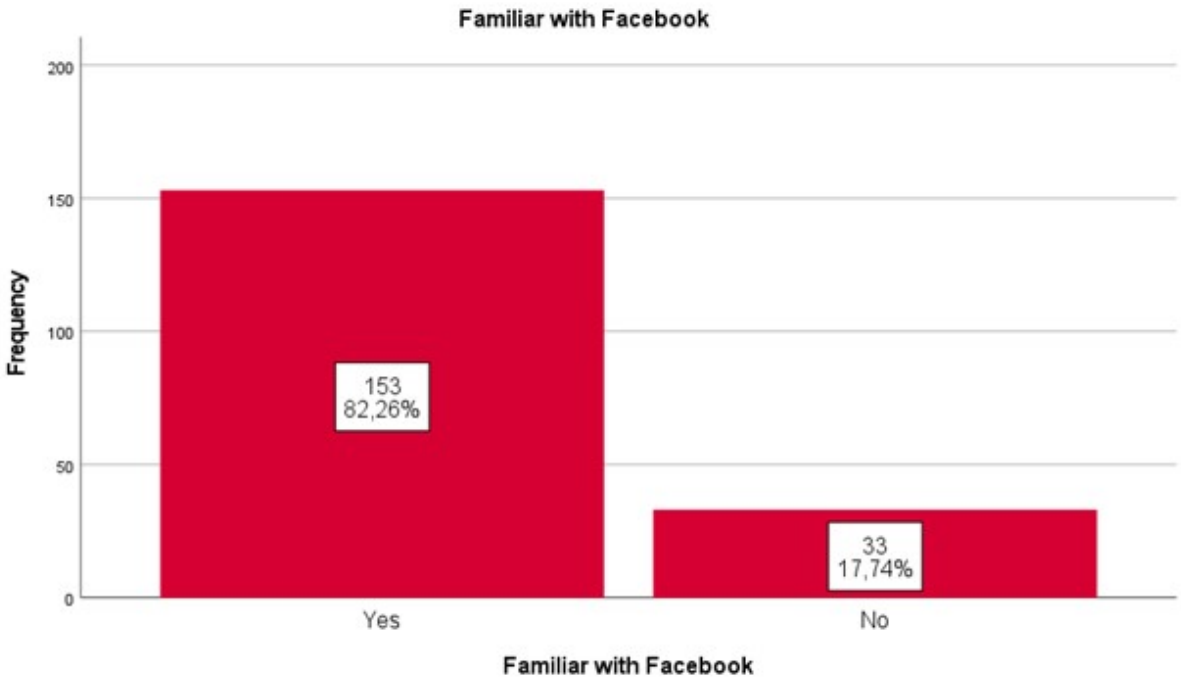


Figure 17: Familiarity with Facebook Messenger

Appendix D Factor analysis output (attempt 1)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,914
Bartlett's Test of Sphericity	Approx. Chi-Square	3824,059
	df	406
	Sig.	,000

Communalities

	Initial	Extraction
satisfaction_combined1	1,000	,810
satisfaction_combined2	1,000	,557
satisfaction_combined3	1,000	,636
satisfaction_combined4	1,000	,783
warmth_combined1	1,000	,636
warmth_combined2	1,000	,616
warmth_combined3	1,000	,422
competence_combined1	1,000	,637
competence_combined2	1,000	,728
competence_combined3	1,000	,672
emoji_combined11	1,000	,754
emoji_combined12	1,000	,543
emoji_combined13	1,000	,679
emoji_combined14	1,000	,808
emoji_combined21	1,000	,799
emoji_combined22	1,000	,771
emoji_combined23	1,000	,666
emoji_combined24	1,000	,584
emoji_combined25	1,000	,645
usability_combined1	1,000	,538
usability_combined2	1,000	,629
usability_combined3	1,000	,717
usability_combined4	1,000	,716
usability_combined5	1,000	,476
experience_combined1	1,000	,492
experience_combined2	1,000	,725
experience_combined3	1,000	,674
experience_combined4	1,000	,632
experience_combined5	1,000	,589

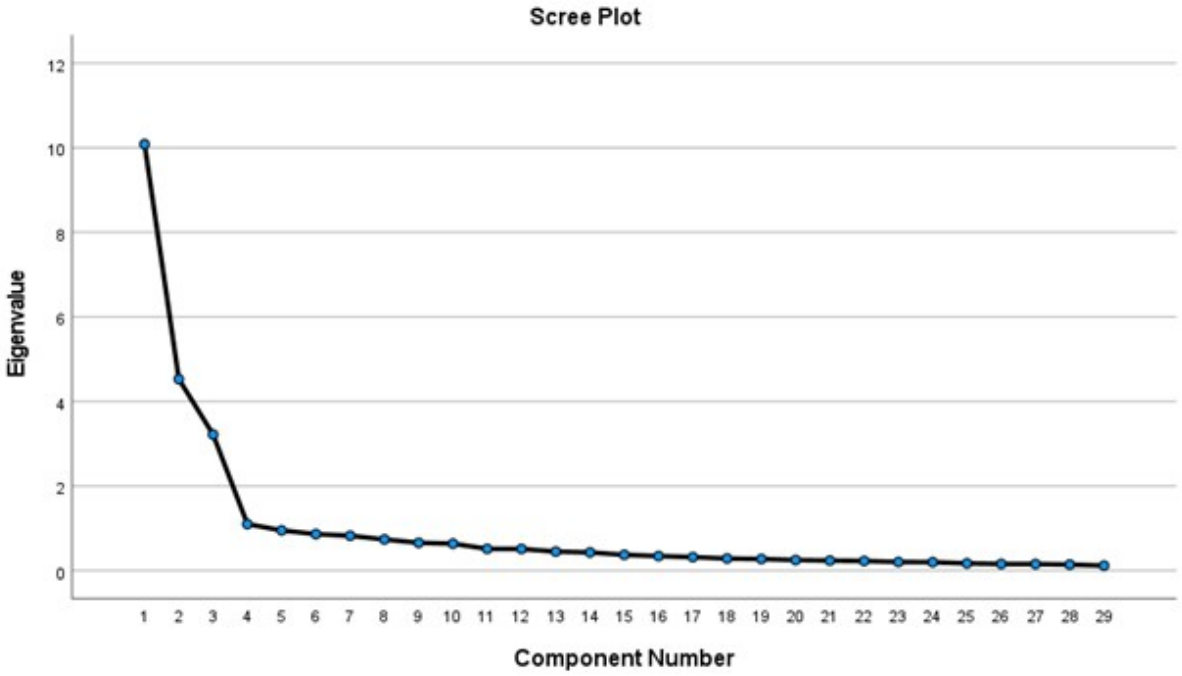
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings [a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	10,085	34,776	34,776	10,085	34,776	34,776	6,623
2	4,529	15,617	50,393	4,529	15,617	50,393	7,239
3	3,220	11,102	61,495	3,220	11,102	61,495	5,545
4	1,102	3,799	65,294	1,102	3,799	65,294	5,557
5	,952	3,283	68,577				
6	,865	2,982	71,559				
7	,826	2,847	74,406				
8	,739	2,547	76,953				
9	,659	2,271	79,224				
10	,638	2,202	81,426				
11	,516	1,780	83,206				
12	,514	1,773	84,978				
13	,451	1,556	86,534				
14	,430	1,484	88,018				
15	,375	1,293	89,311				
16	,345	1,189	90,500				
17	,320	1,103	91,603				
18	,287	,989	92,592				
19	,275	,949	93,541				
20	,251	,867	94,408				
21	,238	,821	95,229				
22	,229	,788	96,017				
23	,205	,707	96,724				
24	,200	,689	97,414				
25	,172	,594	98,007				
26	,159	,547	98,554				
27	,157	,541	99,095				
28	,144	,497	99,592				
29	,118	,408	100,000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.


Scree Plot
Eigenvalue
12
10
8
6
4
2
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
Component Number

Pattern Matrix[a]

	Component			
	1	2	3	4
satisfaction_combined1	,767			
satisfaction_combined2	,662			
satisfaction_combined3	,625			
satisfaction_combined4	,708			-,304
warmth_combined1	,831			
warmth_combined2	,789			
warmth_combined3	,664			
competence_combined1	,302			-,597
competence_combined2				-,694
competence_combined3	,382			-,567
emoji_combined11		,850		
emoji_combined12		,668		
emoji_combined13		,823		
emoji_combined14		,921		
emoji_combined21		,909		
emoji_combined22		,869		
emoji_combined23		,798		
emoji_combined24		,715		
emoji_combined25		,817		
usability_combined1			,703	
usability_combined2			,814	
usability_combined3			,852	
usability_combined4			,824	
usability_combined5			,645	
experience_combined1			,569	-,330
experience_combined2			,423	-,523
experience_combined3				-,606
experience_combined4				-,527
experience_combined5			,660	

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.[a]

a. Rotation converged in 16 iterations.

Component Correlation Matrix

Component	1	2	3	4
1	1,000	,226	,203	-,435
2	,226	1,000	,249	-,203
3	,203	,249	1,000	-,261
4	-,435	-,203	-,261	1,000

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

Figure 18: The SPSS output of the initial factor analysis

Appendix E Factor analysis output (attempt 2)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,906
Bartlett's Test of Sphericity	Approx. Chi-Square	3403,835
	df	351
	Sig.	,000

Communalities

	Initial	Extraction
satisfaction_combined1	1,000	,812
satisfaction_combined2	1,000	,565
satisfaction_combined3	1,000	,648
satisfaction_combined4	1,000	,792
warmth_combined1	1,000	,630
warmth_combined2	1,000	,620
warmth_combined3	1,000	,410
competence_combined1	1,000	,627
competence_combined2	1,000	,731
emoji_combined11	1,000	,759
emoji_combined12	1,000	,539
emoji_combined13	1,000	,689
emoji_combined14	1,000	,812
emoji_combined21	1,000	,802
emoji_combined22	1,000	,781
emoji_combined23	1,000	,669
emoji_combined24	1,000	,615
emoji_combined25	1,000	,653
usability_combined1	1,000	,530
usability_combined2	1,000	,644
usability_combined3	1,000	,729
usability_combined4	1,000	,722
usability_combined5	1,000	,481
experience_combined1	1,000	,475
experience_combined3	1,000	,658
experience_combined4	1,000	,645
experience_combined5	1,000	,585

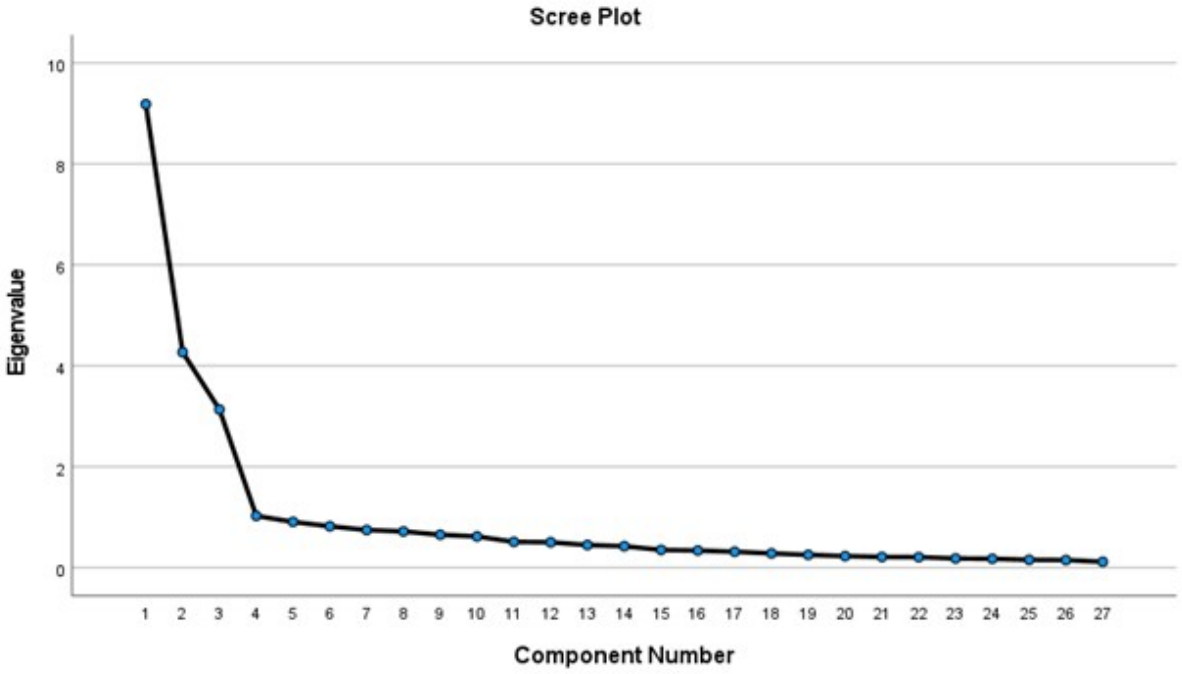
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	9,185	34,020	34,020	9,185	34,020	34,020	6,345
2	4,271	15,819	49,839	4,271	15,819	49,839	7,092
3	3,136	11,615	61,454	3,136	11,615	61,454	5,348
4	1,029	3,810	65,264	1,029	3,810	65,264	3,018
5	,909	3,365	68,630				
6	,822	3,046	71,675				
7	,749	2,772	74,448				
8	,720	2,667	77,115				
9	,655	2,425	79,540				
10	,621	2,299	81,839				
11	,514	1,902	83,741				
12	,505	1,871	85,612				
13	,451	1,670	87,283				
14	,427	1,583	88,866				
15	,354	1,312	90,178				
16	,342	1,266	91,444				
17	,318	1,178	92,622				
18	,285	1,056	93,677				
19	,257	,950	94,628				
20	,231	,857	95,484				
21	,215	,796	96,280				
22	,210	,779	97,059				
23	,185	,685	97,743				
24	,179	,662	98,405				
25	,158	,586	98,992				
26	,154	,569	99,561				
27	,119	,439	100,000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.


Scree Plot
Eigenvalue
10
8
6
4
2
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
Component Number

Pattern Matrix[a]

	Component			
	1	2	3	4
satisfaction_combined1	,838			
satisfaction_combined2	,711			
satisfaction_combined3	,685			
satisfaction_combined4	,789			
warmth_combined1	,824			
warmth_combined2	,812			
warmth_combined3	,664			
competence_combined1	,429			-,500
competence_combined2	,380			-,602
emoji_combined11		-,846		
emoji_combined12		-,669		
emoji_combined13		-,823		
emoji_combined14		-,921		
emoji_combined21		-,909		
emoji_combined22		-,867		
emoji_combined23		-,796		
emoji_combined24		-,714		
emoji_combined25		-,814		
usability_combined1			,683	
usability_combined2			,812	
usability_combined3			,869	
usability_combined4			,837	
usability_combined5			,673	
experience_combined1			,603	
experience_combined3	,337		,321	-,492
experience_combined4	,311		,330	-,456
experience_combined5			,681	

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.[a]

a. Rotation converged in 12 iterations.

Component Correlation Matrix

Component	1	2	3	4
1	1,000	-,238	,246	-,312
2	-,238	1,000	-,261	,142
3	,246	-,261	1,000	-,169
4	-,312	,142	-,169	1,000

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

Figure 19: The SPSS output of the second factor analysis

Appendix F Factor analysis output (attempt 3-final version)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,898
Bartlett's Test of Sphericity	Approx. Chi-Square	2947,011
	df	276
	Sig.	,000

Communalities

	Initial	Extraction
satisfaction_combined1	1,000	,808
satisfaction_combined2	1,000	,576
satisfaction_combined3	1,000	,664
satisfaction_combined4	1,000	,789
warmth_combined1	1,000	,545
warmth_combined2	1,000	,582
warmth_combined3	1,000	,402
competence_combined2	1,000	,516
emoji_combined11	1,000	,753
emoji_combined12	1,000	,541
emoji_combined13	1,000	,674
emoji_combined14	1,000	,803
emoji_combined21	1,000	,791
emoji_combined22	1,000	,756
emoji_combined23	1,000	,662
emoji_combined24	1,000	,540
emoji_combined25	1,000	,642
usability_combined1	1,000	,455
usability_combined2	1,000	,603
usability_combined3	1,000	,735
usability_combined4	1,000	,725
usability_combined5	1,000	,474
experience_combined1	1,000	,450
experience_combined5	1,000	,582

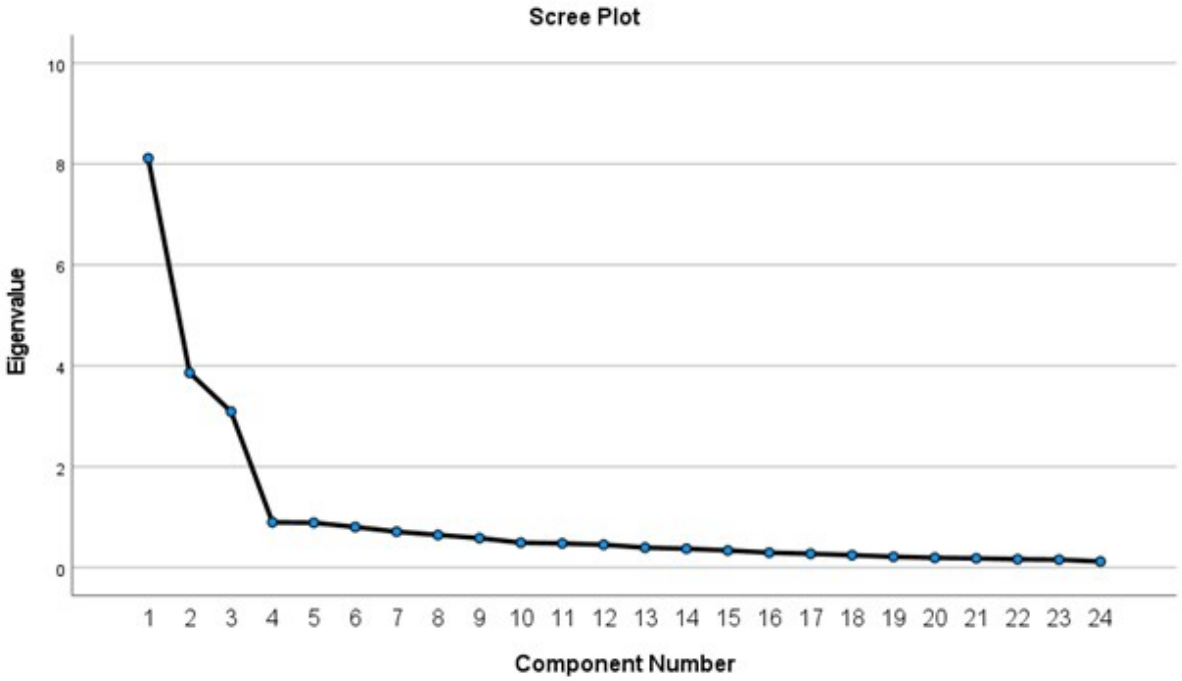
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings [a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8,114	33,809	33,809	8,114	33,809	33,809	6,874
2	3,862	16,091	49,900	3,862	16,091	49,900	5,597
3	3,092	12,884	62,784	3,092	12,884	62,784	4,855
4	,899	3,744	66,528				
5	,889	3,705	70,234				
6	,804	3,352	73,586				
7	,712	2,966	76,552				
8	,647	2,697	79,249				
9	,585	2,436	81,685				
10	,494	2,058	83,743				
11	,480	1,999	85,742				
12	,454	1,890	87,632				
13	,396	1,652	89,284				
14	,375	1,563	90,847				
15	,340	1,415	92,261				
16	,297	1,238	93,499				
17	,275	1,146	94,645				
18	,247	1,028	95,673				
19	,215	,897	96,569				
20	,195	,811	97,380				
21	,184	,766	98,147				
22	,166	,691	98,838				
23	,158	,657	99,495				
24	,121	,505	100,000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.


Scree Plot
Eigenvalue
10
8
6
4
2
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Component Number

Pattern Matrix[a]

	Component		
	Factor 1 - Customer satisfaction	Factor 2 - Evaluation of emojis	Factor 3 - Evaluation of digital touchpoint
satisfaction_combined1	,881		
satisfaction_combined2	,753		
satisfaction_combined3	,763		
satisfaction_combined4	,887		
warmth_combined1	,739		
warmth_combined2	,772		
warmth_combined3	,658		
competence_combined2	,642		
emoji_combined11		,846	
emoji_combined12		,665	
emoji_combined13		,820	
emoji_combined14		,925	
emoji_combined21		,910	
emoji_combined22		,866	
emoji_combined23		,794	
emoji_combined24		,714	
emoji_combined25		,816	
usability_combined1			,656
usability_combined2			,801
usability_combined3			,876
usability_combined4			,840
usability_combined5			,690
experience_combined1			,628
experience_combined5			,695

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.[a]

a. Rotation converged in 5 iterations.

Component Correlation Matrix

Component	1	2	3
1	1,000	,259	,276
2	,259	1,000	,249
3	,276	,249	1,000

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

Figure 20: The SPSS output of the final factor analysis

Appendix G Correlations of the items within factors - Convergent validity & Discriminant validity

		satisfaction_combined1	satisfaction_combined2	satisfaction_combined3	satisfaction_combined4	warmth_combined1	warmth_combined2	warmth_combined3	competence_combined2	emoji_combined11	emoji_combined12	emoji_combined13	emoji_combined14	emoji_combined21	emoji_combined22	emoji_combined23	emoji_combined24	emoji_combined25
satisfaction_combined1	Pearson Correlation	1	,887**	,711**	,806**	,843**	,597**	,494**	,580**	,275**	,304**	,244**	,178*	,244**	,232**	,274**	,203**	,153*
	Sig. (1-tailed)		0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,008	0,000	0,001	0,000	0,003	0,019
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185
satisfaction_combined2	Pearson Correlation	,887**	1	,704**	,811**	,487**	,431**	,296**	,421**	,238**	,183*	,152*	,152*	,139	,203**	,215**	,179*	,164*
	Sig. (1-tailed)	0,000		0,000	0,000	0,000	0,000	0,000	0,000	0,001	0,006	0,020	0,019	0,030	0,003	0,002	0,007	0,013
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185
satisfaction_combined3	Pearson Correlation	,711**	,704**	1	,883**	,529**	,465**	,338**	,534**	,343**	,282**	,275**	,225**	,235**	,294**	,285**	,281**	,315**
	Sig. (1-tailed)	0,000	0,000		0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,001	0,001	0,000	0,000	0,000	0,000
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185
satisfaction_combined4	Pearson Correlation	,806**	,811**	,883**	1	,572**	,644**	,513**	,615**	,287**	,255**	,195**	,188**	,228**	,255**	,214**	,135*	,172**
	Sig. (1-tailed)	0,000	0,000	0,000		0,000	0,000	0,000	0,000	0,000	0,000	0,004	0,012	0,001	0,000	0,002	0,034	0,009
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185
warmth_combined1	Pearson Correlation	,843**	,487**	,529**	,572**	1	,548**	,354**	,428**	,190**	0,103	0,119	0,057	0,101	,162*	,149*	,183*	,123*
	Sig. (1-tailed)	0,000	0,000	0,000	0,000		0,000	0,000	0,000	0,005	0,081	0,053	0,221	0,085	0,014	0,021	0,006	0,047
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185
warmth_combined2	Pearson Correlation	,597**	,431**	,465**	,644**	,548**	1	,535**	,440**	,131*	0,119	,159*	0,081	,127*	,122*	,122*	0,098	0,047
	Sig. (1-tailed)	0,000	0,000	0,000	0,000	0,000		0,000	0,000	0,038	0,053	0,015	0,203	0,042	0,049	0,050	0,093	0,265
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185
warmth_combined3	Pearson Correlation	,494**	,296**	,338**	,513**	,354**	,535**	1	,377**	,157*	0,055	,123*	0,051	,144*	,131*	0,065	0,010	,135*
	Sig. (1-tailed)	0,000	0,000	0,000	0,000	0,000	0,000		0,000	0,017	0,230	0,047	0,244	0,025	0,038	0,190	0,447	0,033
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185
competence_combined2	Pearson Correlation	,580**	,421**	,534**	,615**	,428**	,440**	,377**	1	,253**	,246**	,202**	,210**	,178*	,329**	,223**	,198**	,280**
	Sig. (1-tailed)	0,000	0,000	0,000	0,000	0,000	0,000	0,000		0,000	0,000	0,003	0,002	0,008	0,000	0,001	0,017	0,000
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185
emoji_combined11	Pearson Correlation	,275**	,238**	,343**	,287**	,190**	,131*	,157*	,253**	1	,598**	,615**	,772**	,738**	,789**	,885**	,510**	,721**
	Sig. (1-tailed)	0,000	0,001	0,000	0,000	0,005	0,038	0,017	0,000		0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185
emoji_combined12	Pearson Correlation	,304**	,183*	,282**	,255**	0,103	0,119	0,055	,246**	,598**	1	,619**	,546**	,590**	,541**	,579**	,511**	,408**
	Sig. (1-tailed)	0,000	0,006	0,000	0,000	0,081	0,053	0,230	0,000	0,000		0,000	0,000	0,000	0,000	0,000	0,000	0,000
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185
emoji_combined13	Pearson Correlation	,244**	,152*	,275**	,195**	0,119	,159*	,123*	,202**	,615**	,619**	1	,687**	,698**	,621**	,606**	,674**	,585**
	Sig. (1-tailed)	0,000	0,020	0,000	0,004	0,053	0,015	0,047	0,003	0,000	0,000		0,000	0,000	0,000	0,000	0,000	0,000

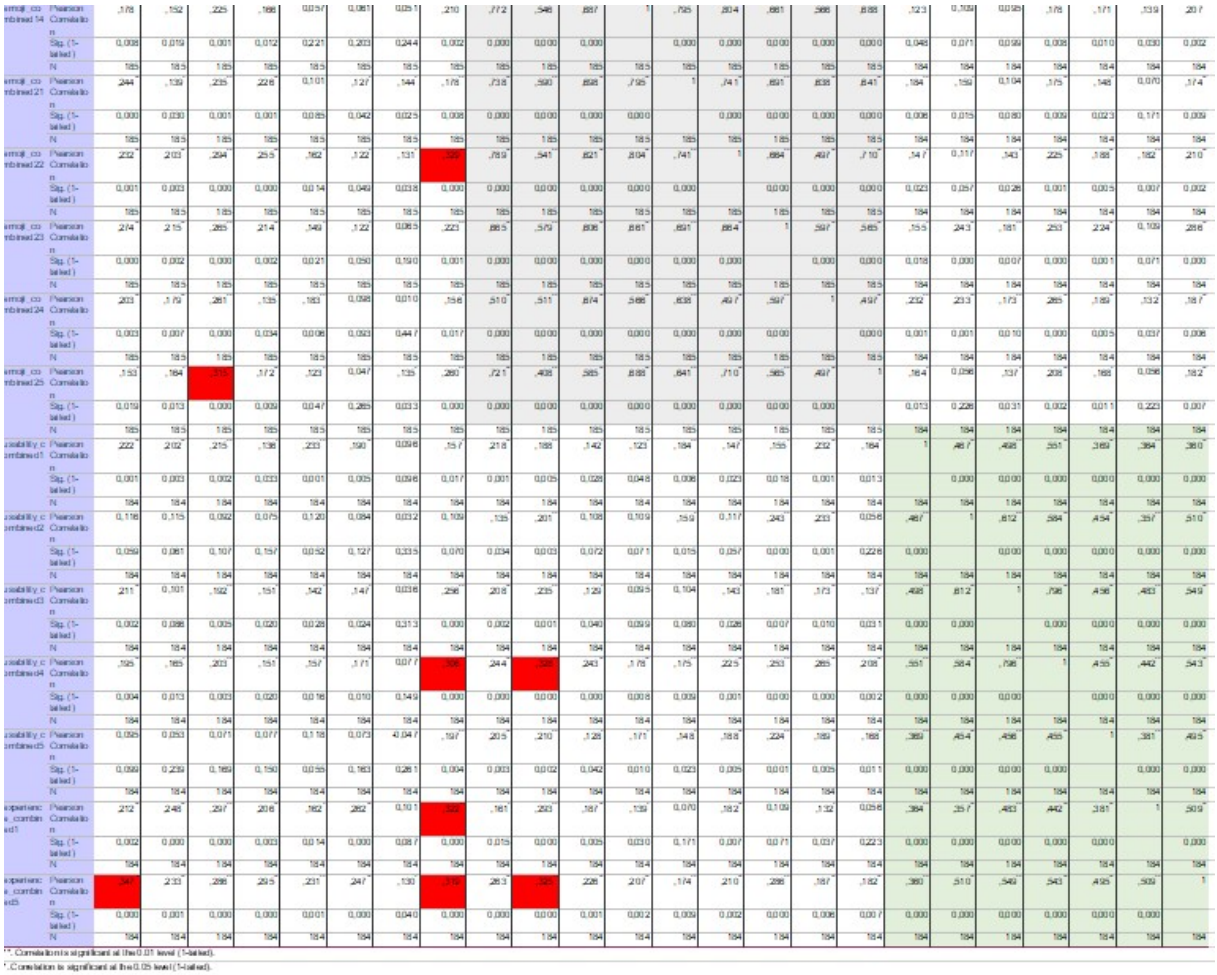


Figure 21: Correlations of the items within factors - Convergent validity & Discriminant validity

Appendix H Reliability analysis of the four factors

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,900	,902	8

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
satisfaction_combined1	22,50	19,588	,846	,752	,871
satisfaction_combined2	23,02	22,826	,657	,559	,891
satisfaction_combined3	22,94	22,545	,724	,622	,886
satisfaction_combined4	22,57	19,550	,839	,735	,871
warmth_combined1	22,10	21,414	,660	,471	,889
warmth_combined2	22,14	21,230	,671	,514	,889
warmth_combined3	21,78	22,793	,527	,353	,901
competence_combined1	22,68	21,392	,609	,421	,895

Figure 22: Scale: Factor 1: Customer Satisfaction

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,940	,939	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
emoji_combined11	22,49	51,534	,820	,729	,929
emoji_combined12	21,70	55,221	,649	,483	,939
emoji_combined13	21,91	53,547	,774	,646	,932
emoji_combined14	22,36	52,122	,847	,763	,928
emoji_combined21	21,95	51,301	,848	,735	,928
emoji_combined22	22,52	53,403	,822	,744	,930
emoji_combined23	21,93	53,522	,762	,595	,933
emoji_combined24	21,67	55,103	,672	,540	,938
emoji_combined25	22,34	53,682	,727	,604	,935

Figure 23: Scale: Factor 2: Evaluation of emoji use

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,863	,869	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
usability_combined1	19,52	18,163	,559	,354	,853
usability_combined2	19,28	17,710	,653	,463	,841
usability_combined3	19,46	17,058	,754	,685	,828
usability_combined4	19,56	17,144	,747	,681	,829
usability_combined5	20,05	16,670	,568	,334	,856
experience_combined1	20,21	17,269	,552	,337	,856
experience_combined5	19,67	16,540	,659	,459	,840

Figure 24: Scale: Factor 3: Evaluation of digital touchpoint

Appendix I Output Base model - Univariate ANOVA (and normality)

Between-Subjects Factors

		N
emoji	0	90
	1	92
digital_touchpoint	0	92
	1	90

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
F1_Customer_Satisfaction_NOoutliers	Based on Mean	2,205	3	178	,089
	Based on Median	1,508	3	178	,214
	Based on Median and with adjusted df	1,508	3	170,033	,214
	Based on trimmed mean	2,128	3	178	,098

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: F1_Customer_Satisfaction_NOoutliers

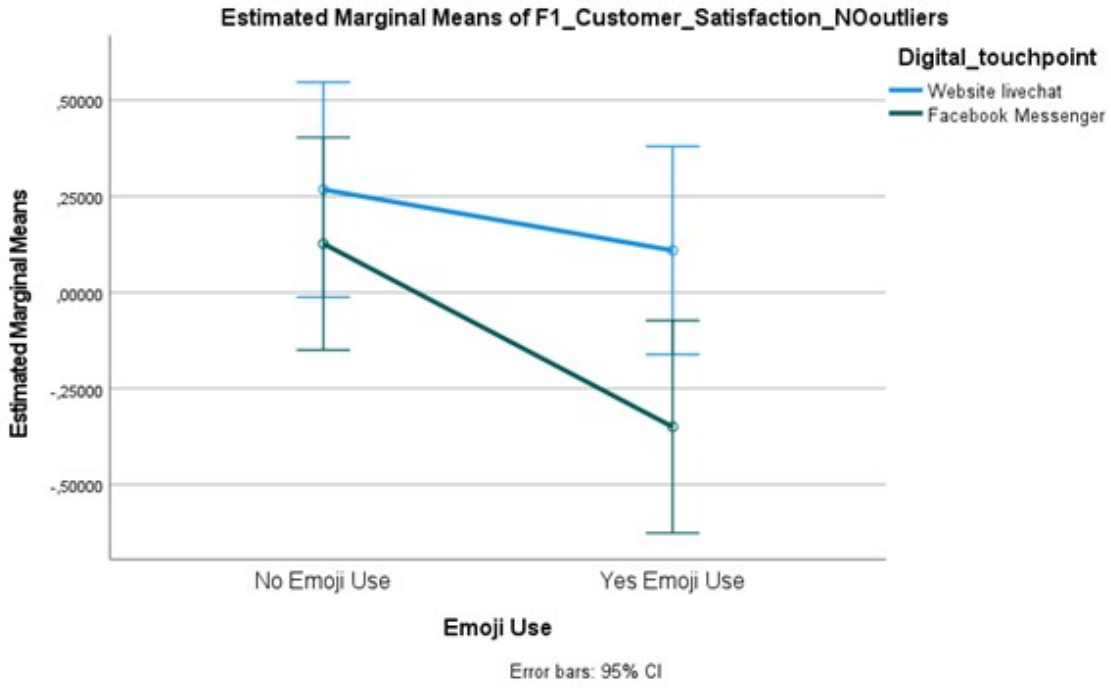
b. Design: Intercept + emoji + digital_touchpoint + emoji * digital_touchpoint

Tests of Between-Subjects Effects

Dependent Variable: F1_Customer_Satisfaction_NOoutliers

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	8,931[a]	3	2,977	3,315	,021	,053
Intercept	,145	1	,145	,161	,688	,001
emoji	3,999	1	3,999	4,453	,036	,024
digital_touchpoint	3,542	1	3,542	3,945	,049	,022
emoji * digital_touchpoint	1,473	1	1,473	1,640	,202	,009
Error	159,825	178	,898			
Total	168,910	182				
Corrected Total	168,755	181				

a. R Squared = ,053 (Adjusted R Squared = ,037)



Case Processing Summary

		Cases					
		Valid		Missing		Total	
	Four_conditions	N	Percent	N	Percent	N	Percent
F1_Customer_Satisfaction _NOoutliers	1	44	95,7%	2	4,3%	46	100,0%
	2	47	97,9%	1	2,1%	48	100,0%
	3	45	97,8%	1	2,2%	46	100,0%
	4	45	100,0%	0	0,0%	45	100,0%

Tests of Normality

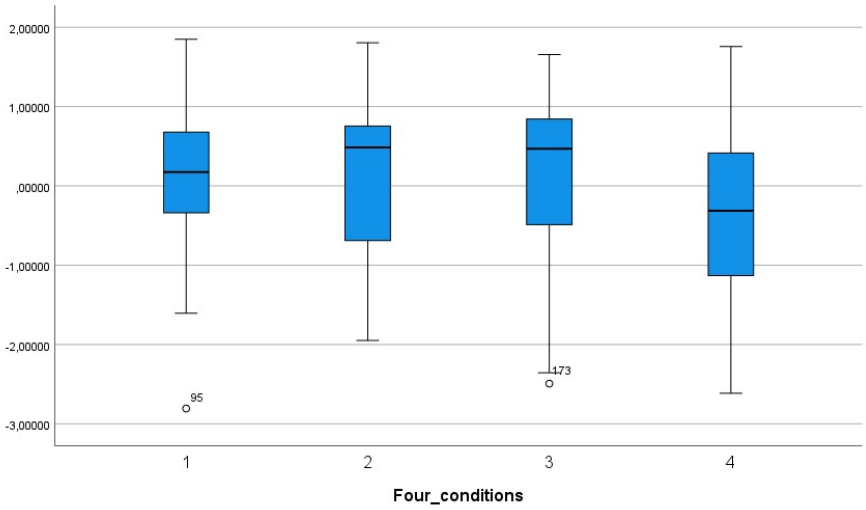
		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Four_conditions	Statistic	df	Sig.	Statistic	df	Sig.
F1_Customer_Satisfaction _NOoutliers	1	,082	44	,200*	,985	44	,839
	2	,169	47	,002	,922	47	,004
	3	,163	45	,004	,945	45	,032
	4	,090	45	,200*	,981	45	,670

*. This is a lower bound of the true significance.

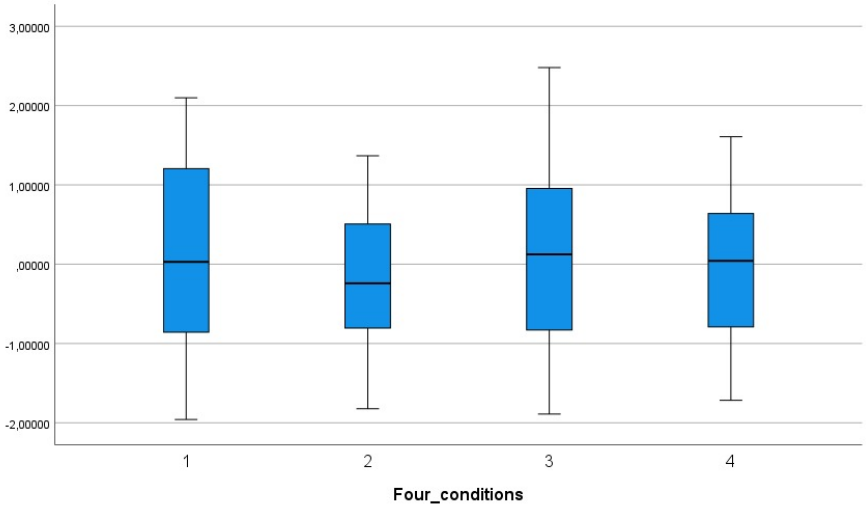
a. Lilliefors Significance Correction

Figure 25: The output of the factorial ANOVA.

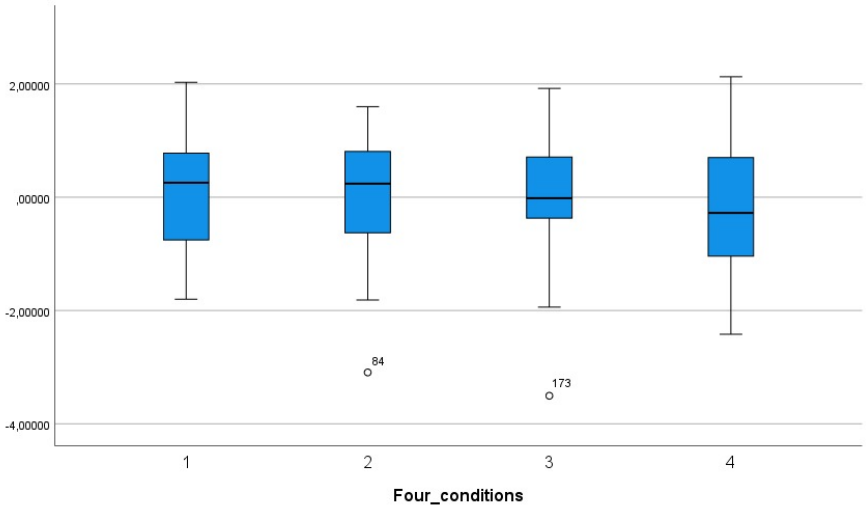
Appendix J Outliers



(a) Satisfaction



(b) Emojis



(c) Touchpoint

Figure 26: boxplots

Appendix K Output Covariate base model

Between-Subjects Factors

		Value Label	N
emoji	0	No Emojis	89
	1	Yes Emojis	92
digital_touchpoint	0	Website livechat	91
	1	Facebook Messenger	90

Levene's Test of Equality of Error Variances[a]

Dependent Variable: F1_Customer_Satisfactior

F	df1	df2	Sig.
2,228	3	177	,087

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Age + emoji + digital_touchpoint + emoji * digital_touchpoint

Tests of Between-Subjects Effects

Dependent Variable: F1_Customer_Satisfaction_NOoutliers

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	13,389[a]	4	3,347	3,859	,005	,081
Intercept	3,897	1	3,897	4,492	,035	,025
Age	3,715	1	3,715	4,282	,040	,024
emoji	4,501	1	4,501	5,188	,024	,029
digital_touchpoint	5,501	1	5,501	6,341	,013	,035
emoji * digital_touchpoint	1,336	1	1,336	1,541	,216	,009
Error	152,679	176	,867			
Total	166,331	181				
Corrected Total	166,068	180				

a. R Squared = ,081 (Adjusted R Squared = ,060)

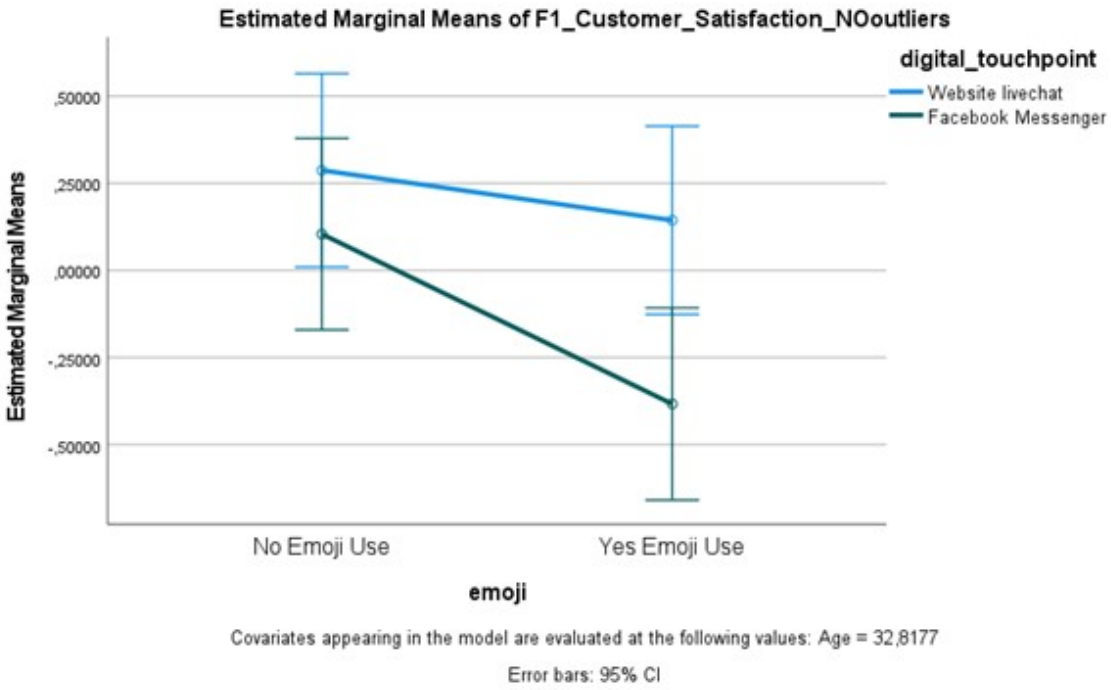


Figure 27: The output of the factorial ANCOVA.