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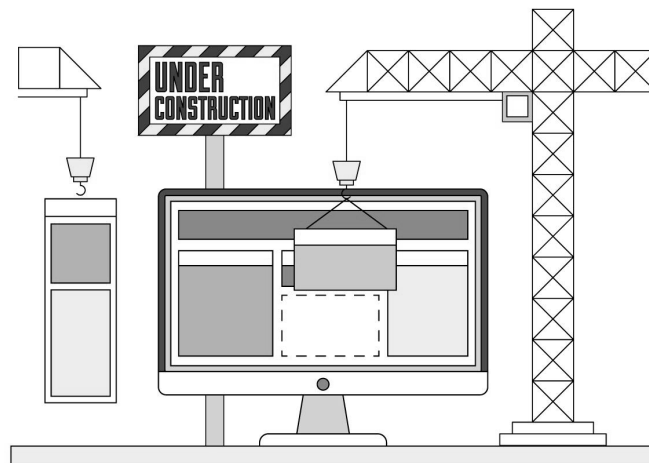
The value of the post-purchase stage:

Assessing a digital customer journey model to improve the user experience of a business-to-consumer environment

Master Thesis by Carlijn Gelhever

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Assessing a digital customer journey model to improve the user experience of a business-to-consumer environment

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Abstract

Background. As business-to-consumer (B2C) platforms have grown more and more in recent years, and competition has increased significantly as a result, the way a website is received by consumers has become critical to a company's success. Therefore, this study evaluates Mangiaracina's (2009) digital customer journey map, which is designed to assign quantitative scores to different B2C websites to compare the websites on their user experience level. What is lacking is how this model can be used to improve the user experience of a given B2C website in a qualitative way, since user experience is often measured in a qualitative way to get more valuable input for website design. In addition, literature has shown that the post-purchase stage is an important element in modern purchase models, therefore possible extension of the original map will be investigated.

Method. To answer the research questions, seventeen women aged 55 and older were observed using a B2C website. During the test, the participants' user experience was measured in a qualitative manner to test the model for its usefulness and possible extension. Bodywear brand ten Cate provided their B2C website to test the model. The test consisted of thinking out loud tasks and open-ended questions; the original digital customer journey model of Mangiaracina (2009) served as a setup for the test.

Results. The results of the study show that using the model reveals the main frustration points participants experience while using the B2C website. The results show that by removing these frustration points, a B2C website can be improved. In addition, the results show that the post-purchase stage is considered an important part of the online user experience.

Conclusions. Mangiaracina's (2009) digital customer journey map appears to be an appropriate model to qualitatively evaluate and improve the user experience on a B2C website, provided the post-purchase stage is added to the model. The revised Digital customer journey model by Carlijn Gelhever is proposed.

Keywords: *User experience, post-purchase stage, digital customer journey map, qualitative research, B2C websites.*

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1. Introduction

The use of the Internet has increased significantly worldwide in recent years. The more people have access to the worldwide web, the more companies are taking advantage of this by selling their goods and services online. To support this, the rate of growth from 2020 compared to 2014 is 111% for the apparel industry. More specific, in 2014, there were only 5770 webshops and by 2020, there were 12200 (webwinkelsucces.nl, 2020). Since Business-to-Consumer (B2C) contact is increasingly taking place online, the way a website is received by consumers has become critical to a company's success. A website with a poor user experience is likely to frustrate users during their visit, resulting in a low user experience. On the other hand, a good user experience of a website can contribute to a high level of user experience. According to Justin Mifsud, founder of Usability Geek (the UXschool , 2017), 88% of online shoppers say they wouldn't return to a website after having a bad user experience.

Improving the user experience has therefore become an important concept for businesses. User experience design can be defined as: "All the feelings, thoughts, sensations and actions of engaging in some activity (Hassenzahl, 2014)". ISO norms (ISO FDIS 9241-210) defines it as 'a person's perceptions and responses that result from the use or anticipated use of a product, system or service' (International Organization for Standardization, 2010). Thus, it examines a person's entire interaction with an item, as well as the thoughts, feelings, and perceptions that arise because of that interaction, for example during an online shopping session (Albert & Tullis, 2013). Human-centeredness is an important concept within user experience. Human-centeredness is about putting people first; it is about creating user experiences that support and delight individuals. A good user experience can improve the website's trustworthiness and profitability to a website, as well as the user's willingness to return, buy intention, and satisfaction, as well as the product's reputation. On the other hand, a poor user experience would bring adverse consequences, reducing the user's willingness to return, lowering their willingness to buy and their happiness with it, as well as impacting the product's reputation (Lui, 2012).

Several studies have focused on improving user experience, using various methods to achieve this. In general, user experience can be improved by observing customers' interactions with a product, application, or website. In addition, Kuniavsky (2003) states in his book that by conducting interviews, discussions, and actual observations of users on the current version of a particular product, application, or website, the user experience can be improved. Gould and Lewis (1985) recommend talking to the intended users and understanding how they work and where the problems are. Kucheriavy (2019) explains: "Give them real tasks to complete. Ask them to think aloud, but don't help or guide them. Observe their behavior and listen to their feedback to uncover potential issues" (par. 8). Hence, the process of improving user experience involves obtaining mainly qualitative input from the potential users and identifying their needs and wants and uncovering most of the problems that the customer experiences when using. In sum, qualitative user experience methods can be used to gain a deeper understanding of customers' thoughts on the user experience of a particular product. The results of

qualitative research are not expressed in number, but rather as observations that reflect a user's experience (Babich, 2020).

A possible tool that can be used to improve the user experience of a website is customer journey mapping, this tool has already been used in various industries such as rail industry (Oliveira, 2020); cultural industry (Marquez, 2015); ICT industry (Märtin et al., 2021). A customer journey map is a visual representation of the journey a customer takes when using a product, brand, or service (Marquez, 2015). Customer journey mapping can provide insight into the process of a certain contact moment and assess its effectiveness. According to Van der Linde (2019), a customer journey provides an overview of all the possible contact points that customers may encounter during the process of exchanging services. The points of contact can be experienced as satisfying or unsatisfying and are often referred to as moments of pains and gains. In general, the advice to businesses is to avoid or improve dissatisfying points (Kranzbühler, 2019). In short, by understanding how a customer experiences a process, a company can identify areas where the design needs to be improved and then improve the user experience.

In the context of this research, the emphasis is on a digital customer journey map that aims to improve the user experience of a website. Mangiaracina's (2009) digital customer journey map is a model specifically designed to assess the user experience of a B2C website. The model is designed to assign quantitative scores to different B2C websites and then compare the scores of the websites. According to the model, the website with the best score has the highest level of user experience. The model consists of five stages with different drivers that determine the user experience of the website. The five stages are successively; site landing, product discovery, product presentation, cart management and check out. What is missing is how this customer journey model can be used to improve the user experience of a given B2C website in a qualitative way, since user experience is often measured in a qualitative way to get more valuable input for website design. To fill this gap, this research provides an assessment of the original map that aims at evaluating the customer experience of a B2C website. Therefore, this study will examine the following key research question:

"To what extent is the existing model suitable for improving the user experience of a B2C webshop?"

Furthermore, the digital customer journey map of Mangiaracina (2009) focuses on the stages before purchase and the actual purchase itself. However, previous literature shows that the post-purchase stage, i.e., after a user has purchased a product, can also be considered an important element in modern purchasing models, especially when it comes to creating and sustaining experience (Cao, 2018); (Tadele Kidane & Sharma, 2016). Indeed, building a relationship with a customer involves more than just selling a single product or service, it also involves whether customers want to make a follow-up purchase. Ultimately, it is returning customers who keep a business alive and thriving, and only well-experienced

consumers will remain loyal to a brand or company. In addition, according to Williams (2019) the post-purchase stage is the most important factor determining whether the customer will choose a follow-up purchase. Therefore, this study aims to investigate the added value of introducing the post-purchase stage into the current model by answering the following sub-question:

"What is the added value of the implementation of the post purchase stage in the current digital customer journey model?"

In collaboration with Bodyfashion company L. ten Cate, a Bodyfashion company based in the Netherlands, the map of Mangiaracina (2009) was assessed for its usefulness and possible extension. The company contributed to this study by making its social media channels available to recruit participants for the tests. The purpose of this study is twofold: firstly, assessing the existing model on its usefulness and possible extension will be of academic value for future literature on the digital customer journey. Secondly, the assessed map can serve as a foundation for companies who want to improve the user experience of their B2C website.

This study consists of five parts, including this first introduction chapter. Chapter two present the theoretical framework, that investigates the more depth literature of user experience and more insights for mapping the customer journey, also the added value of the post-purchase stage will be further explained. Chapter three presents the research methodology of this study along with the design and explains the materials used in the study. Furthermore, the results of this research are presented in chapter four, which were primarily executed and explored through the program ATLAS.ti. Followed by chapter five, in which a discussion of the results is given. In addition, the limitations of this study, the theoretical and practical implications, and, finally, the answers to the two research questions are discussed.

2. Theoretical framework

The purpose of this chapter is to elaborate on the theoretical background related to this research. First, the difference between user experience and customer experience is indicated. Second, the importance of customer journey mapping will be described, as well as the components that define the journey, such as the different stages and touchpoints. Third, the model that will serve as a basis for this study will be explained. Finally, the purpose of this study will be specifically described.

2.1 User experience versus customer experience

The difference between user experience and customer experience is explained because ambiguity can arise between these concepts. Both concepts are connected; one is not necessarily more important than the other (Engelbrecht, 2016). Broadly speaking, user experience focuses on the ease of use, this can be of a website, an app or another online or offline channel. Iyer (2016) defines user experience as, "Everything that affects a user's behavior and interaction with a product or service. It is all about how the user feels, understands and perceives a product" (par. 3). A good user experience ensures that information is quick and easy for customers to find. User experience is a small part of the comprehensive concept of customer experience. Whereas user experience focuses on a particular component, customer experience encompasses the entire process of experience (Jadnanasing, 2015). Customer experience is defined as: "The sum of all experiences a customer has with a brand, over the duration of their relationship with them" (Hueffner , 2020). As an example, a customer has a nice feeling about a sustainable advertisement (part of customer experience) communicated by a fashion company. Arriving at the company's website (part of user experience), it turns out that the customer cannot find her way around the website, as a result she becomes frustrated and therefore decides to drop out. Despite the favorable customer experience, the negative user experience on the website has caused the overall experience for the customer to be perceived as negative. The customer is unlikely to recommend this brand to others. This illustrates how a bad user experience may lead to a poor overall customer experience, emphasizing the need of concentrating not only on the overall experience but also on details such as the user experience of a website.

2.2 Customer journey mapping to improve customer experience

Mapping the customer journey is an important part of a customer experience strategy. Journey mapping is primarily conducted through qualitative research, which may include in-depth interviews and observation as methods (Relevant Insights, 2021). Most customer journeys that aim to improve the customer experience are divided into three stages, each with its own set of steps (Rosenbaum et al., 2017; Lemon and Verhoef., 2016). Rosenbaum et al., (2017), showing a case study of a retail mall to

improve the customer experience, divided their journey into three stages: pre-service, service, and post-service. Lemon and Verhoef (2016), who examine existing definitions and conceptualizations of customer experience, called them the pre-purchase, purchase and post-purchase. Nevertheless, the meaning can be seen as the same, it depends on whether the case involves a purchasing good or providing services. According to Lemon and Verhoef (2016), these three stages are iterative and dynamic rather than linear. They explained that former experiences can influence expectations regarding current and future experiences. Cordoni (2021) supports this, stating that especially the post-purchase step is part of the next decision the customer makes.

As for the associated steps, the AIDA-model, a well-known marketing formula, which is established by Elmo Lewis (1898), successfully describes the process of moving a customer to purchase, hence it can be applied to customer journey mapping (Kuzniak, 2018). This model consists of four stages, namely: Awareness, Interest, Desire, Action (Rosenbaum et al., 2017). Multiple studies even supplemented this model, since after the Action comes, perhaps the most difficult stage; Retention and Advocacy (van Cappellen, 2021). Whereas Awareness, Interest and Desire are linked to the pre-purchase stage; Action to the purchase stage; Retention and Advocacy to the post-purchase stage.

Especially, the post purchase stage has become increasingly important in recent years and will continue to grow (Märtin et al., 2021). Vázques et al., (2014) emphasizes in his study that modern purchasing models must consider the post-purchase stage. Communication techniques that keep customers engaged during the post-purchase stage includes: (personalized) email, direct mail, social media and video, mobile advertising, events, ambassador programmes (Hübner, 2019). Other aspects of the post-purchase stage are easy return and refund, getting (technical) customer support after purchase, or the possibility of seamless tracking an order (Voxco, 2020).

Customer journey touchpoints as a part of journey mapping

An important part of improving customer experience is defining the actual touchpoints that customers come across during their customer journey. The customer journey consists of several contact points, each representing a stage in the journey, from a pre-purchase to a post-purchase of a service or good (Meyer & Schwager, 2007). Touchpoints can be thought of as contact moments between the company and the consumer that occur during the customer's journey. To give an example, Rosenbaum et al., (2017) demonstrated how customer research helped a mall's strategic management team understand which touch points were critical to customer experience. The timeline of the touch points used in this study can be separated into the three stages mentioned earlier: pre-service, service, post-service. The first stage, the pre-purchase or pre-service stage, includes all aspects of the customer's interaction with a brand before the process begins. In case of Rosenbaum et al., (2017), these touch points are for example, touch points such as seeing mall advertisements, listening to a radio advertisement, or receiving an e-mail newsletter. During the second stage, actual purchase or service, touchpoints refer to the customer experience during the actual process, such as entering the mall's

parking lot, engaging with employees, visiting stores, and interacting with mall kiosks (Rosenbaum et al., 2017). The third stage, the post-purchase includes behaviors such as use and consumption, post-purchase engagement (repurchase), and service requests. The post-service period refers to the customer experience that occurs after the actual process. Touch points during this stage may include a customer posting a picture of a purchased item on Facebook, returning merchandise, or receiving an incentive to return to the mall (Rosenbaum et al., 2017).

The touchpoints during a customer's journey can be perceived as positive or negative, or what is called gains or pains (Lemon & Verhoef, 2016). Previous literature shows that completing a purchase or a service depends on the various pains and gains the customer experiences during the journey (Osterwalder & Pigneur, 2010). Pains can be seen as dissatisfying points who need to be improved, these points can also be seen as recommendations from customer's perspective. By focusing on the key pain points in the experience, the experience of a customer can be improved. The less pains and the more gains, the better the experience of the customer will be. Most studies use pain points to identify during their customer journey mapping, however it also important to identify the gain or satisfying points consumers experiences during their journey. Since these benefits are perceived as satisfactory by consumers, it is important to pay extra attention to them (Ikem, 2012).

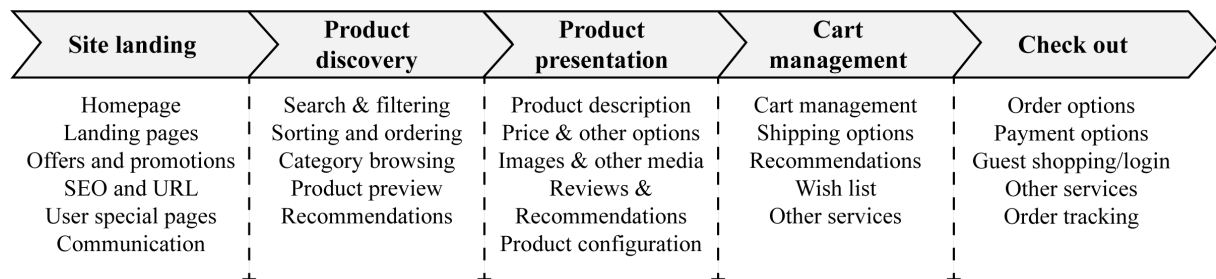## 2.3 Customer journey for improving user experience

The second view of customer journey is focused on improving user experience. While a customer journey map for improving customer experience is focused on improving the entire journey of a customer, a customer journey focused on improving user experience focuses on a small part of the overall customer experience, for example a website. Mangiaracina (2009) proposed a model that aims to evaluate the user experience of an B2C eCommerce website in a quantitative way. Moreover, Mangiaracina (2009) claims that with the output of the model, it is possible to identify the key stages of any website that need improvement. This model is originally used as a tool where users can make comparisons between different eCommerce websites, identifying strengths and weaknesses.

The digital customer journey model of Mangiaracina (2009) consists of five key stages that a customer goes through when making a purchase on a B2C e-commerce website. The stages are successively: landing, product discovery, product presentation, cart management, and check out. In the first step, site landing, the focus is on how the customer enters the site and gets involved. The eCommerce user experience starts outside the website. Therefore, this stage includes all the points that lead a customer to the website and their first impression of it. In the second step, product discovery, the user will discover the products on the B2C website. In this stage customers discover the products in the shop, identify the items they desire and narrow the choice down to a smaller selection. In this step Mangiaracina (2009) described to types of users: someone who already knows what product he is looking for and therefore uses the search engine or the menu bar to find the product *or* someone who

knows approximately what he is looking for but has to make a selection from possible products by looking at every page in the shop. In the third step, product presentation, the user really gets involved in a specific selection of products and thus digs deeper into the product detail page. Due to the lack of the physical contact with the product, this step is important in affecting the customer decision. The fourth step, cart management, focuses on how customers choose one or more products, add them to their shopping carts, and manage their shopping lists before finalizing their purchases. The fifth step, check out, focuses on the completion of the order. Users should be able to complete this step in the easiest and shortest way possible, as each additional step increases the dropout rate (Mangiaracina, 2009).

Each stage contains its own set of drivers, which influence the user experience and conversions of a website. These drivers correspond to the touch points described in the customer journey that enhance a customer's overall experience. However, during the customer journey of a small piece of user experience, for example using a website, they are described as drivers. According to Mangiaracina (2009), these specific drivers vary by marketplace or by research goal. Refer to Figure 1 to see a visual overview of the five steps and the drivers Mangiaracina (2009) describes.

Figure 1: *Customer journey map of Mangiaracina (2009)*

Site landing	Product discovery	Product presentation	Cart management	Check out
Homepage	Search & filtering	Product description	Cart management	Order options
Landing pages	Sorting and ordering	Price & other options	Shipping options	Payment options
Offers and promotions	Category browsing	Images & other media	Recommendations	Guest shopping/login
SEO and URL	Product preview	Reviews &	Wish list	Other services
User special pages	Recommendations	Recommendations	Other services	Order tracking
Communication		Product configuration		

The analysis of the digital customer journey model is as follows: for each of the five stages of the model a value between 0 (low) and 1 (high) is given, the highest value is given when all drivers are present and vice versa. Doing this with the websites to be analyzed creates an "experience curve." An example of the experience curve is presented in Figure 2. This curve allows the websites to be compared in a quantitative way.

Figure 2: *Example of the experience curve (Mangiaracina, 2009)*
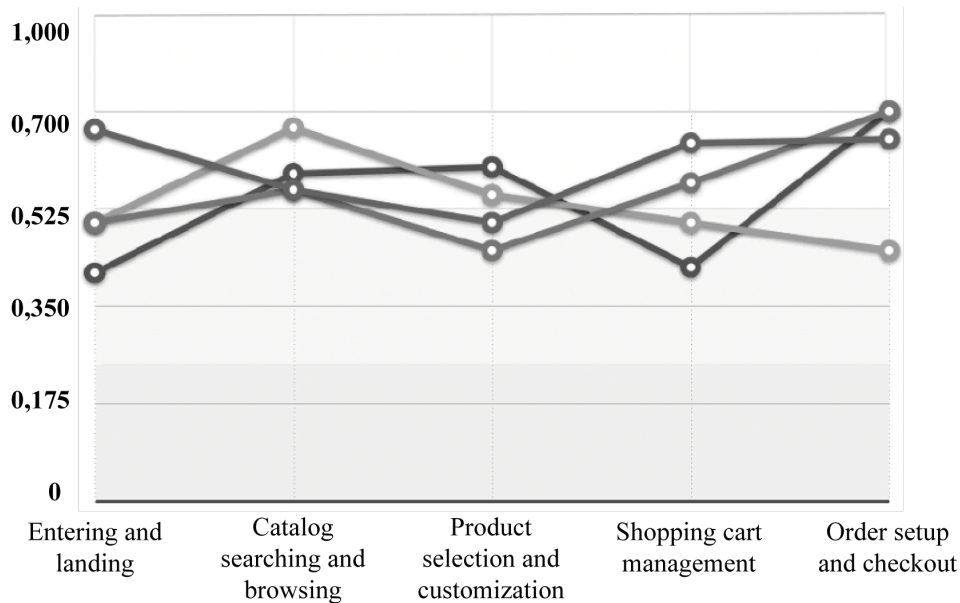
Note. The four different lines represent the experience curve of four different B2C websites.

Mangiaracina (2009) claims that with the output of the model, it is possible to identify the key stages of any website that needs improvement. However, since the model was originally invented to compare different websites, it remains unclear whether the results of this quantitative model can be used to improve a specific website. Since there is no model in the literature yet that helps to improve the user experience of a single website, it seems necessary to find out if this model can fulfill it. Partly because improving the user experience is important for companies and will only become more important in the future (the UXschool , 2017). Mangiaracina's (2009) original model uses a quantitative way of analysis by comparing different websites using numbers, this way the user experience of a website can be rated.

Although both methods can be used for user experience, it seems that using a qualitative method is more appropriate for improving a specific website. According to Babich (2020), qualitative user experience methods can be used to gain a deeper understanding of customers' thoughts on the user experience of a particular product. The results of qualitative research are not expressed in numbers, but rather as observations that reflect a user's experience. Therefore, this study will test the usefulness of Mangiaracina's (2009) model to determine the user experience of a website in a qualitative manner. Using this model, this research will collect common words, phrases, and ideas to better understand the website users' experience. The steps and drivers of this model will be used as concepts, not to assign numbers to but to see what users think of these steps and drivers. In addition, the pains, and gains, which can be seen as an important part of customer journey mapping, are used to determine which drivers and/or stages of a website can really be improved. The research question of this study is as follows:

To what extent is the existing model suitable for improving the user experience of a B2C webshop?"

Moreover, previous literature (Märtin et al., 2021) shows that the post-purchase stage is an important element in modern purchase models, especially when it comes to creating and maintaining experience. In this stage, consumers reflect on their experience about whether the product or service met expectations, was exceeded, or was disappointing (Cordoni, 2021). A positive post-purchase experience has been shown to have a positive impact on customer satisfaction and intention to repurchase (Xiaohui Ma et al., 2021). In their study, Kumar and Anjaly (2017) emphasize the importance of the post-purchase stage by pointing out its significant impact on the customer and his intention to repeat the purchase. In addition, Cao et al., (2018) examined how post-purchase activities contribute to customer satisfaction in online shopping and highlights the importance of tracking, returns, shipping and customer service as part of the post-purchase stage. Since this stage is not included in the digital customer journey map of Mangiaracina (2009), the model will be tested for its extension. It is examined whether the current model of Mangiaracina (2009) needs a third stage, the post-purchase stage, to examine the complete user experience of a website. Therefore, the sub question of this study is as follows:

"What is the added value of the implementation of the post purchase stage in the current digital customer journey model?"

3. Method

The following section presents the research methodology of this study. First, the target population of the study is described. Next, the procedure of the test is explained. Finally, examples of the materials used for testing the participants are given.

3.1 Research design

The study consisted of eight thinking out loud tasks and eleven open-ended questions. These methods were chosen since Kuniavsky (2003) argues in his book that both observation and interviews are critical ways to improve the user's experience. The primary purpose of this research was to investigate and use Mangiaracina's (2009) existing digital customer journey model for improving the user experience of a B2C webshop and the value of implementing a post-purchase stage. To answer the research questions, seventeen participants were observed using the ten Cate website, during the tests the user experience was measured in a qualitative way. The researcher recorded the steps and drives users faced when using the website, as well as the pains and gains that emerged. The study was conducted in week 46 until week 48 of the year 2021. The duration of the study was approximately 1.5 hours per participant. The study was pre-approved by the University of Twente Ethics Committee.

3.2 Research population

The target population of this study was women 55 and older. This target group proved to be the most profitable at the ten Cate website. Ten Cate thought it is important to classify their online customer journey for this specific target group, because these customers are the most profitable and therefore important to retain. The most profitable group of the ten Cate website was analyzed using the results of web analytics service Google Analytics and, email marketing software Spotler. Refer to the researcher for the results of this analysis. Once the target group of this study was determined, ten Cate helped in recruiting participants by making their Facebook available to target women 55 and older. Since ten Cate has a broad reach among this target group, 'convenience sampling' was employed for this study. Boeije's (2009) book was used to reach the participants in a thoughtful way, which is a crucial aspect of conducting a study.
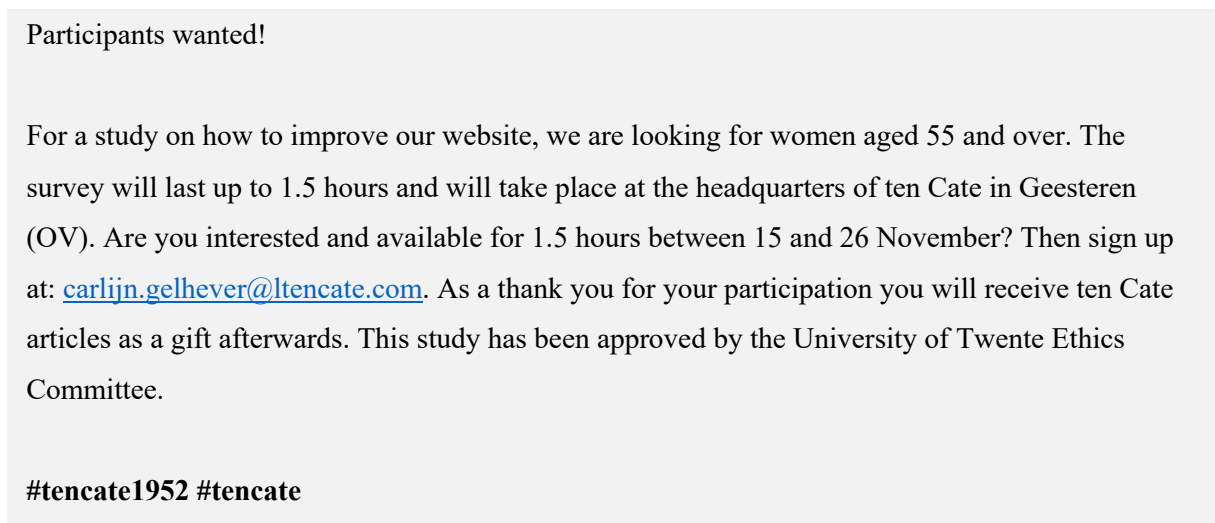
Through a Facebook post shared on November 4, 2021, a call was issued to women 55 and older who wanted to participate in the study. To make participation more interesting, participants received a few ten Cate items as a gift, this was also mentioned in the Facebook post. Figures 3 and 4 show the message and text that was shared on ten Cate's Facebook account.

Figure 3: *Facebook post visual*

Note. The original post is in written in Dutch. The English translation of the Facebook post is as follows: Participants wanted! Who? Women aged 55 and older. What? Study on improving the ten Cate website. Where? Geesteren (OV), ten Cate headquarters. When? November 29 to December 3, 2021.

Figure 4: *Facebook post text*

> Participants wanted!
>
> For a study on how to improve our website, we are looking for women aged 55 and over. The survey will last up to 1.5 hours and will take place at the headquarters of ten Cate in Geesteren (OV). Are you interested and available for 1.5 hours between 15 and 26 November? Then sign up at: carlijn.gelhever@ltencate.com. As a thank you for your participation you will receive ten Cate articles as a gift afterwards. This study has been approved by the University of Twente Ethics Committee.
>
> **#tencate1952 #tencate**

Note. Originally posted on Facebook in Dutch. Translated into English for research purposes.

Half of the 17 participants signed up through the researcher's email address listed in the message distributed through ten Cate's Facebook page. The other half were approached by direct sampling; searching participants by the researcher who were known to be in the target group. A few participants were also obtained through snowball sampling; some participants asked acquaintances, who belong to the target group, to participate in the study. A total of 21 participants were scheduled over three weeks (week 46 - week 48); including two women who did not show up and two who could not come because

of a positive COVID-19 test. This resulted in a total of 17 participants. Of the 17 women who participated in the study, the average age was 60. All the women were from the eastern part of the country, region Twente to be exact. Table 1 lists the characteristics of the target population, such as gender and age.

Table 1: *Characteristics of participants*

Participant	Gender	Age	Previous experience among participants
1	Female	59	Much
2	Female	55	Less
3	Female	55	Less
4	Female	64	Less
5	Female	68	Less
6	Female	69	Less
7	Female	60	Average
8	Female	56	Less
9	Female	56	Less
10	Female	63	Less
11	Female	57	Much
12	Female	62	Less
13	Female	59	Less
14	Female	60	Less
15	Female	59	Average
16	Female	62	Much
17	Female	56	Less

One variable that may affect the results is the previous experience the participants have had at ten Cate. Therefore, before the actual start of the test, participants were asked about their previous experience with ten Cate. They were asked if they were familiar with the ten Cate website and if so, participants had to describe how they experienced this visit. The results show that 12 of the 17 participants did not know that a ten Cate website exists. Participants 8 comments: "I've never looked at the website. I sometimes go to the ten Cate store sometimes." The reason that the participants are mainly familiar with the outlet can be deduced from various answers, participant 9 substantiates: "No, I have never been to the website. From to time, I go to the outlet. That's also because you live close by, so then it's always easy to feel and see what you're buying." Participant 15 explains: "It's not just about the size, but also about how it looks. So, then I would have advice about it." A few participants who are familiar with the website share their experiences of using it, notable responses include: "I can understand wanting to freshen it up, it's not very colorful" (participant 15) or "'I didn't think there was much choice" (participant 16).

3.3 Research procedure

The tests took place at ten Cate's headquarters. During the conduct of the tests, a quiet room was reserved by the researcher (See Appendix C). Using a reserved room in which all participants completed their study was to eliminate undesirable external factors that could affect participants' results. The test started with a short introduction; to welcome the participant, to explain briefly what she could expect from the test, and that the test is separated in three parts. At the end of the introduction, participants had to give their approval of the written consent (see Appendix A). After the introduction, participants were asked if they were familiar with the ten Cate website. If the answer was yes, they were allowed to describe their previous experience with this website.

In the first part, the participant entered seven think out loud tasks. The objective of the ten Cate website is to purchase a product; therefore, these tasks were created with that in mind. The tasks allow users to go through all the steps of the Mangiaracina (2009) model, so that each step can be examined for its pains and gains. The goal here was for the participants to think aloud as they performed the tasks. First, participants had to go to ten Cate's official website, and once there, they had to search for a total of five items: a top and brief, a bikini top and brief, and a bathing suit. After placing these items in the shopping cart, they were allowed to checkout a top and brief using a given discount code. Next, two tasks were discussed verbally between researcher and participant. First, the participants had to think about the emails they wanted to receive after placing an order with ten Cate. Then, participants had to think about the following scenario: "Imagine that you have received the order at home. Unfortunately, the top does not fit. You have a question about returning the item and therefore want to contact ten Cate. What do you do now?" This scenario gave the participant a sense of a relaxed atmosphere and placed her in a realistic scenario that could occur. During this step, the researcher observed the participants' use of the ten Cate website and filled out the observation form, which lists the steps and comments the user thinks out loud. The steps represented the pages the participants went through, and the comments represented the drivers and gain and/or pain points the participant encountered. Refer to Appendix B for the observation form.

In the second part of the test, the researcher and the participant discussed the observation form with the steps and comments that researcher had noted during the first part of the test. This part of the test aimed to fully draw the map that the user goes through while using the website. In this study, the researcher explained which pages the participant in question went through during the first section. Then, for each page, they went on to discuss what the participant thought of the page, how she thought it worked, and if she could list any good points (gains) and/or areas for improvement (pains) here. This type of observation is derived from Marquez (2015), who went through the steps with the user after the test to better understand the pains and gains. Meanwhile, Marquez (2015) made notes to draw a complete map consisting of steps and touch points. In the context of this study, steps, and comments (describing the drivers' gains or pains) were used to draw the user's map.

In the third part of the test, participants were interviewed by the researcher. The questions began with five general questions, focused on the general impression of the participants against the website. Questions including, 'Wat is your general impression', 'What do you think of the navigation of the website', 'Wat do you think of the design of the website'. Then, questions about the user experience were asked, including 'Will improving the pages discussed contribute to an improved user experience of the website?' The third section refers to the different stages of the customer journey, including the questions 'Does the service, ten Cate offers you after you place an order, add to your online experience?' The final question, that sums up the participant's experience after navigating on the website contained: 'Would you recommend the ten Cate website to others looking for under and/or swimwear?' An overview of the questions can be found in Appendix B. These questions derived from Hotjar (2022) who uses the last step in usability testing to collect feedback on the user's impressions and opinions about the website and get a feel for the overall user experience. The test ended with a short thank note.

3.4 Research tasks and materials

At the beginning of the test, participants were handed out a consent form, tasks, and a pen. For a complete overview of the tasks and the consent form refer to Appendix A and B. They sat behind a laptop, provided by ten Cate, and were allowed to use a computer mouse or the touch pad. Participants began the tasks while starting on the Google homepage. The researcher sat across from the participant, behind her own laptop, with the printed script and a pen. The script can be read in Appendix B.

Through the online program Teams, the researcher could watch the participant's screen during the test. The participants had consented to this by completing a consent form. At the end of the test, the recordings were stored securely on the researcher's computer. Figure 5 shows a participant's screen during the test, this participant was here working on task 2: 'You are looking for underwear from ten Cate, find your favorite shirt with matching briefs in your own size and place it in the shopping basket. After placing the item in the shopping basket, go to the next task.'

Figure 5: *Example screen participant during test*
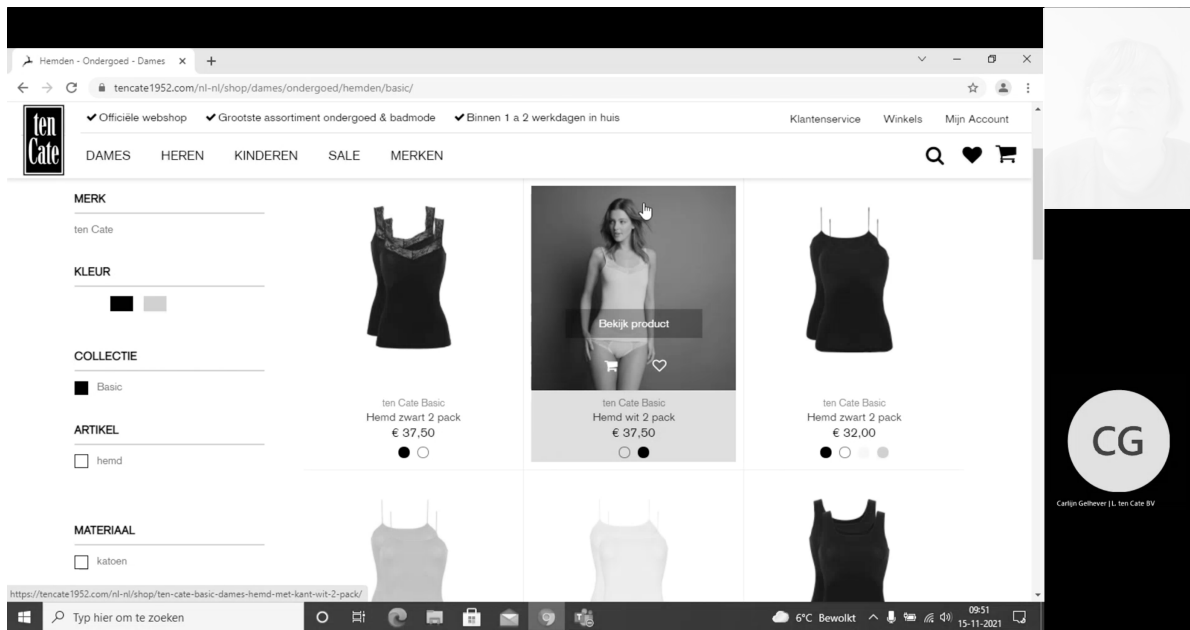
3.5 Data analysis

The seventeen spoken recordings were subsequently transcribed manually. Here, literal transcribing was used, where everything that is said is also written down literally. This way is chosen to avoid information loss. After which, these transcribed documents were coded on open, axial, and selective level using the program ATLAS.ti. In the first step, all important sentences from the documents were assigned a code. This was done for all seventeen documents. Next, the assigned codes were compared and the codes that belonged together were combined into an axial code. The names of the drivers of the Mangiaracina model (2009) were used as much as possible as a setup for the axial codes. In the final step, the relationships between different codes were established and code groups were made. The different stages (site landing, product discovery, product presentation, cart management, and check out) of Mangiaracina's model (2009) were used as much as possible as a setup for these code groups. Refer to Appendix D for the different code groups and codes with the description of the codes. The codes in these code groups were marked with color to distinguish the negative (pains) from the positive codes (gains). The data within these codes helped to determine if the steps and drivers of the model could be found during use and if any areas of improvement of the website could be found.

A measure to maintain the objectivity of the analysis is the use of inter-rater reliability, where two people use the same coding scheme to independently code the same text. First, the researcher coded five interviews, from this a first version of the codebook was created. Then the researcher explained the meaning of the codes to the second party. Then, using the codebook of the researcher, the second party assigned codes to the text fragments of five interviews. Afterwards, disagreements were discussed, and an agreement was reached. The assignment of the codes of the second party did not differ much from

that of the researcher, and no further problems were observed. This indicates sufficient validity of the study. This qualitative involvement of a second party did not allow for the measurement of Cohen's kappa, but it did ensure that five full interviews were carefully coded by a second party. After the final coding scheme was created, the remaining interviews were coded using this. After documents were coded, qualitative analysis took place. A summary was made of each theme, integrating data from the participants. These summaries make up the results chapter, which was used to answer the main question and includes the conclusion chapter.

4. Results

The following section presents the results that emerged from the seventeen tests. The results are supported by code scheme which can be found in Appendix D.

4.1 Online shop behavior

This first section is general background information that provides an overview of the target population, these results are not used directly to answer the research questions. The main codes from the code group used to substantiate the results are targeted search and convenience, reason returning website, and scrolling behavior. See Table 2 for an overview and explanation of the main codes.

Table 2: *Code scheme online shop behavior*

Code group: Online shop behavior	Frequency	# of participants	Example
Targeted search and convenience	47	14	Participant 1: "(…) not too much hassle. Just easy and clear navigation through the website."
Reason returning website	18	14	Participant 15: "If I got an email twice a year of the new collection, that would be enough for me."
Scrolling behavior	23	13	Participant 2: "I often stay at the top of the page. Because I always feel that the more, I scroll down, the less important it becomes."

Throughout the tests, a clear difference can be seen between the digital skills of the participants. A participant with a lot of digital proficiency appears to move through the assignments more smoothly than a participant with little digital proficiency. Participant 5 indicates: "I'll just try something, but obviously this generation really didn't grow up with technology."

It appears that there are two words that can describe the online shopping behavior of women 55+, that is 'targeted search' and 'convenience'. The targeted search is due to the reason that a large portion of the older generation does not engage in 'fun shopping' online. According to the participants, online shopping is purely for targeted searching. Participant 13 says: "If I do something digitally, I always do it specifically. For other things I just go shopping in stores." According to one participant, underwear is an item that can be purchased online because buying underwear is often done in a targeted way. It appears that a few participants do not like shopping online, mainly because it is sometimes too

complicated and difficult. According to these participants, this complexity can be resolved with convenience. Convenience in the sense of being able to place an order in a few steps, and quickly reach the goal without too many obstacles. Participant 11 says: "If I want to have product A, I like that I can get there in few steps. That I don't have to search the whole website for product A. Because then I throw it aside." Throughout the assignments, several comments from different participants revealed that convenience is an important part of their online shopping behavior. Notable comments in support of this include, "I'm too fast sometimes", "Not too much fuss. Just easy and clear through the website" and "...and otherwise I must go all the way to women's underwear, that's a lot more steps." Throughout the test, participants were asked how ten Cate can ensure that they keep returning to the website after ordering. This shows that participants find it very important that the order is well liked before they place another order on a website. A good order consists of good quality, and good service before-, after- and during the order. In addition, a newsletter or social media is a way to trigger participants to visit a particular website. An offer or discount coupon are also important triggers. Participant 6 explains: "A discount coupon is always nice. And if you are subscribed to the newsletter that they occasionally do some nice promotions".

Participants' scrolling behavior was also examined. Scrolling behavior appears to be a combination between directed search and digital proficiency. Targeted search causes participants to navigate directly through the menu bar, without scrolling down and exploring the website further. Participant 14 explains, "I'm doing a targeted search for underwear right now. So, then I don't scroll down." It also appears that inexperience can cause online shoppers to stay at the top without scrolling down or investigating. Participant 2 explains, "I often stay at the top of the page. Because I always feel that the more, I scroll down, the less important it becomes." Participants with more digital skills appear to not only complete assignments faster, but also explore the website more. For example, they make more use of different features such as filters and explore pages by scrolling down to examine them.

4.2 Pains and gains: Online customer journey of ten Cate

During the tests, the pains and gains of the ten Cate website were noted. In this subsection the pains and gains are classified according to Mangiaracina's (2009) steps and drivers. In his model, Mangiaracina (2009) distinguishes five steps: site landing, product discovery, product presentation, cart management, and check out.

4.2.1 Site landing

The main codes from the code group used to substantiate the results are SEO and URL, homepage, communication. The communication code group is divided into three subgroups. See Table 3 for an overview and explanation of the main codes.

Table 3: *Code schema site landing*

Code group: Site landing	Frequency	# of participants	Example	Gain or pain
SEO and URL	50	15	Participant 2: "I never click at the top advertisements pages because I then get ten Cate advertisements everywhere."	Pain
Homepage	27	13	Participant 4: "It's really too much information, this is where you drop out."	Pain
Communication				
Buy incentive	56	17	Participant 3: "Well when I sign up for the newsletter, I hope I get some nice offers every now and then or a promotion at certain days for example. (...) And also what's new.	Gain
Providing information	43	14	Participant 10: "You can create an account after you order, what does that mean exactly? What do you want to accomplish with that?"	Pain
Design	41	17	Participant 17: "I think the text of the website is very small. I'm really peering at the screen."	Pain

SEO and URL

During the tests it turns out that searching for the official website of ten Cate is a huge stumbling block for many. Each participant starts on the Google page, from which they must navigate to the official ten Cate website themselves. Finding the official ten Cate website turns out to be quite a task after seeing seventeen participants. Almost every participant used the Google search engine, hardly anyone uses the URL bar. Search terms used by the participants include ten cate 1952, ten cate Geesteren, www.tencate.nl, ten cate underwear, ten cate briefs, www.tencate.com, www ten cate underwear. The next step is to choose one of the search results. Some participants choose to avoid the advertising links at the top of search results. Participant 2 explains: "I never click at the top advertisements pages because I then get ten Cate advertisements everywhere." Other participants choose the first link shown by the

Google searches. For example, participant 7 says, "Usually it's the top one I click on, because you expect that's what you're looking for." A few participants choose to search for the word 'official'. Participant 15 says: "I always do that, if I have choices, I do choose the official one." Despite these different ways, as many as 8 out of 17 women end up on the wrong website, also known as www.tencateshop.com. After which most also indicate that they would have shopped on this website if no one had told them. Participant 1 indicates: "I thought I have to shop, so that's why I go to the ten Cate shop". Therefore, finding the official website of ten Cate seems to be a notable pain.

Homepage

The homepage is the page where most participants enter, however, this page is not consciously viewed by all participants. Participants indicated that they navigate directly to the menu bar without examining the homepage. When participants were asked to consciously look at the homepage, the page was rated well. One participant says: "I think it's nice and serene. Without screaming banner for example, which I think is terrible, because of that it seems very cheap." Other participants emphasize that they really like the use of photos on the homepage. They especially like photos that have been taken in a natural way, without being too posed. However, several participants do fall over the use of the black 'thermo underwear' banner, which is presented at the top of the homepage. Participant 15 says, "I think it's very black at the top. I would make it a bit more colorful there." According to the participants, the focus of the homepage is mainly on the images, with less attention paid to the information provided. It seems that the information mentioned on the homepage should be short and bonding to attract attention. Participant 4 says: "It's really too much in information, this is where you drop out." Possible information that could be mentioned on the homepage are, according to several participants: 'who are we', 'what do we stand for', or information about sustainable production. Another part that has been read when viewing the homepage is the reviews. Participant 1 explains: "I start by looking at the reviews, if I see a website that is not well rated, I drop out."

Communication

The research shows that the most deployable channels are the newsletter, Facebook, or an old-fashioned advertising brochure. Half of the participants find the newsletter the best channel to be approached through. The content of the newsletter is also discussed by several participants, they mention that the newsletter should be short and concise and should deal with any new articles or promotions. It is not necessary to receive it every week. The communication in this newsletter may be personal; dear customer, we miss you. The newsletter does not necessarily have to begin with the customer's first name. It can also be noted that the participants are provoked by an occasional action. Participant 17 says: "I like an e-mail. I always look at it. I do want to register myself, not automatically, that is irritating. Discount codes are always nice (…). That can trigger me yes. Twice a month is fine, not every week or every day." The participants express that they like to subscribe themselves to a newsletter, but also know

that it happens that you are automatically subscribed after placing an order. When this happens, they find it important to be able to unsubscribe easily. On the other hand, participants feel that 'subscribe to the newsletter' should be more prominent during the checkout process. Participant 12 explains: "Sometimes you'll see a box at checkout where you can check that you want to sign up for the newsletter."

In addition to communication on the external platforms, communication on the website also came up during the test. For example, four participants complain about the use of Dutch and English terms interchangeably. Participant 4 comments: "'Fill in coupon' why is that written in English, why not in Dutch." Participant 9 says: "Everything is in Dutch and only cancel is in English. So, I think it's better to say 'annuleren'." It is also notable that there are many comments about incomplete information on the website. Information that is missing is for example the purpose of an account, or the explanation of a standard shipment. In addition, missing information about the difference between the collection, model types, sizes and/or colors, is seen as a pain point during online shopping. Participant 17 explains:

"Beachwear and swimwear... can't you swim with the beachwear? But that's not very clear. And then... the multiway... what is that? It would be nice if there was a little more explanation. At least with beachwear and swimwear, maybe it says at the top; beachwear is this and swimwear is this... Also, it doesn't say if the padding can be taken out, I think (…). Again, it doesn't say if the padding is removable. So, I'm afraid I can't pick a bikini here if it can't be taken out. Stupid huh."

While doing the tests, many participants expressed their opinions about the design of the website. The font (size) has proven to be a point of frustration for some. Participant 3 explains, "If this is for 55+ this needs to be a little bigger." Participant 17 says, "I find the text of the description very small. I'm really peering at the screen." Participant 15 indicates: "(...) graphically it could be a bit more pleasant. It is a bit old fashioned, a bit neutral." In addition, the main color of the ten Cate website in buttons, logo and font is mainly black. The participants indicate that they would like to see that more colorful. Participant 15 state: "That's the right word, it's all very modest. It could just use a little more color." Several participants indicated that they like a website that is serene in colors and moving elements. Participant 10 says, "(…) That swimsuit from Tweka is of course quite bright but because of that quiet background it does fit into the whole." Participant 11 comments: (…) Some sites are so overwhelming. But this is just fine."

4.2.2 Product discovery

The main codes from the code group used to substantiate the results are search & filtering, sorting and ordering, category browsing, and product preview. The search & filtering code group is divided into two subgroups. See Table 4 for an overview and explanation of the main codes.

Table 4: *Code scheme product discovery*

Codes: Product discovery	Frequency	# of participants	Example	Gain or pain
Search & filtering				
Search bar	13	5	Participant 12: "I type in women's shirt and then again it has no search results. I do find that a pity.	Pain
Filtering by size	79	17	Participant 15: "Can I also sort by size? I would like that (…).	Pain
Sorting and ordering	31	11	Participant 1: "(…) I think it's better that the items that fit together are together without you having to search for them yourself first.	Pain
Category browsing	79	15	Participant 17: "I don't really like that menu bar. You get used to it, but at first I would like it better if it stayed."	Pain
Product preview	10	6	Participant 16: "Not all swimsuits need to be worn by a model but at least more."	Pain

Search & filtering

The search bar and filters are two important components when it comes to navigating a website. 5 of the 17 participants used the search bar during the test to navigate the website. The search bar was mainly used as a search tool to find a specific item, an example of a keyword used was: 'White women's shirt XXL'. It seems that some participants type in anything they want (i.e., size, article, color) without thinking whether the search bar will be able to find it. For example, participant 12 typed: 'women's shirt white'. The participant then received a number of pages with search results, to which the participant responded as follows: "(…) I must search several pages to see what's for me then? I type in women's shirt white and get men's shirts.... am I doing something wrong?" Participant 3 used the search bar to read more about ten Cate's return terms, she typed in: 'return'. This results in zero search results. The

participant responds: "If I type return into the search bar, nothing comes up, those are the words I usually search for."

The filters on the overview page were used by most of the participants during their search. In general, this process went well, participants emphasized the convenience of the filters on a website. However, participants say there are still some disadvantages to utilizing this tool. The biggest shortcoming, mentioned by no less than half during the test, is the ability to filter by size. According to the participants, this is mainly because few sizes are in stock on the website. Participant 14 says: "If it takes me too long to find a product in my size I think; never mind.... Otherwise, you'll be disappointed all the time". During the research, this seems to be a point of frustration, according to a selection of comments: 'when will we find a size bigger', 'now it's just searching for 38', 'that's just hard', 'now you're done for once', 'I don't find that convenient', 'I think that's a pity'. In addition, the use of color in the filters is mentioned by several participants. A common remark by participant 2 that reflects this: "I have to say that you can't see the color that well, when I see the color in the color filters it is really different than the article that is next to it". Some other comments regarding the use of color are: 'I miss the color multicolor here', 'it's handy that I can also select multiple colors', 'there are two black blocks'. Also, the use of words was sometimes seen as a stumbling block. Participants 6 says: "I would have liked it if everything was just called the same. Also with the bikini top, I think a triangle is with the straps in the neck, but I don't know for sure. It was therefore more difficult to search." According to one other participant, the filters could also be in alphabetical order, which would make searching more convenient. This bridges the gap with the communication discussed earlier, where consistency seems important to participants. Also, while using the filters, participants noted that the existing filters do not work optimally. Participants 3 comments: "If I click on 'bikini top', I only get one top showing up. That's not quite right." During the research, pages appeared to be linked to the wrong article or were empty.

Sorting and ordering

In addition to using filters, several participants still chose to select possible products by looking at each or several pages in the store, without using filters or the search bar. For example, participant 17 says: "The fact that you can sort on a lot of things, that's also handy on such a large website. The filtering works that well. I'm not going to look at 10,000 items. But on such a small website it's fun to look at everything." Another participant agrees; she first counts the number of pages and then clicks through them all if there aren't too many. According to participant 11 this way of selecting can be related to be inexperience: "I indeed filter too little. I prefer to see everything. I get where I need to go, no matter what is being sold."

It is worth noting that the participants find it useful when items on the overview page are already sorted by color or in a set. This makes it easier and faster for them to find a complete set. Participant 1 says: "I find it better that the articles that fit together are all together without having to search for

everything yourself." Participant 16 explains: "The website started out very sleek with those beautiful pictures. Now it is a bit messy because the articles are all mixed up. That's a little less, nowadays things are just sometimes very nicely presented."

Category browsing

The menu bar is a frequently used tool by participants to navigate through the website. According to the participants, the menu bar is neatly sorted into the current categories. Participant 3 says: "Good headings in the menu bar. Can also filter on just brand. So, the menu bar is kind of easy. You can find what you're looking for here rather quickly. Navigation is clear." One point that did stand out during the research is that many participants tend to click on the menu bar, instead of slowly moving to the right category. This leads to a point of frustration, as evidenced by a number of comments: 'That menu bar sometimes gets lost, I can imagine that some people don't like that', 'Why does the menu bar jump, what am I doing? Am I doing something wrong?', 'You just tend to click.' Some participants indicate that this is not necessarily annoying, but more a matter of habituation. In addition, it appears that a few participants have difficulty navigating through the various pages. The participants indicate that they would like to see a clear button where they can switch between different pages with ease. Participant 15 comments: "I would have liked a 'back' button, either back to overview or back to home screen." Participant 13 says: "So I have that very often, then I have to go back and then I don't know where."

Product preview

Currently, the pack shots of items are shown on the product overview page, which is a photo where the product is the focal point. However, the research shows that participants prefer to see an image on a model, especially when presenting swimwear. According to the participants, seeing a model with a worn product makes it easier for them to choose between the different models. It makes it easier for them to see how high the bottoms are cut and how high the cuffs are. Participant 17 explains:

"I always prefer the picture with a model. That someone is wearing it. Then I don't even have to look at the specific page of that slip. Now I would have to go by everything (…)."

Participants do indicate that they would like to see models with different sizes. It is simpler for them to recognize themselves in models of similar sizes. The use of models would make the page a bit more playful according to a participant.

4.2.3 Product presentation

The main codes from the code group used to substantiate the results are product description, price & other options, images & other media, reviews & recommendations, and related product and up-sells. The code group price & other options is divided into three subgroups. See Table 5 for an overview and explanation of the main codes.

Table 5: *Code scheme product presentation*

Code group: Product presentation	Frequency	# of participants	Example	Gain or pain
Product description	48	12	Participant 10: "Lining cup? What is a lining cup?"	Pain
Price & other options				
Right size is not in stock	56	17	Participant 11: "Not in my size, not convenient... I also like this one, also not in my size. (…) This one, not in my size either. Then there's not much left. I just don't have a choice."	Pain
Size representation	42	14	Participant 4: "Because this way you get the impression that there is only one size of size 36."	Pain
Ease of size chart	35	9	Participant 3: "(…) But helpful to have a size chart with it."	Pain
Images & other media	70	17	Participant 1: "Let's see which images are presented. I can already see that there are only front and back images, but I would actually like to see a model as well."	Pain
Reviews & recommendations	13	4	Participant 3: "I would love to see on the detail page, so really a review on the bikini itself."	Pain
Related products, and up-sells	64	17	Participant 15: "Oh, was it there all the time? Didn't see it. It's way down at the bottom. (…) I really hadn't noticed."	Pain

Product description

The product description on the detail page is meant to give customers a clear picture of the chosen product. It seems that during this step, participants could not find the product description block on the detail page, leaving questions unanswered. Examples of comments are: 'it doesn't say whether it has soft

cups, which I would like', 'I think these briefs are completely smooth, without a band', 'it's nice that you can wear the top in two ways but isn't that mentioned in the product description'. One participant says that she did not immediately notice that you could click on 'product description'. In addition, the current product description does not always meet the wishes of the participants. Even after reading the description, questions remained unanswered. Participants 17 says: "I don't think it says whether the padding can be removed." Participant 16 explains:

> "What I find difficult to assess; they were very nice swimsuits, but it said in the description 'also suitable for people with a breast amputation'. So, then it became unclear to me if it was only suitable for people with an amputation or if it can also be worn for 'normal' use."

Customers want to know clearly what they are buying, in this the mentioning of all product details is important according to the participants: "(...) those beautiful products may be seen."

Price & the other options

By price and other options is meant the options that can be clicked by the customers on this page. So, this includes the way the sizes are displayed for example. The price exhibition did not raise any questions among the participants. The way the sizes are displayed, however, is something about which several comments were made during the study. First, it is worth noting that there are few sizes in stock on the ten Cate website, which leads to frustration during the research. According to the participants, searching for a swimsuit was especially difficult. Participant 1 says: "Now you're done with it, because the right size is not there every time." So, for several participants the search for a swimsuit stopped, because they could not find a swimsuit or other item in the right size. However, the participants understand why there are few swimsuits in stock. According to them, this has to do with the fact that it is winter and therefore not swimsuit season.

Currently, only the sizes that are in stock are presented on the page. In other words, the sizes that are out of stock are no longer presented on the page. The research has shown that this way of displaying sizes can create some question marks among the participants, this can be seen from the following comments: 'this way you get the impression that there is only a size of size 36', 'there are only two sizes', 'I don't know if this whole model is not in s?'. The participants would rather have all sizes displayed, with for example a line through the sizes that are currently sold out. They indicate that this is often the way they are presented on other websites. The participants also give several examples of alternatives that ten Cate can use to limit the disappointment of sold-out sizes. Participant 7 explains:

> "For underwear it's better to think of an alternative if a size is sold out. If the slip is not in stock, you don't take the top either, but then I'm sure there's another choice of slip that is in stock. Only when I really want something, for example a swimsuit or bikini, it is useful that you can leave your email address. But then you must wait and sometimes it's just that you want it right away."

According to the participant, providing an alternative for an out-of-stock item might be a strategy to reduce disappointment. In addition, 8 of the 17 participants indicated that they would like to be able to leave their email address when an item is out of stock.

In addition, several participants have difficulty finding the appropriate size and find the sizing unclear. Participant 6 says: "But now I'm in doubt about the size. I'll just go for size XL; too big underwear is not pretty either." Several participants therefore seek the assistance of a tool during the test that they can use in finding the right size. Ten Cate currently does have a size chart on their website, where customers can read off the right size based on the centimeters, however, this size chart is sporadically presented on a detail page. When this size table was presented, it was not immediately noticed. Participant 2 says: "The size table should be clearer somewhere. Otherwise, I would have clicked on it. I find it hard to find. Especially with underwear, it still comes down to the size." The participants, who were able to find the size chart during their search, give two points of improvement after use. Participant 3 says: "The font could be bigger; the size chart is so hard to read." Participants 12 explains: "I don't have my centimeters at hand just like that." Participant 17 indicates having a good alternative for a size chart: "Sometimes on a website you can give the size and then it says, with this one you should take a size M or L. Or we recommend... that you fill out one of those quizzes first and then you get it everywhere."

Images & other media

Currently, ten Cate shows product photos on the detail page, occasionally with extra images of models wearing the item. It turns out that an extra picture of a model is seen as a plus on both the overview page and the detail page. Participants 5 explains: "(…) You did photograph the back of the item, that's already a plus, but it would be complete if there was a model wearing the item." Especially for swimwear an additional image on model is important, for underwear the need is a bit more spread out between the participants. Participant 3 explains how useful it is to see swimwear on a model, she explains:

"With a bikini I would like to see it on model! I would like to see how it fits. A bikini bottom, how high is it? 55 + you want it a little bigger. Do you understand? Then it is convenient. Some of them seem big. And then it's easy to see it on the model. How it fits."

As far as underwear is concerned, several participants also indicated that they do not necessarily need to see model images; they find it sufficient to be able to see only the front, back and side of the item. Still, most find that briefs presented on models adds to the convenience of online shopping. Participant 17 explains:

"I always just prefer the picture with a model. That someone is wearing it. That that's first. Then with some slips, I don't even have to look. Now I would have to go by everything. Sometimes you can also choose how you want to see a product. On model should be there, I think. You can say midi but what is midi."

What is also notable is that the participants enjoyed being able to see the details of the items, therefore they used the 'plus' and 'minus' to zoom in and out. In addition, the participants noticed that not all items were photographed in the same way. Participant 8 says: "I clicked on a different color of the briefs and then I thought, I didn't click on those. Then a different slip appeared, but I hear from you that it is the same slip. The pictures do differ a lot then?"

Reviews & recommendations

4 out of 17 participants mentioned the use of reviews while performing the tasks. According to these participants, customer reviews should mainly be on the homepage and the product detail page. On the homepage there are mainly reviews about ten Cate itself, on the product detail page the reviews are about one specific product. One participant indicates that the reviews on the product detail page are not clearly presented, she says they would be better presented on the right side, in the block where the sizes are presented. They can be represented here as stars, i.e., how high the item in question scores. Participant 3 explains:

> "I would love to see on the detail page, so really a review about the bikini itself. About the product, how they wear it, how it fits, or about the fabric for example. I always look for that, yes. And I think almost everyone does."

Related products, and up-sells

Currently, ten Cate presents two promotion blocks of related products and up-sell products on the detail page, that present a selection of additional products that may be of interest to the customer. Related products are shown to the customer, next to the item the customer is viewing. Throughout the study, many participants used this option. The only downside seems to be that the image was presented so small that it was difficult for the participants to see the colors of the related products. This is evidenced by the following comments. Participant 13 says: "Here I can't see the colors so well." Also, participants 5 comments: 'Then I'll go for the pink. Oh, this is a red brazilian I see, also fine."

The up-sell items are presented at the bottom of the product detail page. In this promotional block, items are offered that combine well with the item the customer is currently looking at, i.e., to complete the set. Participants indicate that they like to buy sets when shopping for underwear or swimwear. However, during the test, this promotional block was used by only a few of the participants to look for the matching item, the rest of the participants did not see this block and went looking for matching briefs or tops themselves. Participant 3 says: (…) "Now I have to go back to slips, but I expected them to show a related article. Now I really have to do my own searching." Searching on their own frustrated some of the participants since they could not easily find the matching item on the overview page. The fact that most participants could not find the promotion block can be linked to the scrolling behavior of the target group, which was described earlier in this chapter. This has to do with lesser digital proficiency for some participants, but also because participants are not encouraged to scroll

down. This, according to participants, has to do with the blank lines between blocks. Participant 8 says: "I don't scroll that far. I would put it closer to it. Especially when you get to the product description, you think that's the end of the page. You don't then expect that there are still articles under there." Participant 17 explains:

> "That's at the very bottom yes. That's where I had eventually gotten to but... because it said 'call us' up there I thought the page would end. I would put it in the description myself. That's why I thought I had to go back to the other page. 'Call us' and 'Send us an email' wouldn't need to be there as far as I'm concerned. Then you could find that at the bottom."

After seeing the promotional block, the participants emphasize how useful they find it that 'to combine with' is shown on the page. According to them, it adds to the convenience of online shopping.

4.2.4 Cart management

The main codes from the code group used to substantiate the results are pop-up shopping cart and overview shopping cart. See Table 6 for an overview and explanation of the used codes.

Table 6: *Code scheme cart management*

Code group: Cart management	Frequency	# of participants	Example	Gain or pain
Pop-up shopping cart				
Button idea	21	11	Participant 7: "And now we have to go back again... and that's what I miss about this not saying, 'continue shopping'."	Pain
Delete items from pop-up shopping cart	22	11	Participant 4: Forgot to click ok, you think you already deleted because you are already on the trash. Do you have to do one more step?"	Pain
Overview shopping cart	5	5	Participant 2: "Yes, then I would just go to the shopping cart where the whole overview is. But this is otherwise clear yes."	Gain

Pop-up shopping cart

The results of the study show that the shopping cart management on the website is generally rated well. The first touch with the shopping cart, the shopping cart pop-up, appears in the upper right corner of the

screen as soon as the customer places an item in the shopping cart. Participants encounter a few frustration points while using the pop-up. First, participants have difficulty removing an item. The first action goes well, all participants see the trash immediately, after clicking on this trash the following question appears: 'Are you sure you want to remove this product from your cart?' To which 6 of the 17 then click on 'cancel' instead of 'ok'. Participant 7 explains what can cause this confusion:

> "(...) The first time I was like, do you want to delete it and then I thought, I should press cancel. But I must answer the question and that's ok. (…) So, I would say 'annuleren' or 'ok' instead of this. 'Annuleren' is cancel the question and 'ok' is delete."

Another participant states that this may be because 'cancel' has been made bold and therefore attracts more attention. Again, it can be seen how the participants go through the website, they want to be guided by convenience and choose to click fleetingly, this explains why they do not read the question properly and therefore choose the button that is already highlighted. The participant in the above comments suggests that 'cancel' should be replaced with 'annuleren'. This refers to the heading 'communication' which states that participants can get worked up when more languages are communicated interchangeably.

Convenience of deleting an item comes up in many comments, including the following comment of participant 8: "(…) Oh, and here should be one article instead of two. Oh, then I have to click update." An extra step to remove an item from the pop-up cart seems unnecessary. As for the buttons on at the shopping cart pop-up, participants miss the "continue shopping" button. In fact, during the test, it appears that several participants have difficulty with their orientation; they find it difficult to have to go back a page or sometimes don't know where they are anymore. Participant 12 explains:

> "Sometimes the website does say 'continue shopping'. Now I find this confusing, 'to the cart', I want to go back to the store. Not to the shopping cart. Because I know what I have in there. Then I would have preferred it to say, 'continue shopping'".

In addition, the participants also like to click on the items that are in the shopping cart pop-up, this allows them to easily go back to that specific item without having to look it up themselves. Finally, 2 of the 17 participants indicated that they would like to see the pop-up a bit clearer, these participants therefore did not use the total shopping cart overview.

The shopping cart

From the shopping cart pop-up, customers can choose to proceed to the total cart view or proceed directly to checkout. The research shows that more than half of the participants skip this step of proceeding to the total cart view. They choose, consciously or unconsciously, to proceed directly from the pop-up to the checkout. The participants who consciously choose to skip this step do not find it necessary to have an extra step in between, but this can be different according to the participants when they are not shopping specifically or when they have more items in the shopping cart. For example, participant 13 explains, "In this piece (referred to the pop-up) it only mentioned underwear. So that's

why I went straight to the checkout. It also depends on how long that list is, whether you have two items in it or ten." It also seems that several participants unconsciously chose to skip the total cart overview. One reason may be that these participants did not realize that there is also a general overview of the shopping cart.

A few participants have chosen to go to the total overview of the shopping cart. They generally find this a clear page and have not many comments about it. What stood out during this stage is that while filling in a discount code it takes an extra step because the consumer must still click the 'apply discount code' button. One participant overlooked this button and found out during the checkout process that the discount code had not yet been applied.

4.2.5 Check out

The main codes from the code group used to substantiate the results are order options, payments options, and confirmation & order tracking. The order options code group is divided into two subgroups. See Table 7 for an overview and explanation of the used codes.

Table 7: *Code scheme check out*

Code group: Check out	Frequency	Number of participants	Example	Pain or gain
Order options				
Contact information	26	14	Participant 1: "Also, useful that the address is filled in automatically. I find that easy."	Gain
Delivery	23	8	Participant 1: "It is definitely a plus if a webshop cooperates with PostNL, because I have better experiences with them."	Gain
Payment options	24	12	Participant 12: "I had to search for discount code first too, to be honest."	Pain
Confirmation & Order tracking	30	15	Participant 10: "Short and concise. With the useful information."	Gain

Order options

The first step in the checkout process is to fill out the personal data. In general, participants consider this page to be very clear and easy to use. Several participants indicate that they like the fact that the address data are filled in automatically, which speeds up the process. However, a few participants ask

if providing their phone number is required while filling out the data. In addition, under the bar of 'fill in mail address', the following is stated: 'You can create an account after you order'. A participant wonders what creating an account means. Participant 9 explains: "(...) What exactly does that mean? What do you want to accomplish with that?" For the rest, filling out the data went flawlessly.

An overview on the right shows which items the customer has in the shopping cart. Participant 14 comments: "Sometimes you have those little pictures, then you know exactly what you ordered. That's nice. Then you go checkout." In addition, at the bottom of the page it is already automatically checked that the shipping method is a 'standard delivery'. This raises a few question marks among participants. Participant 16 explains:

> "(...) Only the standard delivery I find unclear. Because I don't know what that is? Is that that it is delivered at a point? Is not clear, what does it mean. Because then you can also choose something else? Why is it there then?"

Payment options

The next step in the checkout process is to complete the payment. Participants were not required to utilize the payment alternatives since they were able to check out a set using a discount coupon they obtained during the test. However, a few participants have expressed their satisfaction with the payment methods offered by ten Cate. They find them comparable to the payment methods offered on other websites. It is worth mentioning that 8 of the 17 participants indicated that they had difficulty finding the discount code on the website's payment page. Participant 4 comments:

> "I still have to enter a discount code but where can I find the discount code? Do I scroll over it? Payment method, overview, how I can pay.... Oh, there. This is what I expected for the total where I checkout. This is hidden under payment methods."

Other reactions from participants show this to be the case as well: 'I had to look a bit to see where I had to put the discount code' (participant 6), 'The only thing was that I had trouble finding the discount code, it could have been a bit higher in my experience' (participant 10).

After completing the application of the discount code, the participants were allowed to complete the order. It is worth mentioning that some participants were unsure where they needed to finish their order because they started at the bottom by inputting the discount code. With the help of a minor hint from the researcher, they still found the 'order and pay' button. Participant 10 explains: "(...) I was still at the bottom of the page because that's where I had to fill in the discount code, and I couldn't figure out how to finish the transaction, which is why you came to my rescue."

Confirmation & Order tracking

During the test, participants were asked what emails they expect to receive in their mailbox after completing a ten Cate order. The participants expect a confirmation e-mail containing the following information: the items ordered are still in stock, the order has been received, the payment has been

received, the expected delivery time, and an overview of the items the customer has ordered. The participants emphasize that the confirmation email should be short and bonding, but at the same time it should be communicated with a friendly tone. A few participants indicated that they would like to receive a track & trace code so they can track the order. Participant 17 explains: "An overview of what I ordered and when it arrives an email with the track & trace code. I find it easy if it is all in one mail, but that is usually not possible." Participant 4 says by using the track & trace code she knows when someone needs to be at home to receive the package.

4.2.6 Additional stage: the post-purchase

The main codes from the code group used to substantiate the results are customer service, return and refund, and customer service page. See Table 8 for an overview and explanation of the used codes.

Table 8: *Code scheme post-purchase stage*

Code group: Post-purchase	Frequency	Number of participants	Example	Pain or gain
Customer service	22	14	Participant 10: "Suppose there's something with it, it's broken (…), and I get decent contact with customer service. Yes, I think that's very important."	Gain
Return and refund	42	15	Participant 9: "Is there a charge? No, it's free. Well, I think that's a good one. That really keeps me from ordering a lot."	Gain
Customer service page	22	12	Participant 17: "That's pretty clear. This page is nice and big with the font though. Indeed, I do expect this at the bottom.	Gain

During the research the following question was asked: 'Does the service, which ten Cate offers after you have placed an order, contribute to your overall online experience?' What is worth mentioning is that 17 of the 17 participants answered this question with 'yes'. This shows that according to the participants, service is an important part of creating and sustaining user experience of the website. In the following comments, several participants explain why they think the post-purchase stage is an important part of creating and sustaining experience. Participant 1 explains: "I do think that service contributes to a better experience. So, when they respond very quickly or I can find it on the customer

service page, I think that's good. That would definitely contribute to the overall experience". Participant 16 comments that ten Cate always provides good service: "Yes, because so far I think ten Cate is doing very well. I've sent a bathing suit back to ten Cate in the past because it didn't fit properly, and I think it was very correct and I was refunded immediately. I think that's a good reason to place a new order (…)."

In addition, a few participants talk about their experience with poor service, they then firmly state that they will never order from the company in question again after this experience. Participant 10 explains:

> "With some stores I've really had a bad experience. So, I never buy anything there anymore, I'm very stubborn about that. Because everything is for sale everywhere and if I feel I'm being treated badly then I'm done with it. Then a brand has no interest in it so then it's just done."

The following list includes key points used by participants to explain why the post-purchase stage is important for creating and sustaining a website's user experience:

- Customer service: response time, accessibility, and the way you are approached and heard by customer service.
- Returns and refund: easy returns and clarity regarding return process and refund.
- Customer servicer page: clear customer service page on the website and ease of finding contact information.

Customer service

14 of the 17 participants indicate that they consider customer service as an important part of the overall user experience online. First, the participants indicate that they believe it is important that they are treated with respect whenever they contact the customer care. Participant 4 explains: "It all depends on the customer service; how friendly they are." The participant then puts on a friendly and unfriendly voice. She then says, "That's quite a difference." Second, participants stress the importance of receiving a prompt answer when contacting a company. Participant 1 tells: "For example, I believe it's great when they answer fast (...)" Finally, they stressed the importance of having easy access to customer service. Participant 2 believes it is important to get an immediate answer through customer service, rather than being referred 100 times. She indicates that she finds direct contact very important, without complicated steps.

Returns and refund

The following scenario was outlined during the experience: "Imagine that you have received the order at home. Unfortunately, the shirt does not fit. You have a question about returning the item and would therefore like to contact ten Cate. What do you do now?" The participants who live close to the outlet in Geesteren indicate that they would then go to the store or would call. In addition, other participants indicate that they would send an email to contact ten Cate, this email address they expect to see clearly displayed on Google page from ten Cate or on the ten Cate website. Participants express satisfaction with the fact that it can be returned in a convenient manner, for example, in their hometown. They think

it is a pain if it takes money to return products; this is also a cause to order less from a company. Participant 9 says: "Can you return for free? Because I always find that such a hassle, I always get so fed up with that." Furthermore, as participant 16 says, participants value clarity in refunding: "If it is refunded immediately… I find that a reason to possibly place a new order."

Customer service page

Most participants go to the customer service page first to see if their question regarding returns and refunds, for example, has already been answered. Participant 1 explains: "I try it myself first by reading through it on the website and then if I can't find it then I call or email." Customer service is easy to find on the website according to the participants, they look at the very top or bottom by themselves. The search bar is also used to look up customer service according to the participants. Participant 4, who cannot find customer service right away says, "I think customer service is too small. Because the other thing jumps out because you see 'women' for example in big letters." Once they arrive at the customer service page, it is noticeable that participants go through the 'frequently asked questions' on their own. Participants find this page nice and clear. Questions about issues like returns and refunds are clearly answered. The participants who were looking for the contact details did say that they would have liked to see the contact details immediately when they opened the contact page.

5. Discussion

This section of the study will first provide an overview of the main findings. Further, limitations and suggestions for future research, as well as academic and practical implications will be discussed. Finally, an answer to the research questions of this study will be provided.

5.1 Main findings

In this section of the discussion chapter, the main findings of the stages in the model of Mangiaracina (2009) are discussed, which will result in answering the two research question of this study: "To what extent is the existing model suitable for improving the user experience of a B2C webshop?" and "What is the added value of the implementation of the post purchase stage in the current digital customer journey model?"

Mangiaracina (2009) indicates that a consumer goes through five stages on a B2C website, these stages are successively: site landing, product discovery, product presentation, cart management and check out. Each step consists of specific drivers, which participants perceive as both positive (gain) and/or negative (pain). According to the participants, the user experience of the website can improve if the negative drivers will be changed to positive drivers. Previous literature already shown that completing a purchase or a service depends on the various pains and gains the customer experiences during the journey (Osterwalder & Pigneur, 2010). A few participants indicated during the test that they would have dropped out if they had been at home, because the combination of several pains prevented them from achieving the desired goal. Below are the key pain points (by step) that participants encountered during their customer journey described and substantiated by previous literature.

In the first step, entering and landing, the focus is on how the customer enters the site and becomes engaged (Mangiaracina, 2009). According to Mangiaracina's model (2009), this step consisted of six drivers. Three of six emerged during the tests, of which most pains emerged. Especially the driver 'SEO and URL' was described as a pain. It appears that the target group has difficulty finding the official website link of ten Cate. This may result from the scrolling behavior of the target group, which shows that this target group mainly clicks on what is immediately at the top. Which can be indirectly linked to convenience, a word that describes the online shopping behavior of the target group. This explains why the target group does not look at the official link, but at the one that seems the most convenient. These findings are consistent with those of Sigger (2020) who found that about 32.5 percent click on the top link in a Search Engine. 17 percent click on the second link and only 11 percent choose the third. The drivers 'homepage' and 'communication' also appear to contain areas of improvement (or pains) that contribute to the collection of data to improve a website.

In the second step, product discovery, the customer discovers the products on the website (Mangiaracina, 2009). According to Mangiaracina's model (2009), this step consisted of five drivers.

Four of the five drivers popped up during testing, of which the most pains emerged. One of the main pain points that emerged is part of the driver 'category browsing'. The target group seems to experience frustration when using a pull-down menu bar. According to Nielsen's (2013) research, which examined the difference between different types of users, it appears that pull-down menu bars and other moving interface elements can be problematic for some. Another pain that came up when browsing categories is the lack of a 'back button' to easily flip between pages. Users easily lose track on websites of where on which pages, they have been and where they still need to go. Simultaneously, Nielsen's research (2013) shows that some users find it difficult to remember which part of a page they have already visited and are therefore more likely to waste time by returning to the same page repeatedly. Nielsen (2013) suggests adding hyperlinks to the command buttons on the website and making them more prominent by increasing font size. In addition, the other drivers, such as 'search & filter' and 'product preview', also contain areas for improvement (or pains) that come up during the use of the model.

In the third step, product presentation, the user really gets involved in a specific selection of products and thus digs deeper into the product detail page. Due to the lack of the physical contact with the product, this step is important in affecting the customer decision (Mangiaracina, 2009). According to Mangiaracina's model (2009), this step consisted of five drivers. Four of the five drivers popped up during testing, of which the most pains emerged. A driver 'related products, and up-sells', has been added since this part has been discussed a lot in the tests. A notable pain in the 'images & other media' driver is the lack of use of photos by model. It appears from the research of Boardman and McCormick (2019), who investigated how product presentation influences consumer decision-making, that a greater number of product presentation lead to more positive visual, cognitive, and affective reactions, because consumers want as much visual information as possible to support decision making. Images of model parts attract the most attention and are the most influential product presentation feature (Boardman & McCormick, 2019). A second notable pain in this step is part of the driver 'related product, and up-sells'. Since the target group stays mainly in the top part of a page, parts at the bottom are hardly noticed, if at all. This is probably due to the white sections in a page, which make it uninviting to scroll down. It seems that too much white space between elements distracts from the content rather than invite the user to read further (Jacob, 2011). This step also revealed the main pain points with the corresponding drivers according to Mangiaracina's model (2009).

The fourth step, cart management, focuses on how customers choose one or more products, add them to their cart and manage their shopping lists before completing their purchase. According to Mangiaracina's model (2009), this step consisted of five drivers. For the purposes of this study, the drivers were modified to more appropriate drivers that occurred during testing. Two modified drivers are 'pop-up shopping cart' and 'overview shopping cart'. Participants provide one notable pain point in the 'pop-up shopping cart' driver, about the absence of a button to continue shopping. Anh (2022) emphasizes the importance of adding a continue shopping button and reveals that it encourages users to buy more. All in all, this step of the model revealed the fewest pains of the website.

The fifth step, check out, focuses on completing the order. Users should be able to complete this step in the easiest and shortest way possible because each additional step increases the abandonment rate (Mangiaracina, 2009). According to Mangiaracina's model (2009), this step consisted of five drivers. Three of the five drivers popped up during testing, of which both gains and pains emerged. One notable pain point that emerged in the 'payment options' driver is the lack of ease of finding the 'apply discount code' on a website. The participants reveal that while shopping on a website it is important that these elements can be found quickly so that they do not drop out at the end of the process.

Mangiaracina (2009) does not currently include the post-purchase stage in his model to improve the user experience of a B2C website. However, previous literature (Märtin et al., 2021) have shown that the after service, or post-purchase stage, is an important component in current purchasing models, especially when it comes to creating and sustaining experience. In addition, Cordoni (2021) explained that the 'make it or break it' moment happens after making a purchase. These findings can be supported by the results of this study, which show that the target group would not buy again from a brand where they received poor customer service. Therefore, the last (and additional) step of the model, post-purchase, focuses on creating and sustaining the user experience by closing the experience in a positive way and making sure they return. In the context of this study, this step consists of three drivers; 'customer service', 'returns and refunds', and 'customer service page'. A notable pain point in the 'customer service page' driver, is the lack of visibility of the customer service button. The target group indicates that customer service on the website should be easy to find.

Furthermore, it has been found that the previous experience of the customer and the type of customer being investigated can be influential when using the model. First, it appears that previous experience at a brand can influence a subsequent experience you have of a brand. In fact, the results showed that participants who have had a previous experience at ten Cate, either in the store or on the website, take their previous experience to judge the current experience. Some participants were biased before seeing the website. Indeed, research by Lemon and Verhoef (2016) indicates that past experiences can influence expectations regarding current and future experiences.

Moreover, the online shopping behavior of the target group appears to play a notable role in the types of pains revealed when using the model. Younger users utilize websites primarily to search for the best deals while browsing through multiple websites, and do not find it a problem to spend hours behind their laptops (BN DeStem, 2016). On the other hand, it appears that older users utilize a website for targeted searches rather than for pleasure. This group mainly wants to be navigated through the website in the easiest way possible, where all the extra steps can serve as a potential frustration point. Where young users find the design of a website very important (Nijst, 2021), older users pay particular attention to the fact that the website is clear with easy navigation (CBS, 2018). Due to this difference in shopping behavior between the young and old, it can be assumed that when measuring the user experience, there will be differences in frustration points observed between types of users.

5.2 Limitations and suggestions for future research

All in all, this study assessed Mangiaracina's model (2009) for its use and possible extension. This was examined by observing women over the age of 55 while using it on the ten Cate website. The research concluded that the model, with extension, proved sufficient to assess the user experience of a B2C website in a qualitative way. However, it is not clear whether the model is suitable to measure the user experience of other target groups. Since the target group has some specific characteristics (e.g., targeted search and convenience) in their online shopping behavior and is different from the average online website user, this makes it difficult to generalize. In addition, it is also not clear if the model is suitable for B2C websites in other industries, L. ten Cate is an underwear brand that offers a product, but it is not clear if the model is suitable for a company that offers a service. Therefore, it is recommended to test this model in other contexts, to see if the model is as effective there to improve the user experience. Since the results show that by removing frustration points, the online user experience of a website can improve, it would be good to modify websites based on the results of the model and then measure whether the user experience is better.

Another limitation of this study is that participants behave differently on the website while observed by a researcher. Throughout the study, some participants indicated that they shop differently when they are at home. This may have resulted in the participants using the website in a different way than they would if they were quietly shopping online at home without anyone around. An idea for follow-up research is therefore to take a seat in another room as a researcher, to take off the pressure. In addition, preconceived tasks were used during the study, giving participants guidelines to use while shopping online. However, these preconceived tasks may have caused them to shop in a different way than they normally would. Therefore, for any follow-up research, it is recommended that a scenario be outlined prior to the study, an example of such a scenario might be: 'Imagine that you are sitting behind your laptop in the kitchen, it is 8 o'clock in the evening and you feel like shopping online for a while. You've just shopped for a nice dress, but you also need matching underwear. So, you go shopping on the ten Cate website...' Sketching this scenario can make participants imagine themselves in a quiet environment at home.

5.3 Academical and practical implications

The findings of this study contribute to academical and practical purposes in several ways. First, this model serves as a basis for improving the user experience of a B2C website using a customer journey map, in a qualitative way. In previous literature, no similar model has been found that can contribute to improving the user experience of a single B2C website. This model can be further extended by academics by applying it to different markets, and target groups. Another possible is adapting it to a

B2B environment since there are still many opportunities in improving these platforms (Horodezky, 2020). In addition, the findings of this study highlight the contribution of a post-purchase stage to the tested model. Earlier literature from the theoretical framework of this research already showed that the post-purchase stage become increasingly important in recent years and will continue to grow (Märtin et al., 2021). Now, the findings of this study also confirm that participants consider service as an important part of their online experience. This finding is interesting to include in future research on customer journey mapping, user experience, customer experience, and purchasing models.

Moreover, this research can contribute to practice by showing how companies can improve the user experience of their B2C website in a qualitative way. As mentioned in the introduction, it appears that the use of the Internet has increased worldwide. In 2014, there only 5770 webshops and by 2020, there were 12200 (webwinkelsucces.nl, 2020). Therefore, the way a website is received by customer has become critical to a company's success. Improving the user experience has thus become an important concept for companies. The importance of user experience is also confirmed by the participants of the study, they indicate that a good user experience makes them more likely to buy something online and more likely to return to the website. Since previous literature has a lack of models who helped companies with improving the user experience of their own B2C website, this tested and adapted model is suitable to provide companies with the right tools to conduct research on improving online user experience of a website. It also shows the added value of doing qualitative research, as it provides a deeper insight into the customers' thoughts which results in valuable input for design improvement. With the results that emerge from using this model, companies can identify the key stages and drivers of any website that need improvement. The drivers should be mapped first before using the model, since they may vary from market to market. In addition, it can be assumed that differences in frustration points between young and old people will be observed when measuring the user experience, since their online shopping behavior appears to be different from each other. Therefore, before using the model, it is important for a company to have in mind what the main target group of the website is.

Finally, the findings of this study can be useful for companies that focus on the target group of women over 55. This is because the results provide a comprehensive picture of how this target group moves through a website. Companies can take this knowledge into account when designing or modifying websites.
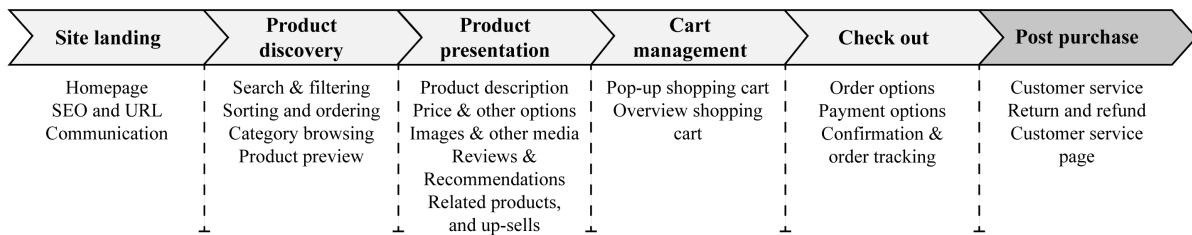
5.4 Conclusion

This research shows that the model, with its steps and drivers, is a suitable tool to measure user experience and to collect data to improve a website. The model is appropriate since the steps and many drivers are discovered through usage, and many areas for improvement are identified by this model. Therefore, it can be concluded that Mangiaracina's (2009) digital customer journey map is a suitable model to evaluate the user experience of a B2C eCommerce website in a qualitative way.

Regarding the sub-question about the added value of implementing the post purchase stage in the current digital customer journey model of Mangiaracina (2009), it appears that the model has a shortcoming. Previous literature has already shown that the post purchase stage is an important component when it comes to measuring user experience. The study's findings also reveal that the target group considers the post-purchase stage to be a key aspect of creating and maintaining the online user experience. A positive post-purchase stage can ensure that the user experience is concluded in a positive way so that customers keep coming back. Especially in online shopping, where customer service is not immediately visible, it turns out to be important to test whether the current customer service meets the customer's requirements. Therefore, it can be concluded that implementing the post purchase stage adds value to Mangiaracina's (2009) current digital customer journey model.

In sum, it can be concluded that Mangiaracina's digital customer journey map (2009) is a suitable model for improving the user experience of a website, provided that the post-purchase stage is added. The model can be used for qualitative purposes. Figure 6 shows the revised digital customer journey model by Carlijn Gelhever, with the additional step 'post-purchase' and the related drivers.

Figure 6: *Revised Carlijn Gelhever model: The digital customer journey map*

Site landing	Product discovery	Product presentation	Cart management	Check out	Post purchase
Homepage SEO and URL Communication	Search & filtering Sorting and ordering Category browsing Product preview	Product description Price & other options Images & other media Reviews & Recommendations Related products, and up-sells	Pop-up shopping cart Overview shopping cart	Order options Payment options Confirmation & order tracking	Customer service Return and refund Customer service page

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Appendices

Appendix A Consent form participants*

Toestemmingsverklaring voor de deelnemer
Voordat de test begint, vragen wij uw toestemming voor het volgende:

Hierbij verklaar ik dat ik duidelijk ben geïnformeerd over de aard en methode van het onderzoek. Ik ga volledig akkoord met deelname aan dit onderzoek, en ik begrijp dat deelname aan het onderzoek inhoudt dat mijn ervaringen op de webshop worden gemeten. Ik behoud mij het recht voor deze toestemming in te trekken zonder opgaaf van redenen en ik besef dat ik de test op elk moment kan stopzetten. Ik ben er van bewust dat het onderzoek wordt opgenomen met beeld en geluid en dat deze opnames nadien zorgvuldig worden verwijderd. Daarnaast begrijp ik dat er zeer vertrouwelijk wordt omgegaan met de informatie die ik verschaf en dat er met zorg wordt omgegaan met mijn privacygevoelige gegevens. Als mijn onderzoeksresultaten in publicaties zullen worden gebruikt, zal dit volledig anoniem gebeuren.

Door jouw schriftelijke toestemming geef je aan dat je de informatie hebt begrepen en instemt met deelname aan het onderzoek.

Naam deelnemer:
Handtekening: Datum: … / … / …

Toestemmingsverklaring voor de onderzoeker
Ik heb mondeling toegelicht over de aard en methode van het onderzoek. Ik zal eventuele risico's tot een minimum beperken door de gegevens veilig op te slaan, de vertrouwelijkheid te waarborgen en alle antwoorden te anonimiseren. Ook zal ik de beeld- en geluidopname verwijderen na het afronden van het onderzoek.

Naam onderzoeker:
Handtekening: Datum: … / … / …

Als je naar aanleiding van dit onderzoek nog vragen hebt, kun je contact opnemen via: -

*On request and in cooperation with the researcher, consents can be viewed.

Appendix B Test script

Klaarzetten

- Uitprinten: 2x toestemmingsformulier, draaiboek, opdrachten;
- Twee laptops + oplader/muis; opstarten teams. Scherm delen/geluid- en beeld aan;
- 2 pennen;
- Kortingscode per deelnemers.

Introductie

Welkom!

Je bent uitgenodigd om deel te nemen aan een afstudeeronderzoek van de master Communicatiewetenschap aan de Universiteit Twente. Het doel van deze test is om klantervaringen te meten voor de nieuwe website van ten Cate. Daarnaast beoordeel ik een bestaand model uit de literatuur dat kan bijdragen aan het verbeteren van de gebruikerservaring van een B2C website.

Jouw deelname aan dit onderzoek is geheel vrijwillig en je hebt het recht om je op elk moment terug te trekken. Gedurende het onderzoek zal ik een beeld- en geluidsopname maken, om jouw ervaring op een zo'n goed mogelijke manier te kunnen verwerken. Jouw antwoorden in dit onderzoek zullen geheel vertrouwelijk blijven. Ik zal eventuele risico's tot een minimum beperken door de gegevens veilig op te slaan, de vertrouwelijkheid te waarborgen en alle antwoorden te anonimiseren.

Bij voorbaat dank voor jouw tijd en deelname!

* Invullen toestemmingsverklaring voor de deelnemer

Vraag vooraf

- Ben je bekend met de ten Cate website?
  - o Zo ja, omschrijf je ervaring met de ten Cate website.

Uitleg

Je gaat shoppen op de ten Cate website. Tijdens de test navigeer je zelf op de website tencate1952.nl aan de hand van de onderstaande opdrachten. Het is de bedoeling dat je tijdens de test hardop denkt; dit wil zeggen dat je alles uitspreekt wat er in je opkomt, hierbij is geen goed of fout. Ik ben er niet voor om vragen te beantwoorden tijdens de test en zal je alleen aansporen om hardop te blijven denken. Als je iets niet begrijpt, lees dan rustig nog een keer de opdracht door of ga verder met de volgende. Naderhand krijg je een aantal vervolgvragen.

Opdrachten

Tijdens het uitvoeren van onderstaande opdrachten is het belangrijk dat je op dezelfde manier shopt als je normaal ook doet op de ten Cate website. Tijdens het shoppen betreed je een aantal pagina's, probeer om per pagina hardop te zeggen wat je denkt. Laat je gedachten de vrije loop.

1. Ga naar de officiële ten Cate website…
2. Je bent op zoek naar ondergoed van ten Cate, zoek je favoriete hemd met bijpassende slip in jouw eigen maat en plaats deze in de winkelmand. Na het plaatsen van het artikel in de winkelmand ga je naar de volgende opdracht.
3. Je bent op zoek naar een bikini van TC WOW, zoek je favoriete bikini top met bijpassend broekje en plaats deze in de winkelmand. Na het plaatsen van het artikel in de winkelmand ga je naar de volgende opdracht.
4. Je bent op zoek naar een badpak van Tweka, zoek je favoriete badpak en plaats deze in de winkelmand. Na het plaatsen van het artikel in de winkelmand ga je naar de volgende opdracht.
5. Je hebt nu vijf artikelen in je winkelmand. Verwijder de bikini top met bijpassend broekje en het badpak uit je winkelmand.
6. Reken het hemd met de bijpassende slip af met de volgende kortingscode: …

Na het afrekenen heb je een aantal mails ontvangen met een bevestiging van uw bestelling.

7. Bedenk welke mails je verwacht in je mailbox nu je een artikel van ten Cate hebt besteld…

Stel je voor dat je de bestelling hebt ontvangen thuis. Het hemd past helaas niet. Je hebt een vraag over het terugsturen van het artikel en wil daarom graag contact opnemen met ten Cate. Wat doe je nu?

Gezamenlijk de pagina's doorlopen
- Tevreden punten;
- Ontevreden punten/verbeterpunten

Vervolgvragen

Algemeen
- Wat is je algehele indruk van de website?
- Wat vind je van de navigatie op de website?
- Werkt alles op de website voor jou naar behoren?
- Zijn de artikelen snel te vinden?
- Wat vind je van het design van de website?

Gebruikerservaring

- Zal het verbeteren van de besproken pagina's bijdragen aan een verbeterde gebruikservaring van de website?
- Welke punten van een website dragen volgens jou bij aan een goede gebruikerservaring?

Fasen klantenreis

- Hoe word je het liefste benaderd door ten Cate?
- Hoort de dienst die ten Cate biedt nadat jij een bestelling hebt geplaatst bij aan jouw ervaring?
- Hoe kan ten Cate ervoor zorgen dat je na je bestelling terug blijft keren op de website?

Afsluiter

- Zou je de ten Cate website aanraden aan anderen die opzoek zijn naar onder- en/of badmode?

Eventuele vraag: Wat vind je op andere webshops fijn?

Waarnemingsformulier

	Stappen:	Opmerkingen:
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Appendix C Reserved room at ten Cate's headquarters

Appendix D Code list

Code Group	Code	Description code
Cart management	Overview shopping cart	All comments about the total overview of the shopping cart. E.g., "Yes, I think that's orderly. I still think the letters are modest."
Cart management	Pop-up shopping cart	All comments about the small pop-up shopping cart screen. E.g., "The pop-up could be a little bigger for me."
Check out	Confirmation & Order tracking	All comments about receiving the confirmation mail from ten Cate. E.g., "Short and concise. With the useful information."
Check out	Order options	All comments about the first page of the checkout, filling the personal details etc. E.g., "Also, useful that the address is filled in automatically. I find that easy."
Check out	Payment options	All comments about the second page of the checkout, or options to pay. Also, the process of filling in the coupon code. E.g., "I have yet to enter a discount code, but where...."
Online shop behavior	Reason returning website	All comments about the reason why participants return to a website. E.g., "If I ordered something and it stays good."
Online shop behavior	Scrolling behavior	All comments about scrolling through the website. E.g., "I often stay at the top."
Online shop behavior	Targeted search and convenience	All comments about how participant shop online. E.g.,

		"Just easy and clear through the website."
Post-purchase	Customer service	All comments about the customer service. E.g., "How you are approached by customer service and whether you get an immediate response."
Post-purchase	Return and refund	All comments about return and refund. E.g., "For example, is there a cost to return?"
Post-purchase	Customer service page	All comments about the digital customer service page. E.g., "The customer service button could have been a little bigger from me."
Previous experience	Previous experience	All comments about previous experience participants had with ten Cate. E.g., "Never ordered anything before."
Product discovery	Category browsing	All comments about browsing between different pages (use menu bar). E.g., "Good headings in the menu bar"
Product discovery	Product preview	All comments about images on the product overview page. E.g., "I don't see any pictures of them wearing it."
Product discovery	Search & filtering	All comments about searching and filtering products (search bar, filters). E.g., "Navigating by itself not quite because the search bar doesn't work."
Product discovery	Sorting and ordering	All comments about sorting and ordering products on product overview page.

Product presentation	Product description	All comments about the context and position of the product description in the product detail page. E.g., "Doesn't say if it has soft cups. I would like that."
Product presentation	Images & other media	All comments about the images presented on the product detail page. E.g., "There is only a front and back image, but I would actually like to see a model with it as well."
Product presentation	Price & other options	All comments about the price, and size presentation on the product detail page. E.g., "Okay, then I'll do this one, don't like it but there's nothing else in my size."
Product presentation	Related product, and up-sells	All comments about the promotion blocks on the product detail page. E.g., "And, for example, a matching shirt would be nice if that's included."
Product presentation	Reviews & recommendations	All comments about reviews or recommendations on the website. E.g., "Often I still look at the reviews as well, so they are high in star ratings."
Site landing	Communication	All comments about buy incentive, providing information, design of website. E.g., "I think the text of the website is very small. I'm really peering at the screen."
Site landing	Homepage	All comments about the homepage (design, layout). E.g.,

| Site landing | SEO and URL | All comments about the (in)correct landing on ten Cate website. E.g., "It's really too much information, this is where you drop out." |