Consumer expectations from the use of mHealth technologies; a study into expectation (dis)confirmation and adaptation strategies

Master's thesis

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Abstract

This master's thesis explores how consumers adapt to the (dis)confirmation of their expectations from using mobile health (mHealth), as this experience is not fully explored in the existing literature. The objective of this thesis is to explore user expectations and experiences with mHealth devices and applications, and investigate how users adapt to the (dis)confirmation of their expectations. The research question is addressed through a qualitative study consisting of semi-structured interviews with ten mHealth users who track their activities and/or sleep. The expectations from starting to use mHealth are described as enjoyment and interest, performance and community comparison, activity tracking and self-management, goal achievement and penalty avoidance, and activity confirmation. Confirming and disconfirming these expectations can either positively or negatively impact user engagement and lead to identical coping or adaptation strategies. The adaptation strategies that are negative for engagement in mHealth are distancing, adjusting, ignoring, and discontinuing. The adaptation strategy that is positive for engagement in mHealth is benefits maximising. This master's thesis advances both theory and practice on consumer experience and adaptation strategies by providing an understanding of how motives to use mHealth are connected to expectations, and how individuals adapt to the (dis)confirmation of these expectations. This understanding fills the gap in the existing literature and helps the stakeholders of mHealth devices and applications understand and respond to consumer experience.

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1. Introduction

The World Health Organization recommends 150 minutes of physical activity per week to reduce non-communicable disease risk (WorldHealthOrganization, 2022). Physical inactivity is a leading cause of mortality worldwide (Donnachie et al., 2017). In 2009, it was the fourth leading risk factor of non-communicable diseases, accounting for 3 million preventable deaths (Stevens, 2009).

A potential solution for increasing the time spent on physical activity is wearable technology (Steel, 2023). These devices and applications offer functions to enhance well-being and efficiency, providing real-time health-related metrics like step counts, heart rate and physical activity (Donnachie et al., 2017). Wearable technology, referred to as "wearables", includes a range of electronic devices worn as accessories, integrated into clothing, implanted within the body, or even tattooed on the skin. These hands-free gadgets, equipped with microprocessors and internet connectivity, can send and receive data, and offer practical functionality (Hyes, 2022). Wearable technology is one of the devices that is covered in the term mobile health, which is referred to as mHealth. MHealth covers the use of wearables, tablets, and smartphone devices and applications for collecting health-related data (Suver & Kuwana, 2021). Acceptance of wearable technology and self-tracking healthcare applications is growing, with the total market expected to grow 19,5% annually from 2021 to 2026 (Bianchi et al., 2023). This growth could be explained by the many benefits of mHealth for physical activities and the monitoring of chronic diseases (Agnihothri et al., 2020; Birkmeyer et al., 2021).

However, despite the positive effects of mHealth, consumers do not use mHealth consistently, as many abandon the device or application, as one-third of the mHealth applications are abandoned after six months (Li et al., 2019). This abandonment is explained by negative experiences, which are unexpected consequences or negative disconfirmation of expectations (Li et al., 2019).

An individual's motive, which can be based on different motives simultaneously, is one of the factors that move consumers towards the intention to adopt mHealth (Bianchi et al., 2023; Hyes, 2022). Gimpel et al. (2013) identified five motives mHealth users have to start using mHealth for tracking activities and sleep: self-entertainment, self-association, self-design, self-discipline and self-healing.

Motives and expectations are linked according to the expectancy-value theory, stating that motives are a result of individuals' expected outcomes of their actions (Pajares, 1996). These expectations will be confirmed or disconfirmed in the adoption phase (Cho & Lee, 2020). This phenomenon is explained by the expectancy-confirmation theory (ECT) (Cho & Lee, 2020; Li et al., 2019; Oliver, 1980). Confirmation of expectations leads to satisfaction, which ultimately leads to the continuance intention or repurchase intention (AlSokkar et al., 2024; Bhattacherjee, 2001).

It has not been fully explored how consumers respond to the disconfirmation of their expectations from using mHealth, as little research has been done on how expectations from mHealth arise, and on the applied adaptation or coping strategies of consumers as a reaction to

(dis)confirmation of these expectations. Previous research has largely focused solely on one of the aspects of this master thesis, which are expectations, expectations (dis)confirmation, and adaptation or coping strategies (AlSokkar et al., 2024; Blazevic & Klintwort, 2019; Gimpel et al., 2013).

As this master's thesis investigates the applied strategies for both opportunities and threats in mHealth use, it contributes to the existing literature. Shortly, this master's thesis explores individuals' expectations from using mHealth and what adaptation strategies are used when the expectations are (dis)confirmed.

This study draws upon the expectancy-confirmation theory and the coping models of user adaptation. The (dis)confirmation of expectation can help understand consumer experience with using mHealth. The coping model of user adaptation describes how users adapt to negative and positive experiences for IT events (Beaudry & Pinsonneault, 2005). In the context of mHealth, exploring consumer adaptation strategies can help understand changes in the engagement with mHealth as a result of their experience.

This master's thesis focuses on users' experience with mHealth devices and applications, emphasising user expectations, and adaptation strategies for (dis)confirmation of these expectations. The central objective is to fill the knowledge gap by answering the research question: *"How do individuals adapt to the (dis)confirmation of the expectations from mHealth?"*. This study takes a qualitative approach to delve deeper into the consumers' experiences with mHealth.

The current increase in mHealth use and the expectation that these user numbers will continue to grow will make this topic relevant for both theory and practice, where the findings provide valuable suggestions for managers, marketers, developers, and decision-makers in the mHealth sector. Valuable insights can be derived to enhance the understanding of the customers' experience and adaptation strategies with mHealth devices and applications as a result of this master's thesis. According to Bhattacherjee (2001), the continuance intention is positively influenced by confirmation of expectations. Therefore, it is relevant to examine why expectations are confirmed or disconfirmed. These insights can guide developers in refining product features to ensure continuance usage and continued delivery of intended user benefits over time, thereby increasing the impact on positive engagement and decreasing the impact on negative engagement.

First, in chapter two the theoretical background of this master's thesis is discussed. The definition of mHealth, the expectation from using mHealth, the expectation confirmation theory, and the existing literature on adaptation and coping strategies are described. In chapter three, the methodological approach that is used in this study is covered. This chapter also highlights the sample characteristics and data collection procedure. Chapter four presents the findings of the research. In chapter five, there is a summary of the results, and the findings are interpreted, leading up to an answer to the research question. Furthermore, theoretical and practical contributions, potential limitations and recommendations for future research are presented in chapter five.

2. Theoretical background

2.1. MHealth

MHealth (mobile health) encompasses wearables, tablets, and smartphone applications that are used for collecting health-related data for medical and public healthcare (Birkmeyer et al., 2021; Suver & Kuwana, 2021; WorldHealthOrganization, n.d.). For this master's thesis, mHealth applications are defined as applications on a smartwatch or smartphone used for self-tracking in the context of consumer health. Technological developments in mHealth enable individuals to track and monitor various aspects of their lives, for example sleeping, walking or eating (Jin et al., 2022). The tracking of these aspects is referred to as self-tracking, which is becoming a common practice in life (Epstein et al., 2016). Self-tracking allows individuals to collect data with little effort and is commonly used in fitness, healthcare or medical care, focusing on physical activities (Jin et al., 2022). MHealth can monitor chronic diseases, such as problems with blood pressure. Therefore, mHealth could capture, store, and transfer health information of patients to professionals in the healthcare (Agnihothri et al., 2020). Self-tracking helps individuals overview their behaviour and activities (Meiners, 2019). Besides, mHealth can be configured to directly interact with individuals, encouraging them to take proactive steps in managing their health. These interactions include nudges (notifications/reminders), social norms (comparing to friends or community), and rewards to motivate individuals to be physically active and manage their health (Suver & Kuwana, 2021).

MHealth has increasingly been used over the last years, a trend not expected to decrease (Suver & Kuwana, 2021). Since the emergence of mHealth in 2007, both the numbers of users and available apps for consumers and the health industry have grown (Research2Guidance, 2017). In 2023, the total number of available mHealth-related applications was more than 100.000 applications (Xu & Liu, 2015). The total revenue from health apps was estimated at $5.2 billion in 2021, $8.2 billion in 2022 and is projected to reach $35.7 billion by 2030 (Wylie, 2024).

2.1.1. Expectations from the use of mHealth

Consumer expectations, describing the anticipation of future consequences, are important as they influence the decision to purchase and determine satisfaction after the purchase (Krishnamurthy & Kumar, 2015). The expectation formation takes place before a customer purchases a product or service (AlSokkar et al., 2024).

Expectations arise in two ways. Firstly, the intention to use mHealth leads to expectations, as individuals are motivated by the expected benefits of adopting mHealth, driven by the motives for self-tracking (Gimpel et al., 2013). These motives can contain goals for physical activities, which can be monitored and reached by using mHealth (Steel, 2023). Motives are important drivers for using mHealth (Asimakopoulos et al., 2017). Secondly, expectations arise through the search for information about the functionalities, which are based on prior experiences, current circumstances or other sources of information (Krishnamurthy & Kumar, 2015). Consumers may retrieve this information without

actively searching for it, for example through advertisements in newspapers or magazines. This information can be retrieved via internal sources (for example prior experiences) or external sources (for example retrieved from the community) (Krishnamurthy & Kumar, 2015). However, when consumers are motivated to use a product, they are likely to set a goal of trying to find the best product from the available options (Krishnamurthy & Kumar, 2015).

The five-factor framework for self-tracking motives, identified by Gimpel et al. (2013), is central in this master's thesis, as these motives focus on using mHealth. Despite an extensive search for more literature, no more sources elaborating on the motives or expectations from using mHealth were found. The motives in the five-factor framework consist of self-entertainment, self-association, self-design, self-discipline, and self-healing (Gimpel et al., 2013). The framework assumes that the motives are dynamically interrelated, overlap, and complement each other, which means that an individual can have multiple motives at the same time for using mHealth (Gimpel et al., 2013). As explained, expectations regarding mHealth usage are driven by motives for mHealth usage. Therefore, these motives are described as expectations.

The first expectation is self-entertainment, which deals with the enjoyment and fun aspects of self-tracking (Gimpel et al., 2013). Self-entertainment describes the fun and interest of an individual with a technical device or the enjoyment of seeing and working with the numbers and statistics of your data (Gimpel et al., 2013; Wieneke et al., 2016). Entertainment and enjoyment are essential in the context of physical activity as they predict long-term engagement in physical activity (Guerin & Fortier, 2012). This expectation is related to the intrinsic motivation mentioned in the self-determination theory, as an individual is intrinsically motivated to behave in a certain manner as it is inherently enjoyable (Donnachie et al., 2017).

The second expectation is self-association, which deals with the community around the individual (Gimpel et al., 2013). This is related to striving for competition, as the individual will associate himself and compare himself to others in the community (Findeis et al., 2021). Sharing data with others might give a motivated feeling as the individual can associate or even compete with the activities of others (Lupton, 2021). Additionally, sharing data can give the feeling that you are working towards a goal together with someone else (Lupton, 2021). Individuals expect self-association as they want to help/inspire others, present themselves to others, and compare their results to the results of others (Gimpel et al., 2013).

The third expectation is self-design, which relates to the self-optimization of self-tracking (Gimpel et al., 2013). One element of this expectation is self-control, which explains the desire of an individual to control what they are doing and be the master of their own life (Gimpel et al., 2013). Besides that, individuals have this expectation as they want to manipulate certain aspects of their lives, where they want to change their behaviour (Gimpel et al., 2013). In addition, individuals use mHealth as they are interested in how different things in their lives interact (Gimpel et al., 2013).

The fourth expectation is self-discipline, which refers to the expectation to achieve a goal or avoid a penalty (Gimpel et al., 2013). Self-tracking provides rewarding (reaching the goals) and focusing (notifications to be physically active) aspects, illustrated in the self-discipline expectation (Findeis et al., 2021). The self-discipline expectation is related to extrinsic motivation, which entails that extrinsic-motivated activities are performed to attain a goal or avoid a penalty of negative consequences (Levesque et al., 2010).

The final expectation identified by Gimpel et al. (2013) is self-healing, focusing on tracking health-related issues or possibilities of self-healing, such as monitoring heart rate for health benefits (Gimpel et al., 2013). This expectation reflects an increased health awareness, and a readiness to invest in personal health (Gimpel et al., 2013). This expectation is related to the benefits that are attached to mHealth for monitoring chronic diseases (Agnihothri et al., 2020). MHealth can inform and motivate patients of chronic diseases in such a way that the symptoms can be managed (Amdie & Woo, 2020).

2.1.2. The experience of expected and unexpected consequences from the use of mHealth

The benefits of using mHealth highlighted by Birkmeyer et al. (2021) align with its expected consequences. The first expected consequence is that the mHealth device or application promotes an active lifestyle (Long et al., 2023). When inactive, the device reminds the user to become active, increasing physical activity (Long et al., 2023). Another expected consequence is that mHealth facilitates comparing fitness data, allowing constant information exchange with different people, which is viewed as entertaining (Birkmeyer et al., 2021). These expected consequences align with self-entertainment and self-association expectations (Gimpel et al., 2013). Furthermore, individuals can share their health metrics with healthcare professionals or sports coaches frequently and in real-time, leading to more effective resource allocation (Birkmeyer et al., 2021). An important function of mHealth is the ability to monitor heart rate, where the device sends a notification when an irregular heartbeat has been detected (Michael & Eileen, 2019). This benefit can confirm the expectation for self-healing (Gimpel et al., 2013). All mentioned expected consequences are reinforced by the fact that mHealth is constantly (and easily) accessible and adjustable (Li et al., 2019; Michael & Eileen, 2019).

However, there are also unexpected consequences associated with mHealth usage, which are less examined in current literature. The first unexpected consequence of mHealth is that constantly tracking your behaviour and activity can decrease enjoyment, as it might feel compulsory or seem like work (Etkin, 2016). While mHealth is expected to enhance enjoyment and engagement with physical activities, this transition from enjoyment to obligation may be unexpected. Furthermore, consumers could be suspicious about safety and privacy, as the technology tracks the total behaviour of an individual (Piwek et al., 2016; Swan, 2013). Besides that, functional limitations negatively affect the use of mHealth, limiting the usefulness of mHealth (Pal et al., 2020). Despite users' initial expectations of seamless integration and functionality, encountering limitations can be an unexpected consequence of mHealth, influencing the expectation of self-entertainment.

2.2. Expectancy-confirmation theory

Expectations arise through motives and information search. These expectations are to be confirmed or disconfirmed when mHealth is adopted, as described in the expectancy-confirmation theory (ECT). ECT is a cognitive theory that describes explanations of satisfaction decisions in both post-purchase and post-adoption satisfaction (Oliver, 1980). This theory has three key components, namely individuals' expectations, satisfaction with a product, and continuance usage of the product (Cho & Lee, 2020). The core argument of the expectancy-confirmation theory is that the confirmation of an individual's expectation is crucial in determining satisfaction, as the extent to which an individual's expectations are confirmed directly influences the level of satisfaction (Cho & Lee, 2020).

The assessment, if expectations are confirmed or disconfirmed, takes place after the purchase. The expectations are evaluated compared to the experiences of the usage of the product or service, to determine the extent to which the expectations are confirmed (AlSokkar et al., 2024). This assessment is, among others, based on the perceived performance, perceived ease of use, and the perception of the outcome of the product (Li et al., 2019). The difference between expectation and experience is defined as disconfirmation (Wang et al., 2020). There are two types of disconfirmations, namely positive and negative disconfirmation. Expectations are positively disconfirmed when the experience exceeds them and negatively disconfirmed when the experience does not meet these expectations (Oliver, 1977). However, later studies showed that both positive and negative disconfirmation in general have a negative influence on attitudes (Venkatesh & Gopal, 2010).

Bhattacherjee (2001) found that expectation confirmation is a strong predictor of satisfaction. In addition, confirmation also predicts perceived usefulness, which in turn affects satisfaction (Bhattacherjee, 2001). Both satisfaction and perceived usefulness positively affect continuance intention (Bhattacherjee, 2001), as shown in Figure 1.

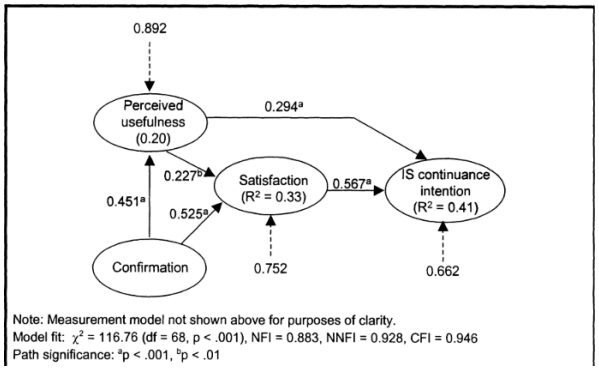

Figure 1. Expectancy-confirmation theory (Bhattacherjee, 2001)

Besides the research of Bhattacherjee (2001), other studies examined how expectations (dis)confirmation affects consumers' intentions. The repurchase intention is also determined by the level of satisfaction, which in turn is directly affected by expectations and confirmation, where confirmation is determined by both expectations and perceived performance (AlSokkar et al., 2024;

Bölen, 2020; Cho & Lee, 2020; Thong et al., 2006). The relation between these constructs is shown in Figure 2.

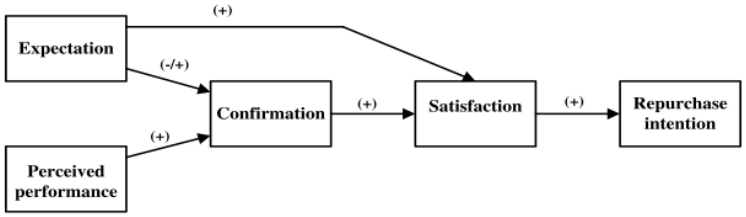

Figure 2. Expectancy-confirmation theory (AlSokkar et al., 2024)

2.3. Adaptation strategies in technology consumption

Consumer expectations can be confirmed or disconfirmed in the adoption phase, leading to strategies to apply to adapt to mHealth use. Which strategy is applied, depends on the appraisal of the mHealth device or application. Based on the Coping Model of User Adaptation (CMUA), appraisals can be identified as opportunities or threats (Beaudry & Pinsonneault, 2005). An appraisal is seen as an opportunity when the individual sees the technology as a chance to improve their skills, and as a threat when it is believed that the technology harms well-being or personal growth (Bala & Venkatesh, 2015). Individuals expect to appraise mHealth as an opportunity, because of their expectations from starting mHealth usage. Therefore, unexpected consequences are likely to lead to the appraisal of mHealth as a threat.

When the technology is appraised as an opportunity, the technology will be adopted (Bala & Venkatesh, 2015). Beaudry & Pinsonneault (2005) identify two adaptation strategies for adopting technology. The first adaptation strategy, benefit maximising, involves individuals adapting their work systems, technology and themselves to take full advantage of the offered opportunities and maximise personal benefits (Beaudry & Pinsonneault, 2005). The second adaptation strategy, benefits satisficing, occurs when individuals feel the technology cannot be further exploited, leading to minimal adaptation and satisfaction with the benefits IT offers, resulting in minimal overall benefits (Beaudry & Pinsonneault, 2005).

When the appraisal is identified as a threat, the individual can apply multiple coping strategies (Mick & Fournier, 1998). Mick and Fournier (1998) identified strategies to avoid or confront unexpected consequences of new products, categorized into subcategories according to the pre-acquisition or consumption stage (Mick & Fournier, 1998). This master's thesis focuses on behaviour and strategies to adapt to mHealth in the adoption phase, so the coping strategies for the consumption stage are the main focus since this stage refers to the period a product is used (Mick & Fournier, 1998). Pre-acquisition strategies, which refer to the decisions at purchase time, are excluded in this master's thesis. An overview of the coping strategies of Mick & Fournier (1998), and their details are included in Appendix 1.

The avoidance strategies aim at reducing interaction with technology, which is a common response when technology seems confusing or excessively demanding, particularly when users feel stressed or pressured (Jarvenpaa & Lang, 2005). These strategies are defined as the degree to which an individual tries not to use the technology (Bala & Venkatesh, 2015). Avoidance strategies are emotion-focused adaptations because individuals attempt to move away from the technology (stressor) without changing the situation (Folkman et al., 1986). The coping strategies identified in this stage are neglect, abandonment, and distancing (Mick & Fournier, 1998).

Confrontative strategies describe user actions (and reactions) aimed at understanding and accommodating technology (Jarvenpaa & Lang, 2005). These coping strategies are used when the individual attempts to change the technology to understand and fully adopt the product or the technology (Folkman et al., 1986). The coping strategies in this stage are accommodation, partnering and mastering (Mick & Fournier, 1998). Bala & Venkatesh (2015) identified a confrontative strategy named exploration-to-revert. This strategy is an overarching strategy for the three strategies of Mick & Fournier (1998), as this strategy occurs when an individual tries to find, extend, and/or change features of a technology to fit with their habits (Bala & Venkatesh, 2015).

Blazevic & Klintwort (2019) examined coping strategies applied when mHealth is appraised as a threat and identified five significant coping strategies. The first and most applied strategy is "discontinuing", where users stop using the mHealth device or application or turn off some functions (Blazevic & Klintwort, 2019). The second coping strategy is "adjusting", where users adapt their behaviour, habits or mindset towards the mHealth application (Blazevic & Klintwort, 2019). The third coping is "assuming responsibility", where the user believes they can stay in control without the mHealth device or application. The fourth coping strategy is "emotionally distancing", where users do not accept all provided information and distance themselves from the device or application (Blazevic & Klintwort, 2019). The fifth and final coping strategy is "ignoring", where users ignore or avoid information that is provided by the mHealth application (Blazevic & Klintwort, 2019).

3. Methodology

3.1. Research method

This study aimed to answer the research question: *"How do individuals adapt to the (dis)confirmation of the expectations from mHealth?"* This research question explored the adaptation strategies for (dis)confirmation of expectations based on motives for using mHealth. To answer this research question, it was divided into three parts.

A qualitative research method was used to answer the research question. Qualitative research methods are used to study social and cultural phenomena, which helps to understand and gain deeper insights into people, their motivations, and actions (Myers, 2013). Since this study aimed to explore user's experience with the use of mHealth, a qualitative approach was suitable. A qualitative research approach is suitable to delve into this phenomenon by asking the users to elaborate on their

experiences with mHealth. Qualitative research does not require a clear explanation of hypotheses, nevertheless, but needs defined objectives (Barroga & Matanguihan, 2022). The objective of this research was to investigate what expectations consumers have from mHealth and what adaptation strategies are applied for (dis)confirmation of these expectations through the lens of the expectancy-confirmation theory. The approach of this study was abductive, as this study used concepts from existing theories to analyse observations but was open to findings that did not fit these theories (Bleijenbergh, 2013).

The required data to answer the research question was collected through semi-structured interviews, using some pre-determined questions by the interviewer. However, there was no strict planning in these questions and new questions that arise during the conversation could be asked (Myers, 2013). This interview form allowed a comparison of the participants using the pre-determined questions, while also providing the chance to access more in-depth information about the topics that are relevant to a specific participant (Myers, 2013). When expanding the sample size does not provide new information, and the amount of information (information power) is not increasing, saturation occurs. Saturation typically sets in after six in-depth interviews and is fully evident after twelve in-depth interviews (Boddy, 2016). Therefore, the relevance of the sample size is determined by the information power. As Boddy (2016) states saturation is fully achieved after twelve interviews, indicating that a larger sample may not be required to capture the phenomenon. Based on this information, the sample size of this research initially consisted of twelve participants.

3.2. Participant recruitment and sampling

In qualitative research, sampling generally does not require the formal selection of a segment of a population (Flick, 2007). This is because the sample should be relevant as it reflects the significance of the phenomenon based on the participants' experiences and concerns regarding the issue, rather than solely in a statistical manner (Flick, 2007).

Participants in this research were chosen based on their usage of mHealth, which implies that participants were selected based on whether they used mHealth devices and applications. The selection process did not prioritize individuals with a specific level of expertise but rather focused on finding participants who actively integrated these apps into their daily routines. In addition, convenience was a criterion in the selection process, as participants were recruited from the author's extended network of contacts. The snowballing approach was used in this process, as participants can recommend others who are considered relevant for this research. The selected participants were heterogeneous enough to be able to make a comparison and homogenous enough to identify shared characteristics among them (Flick, 2007). Ultimately, the interviews were conducted with ten respondents. The sample included five females and five males, ranging from 23 to 59 years old. All respondents are Dutch native speakers. The interviews revealed that each respondent used the mHealth app on their smartphone and

wearables, where mHealth on wearables was more important for them. More demographics of the participants are attached in Appendix 7.

3.3. Data collection procedure

The sample consisted of individuals who have experience with mHealth. These participants were invited for the interview via email or social media. The participants were asked to answer several demographic questions via an online survey before the interview. Although all the participants had experiences with mHealth, they may not have had the same definition of mHealth. To guarantee a common understanding of the concept, the term mHealth was explained before each interview. The face-to-face interview started with general questions about the use of mHealth and the user's motives for using mHealth devices and applications. First, there was a focus on getting insights into what these motives might have been to determine the expectations from mHealth. Then, there was a focus on the formed expectations and whether these expectations were confirmed or disconfirmed. After that, questions about the adaptation strategies for the (dis)confirmation of these expectations were asked. The interview questions are included in the interview protocol, which can be found in Appendix 2.

The interviews were expected to last 45 minutes, in which there was a conversation that was guided by the interview questions. Instead of taking notes during the interviews, audio recordings were used to allow the author to transcribe the interview afterwards, enabling full focus on the information provided by the participant during the interview. Before the start of the interview, the author informed the participant about this.

3.4. Data analysis procedure

The collected data from the recorded interview was transcribed before it was analysed. There was a literal transcript of all the interviews. In a literal transcript, everything that was asked and said is transcribed (Bleijenbergh, 2013). To prioritize the content of the interview, empty words and sounds were removed from the transcript while taking into account that the key message of the interview would not be changed. The transcripts of the interviews were analysed using thematic analysis. Thematic analysis is used to understand unstructured data such as the audio data that is collected from the interviews (Gheyle & Jacobs, 2017). Thematic analysis is considered the fundamental basis of qualitative analysis that is adaptable to fit the goals of the researchers (Peterson, 2017). This process includes examining the data by the author to give meaning to what can be seen (Peterson, 2017). These meanings might be linked to ideas, thoughts or impressions. To facilitate this process, the information was coded with the use of both etic coding and emic coding. In etic coding, there is a focus on how the data can be linked to existing theories that are mentioned in this master's thesis (Peterson, 2017). In emic coding, the researcher draws the information directly from the participants' perspectives, where the researcher seeks patterns and produces findings to contribute to the study (Peterson, 2017). The process of coding the interview began with open coding, which involved analysing the text and

summarizing this text (Myers, 2013). The second stage was about the interpretation of the categories, which is referred to as axial coding or selective coding (Myers, 2013).

3.5. Research ethics

Throughout the interviews, research ethics provided guidelines for the responsible conduct of research. This started by informing the participants about the research purposes before the interview started. In addition, the participants were informed that the participation was voluntary, and the authors explained that the participant was allowed to withdraw at any time in the research. Furthermore, participants were informed that they have the opportunity to ask questions at any time, which includes the moments before, during, and after the interview. Before the interview started, participants were asked permission to record the audio of the interview. The participants were explained that they have the right to anonymity, meaning their personal data is anonymized to protect their privacy. The participants were provided with the contact information of the researcher to reach out and ask questions about the study, even after the study is finished. The participants are informed about the right to contact the researcher up to one month after the research ends to request the disposal of all their data. Lastly, participants were explained that only members of the research team would have access to the data, and the data would only be used for scientific purposes.

4. Research findings

4.1. Expectations from mHealth

Each mHealth user utilises a mHealth application or device based on their own expectations. In the following, the participants' expectations from mHealth are identified.

4.1.1. Enjoyment

The expectation that mHealth would be enjoyable and interesting was the most prominent expectation participants had. It appears that curiosity is an important aspect of this expectation, as participants mentioned that is enjoyable to try out new things. This was mentioned by Participant 6, as he began using mHealth for monitoring his sleep recently. '*It will be enjoyable to get insights'* (P6, Male, 24 years). Besides Participant 6, almost all participants mentioned that they expect mHealth, and/or the information it provides, to be enjoyable or interesting. Besides, the expectation that mHealth is enjoyable stems from people in the surroundings, as mentioned by Participant 1. '*Many people in my surroundings had an Apple Watch … so I knew what I could expect from my Apple Watch'* (P1, Female, 23 years). This expectation aligns with the self-entertainment expectation that was identified by Gimpel et al. (2013).

4.1.2. Self- and other-comparison

The second most mentioned expectation of the participants was that mHealth would help them improve themselves by comparing their current performance with prior ones, and performances of

others. This expectation relates to the expectation of self-association that Gimpel et al. (2013) identified. Participant 10 expressed that her expectation for using Strava was to compare with others. Participants 4 and 5 both mentioned the famous saying about Strava, which is '*if it is not on Strava it did not happen'*. MHealth is also expected to help participants show others their performed activities. '*You want to show others how good and how fit you are'* (P4, Male, 27 years).

4.1.3. Behavioural control

Another expectation that is often mentioned by the participants is that mHealth is expected to help participants control what they are doing and help them to be their own boss. In addition, mHealth is expected to help the participants control what they are doing during the day as mHealth tracks the number of steps. A very clear example is mentioned by Participant 7. '*I bought a Fitbit to track how my condition was, what I do in a day and should/must do'* (P7, Female, 56 years). Participant 1 expected that mHealth would help her to change certain aspects of life, as she expected to become more physically active and improve her health. Almost all participants mentioned that they expected the mHealth application or device to track their activities correctly. In addition, showing information about the activity afterwards, allows them to control their activities. '*My expectation is that the watch tracks how fast I run or cycle and what the distance is'* (P3, Male, 59 years). In addition, mHealth is expected to confirm how physically active someone is, which helps the participants control what they are doing. '*I just thought I was doing well when I bought the Watch'* (P2, Female, 57 years). The participants also expect mHealth to help them control their lives by tracking their sleep. '*I want to see the number of steps … and I like the notification about the hours of sleep'* (P2, Female, 57 years). MHealth is expected to help participants change behaviour, as illustrated by the expectations of Participant 1 that using a "drink water" app to track water intake would help establish a habit of consuming more water. The expectation of behavioural control can be linked to the self-control expectation that was identified by Gimpel et al. (2013).

So, the participants expressed that mHealth is expected to help them control their activities. However, these expectations are lower for Smartwatches with sports watch functions than sports watches with Smartwatch functions, as explained by Participants 1 and 4. '*I did expect that it would be less good than a real sports watch because this is obviously developed for more than just sport'* (P1, Female, 23 years). '*It seems that those Apple Watches are not developed for tracking sports activities … and those people won't be taken seriously'* (P4, Male, 27 years). Additionally, the price of mHealth is expressed to influence the expectation of whether mHealth helps control your life. '*My low expectations are mainly based on the price, as this watch was €35 if I remember correctly'* (P5, Male, 24 years).

Moreover, Participant 2 mentioned that she expected mHealth would not take over her life, as she expected to stay in charge of her own decisions. *'I am my own boss and don't let that thing decide about my life'* (P2, Female, 57 years). This was also expected by Participants 4 and 8. '*I track my*

activities for my own interest and improvement, and not for others around me' (P4, Male, 27 years). '*For me, it's just a helpful tool, it's not guiding'* (P8, Male, 57 years). In addition, Participant 7 mentioned that she wants to decide about her life herself. '*It is purely for myself. 'I set my goals for myself and for no one or nothing else, they are my goals'*. (P7, Female, 56 years).

Furthermore, Participant 5 mentioned that he started using mHealth with the expectation that mHealth would help him count his burnt calories, as it was important for him to track this to know how much food he had to consume, helping him to control his life. '*You burn many calories during those days, which meant that I also had to eat a lot to have enough energy for the walk'* (P5, Male, 24 years).

4.1.4. Goal achievement

Moreover, the Participants expressed that they expected mHealth to help them achieve a goal. This expectation relates to the expectation for self-discipline that Gimpel et al (2013) identified. For most participants, the goal was to be more fit and improve their physical condition. '*I wanted to become fitter so I bought a smartwatch'* (P1, Female, 23 years). The goal to improve physical condition and performance was mentioned by Participant 10, whose expectation for mHealth is to improve her health, specifically for running. '*I purely want to improve myself'* (P10, Female, 24 years). In addition, Participant 10 mentioned that she expected seeing the data would help her reach this goal.

The participants also stated that mHealth is expected to help them in reaching their goal of 10.000 steps a day. '*During the day I check how many steps I have, if that is 6000 I know that I have to walk in the evening*' (P2, Female, 57 years). Participants 7 and 8 also mentioned this specific goal, and both expressed they started using mHealth with the expectation that tracking the number of steps would help them achieve their goal of 10.000 steps per day. In addition, a few participants mentioned that they expected mHealth to help reach this goal, by reminding the participants about their goal.

Besides, Participant 5 mentioned that he did not expect mHealth to help him reach the goal of becoming fitter, and therefore expected that he would use mHealth for one specific event. '*I expected that I would only use it for the Four day Marches'* (P5, Male, 24 years).

4.1.5. Activity confirmation

All participants, except for Participant 2, mentioned using mHealth with the expectation that mHealth helps to confirm that you have performed an activity. '*When my watch does not record the activity, I have not been active'.* (P1, Female, 23 years). The participants, except for Participant 2, expected to track their activities to show themselves they had been active, and not specifically to show this to others. '*And then, of course, there is also a part to have proof that I actually did something*.' (P10, Female, 24 years). Tracking activities to show the progress is an important element for most participants. '*Tracking my activities works as an incentive to be physically active'* (P5, Male, 24 years). However, Participants 1, 4, 5, and 10 also expected to share the information with others, as explained in the expectation of self-association.

4.2. Confirmation and disconfirmation of expectations

In the previous sub-section, consumer expectations were described. The following section focuses on the confirmation and disconfirmation of these expectations, where disconfirmation can be positive and negative. Expectations were confirmed when performance was as expected, positively disconfirmed when performance was better than expected, and negatively disconfirmed when performance was worse than expected.

4.2.1. Confirmation and positive disconfirmation of expectations

The most prominent expectation mentioned was that mHealth would be enjoyable, which was confirmed for most participants. '*It is just entertaining to see results of your run and get insights in it*' (P6, Male, 24 years). Participant 10 mentioned that her main expectation that mHealth would be enjoyable for all activities except running, was confirmed. '*Purely that I do enjoy seeing it but I'm not really trying to accomplish anything with that*.' (P10, Female, 24 years). All participants, except for Participant 4, mentioned that this expectation of mHealth was confirmed in the adoption phase. Other participants mentioned that using mHealth is interesting, which confirms their expectations. For example, participant 3 expressed confirmation of his expectation that mHealth is interesting: '*Pure interesting to see what speed it has been and how far you have cycled'* (P3, Male, 59 years). Using mHealth out of interest was also confirmed by Participant 5 '*What I find particularly interesting to see is how much your heart rate varies during that workout'* (P5, Male, 24 years). All participants, except for Participant 4, mentioned that tracking activities and sleep was confirmed to be enjoyable or interesting. This expectation has been positively disconfirmed for Participant 10, as she expected that she would not enjoy tracking activities where she had no specific goal. This expectation was disconfirmed, as she now uses mHealth to track all activities. '*Later I started using some more functions and then there it was no longer to improve but just because it's fun to see which I really didn't expect*' (P10, Female, 24 years).

The expectation of participants that mHealth would help improve themselves by comparing themselves to others in the community and showing their results to others was confirmed by multiple participants. Sharing information about physical activities with a community motivated Participant 1 to be active. '*If I see that two others have completed a workout, I start thinking that I need to be active as well'* (P1, Female, 23 years). When more people share their information, you are able to compare your activity with the activity of others. '*It helps to see what others are doing and if they give Kudos on your activity'* (P4, Male, 27 years). Participant 10 mentioned that she uses Strava, with the expectation of comparing herself with others. '*I added my brother and some other people who are better than me, which means that I want to prove myself and be able to keep up with them.'* (P10, Female, 24 years).

The participants expected that mHealth would help them control what they are doing, let them be their own boss, and optimize their way of living. This expectation included the possibility of

tracking your sleep, number of steps, and activities, which is confirmed for all Participants. Participant 2 mentioned a surprisingly positive confirmation of her expectation that she has an active way of life. '*Just like last Sunday, in my opinion, I have just stood all day, but then it seems that we have walked a lot. Then I think, "wow" taken so many steps unnoticed.* (P2, Female, 57 years). Participant 5 mentioned that mHealth optimizes the way he is living as he changed his behaviour by being more active, which confirmed the expectation. '*As it provides proof that I have been active it works as an incentive to be active more*' (P5, Male, 24 years).

Improving physical condition or reaching 10.000 per day was expected from mHealth by some of the participants. Participant 1 mentioned that she expected to become fitter with the help of her mHealth device, which was confirmed during the use of the mHealth device. '*I became fitter since using the watch because there are so many activity options in the watch I want to try them all and I became more active'* (P1, Female, 23 years). Tracking activities with mHealth also helped Participants 4, 6 and 10 reach their goal to improve their performance as expected, as mHealth allowed them to compare the results of their activities. Participant 6 also mentioned that it helped him reach his goal of sleeping better. '*I began monitoring my sleep as I wanted to sleep better and now I try to sleep 8 hours'* (P6, Male, 24 years).

Overall, positive (dis)confirmation of expectations led to satisfaction, as all participants mentioned being satisfied with mHealth. As a result, all participants who stated that their expectations were met also expressed their intention to continue using mHealth and repurchase the same device or application. This is in line with the research of both AlSokkar (2024) and Bhattacharjee (2001).

4.2.2. Negative disconfirmation of expectations

The first mentioned negative disconfirmation is the disconfirmation mentioned by Participant 1, which was about the expectation that mHealth would be enjoyable or interesting. '*This application was too simple to use… that is why I did not enjoy it'* (P1, Female, 23 years).

Participant 1 expressed that her expectation to compare her results to the results of others and have the same number of burned calories was negatively disconfirmed by noticing differences as the others burned more calories than her for the same activity. '*If I sport together with someone else, I often burn a lower amount of calories compared to the other, and I don't know how that is possible'* (P1, Female, 23 years).

The expectation that mHealth would help participants control what they are doing was negatively disconfirmed in the adoption phase for some participants. Participant 8 mentioned that he was not fully able to control what he was doing, as he missed some functions which provide information on his mHealth device. The expectation to control what they are was disconfirmed for multiple participants, as mHealth was not able to track all activities. '*It does not measure some workouts in the gym as steps or training'* (P2, Female, 57 years). Participant 7 expressed concerns about the functionality to track the number of climbed stairs, which was not measured correctly in her

opinion. The participants also mentioned that mHealth sometimes was not able to measure the full activity, which complicates the ability to control what they were doing. '*Sometimes the GPS signal does not work properly which is stupid'* (P4, Male, 27 years), '*You can not change anything afterwards, which I understand but yeah..'* (P6, Male, 24 years). Besides that, Participant 3 mentioned that his mHealth sometimes has a 'hick-up' in tracking the activity. Participant 5 mentioned negative confirmation of his expectation that the mHealth device would not be that precise, which aligns with previous examples. '*It is less precise, purely by the fact that he thinks that I ran a certain distance which was higher in reality'* (P5, Male, 24 years).

In some situations, the expectation that mHealth would help participants reach a certain goal has been negatively disconfirmed. Participant 1 mentioned that she expected to track the improvement of her physical condition, which would help her to aim for a specific target. This expectation was negatively disconfirmed, as the function does have some limitations. '*I think it is unfortunate that you have a physical condition function, which says that your condition is less than average. I read on the internet that a lot of people have this problem even though they are fit, so that does not work quite to your expectations'* (P1, Female, 23 years). Participants 9 and 10 mention the same negative disconfirmation as Participant 1. '*I do look at it but it fluctuates so much that you think "is it right?"*' (P9, Female, 26 years). Another goal that was expected to be reached with the help of mHealth was mentioned by Participant 2, who mentioned that she expected mHealth to improve in the number of steps per day, which was negatively disconfirmed in the adoption phase. '*I once had a very amateurish step counter, but that was hopeless because it did not function as it should'* (P2, Female, 57 years).

Overall, most participants mentioned having experienced negative (dis)confirmation of expectations, leading to a lack of satisfaction. As the negative disconfirmation had less impact than the positive (dis)confirmation, this did not impact continuance or repurchase intention for most participants. However, Participants 5 and 10 mentioned that this negative (dis)confirmation led to the decision that they would not repurchase the same mHealth. This finding aligns with the results of both AlSokkar (2024) and Bhattacharjee (2001).

4.3. Adaptation to (dis)confirmation of expectations

This master's thesis research examines consumer experience for (dis)confirmation of expectations. These experiences consist of different adaptation strategies, which are examined for the participants and elaborated on below.

4.3.1. Distancing

The first adaptation strategy that is applied by the participants is distancing. When this adaptation strategy is used, the users do not accept all provided information of the mHealth application or device. '*At this moment, I am thinking "this does not work so I just don't use the information"*' (P1, Female, 23 years). Another example of this adaptation strategy is used by Participant 3, who mentioned that the application does not measure the same distance even though the real distance of the

activity is the same every week. '*At that moment, I just think "whatever", and don't use the information' (P3, Male, 59 years)*. Participant 9 applied this adaptation strategy when her expectations about the physical condition function were not confirmed, as this function did not work as expected. '*I look at the information, but don't think I have to improve that'* (P9, Female, 26 years).

4.3.2. Adjusting

The adaptation strategy 'adjusting' is applied by some of the participants. In this form of adaptation, the user adapts their behaviour or expectations towards the mHealth application or device. This adaptation strategy is applied when there is unexpected disconfirmation for the mHealth device or application. Participant 8 mentioned that he adjusted his activities to the functions of his watch, as he dropped his training program because the watch could not provide the push notification when to stop and go '*previously I just went for a run' (P8, Male, 57 years).*

4.3.3. Ignoring

Ignoring is an adaptation strategy where users ignore or avoid information provided by mHealth. The first example of this adaptation strategy is when the mHealth application or device has functional limitations because it does not monitor all activities. '*I am less active with the number of steps because I am more active in the gym, but mHealth does not see that as steps or activities. I know for myself that I was active so I ignore the mHealth.*' (P2, Female, 57 years). Another example of applying this adaptation strategy is the case of Participant 3. His mHealth device unintentionally changed a setting, which changes the notifications during his workout. '*I don't understand it but I think "whatever", I don't find that important"* (P3, Male, 59 years).

4.3.4. Discontinuing

The final adaptation strategy that was identified by Blazevic & Klintwort (2019) is discontinuing. When this strategy is applied, the user stops using the mHealth application or device as an adaptation strategy for the disconfirmation of expectations. This disconfirmation of the expectation can impact the application or device partly or as a whole, where this adaption strategy is applied in both situations. All participants mentioned that they had applied this strategy in the past. In most cases when this strategy was applied, there was a replacement for the mHealth application. '*Since I have my Apple Watch it is easier to use that instead of Strava, as you need a running belt for your phone when you are using Strava'* (P6, Male, 24 years). '*My Apple Watch really is a replacement for Runkeeper'* (P1, Female, 23 years). '*You develop and therefore you want more'* (P8, Male, 57 years). All participants who applied this adaptation strategy mentioned that they wanted a new mHealth device or application which suited their new wishes and requirements better. Participant 2 mentioned an example of disconfirmation of the whole device. '*Because the whole device was not working I fully stopped using it'* (P2, Female, 57 years).

4.3.5. Benefits maximising

Unexpected consequences can also have a positive impact on the engagement of mHealth. This effect occurred in the sample when there was a positive element of surprise about the adoption of mHealth. This adaptation strategy is applied for both confirmation and disconfirmation of expectations. This adaptation strategy is applied in case of confirmation of expectations. For example in the case of Participant 10, she mentioned that she adapted her behaviour as the mHealth helped her become fitter. This is conversely applied when the expectations are that the goal will not be achieved, or the basic functionalities will not be provided, which is the case for Participant 5. He mentioned that he did not expect that mHealth would help improve his health. This adaptation strategy is also applied in case of disconfirmation of the expectation that functionalities are enough. For example in the case of Participant 8, he mentioned his adaptation to his opinion that he missed some functionalities in his previous device. Benefits maximising, described by Beaudry & Pinsonneault (2005), is the most important aspect of this adaptation strategy.

Benefits maximising, as explained in Chapter 2, is a strategy that entails the individual changing their technologies and behaviour to maximise the benefits. In the case of mHealth, this means that new devices and applications will be used to maximise their benefits, or that new behaviours are adopted. As explained in the introduction of this adaption strategy, Participant 5 expected that his health would not be improved by the use of mHealth, which was disconfirmed in the adoption phase. As an adaptation strategy to this disconfirmation, he adapted his behaviour to maximise the benefits of his mHealth device. '*I expected that I would actually only use it for the Four Day Marches, but I like it so much that now I am actually still using it*' (P5, Male, 24 years). Besides that, he mentioned that he would purchase a device with more functionalities as he wanted to maximise his use of mHealth. Participant 8 applied this adaptation strategy as his expectation that the provided functionalities of his mHealth device would be enough for him were disconfirmed. '*what I found especially with the old one, it didn't give the recovery time, so this one does with all the combinations of your sleep, your stress, your heart rate and other things it gives with the combination with the performance delivered, it calculates the recovery time ... I was missing that and this one does that*' (P8, Male, 57 years). As an adaptation to this disconfirmation, he started using a new mHealth device to maximise his benefits. Another example of benefit maximising is expressed by Participant 10, as her goal to become fitter was achieved with the help of mHealth. '*As I noticed that I became fitter and it helped me I started using more options of the watch*' (P10, Female, 24 years)

5. Discussion

This research revolves around user experiences with mHealth devices and applications and explores how individuals adapt to the (dis)confirmation of their expectations from mHealth. While looking at expectations, (dis)confirmation of expectations, and adaptation strategies, the aim is to explore the user's experience with the use of mHealth to connect these three aspects. To fill this gap, the following research question was developed: *"How do individuals adapt to the (dis)confirmation of the expectations from mHealth?"*. The data from this research was obtained through qualitative interviews with mHealth users.

5.1. Interpretation of findings

In this subsection, the findings are divided into three sets of findings. These are expectations from using mHealth, (dis)confirmation of these findings, and adaptation strategies.

Firstly, the expectations of users for starting to use mHealth were investigated. The expectations that were found in the sample are enjoyment, self- and other-comparison, behavioural control, goal achievement, and activity confirmation. The expectations found in the sample can be linked to the expectations of self-entertainment, self-association, self-design, and self-discipline as identified by Gimpel et al. (2013). The expectation for self-healing can not be linked to the participants' expectations, as none expected mHealth to help them heal themselves or become aware of their health. The most prominent expectation for mHealth in the sample was that mHealth would be enjoyable and interesting. Participants were attracted by the enjoyment aspect of mHealth, both because they found the information interesting or were curious about their current health and activities. Curiosity played a role in the expectation of enjoyment and interest in this sample, which was not mentioned in the expectation of self-entertainment by Gimpel et al. (2013). One expectation of the sample that can not be linked to identified expectations from mHealth of Gimpel et al. (2013) was the expectation that mHealth helps users confirm their activities for themselves. Where Gimpel et al. (2013) only identified that people use mHealth to share their activities with others, the sample showed that users use mHealth to have confirmation for themselves. In addition, it was found that the expectations of behavioural control and goal achievement were closely connected in the sample. Participants who had the expectations to reach certain goals, which is mentioned in the expectation of self-discipline, also expected that mHealth helped them control their activities, which was mentioned in the expectation of self-design. Therefore, the sample showed that the expectations to reach a goal with the help of mHealth were added to the expectation that mHealth helps to control what someone is doing in their life.

Secondly, participants explained their expectations of mHealth devices and applications during the interviews, followed by an examination of whether these expectations were confirmed or disconfirmed, and whether such confirmation was positive or negative. The expectations were positively (dis)confirmed in the adoption phase. All participants who expected that mHealth would be

enjoyable confirmed that it was. Additionally, the sample found that they could maintain control over their lives and be their own master through the use of mHealth. Because of the ability to track their activities, compare their progress, and prove their activities, the participants reached their goals. Disconfirmation was found to be positive, as those who initially thought they would not use mHealth often because they expected it would not help them become fitter, ended up using it regularly because it did help them. Positive (dis)confirmation occurred when expectations were exceeded, which consistently resulted in satisfaction with mHealth usage. This finding aligns with the research of AlSokkar et al. (2024) and Bhattacherjee (2001), which indicated that confirmation of expectations leads to satisfaction. This relationship is confirmed in the sample. All participants mentioned they would continue to use mHealth, this is in line with the study by Bhattacherjee (2001), which showed that satisfaction has a positive effect on the continuance intention. A large part of the sample expressed that they would purchase the same mHealth device or application in case it stopped working, which aligns with the research of AlSokkar et al. (2024).

Expectations were found to be negatively (dis)confirmed in the adoption phase, which was found to be negative for engagement in mHealth. A small part of the sample found mHealth less enjoyable or helpful than they expected. Additionally, some users felt controlled by the devices and applications rather than empowered by them, which aligns with the study by Etkin (2016), who suggested excessive self-tracking can diminish enjoyment and make activities feel compulsory. Despite these negative (dis)confirmations, the level of satisfaction was not significantly impacted to affect continuance or repurchase intention for most participants. However, it is important to note that negative disconfirmation had a (small) impact on satisfaction and subsequent behaviour, which was also indicated by the research of AlSokkar et al. (2024) and Bhattacherjee (2001). Disconfirmation only impacted the repurchase and continuance intention for the previous mHealth devices and applications no longer used.

Thirdly, users stated that they applied different adaptation strategies to cope with the (dis)confirmation of expectations. Adaptation strategies can be divided into ‘negative for engagement in mHealth’ and ‘positive for engagement in mHealth’. Adaptation strategies that were negative for engagement in mHealth were applied when expectations of mHealth were disconfirmed. However, some expectations of the sample implied that mHealth would not be adopted. In addition, a large part of the sample expected that they would adopt mHealth, which means that disconfirmed expectations led to the application of coping strategies for negative engagement in mHealth. Adaptation strategies that were negative for engagement in mHealth were referred to as coping strategies, described for mHealth in the research of Blazevic & Klintwort (2019).

All coping strategies identified by Blazevic & Klintwort (2019) were found in the sample, except for the coping strategy ‘assuming responsibilities’. Participants in the sample expected that they would remain their own boss, which was found to be confirmed in the adoption phase. This confirmation indicated that the coping strategy ‘assuming responsibilities’ was not a coping or

adaptation strategy applied by the sample. This strategy was applied from the beginning of the mHealth use, meaning it was not an adaptation or coping. This means that the expectation was confirmed, and the sample did not need to adapt to it.

The other coping strategies identified by Blazevic & Klintwort (2019) were found to be applied by the sample. These coping strategies were emotionally distancing, assuming responsibilities, adjusting, and ignoring (Blazevic & Klintwort, 2019). The coping strategy of 'emotionally distancing' differed between the sample and the research of Blazevic & Klintwort (2019). The identified coping strategy by Blazevic & Klintwort (2019) entailed that users would not let mHealth change their mood or well-being. Since no information was found about the mood or well-being effects of distancing from the information provided by mHealth, this coping strategy was termed ‘distancing’, as the sample did not experience any emotional impact from the information. The sample did apply this strategy, as they would distance themselves from the information provided. The other adaptation strategies that were found for negative engagement are in line with the coping strategies that Blazevic & Klintwort (2019) identified.

Adaptation strategies that are positive for engagement in mHealth, mostly stem from confirmation of expectations, as the sample largely expected that they would engage in mHealth. The sample of this study confirmed that adaptation strategies can also be applied for disconfirmation of expectations, as a small part of the sample mentioned the expectation that mHealth would not be adopted. The benefits maximising strategy was applied when an unexpected consequence, which can be both confirmation and disconfirmation of expectations, is seen as having a positive impact on oneself. This strategy was identified in the study by Beaudry & Pinsonneault (2005) in case an event was appraised as an opportunity. This adaptation strategy had a positive outcome for the engagement to mHealth devices and applications and was applied by the sample in two cases. The first case was the confirmation of expectations directly linked to motives. The sample expressed that mHealth helps achieve a goal, which was the expectation from starting to use mHealth. This positive feeling led to maximising the benefits, resulting in the adoption of more mHealth functions. The second case is the disconfirmation of the expectation that the mHealth device or application has enough functionalities. The sample indicated that this disconfirmation led to benefits maximising of mHealth, as new devices or applications with more functionalities were purchased. Both cases lead to positive engagement in mHealth.

Ultimately, these findings led to an answer to the research question: *“How do individuals adapt to the (dis)confirmation of the expectations from mHealth?”*. This study identified key expectations from using mHealth, which were enjoyment, self- and other-comparison, behavioural control, goal achievement, and activity confirmation. It highlighted that while some adaptation strategies negatively affected engagement, others fostered positive engagement with mHealth. Individuals adapted to the (dis)confirmation of their expectations from mHealth through various. The

confirmation and disconfirmation of these expectations could impact engagement positively and negatively, which led to multiple adaptation strategies. The adaptation strategies that negatively affected engagement were distancing, adjusting, ignoring, and discontinuing, while the adaptation strategy that positively affected engagement was benefits maximising.

5.2. Theoretical contribution

This master's thesis contributes to the literature on consumer experience and adaptation strategies by providing a qualitative understanding of how motives to use mHealth are connected to expectations, what these motives and expectations are, and how individuals adapt to the (dis)confirmation of these expectations. Although the exploration of motives and expectation adaptation in the context of mHealth experience remains limited, this study provides valuable insights into this crucial area. The main contribution of this research is the identification of new adaptation strategies users employ when their expectations are either confirmed or disconfirmed, adding depth to the existing knowledge of technology adaptation.

Expectations arise from motives and the expected outcomes from using mHealth, as well as from information searches about the functionalities of mHealth. These expectations can be both positive and negative for engagement in mHealth. This master's thesis finds that both confirmation and disconfirmation of expectations can lead to identical coping or adaptation strategies, demonstrating that user reactions are not solely dependent on the (dis)confirmation of their expectations but also on their expectation from starting to use mHealth. This finding is crucial, as it highlights the nature of the expectation outcome (confirmation or disconfirmation) does not necessarily dictate the adaptation strategy employed.

Furthermore, this study identifies that adaptation strategies can also be positive for engagement, which is not extensively explained in the existing literature for mHealth. Beaudry and Pinsonneault (2005) identified some adaptation strategies in the context of IT events, but this research expands on their work by applying it to mHealth. The adaptation strategy of benefits maximising, for instance, is found to be a positive strategy for mHealth engagement, encouraging users to fully adopt the technology. This is contrasted with negative adaptation strategies such as distancing, adjusting, ignoring, and discontinuing, which tend to reduce engagement.

By exploring these dynamics, this research makes a significant theoretical contribution by linking user expectation to the (dis)confirmation of their expectations and their adaptation strategies and engagement outcomes in the context of mHealth. It highlights the importance of understanding expectations and how they shape user behaviour in response to the (dis)confirmation of expectations.

5.3. Practical contribution

Besides, this master's thesis has practical insights that are particularly relevant for developers and marketers of mHealth devices and applications, as well as other stakeholders such as healthcare practitioners, policymakers, and the users of mHealth technology themselves. By providing an in-depth understanding of user expectations, experiences, and adaptation strategies, this research can guide these actors in enhancing the effectiveness and attraction of mHealth applications.

One key finding of this study is that most disconfirmation of expectations relates to the functional possibilities of mHealth. This highlights the importance for developers and marketers to accurately inform users about what mHealth can and cannot do. Clear and precise communication regarding the functionalities of mHealth can prevent user disappointment as expectations are confirmed, and improve overall satisfaction and therefore engagement with the technology.

Furthermore, this study identifies various adaptation strategies users employ when their expectations are confirmed or disconfirmed. These strategies can either enhance or diminish engagement with mHealth. The positive adaptation strategy benefits maximizing is particularly important for fostering sustained user engagement. On the other hand, negative adaptation strategies, like distancing, adjusting, ignoring, and discontinuing, can reduce engagement in mHealth. Understanding these adaptation strategies is crucial for developers, as developers can tailor their designs to foster positive strategies and mitigate negative ones, aiming to improve the user experience and maintain high engagement levels.

Developers can leverage these findings to design features that align better with user expectations and encourage positive adaptation strategies, as it helps developers how user behaviour is shaped in response to the (dis)confirmation of expectations. For instance, by knowing that certain functionalities might not meet user expectations, developers can offer support or alternative solutions. Users benefit from understanding that their expectations may not be confirmed, as this awareness can help them manage their engagement.

This research stresses the importance of a comprehensive approach to user experience in mHealth. By addressing user expectations and the strategies they use to adapt to (dis)confirmation of expectations, developers can create more effective, user-friendly devices and applications. This, in turn, can lead to higher satisfaction and therefore a higher continuance intention or repurchase intention, ultimately benefiting various stakeholders involved in mHealth technology.

5.4. Limitations and recommendations for future research

While this research has achieved its objectives and revealed significant findings, it is crucial to recognise some limitations and appoint recommendations for future research. This research faces limitations regarding the methodological approach. Relying on participants' retrospective memories may introduce recall bias and might not fully capture their actual experiences. Consequently, future research could employ alternative methodologies, such as observational studies or diary studies, to

provide more real-time insights into user experiences, which can be both cross-sectional and longitudinal. Furthermore, future research could conduct experiments that provide detailed information, particularly about functional limitations, which may offer valuable insights into the impact on expectation disconfirmation levels. Additionally, the author's pre-existing knowledge may have unintentionally influenced participant responses, potentially biasing the results. The participants in the research might have assumed that the author knew what functionalities mHealth users would expect, and might therefore not have mentioned all their expectations. Future research could seek to mitigate researcher bias, for example by involving multiple researchers in data analysis or seeking participant feedback on findings, which might enhance the credibility and reliability of future research.

Participants did not fully comprehend the questions regarding their motivations and the corresponding expectations. Consequently, the expectations of the participants were linked to motives identified in the existing literature. This limitation affects the conclusions drawn in this master's thesis regarding individuals' motivations for initiating the use of mHealth. Notably, the expectations of behavioural control and goal achievement are closely intertwined, as both involve controlling and improving activities. The difference is that goal achievement is oriented towards a specific goal, whereas behavioural control is not. Future research is recommended to explore the relationship between these expectations further, for example by a difference-in-difference approach. In this approach, causal effects are estimated by comparing changes in outcomes between two groups: one group consisting of participants with the expectation of behavioural control, and another group with the expectation of goal achievement.

Moreover, related to the expectation of self- and other-comparison, future research could focus on exploring expectations arising from individuals who have mutual relations with mHealth. These users could provide deeper insights into the influence of social networks on mHealth adoption, as these individuals might impact each other.

Finally, the participants all used mHealth to track their activities and sleep as a hobby, which leads to important recommendations for future research to expand our understanding of mHealth dynamics. For instance, investigating the experiences of professional athletes, as opposed to hobbyists, could generate different insights as the expectations from using mHealth might be different.

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Appendixes

Appendix 1: Overview of coping strategies

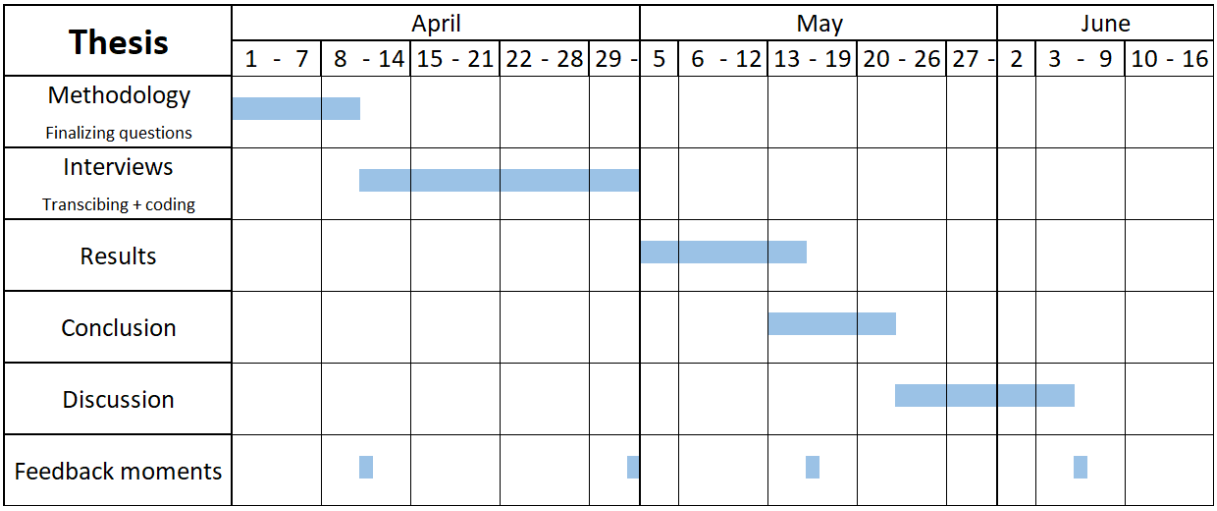
TABLE 2

BEHAVIORAL COPING STRATEGIES FOR MANAGING TECHNOLOGY PARADOXES AND THEIR EMOTIONAL EFFECTS

Coping strategies	Emotional effects
Pre-acquisition avoidance strategies:	
Ignore	Avoiding information about the characteristics or availability of certain technological products
Refuse	Declining the opportunity to own a specific technological product
Delay	Postponing but eventually owning a specific technological product
Pre-acquisition confrontative strategies:	
Pretest	(1) Using someone else's technological product temporarily or (2) purchasing a technological product but not assuming definitive ownership until the return policy or warranty expires
Buying heuristics	(1) The latest, cutting-edge model; (2) a basic, less sophisticated model; (3) an expensive model; (4) a familiar, widely known brand; and (5) a reliable brand
Extended decision making	Taking stock of one's needs, searching diligently for detailed product/brand information, and then purchasing the most appropriate alternative in a careful, calculating manner
Extended warranty/maintenance contract	(1) Buying additional insurance at the time of product purchase to cover service and repairs or (2) buying an ongoing contract for periodic preventive maintenance and emergency repairs
Consumption avoidance strategies:	
Neglect	Showing temporary indifference toward a technological possession
Abandonment	(1) Declining or discontinuing the use of a technological possession or (2) leaving a technological possession unrepaired if it has malfunctioned
Distancing	(1) Developing restrictive rules for when or how a technological possession will or will not be used or (2) physically placing a technological possession in an unobservable or remote site
Consumption confrontative strategies:	
Accommodation	Changing tendencies, preferences, routines, etc., according to the perceived requirements, abilities, or inabilities of a technological possession
Partnering	Establishing with a technological possession a close, committed relationship of heartfelt attachment
Mastering	Dominating a technological possession by thoroughly learning its operations, strengths, and weaknesses

From Mick & Fournier (1998).

Appendix 2: Planning



Appendix 3: Interview protocol (English)

Thank you in advance for participating in my research for my master's thesis.

This interview is about the experience you have with mobile health applications or devices, which are also known as mHealth apps or devices. These applications are used on smart devices as smartphones or smartwatches, with the purpose of self-tracking that can include, among others, fitness, sleep, or calorie intake. Examples of the applications and devices are Apple watches, Fitbit watches, Strava or other applications.

When responding to the questions in this interview, please remember that there are no right or wrong answers. Your responses will be kept confidential, and to ensure anonymity, your name will be anonymized. The data gathered will solely be used for academic purposes in this master's thesis. It is essential to note that your participation in this interview is entirely voluntary, and you may choose to withdraw at any time.

This interview will be recorded, and the gathered information will be used in this master's thesis to provide recommendations to mHealth app developers and companies for enhancing their applications. Please feel free to inquire about the finding of this study, I will happily share them with you.

The interview will last for around 45 minutes.

Before we start the interview, do you agree with the information I just provided?

Introduction

- What mHealth apps are you using at the moment?
- For how long have you been using these apps?
- How often do you use mHealth applications?
- How exactly do you use your mHealth app? How does it work?
- Have you used other mHealth applications before using your current mHealth application?
    - If you stopped using them, why did you do so?

Motivation

- What were your motives for using the mHealth application?
- Do you have any specific goals you would like to reach by using this mHealth app?

Expectations

- What did/do you expect from the mHealth application when you started using it?
- To what extent have these expectations changed after you started using the mHealth?
    - If they changed, why do you think they did so?

(dis)Confirmation of expectations + adaptation strategies

- Have your expectations from using this mHealth app confirmed or not?
    - (If they have been confirmed)

        Can you tell more about that? How do you feel about that?

        What do you think are the reasons behind meeting your expectations from the mHealth app? Since your expectations are met, how do you continue with

using the app? Do you still use it in the same way as before? Has your use of it changed in any way?

- (If they have not been confirmed)

  Can you tell me more about that? How do you feel about that?

  What do you think are the reasons behind not meeting your expectations from the mHealth app?

  Since your expectations were not met, how do you continue with using the app? Do you still use it in the same way as before? Has your use of it changed in any way?

Ending

- Would you continue using this app in the future? If yes/no, why?
- Would you recommend it to others? If yes/no, why?
- Would you like to see any changes in the design of this app? If yes, which ones and why?
- Is there anything else you would like to add about your experience with using this app?

I have a few last questions that are crucial for my study. Could you please provide answers to the questions via an online survey:

- What is your name?
- What is your age?
- Wat is your gender?
- What is your current work/study?
- What is the highest level of education you have completed?
- How familiar are you with technology?

I really appreciate your participation in my thesis research. If you have any questions or would like to know more about the results of my study, please do not hesitate to contact me.

<u>After the recording is stopped, the participant will be asked how he/she felt about the interview to capture the emotional involvement.</u>

Appendix 4: Interview protocol (Dutch)

Alvast bedankt voor je deelname aan mijn onderzoek voor mijn Master thesis.

Dit interview gaat over de ervaring die je hebt met mobiele gezondheidsapplicaties of -apparaten, ook wel mHealth-apps of -apparaten genoemd. Deze applicaties worden gebruikt op slimme apparaten zoals smartphones of smartwatches, met als doel het zelf bijhouden van onder andere fitness, slaap of calorie-inname. Voorbeelden van de applicaties en apparaten zijn Apple horloges, Fitbit horloges, Strava of andere applicaties.

Onthoud bij het beantwoorden van de vragen in dit interview dat er geen goede of foute antwoorden zijn. Uw antwoorden worden vertrouwelijk behandeld en om anonimiteit te garanderen wordt uw naam geanonimiseerd. De verzamelde gegevens worden uitsluitend gebruikt voor academische doeleinden in deze masterscriptie. Het is belangrijk om te weten dat je deelname aan dit interview geheel vrijwillig is en dat je je op elk moment kunt terugtrekken.

Dit interview zal worden opgenomen en de verzamelde informatie zal worden gebruikt in deze masterscriptie om aanbevelingen te doen aan mHealth app ontwikkelaars en bedrijven voor het verbeteren van hun applicaties. Voel je vrij om te informeren naar de bevindingen van dit onderzoek, ik zal ze graag met je delen.

Het interview zal ongeveer 45 minuten duren.

Voordat we met het interview beginnen, ben je het eens met de informatie die ik zojuist heb gegeven?

Introductie

- Welke mHealth-apps gebruik je op dit moment?
- Hoe lang gebruik je deze apps al?
- Hoe vaak gebruikt je mHealth-applicaties?
- Hoe gebruik je de mHealth-app precies? Hoe werkt het?
- Heb je andere mHealth-applicaties gebruikt voordat u uw huidige mHealth-applicatie gebruikte?
    - Als u ermee gestopt bent, waarom deed u dat?

Motivatie

- Wat waren uw motivaties om de mHealth applicatie te gebruiken?
- Heeft u specifieke doelen die u zou willen bereiken door het gebruik van deze mHealth app?

Verwachtingen

- Wat had je verwacht van de mHealth applicatie toen je deze ging gebruiken?
- In hoeverre zijn deze verwachtingen veranderd nadat je de mHealth begon te gebruiken?

- Indien veranderd, waarom denk je dat dit zo is?

Bevestiging of weerlegging van verwachtingen + aanpassingstrategieën.

- Zijn je verwachtingen van het gebruik van deze mHealth app bevestigd of niet?
  - (Indien bevestigd)

  Kun je daar meer over vertellen? Hoe voelt u zich daarbij?

  Wat zijn volgens u de redenen waarom aan uw verwachtingen van de mHealth app is voldaan?

  Aangezien aan uw verwachtingen is voldaan, hoe blijft u de app gebruiken?

  Gebruikt u hem nog steeds op dezelfde manier als voorheen?

  Is uw gebruik op de een of andere manier veranderd?
  - (Indien niet bevestigd)

  Kunt u me daar meer over vertellen? Wat vind je daarvan?

  Wat zijn volgens u de redenen waarom de mHealth app niet aan uw verwachtingen voldeed?

  Hoe gaat u verder met het gebruik van de app, aangezien uw verwachtingen niet werden ingelost?

  Gebruikt u hem nog steeds op dezelfde manier als voorheen?

  Is uw gebruik op de een of andere manier veranderd?

Afsluiting

- Zou je deze app in de toekomst blijven gebruiken? Indien ja/nee, waarom?
- Zou je het anderen aanraden? Indien ja/nee, waarom?
- Zou je veranderingen willen zien in het ontwerp van deze app? Zo ja, welke en waarom?
- Is er nog iets dat je zou willen toevoegen over je ervaring met het gebruik van deze app?

Ik heb nog een paar laatste vragen die cruciaal zijn voor mijn studie. Kunt u de vragen beantwoorden via een online enquête?

- Wat is je naam?
- Wat is je leeftijd?
- Wat is je geslacht?
- Wat is je huidige werk/studie?

- Wat is je hoogst genoten opleiding?
- Hoe bekend ben je met technologie?

Ik stel je deelname aan mijn afstudeeronderzoek zeer op prijs. Als u vragen heeft of meer wilt weten over de resultaten van mijn onderzoek, aarzel dan niet om contact met mij op te nemen.

Nadat de opname is gestopt, wordt de deelnemer gevraagd wat hij/zij van het interview vond om de emotionele betrokkenheid vast te leggen.

Appendix 5: Consent form (English)

Introduction

You have been invited to participate in a scientific study at Radboud University. Before you decide whether you want to participate, you will receive an explanation of what the study entails. Please read this information carefully.

What is the study about?

In this study, there is a focus on the use of mobile health applications or devices, which are also known as mHealth applications or devices. In this topic, it will be researched what motivates individuals to use mHealth devices for self-tracking, and what expectations are formed based on these motivations. Besides that, this thesis explores why expectations are confirmed or disconfirmation, and how individuals then cope with the (dis)confirmation of these expectations.

What is expected of you?

In this study, you will be interviewed by Bart Wolsing in a face-to-face interview. If you consent, an audio recording of this interview will be made to ensure the accuracy of the study. The recording will be used as research data. An interview will take approximately 45 minutes. In the interview we will ask you questions about your use of mHealth. Examples of questions are: what are the reasons you are using mHealth, and what did you expect from your mHealth application when you purchased it.

Voluntary participation

You decide whether to participate in this study. Your participation is voluntary. You may say no at any time. You do not have to answer questions you would rather not answer, and you can stop your participation and withdraw your consent at any time during the study. You do not have to indicate why you are stopping. You can also have your research data and personal data deleted up to two weeks after participation, by sending an email to bart.wolsing@ru.nl .

What will happen to my data?

Your participation in this study is confidential. All research data will be stored on Radboud University's secure servers, according to the university's protocol. This protocol is in line with the General Data Protection Regulation (GDPR).

Recordings are deleted as soon as the interview report is finished. The interview notes are anonymized, meaning that it is nearly impossible to trace data back to you. We do this by removing all information leading to you as an individual from the research data (such as your name, contact information, or any other mentioned individuals) and replacing it with a pseudonym.

The list of participants is encrypted and stored in a secure environment to which only the researchers from the direct research team have access. Once this is done, the researchers will only work with the anonymized data, which will also be used for scientific articles and presentations. The anonymized data will not be used for other studies unless you give your explicit consent. The notes will be stored on the Radboud network for ten years to ensure scientific integrity. The list of participants will be deleted at the end of the study.

Ethical review and complaints

Should you nevertheless have complaints or problems you can always contact the main researcher. You may also file a complaint with the Scientific Integrity Confidential Advisors (vertrouwenspersonen@ru.nl) or with the Radboud University Scientific Integrity Committee (m.steenbergen@bjz.ru.nl, 024 3611578) Administrative & Legal Affairs.

If you have questions or complaints about the processing of your personal data, we recommend that you first discuss them with the research team. You can also contact Radboud University's Data Protection Officer (mijnprivacy@ru.nl). Or you can file a complaint to the Data Protection Authority.

Consent Statement

If you want to participate in this study, we will ask you to sign a consent form. Your written consent indicates that you have understood the information and agree to participate in the study.

Do you have any questions about the study?

If you would like to know more about the study or storage of the research data, please contact the Main researcher:

Contact details researcher:

Name: Bart Wolsing

E-mail address: bart.wolsing@ru.nl

Telephone number: +31650640373

Consent

I have been informed about the purpose of the study. I was able to ask questions about the study. I am participating in the study voluntarily. I understand that I may stop at any time during the study if I wish. I understand how the data from the study will be kept and what it will be used for. I agree to participate in the study as described in the information document.

In addition, I consent to (please check the appropriate box):	
Yes	**No**
☐	☐ making audio recordings

Name of participant:

Date:

Signature:

Name of researcher:

Date:

Signature:

Appendix 6: Consent form (Dutch)

Introductie

U bent uitgenodigd om deel te nemen aan een wetenschappelijk onderzoek aan de Radboud Universiteit. Voordat u besluit of u mee wilt doen, krijgt u uitleg over wat het onderzoek inhoudt. Lees deze informatie goed door.

Waar gaat het onderzoek over?

In dit onderzoek ligt de focus op het gebruik van mobiele gezondheidstoepassingen of -apparaten, ook wel mHealth-toepassingen of -apparaten genoemd. In dit onderwerp wordt onderzocht wat individuen motiveert om mHealth apparaten te gebruiken voor self-tracking, en welke verwachtingen worden gevormd op basis van deze motivaties. Daarnaast onderzoekt dit proefschrift waarom verwachtingen bevestigd of juist ontkracht worden, en hoe individuen vervolgens omgaan met de (ont)bevestiging van deze verwachtingen.

Wat wordt er van jou verwacht?

In dit onderzoek word je geïnterviewd door Bart Wolsing in een face-to-face interview. Als u hiermee instemt, wordt er een audio-opname van dit interview gemaakt om de nauwkeurigheid van het onderzoek te waarborgen. De opname wordt gebruikt als onderzoeksgegevens. Een interview duurt ongeveer 45 minuten. In het interview zullen we u vragen stellen over uw gebruik van mHealth. Voorbeelden van vragen zijn: wat zijn de redenen dat u mHealth gebruikt en wat verwachtte u van uw mHealth applicatie toen u deze aanschafte.

Vrijwillige deelname

U beslist zelf of u deelneemt aan dit onderzoek. Uw deelname is vrijwillig. U kunt op elk moment nee zeggen. U hoeft geen vragen te beantwoorden die u liever niet beantwoordt en u kunt uw deelname stopzetten. U beslist zelf of u deelneemt aan dit onderzoek. Uw deelname is vrijwillig. U kunt op elk moment nee zeggen. U hoeft geen vragen te beantwoorden die u liever niet beantwoordt en u kunt op elk moment tijdens het onderzoek stoppen met uw deelname en uw toestemming intrekken. U hoeft niet aan te geven waarom u stopt. U kunt uw onderzoeksgegevens en persoonlijke gegevens ook tot twee weken na deelname laten verwijderen door een e-mail te sturen naar bart.wolsing@ru.nl.

Wat gebeurt er met mijn gegevens?

Uw deelname aan dit onderzoek is vertrouwelijk. Alle onderzoeksgegevens worden opgeslagen op beveiligde servers van de Radboud Universiteit, volgens het protocol van de universiteit. Dit protocol is in lijn met de General Data Protection Regulation (GDPR).

Opnames worden verwijderd zodra het interviewverslag klaar is. De gespreksnotities worden geanonimiseerd, wat betekent dat het bijna onmogelijk is om gegevens naar jou te herleiden. Dit doen we door alle informatie die naar jou als individu leidt uit de onderzoeksgegevens te verwijderen (zoals je naam, contactgegevens of andere genoemde individuen) en te vervangen door een pseudoniem.

De deelnemerslijst wordt gecodeerd en opgeslagen in een beveiligde omgeving waartoe alleen de onderzoekers van het directe onderzoeksteam toegang hebben. Zodra dit is gebeurd, werken de onderzoekers alleen met de geanonimiseerde gegevens, die ook worden gebruikt voor wetenschappelijke artikelen en presentaties. De geanonimiseerde gegevens worden niet gebruikt voor andere onderzoeken, tenzij u hier expliciet toestemming voor geeft.

De aantekeningen worden tien jaar bewaard op het Radboud-netwerk om de wetenschappelijke integriteit te waarborgen. De deelnemerslijst wordt aan het eind van het onderzoek verwijderd.

Ethische toetsing en klachten

Mocht u desondanks klachten of problemen hebben dan kunt u altijd contact opnemen met de hoofdonderzoeker. U kunt ook een klacht indienen bij de Vertrouwenspersonen Wetenschappelijke Integriteit (vertrouwenspersonen@ru.nl) of bij de Commissie Wetenschappelijke Integriteit van de Radboud Universiteit (m.steenbergen@bjz.ru.nl, 024 3611578) Bestuurlijke & Juridische Zaken.

Als u vragen of klachten heeft over de verwerking van uw persoonsgegevens, raden wij u aan deze eerst met het onderzoeksteam te bespreken.U kunt ook contact opnemen met de Functionaris Gegevensbescherming van de Radboud Universiteit (mijnprivacy@ru.nl). Of u kunt een klacht indienen bij het Autoriteit Persoonsgegevens.

Toestemmingsverklaring

Als u wilt deelnemen aan dit onderzoek, vragen wij u een toestemmingsformulier te ondertekenen. Uw schriftelijke toestemming geeft aan dat u de informatie hebt begrepen en akkoord gaat met deelname aan het onderzoek.

Heb je vragen over het onderzoek?

Als je meer wilt weten over het onderzoek of de opslag van de onderzoeksgegevens, neem dan contact op met de hoofdonderzoeker:

Contactgegevens onderzoeker:

Naam: Bart Wolsing

E-mailadres: bart.wolsing@ru.nl

Telefoonnummer: +31650640373

Toestemming

Ik ben geïnformeerd over het doel van het onderzoek. Ik heb vragen kunnen stellen over het onderzoek. Ik neem vrijwillig deel aan het onderzoek. Ik begrijp dat ik op elk moment tijdens het onderzoek kan stoppen als ik dat wil. Ik begrijp hoe de gegevens van het onderzoek worden bewaard en waarvoor ze worden gebruikt. Ik ga akkoord met deelname aan het onderzoek zoals beschreven in het informatiedocument.

Daarnaast geef ik toestemming voor (vink het juiste vakje aan):	
Ja	**Nee**
☐	☐ Het maken van audio opnames

Naam deelnemer:

Datum:

Handtekening:

Naam onderzoeker:

Datum:

Handtekening:

Appendix 7: Demographics Participants

	Age	**Gender**	**Current study/work**	**Educational level**	**Familiarity with mHealth (scale very familiar – very unfamiliar)**	**MHealth**
Participant 1	23	Female	Assistant Accountant	Master's degree	Very familiar	Apple Watch + Runkeeper
Participant 2	57	Female	Cabinet employee	Higher professional education Bachelor.	Familiar	Apple Watch
Participant 3	59	Male	Manager	Higher professional education Bachelor.	Neutral	Garmin Sportswatch
Participant 4	27	Male	Consultant	Master's degree	Really familiar	Garmin Sportswatch + Strava
Participant 5	24	Male	Sector advisor on educational quality	Higher professional education Bachelor.	Really familiar	Decathlon Sportswatch + Strava
Participant 6	24	Male	Department leader	High school degree	Familiar	Apple Watch
Participant 7	56	Female	Financial employee	Higher professional education Bachelor.	Familiar	Apple Watch

Participant 8	57	Male	Logistic employee	Higher professional education Bachelor.	Familiar	Garmin Sportswatch
Participant 9	26	Female	Doctor's assistant	Secondary vocational education.	Really familiar	Apple Watch
Participant 10	24	Female	Master’s degree	Higher professional education Bachelor.	Really familiar	Apple Watch + Strava