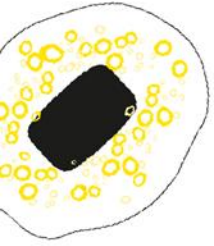


UNIVERSITY OF TWENTE.



Your smartphone, Your life

An exploratory study on the dynamics between the domestication of smartphones and intimate privacy in households

Bachelor Thesis

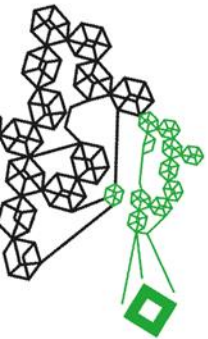
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Abstract

Aim: This study addresses the current gap that exists in the literature between the use of smartphones and intimate privacy within households. Based on the domestication of smartphones, the behaviour and attitudes towards intimate privacy of members of a household are explored. Therefore the research question for this study is “*What are the dynamics between the domestication of smartphones and intimate privacy within households?*”

Methodology: The exploratory study was carried out using 20 semi-structured interviews. Open, axial, and selective coding techniques were employed to analyze and interpret the interview data, producing a codebook as a result. Based on their frequency and the appropriateness of their particular meanings within the framework of the study, the codes of the codebook were examined and analyzed.

Findings: The findings of the study give evidence that there is a relationship between the level of domestication of smartphones and the attitude towards intimate privacy. As people with a higher level of domestication of smartphones maintain better intimate privacy than the people with a lower level of domestication of smartphones. The study also gives new insights into ways people can maintain intimate privacy by the use of shielding, going to another place and using smartphone protection. On top of that, the study also presents the possible consequences of the relation between the domestication of smartphones and intimate privacy, people that domesticated their smartphones completely share less information with others in their household to maintain intimate privacy. And irritations occur because of the information asymmetry between people that domesticated their smartphones entirely and people that have not domesticated their smartphones entirely.

Implications: This study provided interesting theoretical discoveries, such as ways to maintain intimate privacy and the differences in the domestication of smartphones within households. By maintaining intimate privacy, intimate privacy violations can be reduced. The consequences of intimate privacy violations are harmful to the well-being of a person, by reducing the privacy violations the well-being of a person can be protected.

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1. Introduction

Smartphones, households are filled with them and smartphones are becoming more important within these households. The COVID-19 pandemic has disrupted routine activities. Stay-at-home and work-from-home tactics are widely advocated as the most effective way to avoid illness at both the individual and community levels. People have become increasingly reliant on their smartphones to keep connected as a result of their self-isolation (Ratan et al., 2021). That is because a smartphone enables users to remain up to date on news and international events, just like they would on a computer connected to the internet, as well as communicate with their social circle, just like they would on a regular phone. Users spend more time on these gadgets because of their multitasking capabilities than they would on a regular phone or cellphone (Vahedi & Saiphoo, 2018).

However, there are also some concerns regarding the use of smartphones. As smartphones become more prevalent and widely used, the importance of privacy concerns by the users is growing (Sipior et al., 2014). According to Bélanger and Crossler (2011), the ability to control information about oneself is known as privacy. This definition of privacy will be used throughout this paper. For this study, a different side of privacy will be discussed. Companies watching our online activity, criminals attempting to steal our data, and government agencies surveilling us to obtain information are all common targets for the information security community. But there is another type of privacy threat, the intimate threats of privacy. Intimate threats occur when one person in an intimate relationship violates the privacy of the other (Levy & Schneier, 2020). Examples of violations of intimate privacy are: household members are watching over your shoulder what you are doing on your smartphone, household members listening to your phone calls, and household members that can access your smartphone without you knowing. Intimate privacy threats refer to the large number of people that face privacy breaches daily. These breaches are so regular that they are sometimes dismissed as ordinary. However, they are occurring far more frequently and have more impact on a victim's life than the other types of privacy threats involved in security debates. These breaches could represent the start of financial fraud. They may be an early sign of sexual, emotional, and/or physical abuse. Also, intimate data breaches can lead to the loss of sensitive and personal information (Levy & Schneier, 2020). Smartphone users store a lot of personal information on their devices. Those who have access to our smartphones could discover the digital details of our lives - information that may or may not be of interest to anybody but ourselves and people close to us (Marques et al., 2019). To protect the personal data on the smartphone, importance should be given to this type of privacy. Therefore this study investigates the attitude and behaviour regarding this type of privacy. The focus does not lie on the violations that occur but on the ways people try to prevent these types of violations of intimate privacy. Therefore, intimate privacy within this study will be defined as ways people within households are trying to keep control of the information on their smartphones.

But to investigate the intimate privacy of smartphone users, it is needed to gain insight into the way people are using their smartphones within their household. For a lot of people, the smartphone is becoming an extension of themselves (Fryman & Romine, 2021). People are using smartphones more in their daily life and it has become a part of it as well. How information and communication technology (ICT) is contributing to the creation of daily routines is the central topic of the domestication theory. The domestication theory investigates how people use, interpret, and are affected by technology (De Reuver et al., 2016). For this study, the term domestication of smartphones will be used to describe the way people are embedding smartphones into their daily lives. This phenomenon was already researched by De Reuver et al. (2016). However, De Reuver et al. (2016) focused on the effect of the domestication of smartphones on the daily routine of people. For this study, the same concept of domestication of smartphones will be used, but it will be investigated within the household. By using the domestication theory, the way smartphones are used within households can be assessed.

In the literature, already some studies that investigated the use of smartphones and the issues of privacy can be found. Chatterjee et al. (2021) focused on how consumer privacy concerns affect smartphone financial transaction usage and this study also looked into the influence of restrictions on this behaviour. Whereas Joeckel & Dogruel (2019) investigated default effects among teenagers that are customizing apps that either fulfil relatedness or increase autonomy by safeguarding privacy. Teenagers can utilize smartphone applications to address two natural needs: connectedness and privacy. Kusyanti and Prastanti (2017) used eight variable constructs trying to discover characteristics (some of them related to privacy) that influence smartphone usage. Yet, this and other studies seem to pay little or no attention to aspects of intimate privacy. To remedy this weakness in the literature, this study investigates the dynamics between the domestication of smartphones and intimate privacy within households. For this study, the dynamics can be seen as the processes that result in a change within a certain system. So, how are the processes between domestication and intimate privacy regarding smartphones resulting in changes within households. Therefore, an explorative study was performed to answer the following research question: *What are the dynamics between the domestication of smartphones and intimate privacy within households?*

In the following section, the theoretical framework regarding this topic will be discussed. After that, the method section, results, conclusion and discussion will be provided.

2. Theoretical framework

The following section of this paper will examine the relevant literature related to the concepts of domestication of smartphones, intimate privacy and smartphone use. This finally leads to the development of a theoretical framework within which these notions may be investigated. A systematic literature study log has been recorded to show how the literature for this theoretical framework was gathered (Appendix A).

2.1 Domestication of Smartphones

The domestication theory will be used to analyze the smartphone use of members in a household. According to Haddon (2003), the domestication theory encompasses not just the use of technology, but also how people interact with it, what it means to them, and how it affects their everyday lives. So, by using the domestication theory, it is possible to see how the smartphone is incorporated into the daily life of people and that is interesting for this study because the participants live very different lives. It is important to gain insight into what effect the integration of smartphones in daily life has on privacy within households. This can be better explained by using the domestication theory.

More models explain technology use, for instance, the Technology Acceptance Model (TAM). Users' motivation is explained by the TAM by three factors: perceived usefulness, perceived ease of use, and attitude towards use (Taherdoost, 2018). However, according to Taherdoost (2018), TAM's use outside of the workplace is limited since it ignores the social effect on technology adoption. And the social effect is one of the key points of this study because this study focuses on smartphone use within the household and that is a social aspect, therefore this model does not fit this study.

Smartphones are innovations and therefore it was also possible to consider the diffusion of innovation model (DOI). The DOI model is a valuable systematic paradigm for describing new technology uptake or non-acceptance. However, this model does not take into account the overlapping impacts of the many contexts and areas in which new technology works (MacVaugh & Schiavone, 2010). And for this study, the area and context in which the technology works are important because this study investigates smartphone use within households. Therefore, it is concluded that the DOI model is not suitable for this study. The domestication theory is therefore used for this study.

In the reviewed literature quite similar definitions of the domestication theory were found. According to Silverstone et al. (1992), Domestication theory examines how technology is commodified, appropriated, and converted in daily life. And it looks at the societal consequences of domestication. Silverstone et al. (1992) are more focused on the societal consequences of domestication, but that is not the goal of this study, because the context of this study is households. Scheerder et al. (2019) use a

somewhat similar description: Domestication is concerned with the evolution of what technology means to users and nonusers, as well as how it is integrated into everyday life. Furthermore, the theory provides explanations for how people assimilate new technology into their social setting. This description includes what technology means to nonusers, but this study investigates smartphone users and therefore this definition does not fit. Another definition of the domestication theory is the one from Brause and Blank (2020). According to Brause and Blank (2020), domestication theory was created to describe and analyze how technology gets ingrained in people's daily lives, particularly in household settings. The definition by Brause and Blank (2020) will be used within this study because this study is focused on the domestication of smartphones within the household.

There are four dimensions of technology appropriation described by the domestication theory: commodification, objectification, incorporation and conversion (Silverstone, 2006). The commodification/appropriation dimension focuses on the first stages of technology acquisition and purchase (Chambers, 2020). The objectification dimension considers the placement and integration of technology in the house (Standal et al., 2020). The incorporation dimension shows what occurs when new media technology is integrated into daily life. It is thus concerned with the emerging patterns of usage as well as how new media get integrated into daily life (Olsson & Viscovi, 2020). The conversion dimension is the final stage of technology appropriation. Within this dimension, the individual will communicate with others about what technology means to him/her by displaying the interaction he/she has with technology daily (Asante, 2018). These four dimensions are all meant for technology in general, but smartphones are different than for example computers. Smartphones are devices that can be used everywhere and allow people to stay in touch 24/7 so the way people perceive this technology is more likely to be different, therefore the four dimensions described above need to be adjusted for smartphones. For this study, the domestication theory needs to be applied to smartphone use to properly assess the dimension in which people find themselves.

To apply the domestication theory to smartphones, it is necessary to gain information about what is already known about the domestication theory and smartphones. A study by Lu et al. (2017) looked, based on the domestication theory, at how seniors' daily habits are shaped by their usage of smartphones. The goal of that study was to investigate the domestication of smartphones by older adults (55 – 75 years old), Lu et al. (2017) found that older adults do not use their smartphones for personal needs but that they use them for social interaction. These findings support that there is a difference between the age of people and the way smartphones are being used which can also be an indication that within households smartphone use can also differ. Sørenssen and Bergschöld (2021) investigated how smartphones are used in an early childhood education and care context using an assemblage of children, a professional adult and a smartphone. The study by Sørenssen and Bergschöld (2021) focuses more on the 'learning' aspect of

smartphones while using the domestication theory. They did not apply the four dimensions of domestication to smartphones but made use of the concept of enactment. Enactment means that in the course of practical action, technologies are implemented. The study by Sørenssen and Bergschöld (2021) emphasizes the functional aspect of smartphone use, which is also an important part of this study because within households smartphones can also be used for functional purposes. But the downside is that the study only focuses on the functional aspect of smartphone use for early childhood, which is not useful because that is not the scope of this study. Another study that investigated the domestication of smartphones is the study by De Reuver et al. (2016). The paper by De Reuver et al. (2016) examines the domestication of smartphones by analyzing how our usage of mobile apps impacts our daily routines, an interesting finding from this study is that younger people are more likely to integrate smartphones into their daily life. De Reuver et al. (2016) performed this study by transforming the four original dimensions of the domestication theory: appropriation, objectification, incorporation and conversion. All four dimensions were transformed in the context of smartphone applications. This is very convenient for this study, as this study investigates the smartphone use of household members. To be concise, smartphone use will be investigated by examining the applications that people use and how these fit into their daily life, therefore the four dimensions of the study by De Reuver et al. (2016) can be used. These four dimensions are clearly described and can be used as well in this study because it gives a good overview for the assessment of smartphone appropriation. The four dimensions of domestication applied to smartphones by De Reuver et al. (2016):

- Appropriation dimension: person obtains a smartphone
- Objectification dimension: individuals experiment with, alter settings, and utilize pre-installed mobile applications, often known as ‘native’ applications, such as making calls, sending texts, utilizing alarm capabilities on feature phones, and opening the internet on more modern smartphones. (Basic use)
- The incorporation dimension: implies that people incorporate technology into their daily lives and make it useful. Individuals do so in the case of smartphones, we believe, by downloading new applications to fulfil specific demands. (Functional use)
- Conversion dimension: We believe that this is accomplished through applications that enable digital self-expression and social engagement, most notably through social media and instant messaging applications.

The first dimension is not very impactful for this study, because this is a study about smartphone use and therefore all the participants need to have a smartphone. The second dimension, objectification, will be seen as basic smartphone use as this dimension implies that the individual experiment with the ‘basics’ of the smartphone. The third dimension, incorporation, will be seen as functional smartphone use as this

dimension implies that individuals use smartphone applications that are useful in their daily life. The final and fourth dimension, conversion, will be seen as smartphone use for self-expression and social engagement as this dimension implies that individuals use smartphone apps that enable digital self-expression and social engagement. The extent to which a smartphone is domesticated by the user can be assessed by their smartphone use: basic (objectification), functional (incorporation), self-expression & social engagement (conversion).

2.2 Intimate Privacy

In the literature, there is no clear definition of privacy. According to Newell (1998), a voluntary and transitory state of isolation from the public reality is characterized as privacy. A more detailed description is given by Westin (1967), as he claims that privacy gives people and organizations in society with autonomy, a break from role-playing, time for self-evaluation, and safe dialogue. In the paper from Acquisti et al. (2016), it is stated that privacy can also be defined as a feature of human dignity, individuality, and human liberty. These definitions are quite similar to each other because they all discuss the distinction between private and public life. However, for this study, the privacy within a household will be investigated and therefore this distinction is not that relevant. Therefore, a more useful definition of privacy is the definition of privacy by Bélanger & Crossler (2011). According to Bélanger & Crossler (2011), the capacity to manage information about oneself is known as privacy. This definition of privacy will be used for the remainder of this paper.

Intimate privacy refers to privacy within households, a household is a dynamic structure that varies in size and configuration as the circumstances of the family change (Alitajer & Molavi Nojourni, 2016). An example of these circumstances is the introduction of new media. According to Kim (2022), the emergence of new media resulted in a restructuring of twentieth-century residential settings. The implementation of new media within the household affects the dynamic structure within the household. Over the past ten years, smartphones have largely overtaken traditional media technologies, like maps, newspapers, computers, televisions and more (Kim, 2022). These can now be considered the new media and therefore smartphones could play a significant role in affecting the dynamic structure of the household. The dynamic structure within this study refers to the way people are living in their homes. So for example, the way members of a household communicate with each other or how much time they spend with each other.

Because smartphones are convenient devices, they are more used within a household than computers. According to Oduor et al. (2016), People commonly use their smartphones to access the internet in their homes, even if they have a computer close because smartphones are regarded to be speedier and handier than computers.

However, there are already some studies conducted about smartphone use and households. Kim (2022) investigated how individuals' behaviour in their homes has been affected by smartphone use, with a focus on single-person households. Whereas Latif et al. (2020) tried to find out how children used smartphones and what priority they assigned to them, to see how this affected the importance they placed on family dinners at home, and to see if this usage and priority made it hard for the family to get together for supper. Another study by Zepan & Crnic (2018) investigated how different family communication models interact with smartphone rules and reactions to regulatory methods within the same household. These studies all focus on smartphone use within households, however, for this study, a different aspect of smartphone use will be investigated.

The use of smartphones does not come without concerns, because according to Sipior et al. (2014), the importance of privacy concerns by smartphone users is growing. For this study, privacy is defined as the capacity to manage information about oneself. As mentioned by Kim (2022), smartphones allow users to access a large number of data and information sources. However, smartphones are not only used for accessing information but also for storing information. Ehatisham-ul-Haq et al. (2017) mentioned that many smartphone users save their private information on their smartphones. If spoken privacy within this study refers to the capacity to control the information that is stored on the smartphone.

The information security community likes to concentrate on a traditional set of attackers: corporations tracking online behaviour, criminals attempting to steal our data, and government organizations spying on us. However, this study is focused on the dynamic structure within households and therefore the focus lies on a different type of privacy. The type of privacy that will be discussed in this paper is intimate privacy. Intimate privacy threats are attacks in which one part of an intimate relationship- for example, a parent, kid or friend- violates the privacy of the other (Levy & Schneier, 2020). Privacy within this study is defined as the capacity to manage information about oneself. Intimate privacy can therefore be explained as the capacity to manage information about oneself within the household. The focus of this study is on smartphone use and the intimate privacy related to that. So, how are people's attitudes towards intimate privacy due to smartphone use.

According to Levy & Schneier (2020), people often share territory, spend some time together in both public and private situations, and have other high levels of physical access that makes it easier to transmit information about one another. This makes it possible for members of the household to access another member's device physically and it helps in gaining information about the smartphone from a household member just by looking over the shoulder for example. This can be a threat to intimate privacy.

Another threat to intimate privacy, mentioned by Levy & Schneier (2020), is the access to the smartphone by others. Many smartphone applications expose texts and communications by default on the device's locked screen, which might be a security risk if a user's household member has access. This

study focuses on these two constructs. Because these constructs impact information transmission and therefore influence the extent a person can control the information on the smartphone from other household members (intimate privacy).

To measure privacy, it is assumed that the need for privacy is a controlling issue. Because according to Preibusch (2013), privacy concern is the basis for different perspectives regarding behaviour and attitudes related to privacy. Thus by having an overview of the intimate privacy concerns that are established, the behaviour and attitude regarding intimate privacy can be measured. And to measure the privacy concerns, the behaviour and attitudes regarding the information and accessibility related to the smartphone are important determinants, as these constructs are forming threats to intimate privacy as mentioned above.

According to Barrie et al. (2019), Electronic devices have saturated modern families, each with its own set of rules for communicating effectively, as well as use standards which may vary between and inside families. For this study, it is also interesting to see how the dynamics regarding smartphone use (based on the domestication theory) and intimate privacy is varying between and inside families. Therefore, the focus of this study is to gain an understanding of the dynamics between smartphone use (based on the domestication theory) and intimate privacy and thereby focusing on how these dynamics influence the dynamic structure of and in family households. As this relationship is rather complex, these concepts are explored through interviews with different households consisting of parents and children from the Netherlands.

Summary theoretical framework

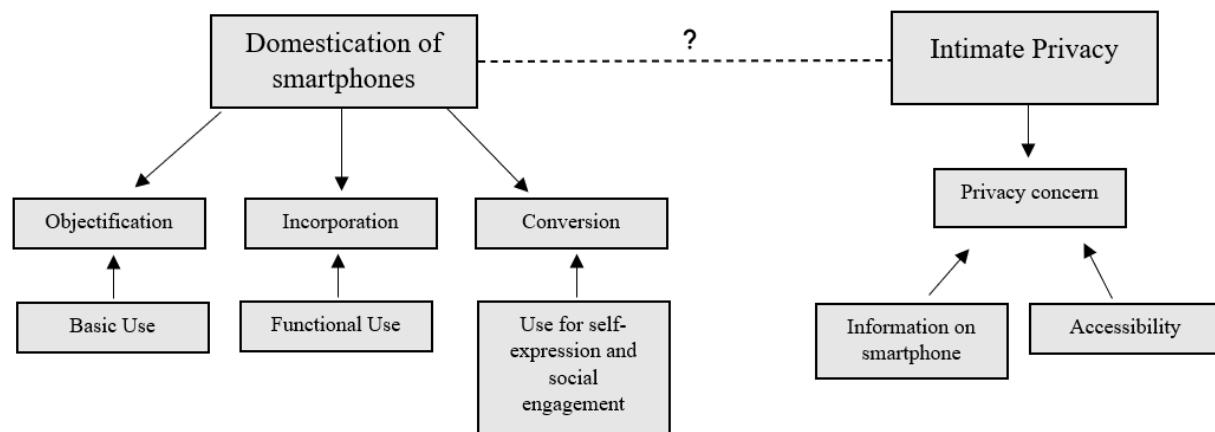
To sum up, the way smartphones are used within the household is investigated with the use of the domestication theory. The domestication of smartphones consists of four dimensions: Appropriation, Objectification, Incorporation and Conversion. Every individual will be placed within a certain dimension, so all dimension are distinctive, no individual fit in more than one dimension. As mentioned above, the appropriation phase is not impactful because for this dimension the only requirement is having a smartphone. The objectification dimension is related to the basic use of the smartphone, whereas the incorporation dimension is related to the functional use of the smartphone. The final dimension, conversion, is related to smartphone use for self-expression and social engagement.

Another concept of this study is the intimate privacy within households. To measure intimate privacy, it is assumed that the privacy concern is a controlling issue. And to measure the privacy concerns, the behaviour and attitudes regarding the information and accessibility related to the smartphone are important determinants, as these constructs are forming threats to intimate privacy as mentioned above.

The actual goal of this study is to investigate the dynamics between the domestication of smartphones and intimate privacy within households. The conceptual framework down below (Figure 1) shows how the different concepts within this study might relate.

Figure 1

Conceptual Framework



3. Method

The research methods will be explained in this chapter. This chapter will have the following sections: research design, participants & sampling, pre-test, procedure and data analysis.

3.1 Research design

We collect data for this study using semi-structured interviews, which is a qualitative research method. While quantitative research can offer precise data and identify issues. Qualitative research is more useful in assisting us in better understanding the situation. Researchers can learn about social life from the perspective and experience of the participant through semi-structured interviews. Participants can offer their personal experiences and expertise on specific themes (Boeije, 2009). This is critical for this research because full accounts of people's experiences, feelings and views regarding the domestication of smartphones and intimate privacy within their households are needed. This study investigates the dynamics between the domestication of smartphones and intimate privacy and how this affects the household. This necessitates the perspectives of several participants, which might be conveniently documented through a semi-structured interview.

3.2 Participants & Sampling

The people at the centre of this study are smartphone users. They are all experiencing the domestication of smartphones. However, because we are focusing on intimate privacy. 6 different households have been interviewed to see how the domestication of smartphones influences intimate privacy and how this relationship influences the dynamic structure of the household. Smartphone users were chosen as participants, as the domestication of smartphones by them is a critical factor in this study. To reach those participants, a message was shared through social media channels to recruit potential participants that fit this study so the recruiting was based on the characteristics of people. All of the participants needed to live in the Netherlands. There were 20 participants in this study, all smartphone users. As mentioned before, 6 different households have been interviewed and these households differ in size. All households consisted of two parents but differed in children size. 4 households consisted of 1 child and 2 households consisted of 2 children. However, all members of these households were aged 16 or above.

Data collection is critical in research since the data is intended to aid in the comprehension of a theoretical framework. It becomes critical to use solid judgment when deciding how to gather data and from whom to receive it, particularly since no amount of analysis will compensate for badly collected data (Etikan et al., 2016). To collect data appropriately, a specific sampling method was used. For this study, purposive sampling was used. Purposive sampling, also known as judgmental sampling, is the purposeful selection of a participant based on their characteristics. It is a non-random sampling technique

that does not require any underlying ideas or a predetermined quantity of participants (Etikan et al., 2016). To gain an overview of the participants of this study, information about each participant is provided in Table 1.

Table 1

Overview participants

Participant	Gender	Age	Nationality	Role	Household
1	Male	20	Dutch	Child	1
2	Female	54	Dutch	Parent	1
3	Male	16	Dutch	Child	1
4	Male	57	Dutch	Parent	1
5	Male	57	Dutch	Parent	2
6	Female	59	Dutch	Parent	2
7	Male	18	Dutch	Child	2
8	Male	19	Dutch	Child	3
9	Male	50	Dutch	Parent	3
10	Female	51	Dutch	Parent	3
11	Male	20	Dutch	Child	4
12	Female	47	Dutch	Parent	4
13	Male	47	Dutch	Parent	4
14	Male	53	Dutch	Parent	5
15	Female	59	Dutch	Parent	5
16	Male	20	Dutch	Child	5
17	Female	50	Dutch	Parent	6
18	Male	52	Dutch	Parent	6
19	Male	20	Dutch	Child	6
20	Male	17	Dutch	Child	6

3.3 Pre-test

Before the semi-structured interviews were performed, it was pre-tested with 3 different participants. The interview was conducted 3 times with the participants and the participants were able to give feedback afterwards. Some questions were rewritten since their wording was confusing. For the pre-test, the term domestication was used for some questions. This term confused two of the three participants as they had limited knowledge of this topic. To tackle this problem, the questions regarding domestication were reformulated to a form in which smartphone use is mentioned to assess the domestication of smartphones.

The pre-test was done to see if the structure and answers regarding the interview that will be conducted for this study are sufficient.

3.4 Data collection procedure

The data collection method for this study was semi-structured interviews. And as mentioned by Boeije (2009), the location where the research issue presents itself most strongly should be selected, therefore all the interviews took place within the households that are being investigated during this study. Because this topic is somewhat sensitive, it was important to gain the trust of each participant. Therefore, all interviews were conducted 1 on 1 in a separate room from the rest, all data that was gathered could therefore not be influenced by others in the room. Trust is important because trust can increase the openness of participants allowing them to give even 'richer' data (Boeije, 2009).

Before each interview, the participant completed an informed consent form (Appendix B) including information regarding this study, stating that they are willing to participate in this study and that they are being recorded. Furthermore, the informed consent form specified that recordings and data will be treated securely and anonymously. After completing, a short introduction was given again to make sure that the participant understood the study and if he or she still had any questions. After this, the audio recording started. The interviews lasted for approximately 20 minutes each and were transcribed afterwards to analyze the data. The interview began with some introductory questions about the age, nationality, hometown and household description. After that interview questions were asked about smartphone use and intimate privacy within households. The interview questions are based on constructs that are investigated in the theoretical framework. In Table 2 and Appendix C, the interview questions are listed. To create a clear link between the predictors of the domestication of smartphones and intimate privacy as discussed in theory, the connection is also presented in Table 2.

Table 2

Interview questions

General questions	Interview questions	Link to the constructs from the theory
What gender do you identify as?	Can you describe for what purposes you are using your smartphone?	Objectification, Incorporation, Conversion
How old are you?	How is your smartphone embedded in your daily life?	
What is your nationality?	How much time do you spend on it?	
Where do you live?	Can you please describe what applications you use the most on your smartphone?	

Can you please describe who is living within your household?	How do these applications help you in your daily life?	Objectification, Incorporation, Conversion
	How does a smartphone help you with self-expression and social interaction?	Conversion
	Do you use apps that facilitate these activities?	Conversion
	What kind of information do you store on your smartphone?	Information on smartphone
	How would you describe smartphone use in general within your household?	Objectification, Incorporation, Conversion
	What rules do you have regarding smartphone usage?	
	How do you make sure that you can use your smartphone within your household and still get some privacy from household members?	Privacy concern
	What spaces in your household are suitable for private smartphone usage? Why?	Privacy concern
	Why do you need your privacy while using your smartphone?	Privacy concern
	What role do you think that the information that can be found on your smartphone plays in who can access your smartphone in your household?	Information on smartphone
	Who in your household can access your smartphone? And why?	Accessibility
	How do you protect the information on your smartphone from your household members?	Accessibility
	What type of smartphone security do you use?	Accessibility
	Why would you protect information on your smartphone from others in your household?	Information on smartphone, Accessibility
	How is your behaviour regarding privacy in your own home influenced because of the way you are using your smartphone?	Privacy concern
	How do you think that the information that is available on your smartphone influenced your behaviour regarding the privacy between household members?	Information on smartphone, Accessibility, Privacy concern
	How do you think that your household is influenced by the smartphone being integrated into your life and trying to maintain privacy?	Information on smartphone, Privacy concern
	How does this make you feel?	

3.5 Data analysis

After data collection, the data from the qualitative interviews were analyzed. To analyze the data, the interviews were transcribed. The data were analyzed by the use of coding. Coding is the process of labelling data segments with a brief term that highlights and accounts for every bit of information. Your codes demonstrate how you pick, separate, and sort data to start an analytic analysis (Boeije, 2009).

There are two different types of coding: inductive and deductive. Inductive coding focuses on creating a codebook while analyzing the data, whereas for deductive coding an already existing codebook based on literature is made. However, for this study, a mixed approach was used. A part of the codebook was created based on the domestication of the smartphone by De Reuver et al. (2016), who proposed different dimensions regarding the domestication of the smartphone. The other part of the codebook was established by analyzing the data and coming up with new codes.

To code the transcripts, ATLAS.ti was used. The first step in coding is open coding. The act of breaking down, evaluating, comparing and organizing data is known as open coding. This implies that all of the data gathered up to that moment is carefully reviewed and separated into pieces. The pieces are compared to one another, categorized into subject-specific groups, and given a code (Boeije, 2009).

The second step is axial coding. Axial coding connects categories to subcategories, describes a category's features and dimensions, and reconstitutes data that was broken during open coding to provide the emerging analysis structure (Charmaz, 2006).

The last step in the coding process is selective coding. To make an understanding of what is going on in the field, selective coding entails looking for linkages between categories. Selective coding aims to bring the disparate elements of your previous coding work together (Boeije, 2009). After this step, a finalized codebook was created which can be found in Table 3.

To assess the reliability of the coding, A second coder coded 10% of the data (transcriptions of 2 participants) independently from the first coder. As a consequence, the overall intercoder reliability Cohen's Kappa was 0.811 which indicates that there is a substantial agreement between the two coders and that the coding can be seen as reliable. As a result, the other transcripts have been coded with the finalized codebook (Table 3).

Table 3*Finalized codebook*

Code	Sub-code	Definition	Example
1. Smartphone Use	1.1 Basic Use	individuals experiment with, alter settings, and utilize pre-installed mobile applications, often known as 'native' applications, such as making calls, sending texts, utilizing alarm capabilities on feature phones, and opening the internet on more modern smartphones.	"I don't just Google Maps, I don't use Spotify. What I do use sometimes is Safari."
	1.2 Functional Use	implies that people incorporate technology into their daily lives and make it useful. Individuals do so in the case of smartphones, we believe, by downloading new applications to fulfil specific demands.	"Well, to call, to app and also to look things up on the internet. And then there are a few apps that I use, for example the Garmin app. I use the banking app regularly."
	1.3 Use for self-expression and social engagement	It is believed that this is accomplished through applications that enable digital self-expression and social engagement, most notably through social media and instant messaging applications.	"I think what I said if you're not really with someone really physically somewhere, you can still have contact with someone through your phone, so that helps quite a lot. If you are on holiday, you stay in touch with your mates at home, who are already in the Netherlands."
2. Storage on smartphone	2.1 General	Participant explains the content of information stored on the smartphone in a general way	"I have a lot of apps on the phone, a lot of pictures and yes, also a lot of information about school and things like that."
	2.2 Personal	Participant explains the content of information stored on the smartphone in a personal way	"you can really take someone's interest, I think if you would look through my phone you could see what I am interested in. And of course also what kind of entertainment I watch or videos. So what kind of conversations I have with people, I think you can deduce how a person is via actually the conversations."

3. Smartphone rules	3.1 No rules	No smartphone rules are established within the household	"Not really established rules anymore from the table."
	3.2 Rules	Smartphone rules are established within the household	"if we all eat, then not on the phone."
4. Behaviour regarding intimate privacy	4.1 Place	Participant uses a certain place	"To use my phone how I want it...my bedroom, there without anyone watching or, I can just do anything."
	4.2 Shielding	Participant shields their smartphone	"If I watch something privately...I do not let someone watch, so then I turn away from the person yes."
	4.3 Protection	Participant uses smartphone security to protect the smartphone	"No one has actually access to my smartphone."
	4.4 No importance given	Participant does not find intimate privacy important	"you can ask anyone, anyone can open my phone."
5. Need for intimate privacy	5.1 No need	Participant explains why no intimate privacy is needed	"I don't really care, I don't have a whole lot, yes, what I really think is very important on my phone."
	5.2 Need	Participant explains why intimate privacy is needed	"I think it's still nice to have something for yourself, just yes, that you don't have to share automatically."
6. Consequences within households	6.1 Behaviour	Participant mentions behaviour impact because of smartphones and intimate privacy	"My daughter and oldest son, who have things on that phone, they would rather not have that we see that."
	6.2 Feeling	Participant mentions the feeling that occurs because of smartphones and intimate privacy	"I think there are irritations there from, 'you may have secrets for me', so I think by wanting to keep your smartphone privacy, you get irritations."

4. Results

The findings of this study will be presented in this section, to create a clear image regarding the dynamics between the domestication of smartphones and intimate privacy within households, quotations from the interviews will be utilized to back up the interpretation of the findings.

4.1 Smartphone use

During the interviews, two purposes of smartphone use were mainly mentioned: Functional and Self-expression & social engagement.

4.1.1 Functional Smartphone use

In the interviews, all of the 20 participants mentioned that they use smartphones because it is functional in their daily life. Three different ways in which the smartphone can be used functional are mentioned. The first, and most mentioned way, is that participants use smartphone apps that help them with communicating. All of the participants mentioned that they use smartphone apps to help them communicate, participant 17 explained: *“I find WhatsApp really easy, just to ask how someone is, or just a congratulation or. That is of course super easy instead of having to call, so I think that’s a real advantage.”*. Participant 15 elaborated on this by stating: *“Well mainly, that convenience is that you no longer have to send a letter, so that is of course super easy instead or yes. With a WhatsApp it is just easy to communicate while you do not disturb someone and is in black and white.”*. A second-mentioned way in which the smartphone can be used functional is for school and work according to the participants. Almost every participant stated that they use smartphone apps that facilitate school and work. Participant 6 exemplified this by saying: *“If I am at a conference, sometimes you have to do some kind of quiz. Then that goes through Kahoot or something like that you know, you have to have that. I also have work apps for example an app about Hay Fever or about how to use an Aero chamber or things like that.”*. Participant 16 supports this by mentioning: *“With school it helps of course all that I can easily quickly access everything, I can see what I still have to do, what I have to hand in, what grades I received, also for exchange information.”*. A third way in which the smartphone can be used functional is by using smartphone apps for entertainment. 17 participants indicated that they use smartphone apps for entertainment purposes. Participant 19 gives an example by stating: *“I almost always listen to music. Well with headphones and stuff, on speaker all day long I’m mostly on Spotify.”*. Participant 17 also exemplifies this: *“Lately, I also sometimes watch from via NPO, NPO missed, I also watch movies sometimes.”*.

All participants mentioned that they use smartphone apps for functional purposes. Therefore it can be said that in all households, smartphone apps are used that help the user in their daily life.

4.1.2 Smartphone use for self-expression and social engagement

As mentioned here above, all participants use smartphone apps for functional purposes. However, some participants take it a step further and use smartphone apps for self-expression and social engagement. Participant 19 explained that is he able to self-express by the use of a smartphone app, *“Yes, Spotify...one time I feel like some quiet music that fits with emotion, other times...party music...just what you need and what mood you are, what you are going to do. I do adjust my music accordingly.”*. Participant 16 elaborates on this: *“With my girlfriend of course, just have fights...have good feelings, you express to each other that you miss each other that kind of thing.”*. Some participants also use smartphone apps to engage with others. Participant 19 mentioned: *“If you are not really with someone, really physically somewhere, you can still have contact with someone through your phone, so that helps quite a lot. If you are on a holiday, you stay in touch with your friends at home.”*. Another example was given by participant 6, *“I have an old mother who, due to illness...no longer comes out or hardly ever, who is therefore much confined to the house especially in corona time...almost everyday I tried to take a picture of something with a very small two sentence story...because she is so alone so much, it still matters that you can bring the outside world inside.”*. However, there was one participant that was sceptical towards the use of smartphone app to facilitate in self-expression and social engagement. Participant 2 explains: *“I always find that with phone use that it limits your world so much. I prefer personal contact with someone and I don’t need to know if someone is eating a plate of spaghetti on holiday or if they are in the gym. That doesn’t interest me, but I do like to hear that from someone...but I don’t need to see that pass by.”*

9 of the 20 participants in this study use smartphone apps for self-expression and/or social engagement purposes. 7 of these participants are children and 2 of them are parents. Thus 7 of the 8 children within this study, use smartphone apps for self-expression and/or social engagement. Whereas only 2 of the 12 parents within this study, use smartphone apps for self-expression and/or social engagement.

4.2 Need for intimate privacy

In the interviews, two sides were formed regarding intimate privacy. One group of the participants mentioned that they do not need intimate privacy, whereas the other group of participants explained why they need intimate privacy.

4.2.1 No need

Participants in the group that do not need intimate privacy mentioned that they do not have secrets/need to hide something. Participant 2 supports this: *“I don’t have secrets on my phone.”*, same goes for participant 3: *“I don’t really care, I don’t have a whole lot, yes, what I really think is very important on*

my phone.”. Participant 5 also mentioned this: *“I don’t hide anything on my smartphone, so anyone can look at my smartphone.”*. 8 of the 20 participants in this study mentioned that they do not need intimate privacy. 7 of these participants are parents and only 1 of the participant is a child.

4.2.2 Need

Participants in the group that need intimate privacy mentioned that they need intimate privacy because a smartphone is a personal device with information that not everybody needs to know. Participant 19 states: *“You’d rather keep your smartphone to yourself, not that you’re really doing things that others aren’t allowed to see. That’s not really the point, but it’s more yes, what you do is yes, you do for yourself and not for someone else. Why should someone else have to watch.”*. Participant 17 also agrees with this idea: *“I think it’s still nice to have something for yourself, just yes, that you don’t have to share automatically.”*. The personal emphasis is given by participant 8: *“Well actually you can almost think of your smartphone as a real person, sort of, because you have a conversation with someone, for example, or you call someone, so that can be important, or something very personal that you tell each other. I think it is important that there is at least privacy.”*. Participant 16 mentioned that the information that can be found on the smartphone is the reason why intimate privacy is needed: *“My whole life is kind of in it. You can also just find really personal things on it...if someone saw that, it would be annoying.”*.

12 of the 20 participants in this study mentioned that they need intimate privacy because of the information on the smartphone and that it is a personal device. 5 of these participants are parents and 7 of them are children.

4.3 Behavior regarding intimate privacy

In the interviews, several ways to maintain intimate privacy are mentioned. Three different ways are mentioned: place, shielding and protection

4.3.1 Place

7 participants indicated that they go to another place to have intimate privacy. 5 of these participants stated that the bedroom is the most suited place to have intimate privacy. This is supported by participant 1 who states: *“To use my phone how I want it...my bedroom, there without anyone watching or, I can just do anything.”*. Participant 20 elaborates on this: *“I’m actually the only one who comes there and yes whenever someone comes in, they knock on the door first. So it is not that people walk in here quickly”*. All 5 participants that mention the bedroom as a suitable place for intimate privacy are children.

4.3.2 Shielding

Another way to maintain intimate privacy is by shielding the smartphone. 3 participants mentioned that they use this way. Participant 19 says: *"If I watch something privately...I do not let someone watch, so then I turn away from the person yes."*. This behaviour is also supported by participant 20: *"Yes, I also pay attention to that if we have several people and I'm on the phone if someone is nearby and I think oh not everyone needs to see this or something, then I usually turn it away."*. The 3 participants that use shielding to maintain intimate privacy are all children.

4.3.3 Protection

In the interviews, 11 participants also mentioned that they protect their smartphones to maintain intimate privacy. 8 of the participants indicate that no one in their household can access their smartphone. For example, participant 11 exemplifies this: *"I'm the only one who has access to it and my girlfriend. But yeah, she doesn't live here."*. Also participant 19 states: *"No one has actually access to my smartphone...no one is allowed on it."*. 5 of the 8 participants that do not grant others access are children. However, 3 participants stated that only one other person in their household can access their smartphone. Participant 1 states that: *"my father just knows my code"* and participant 3 also supports this: *"I think my father knows my password."*. Both participants 1 and 3 are from the same household. The smartphone of participant 20 can be accessed by his brother: *"My brother knows the password of the phone, but nobody else knows."*.

4.3.4 No importance given

However, all participants have a code/password on their smartphone but not all of them are giving importance to this code/password. 7 participants indicated that others can access their smartphones. Participant 17 stated that her sons have access to her smartphone: *"Yes, actually my two sons have. I think they both know my code, they could just go in there too."*. However, the 6 other participants mentioned that everyone in their household can access their smartphone. For example, participant 2 comments: *"you can ask anyone, anyone can open my phone."*. All the 7 participants that indicated that others can access their smartphones are parents.

4.4 Consequences within households

The use of smartphones and intimate privacy also bring some consequences within the household. Two consequences are established based on interviews with the participants: Behavior and Feelings.

4.4.1 Behavior

In the interviews, some participants mentioned the behaviour regarding the use of smartphones and intimate privacy. In all the 6 households it was indicated the parents respect the privacy of the children. As participant 17 explains: *"I'll never look in their phone or anything, so I have something that's a piece of personal something."*, participant 10 supports this by stating: *"I really don't look my son's phone at all."*. Participant 4 also exemplifies this: *"My daughter and oldest son, who have things on that phone, they would rather not have that we see that."*. Another interesting finding was that in 3 households it was mentioned that children are less open about the smartphone information to parents. Participant 2 elaborates on this by mentioning: *"see the phone as a kind of secret thing. Everyone knows my password, anyone can open my phone if they need something...but I don't know the password of my oldest son."*, this is also supported by participant 16: *"I think that privacy of my parents has also become much less in that, because we are on their phone much more than the other way around so I think that I also know a lot more about actually their friends and what they do or what will appeal to them than the other way around."*. Participant 11 gives an example of this by mentioning: *"If a friend looked into my gallery, I wouldn't mind. But if my parents would do that, I'd be like oh let me have a look myself first."*.

4.4.2 Feeling

During the interviews, some participants mentioned what feeling the smartphone use and having intimate privacy give within households. Only 3 participants whom each belonged to a different household mentioned it. Participant 1 states: *"I think there are irritations there from, 'you may have secrets for me', so I think by wanting to keep your smartphone privacy, you get irritations."*, participant 20 adds: *"It is possible sometimes, if you want to know what someone is doing on their phone, or so, that it makes you a bit grumpy, or something like 'yes just show it'. Or 'why do you have to shield that'. This can create a bit of an annoying atmosphere or something."*. Participant 11 also mentions: *"I think that a lot of irritations can arise in...that you do not pass some information to others while it is relevant."*. In 3 of the 6 households, one member mentioned that irritations can occur.

Summary results

To sum up, all of the participants in this study use smartphone apps that help the user in their daily life. 9 of the participants also use their smartphones for self-expression and social engagement, 7 of these participants are children and 2 of them are parents.

8 of the participants mentioned that they do not need intimate privacy, 7 of them are parents and 1 is a child. 12 of the participants need intimate privacy because of the information on the smartphone and the fact that the smartphone is a personal device, 5 of them are parents and 7 of them are children. 7

participants indicate that they go to another place to maintain intimate privacy, 5 of the participants mentioned that they go to their bedroom and all 5 participants are children. 3 participants mentioned that they use shielding to maintain intimate privacy, all were children. 11 participants mentioned that they protect information on their smartphones from others, whereas 8 participants do not grant access to others within their household. 3 of the participants mentioned that only one person within their household can access their smartphone. Of these 11 participants, 8 of them are children and 3 parents. However, 7 participants indicate that others can access their smartphones, all of these are parents.

This study also looked into the consequences within the household. In all 6 households, parents respect the intimate privacy of children. In 3 households, children are less open about smartphone information. And in 3 households irritations occur because of the use of smartphones and needing intimate privacy.

5. Discussion

This research is about the dynamics between the domestication of smartphones and intimate privacy within households. This research tried to gain insight into how smartphones are domesticated within households, how intimate privacy is perceived within these same households and if these two concepts can be linked to each other. The discussion functions as an interpretation of the findings and reflect on how these findings can be linked to the theoretical framework that was established. Also, the limitations of this study, recommendations for future research and practical implications will be part of the discussion section.

5.1 Main findings

To start, all of the participants in this study use smartphone apps that help the user in their daily life, the smartphone use is functional. The functional smartphone use is related to the incorporation dimension as explained by De Reuver et al. (2016): people incorporate technology into their daily lives and make it useful. So, all of the participants find themselves at least within the incorporation dimension. Thus based on the first finding, it can be concluded that the domestication of smartphones within this study is at least at the incorporation dimension. So all of the participants incorporated the smartphone into their daily life and make it useful. There are four dimensions in the domestication process: commodification, objectification, incorporation and conversion (Silverstone, 2006). The incorporation dimension is the third dimension and indicates that the smartphones within these households are almost completely domesticated, this shows that the smartphone is important to all of the participants in this study. However, 9 of the participants also use their smartphones for self-expression and social engagement. Smartphone use for self-expression and social engagement is related to the conversion dimension as mentioned by De Reuver et al. (2016). Almost half of the participants of this study find themselves in the final dimension of the domestication process, which is the conversion process. 7 of these participants are children and 2 of them are parents, which indicates that 7 out of the 8 children within this study fit in the conversion dimension whereas only 2 of the 12 parents fit in the same dimension. Children fit more in the conversion dimension, whereas parents fit more in the incorporation dimension. Therefore it can be said that the children have domesticated the smartphone more than their parents. This is not the first time evidence has been found between the age and the domestication of smartphones. De Reuver et al. (2016) found that younger people are more likely to integrate smartphones into their daily life, whereas Lu et al. (2017) found that older adults (55-75 years) do not use their smartphones for personal needs but that they use it for social interaction.

As mentioned in the theoretical framework, privacy concern is the basis for different perspectives regarding behaviour and attitudes related to privacy (Preibusch, 2013). For parents the need or no need for

intimate privacy is mixed and it is therefore not possible to conclude something about that. A convincing finding was that almost all children need intimate privacy. The participants that need intimate privacy indicate that they need it because of the information on the smartphone and the fact that the smartphone is a personal device to them. The results indicate that privacy concern is based on the information on the smartphone and the meaning people give to their device. The assumption that information on the smartphone is a way of determining the privacy concern, which was established due to the notion of Levy & Schneier (2020) that not having control of the information of your smartphone is a threat to intimate privacy, is supported by these findings. However, the meaning people give to their devices, can be explained by the domestication of smartphones. Because according to Brause and Blank (2020), domestication theory was created to describe and analyze how technology gets ingrained in people's daily lives which can influence the meaning people give to their smartphones. However, this is an assumption as not much evidence is found to support this claim yet. Children need intimate privacy because of the information on the smartphone and the fact that the smartphone is a personal device. To elaborate on the other findings, four ways of how the participants maintain intimate privacy have been found. Firstly, most participants use the bedroom and all these participants are children. Secondly, participants shield their smartphones from others, all these participants are children. Thirdly, participants protect their information on their smartphone by using smartphone security and not everybody can access it, these are 3 parents and all 8 children. Finally, participants mentioned that everyone can access their smartphone and therefore do not maintain intimate privacy, these are all parents. However, the third and fourth way is about the accessibility of the smartphone and this can be linked to privacy concern. Because, another determinant for privacy concern within this study is the accessibility of the smartphone, this was established because of the indication by Levy & Schneier (2020) that the access of smartphones by others can threaten intimate privacy. All children use smartphone security and most parents have not protected their smartphones from others. Therefore there is evidence that children have more privacy concern than parents. Privacy concern is the controlling factor for determining the behaviour and attitudes regarding privacy. Privacy is the capacity to manage information about oneself (Bélanger & Crossler, 2011), looking at the ways the participants use to protect information from their smartphones shows that these participants are giving importance to privacy within their household (intimate privacy). Most children protect their smartphones, therefore there might be evidence that children give importance to intimate privacy and therefore also behave according to that. Whereas parents are seeming to give less or even no importance to intimate privacy and therefore take less or even no effort to maintain it.

The current study found that in all 6 households, parents respect the intimate privacy of children. The parents indicate that the smartphone is something personal and that the children might have things on their smartphones that the parents do not need to see. The fact that the smartphone is something personal,

is dependent on smartphone use and therefore can be linked to the domestication of smartphones. However, no direct results were found for this assumption and therefore it can not be confirmed. The parents do indicate that the information on the smartphone is a factor why they do respect the privacy of the children, this supports the assumption that information on the smartphone plays a role in the privacy concern. Another important finding was that in 3 households, children are less open about smartphone information. Children do not share that much information with their parents, so they keep control of their information from their smartphones. If this is linked to the concept of privacy as mentioned before this shows that children indeed give importance to intimate privacy. These findings further support the idea of Barrie et al. (2019) that electronic devices have use standards which may vary between and inside families. Because in 3 of the 6 households it is seen that children share less information regarding smartphone use with their parents, there is a difference in the use standards between parents and children within a household. The results of this study indicate that in 3 households irritations occur because of the use of smartphones and needing intimate privacy. All these irritations occur because of the information asymmetry between children and parents, so because it is not known what a certain person within the household does on their smartphone. However, this result has not previously been described.

Although there were a few slight variances in the results regarding the need for privacy for parents, overall the findings were consistent with the literature that was previously studied.

5.2 Limitations

Semi-structured interviews were utilized in this research to get detailed information on the participants' attitudes and viewpoints. The participants may discuss their ideas, views, and experiences openly in this. However, not all of the participants gave their complete opinion. Especially, a difference was noticed between male and female participants, the male parents gave very short answers whereas the female parents gave very elaborated answers. This might question the validity of the results as there is a difference between data provided by male and female parents. Therefore next time more effort needs to be put into getting answers out from the male parents.

Another limitation of this study is the fact that the six households differed in size. There were four households with two parents and one child and there were two households with two parents and two children. In the theoretical part, it was explained that each household has different use standards regarding smartphones, however, to make a reasonable comparison between households not too many factors should variate. Because of the differences in the household composition, it might be possible that external factors influence the results. Next time, the household size should be consistent to be able to conclude about them.

The questions asked regarding the behaviour and feelings related to intimate privacy and smartphone use within households are another part that could have been solved better. The goal of these questions was to gain insight into how these two concepts together impact the behaviour and feelings within households. However, during the pre-tests, the answers that were provided showed that the questions were understood well. But during the interviews, a lot of the participants misunderstood the question and gave answers regarding smartphone use in general and not within the context of intimate privacy. The next time, these questions should be formulated in a way that the participants are sort of lured to give answers regarding smartphone use and intimate privacy. However, the researcher should be trying more the next time to get these answers out of the participants.

The size of the sample within this study is also a limitation of this study. The sample consists of twenty participants which is quite small. Therefore the findings of this study are not very reliable to confirm this for entire populations. To increase the reliability of these findings, the study should be done with a much bigger sample (+- 100 participants).

5.3 Recommendations for future research

This study has interesting findings that could be further researched. The first one is that children domesticated their smartphones more than their parents. However children within this study are at least 16 years old, therefore a possibility could be to investigate the difference in the domestication of smartphones among children. Instead of comparing parents and children, focus on the children and how it is distributed among the different age groups. This might be interesting because as society is developing more and more, the new generation of children are exposed to smartphones way earlier than the other generations and therefore this could be an interesting topic for future research.

However multiple participants also indicated some ways that they try to maintain intimate privacy, by shielding, protection and going to another place. These measurements can affect communication within families because all these measurements are used to keep control over information on the smartphone. As the smartphone is becoming more integrated into daily life, the information on the smartphone becomes more and more. Information is a predictor of privacy concern which indicates that more information leads to more privacy concern which is predicting the importance of intimate privacy. Therefore it is interesting for future research to investigate how the importance of intimate privacy impacts communication within households.

5.4 Practical implications

Intimate privacy is a concept that is relatively new in the field of research. Smartphones are becoming more important in daily life and therefore people must be aware of this type of privacy. However, the findings indicate that participants that domesticated the smartphone completely are giving importance to intimate privacy. This study found that participants that give more importance to intimate privacy use different ways to maintain intimate privacy, so ways to protect the information on the smartphone from others in their households. This is important because violations of intimate privacy could represent the start of financial fraud. And they may be an early sign of sexual, emotional, and/or physical abuse (Levy & Schneier, 2020). The consequences of intimate privacy violations can affect the well-being of humans. So by gaining insight into how to maintain intimate privacy, the possibilities of these problems happening can be reduced and the well-being of humans can be protected.

6. Conclusion

This research aimed to investigate the dynamics between the domestication of smartphones and intimate privacy within households.

The findings of the study give evidence that there is a relationship between the level of domestication of smartphones and the attitude towards intimate privacy. As people with a higher level of domestication of the smartphone are more likely to protect their information on their smartphone within the household and therefore maintain better intimate privacy than the people with a lower level of domestication of smartphones. This link has an impact on the behaviour and feelings of people within the household. In households, people that domesticated their smartphones completely share less information with others to maintain intimate privacy. In households, irritations occur because of the information asymmetry between people that domesticated their smartphones entirely and people that have not domesticated their smartphones entirely.

This study also gave new insights into the topic of intimate privacy by researching the ways participants use to maintain intimate privacy. Thus new factors that can influence the intimate privacy within households were found, such as shielding and protection of the smartphone.

In addition to the new findings of this study, the study also offers suggestions derived from the findings from the interviews. An example is the ways people use to maintain intimate privacy. Future studies in this area can utilize the findings as a foundation.

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8. Appendix

8.1 Appendix A – Systematic Literature Study Log

Date	Database	Search string	Total hits	Remarks
17-04	Scopus	TITLE-ABS-KEY ("Technological Innovations" AND "Society" AND "Smartphones")	15	1 potential article was found.
19-04	Scopus	TITLE-ABS-KEY ("Smartphone use" AND "Daily life") AND (LIMIT-TO (OA , "all"))	31	3 or 4 potential articles. Some articles were not available
22-04	Scopus	TITLE-ABS-KEY ("Domestication theory" AND "Smartphones")	4	2 potential articles that are related to my research
22-04	Scopus	TITLE-ABS-KEY ("Smartphone use" AND "Privacy") AND (LIMIT-TO (OA , "all"))	17	2 potential articles were found that cover smartphone use and privacy
22-04	Google Scholar	Privacy in the digital age: a review of information privacy research in information systems	-	I already knew this article from a recent module.
22-04	Scopus	TITLE-ABS-KEY ("The use of smartphones" AND "Privacy") AND (LIMIT-TO (OA , "all"))	24	Quite similar to 4th search string, but this one gave some different results. More potential articles were found.

26-04	Scopus	TITLE-ABS-KEY ("The use of smartphones" AND "Daily life")	39	Similar to the 2nd search string, but more results were found. 1 potential article found
04-05	Scopus	TITLE-ABS-KEY ("Domestication theory") AND (LIMIT-TO (OA , "all"))	39	Quite some interesting articles were found, around 3 or 4 articles could be used.
09-05	Scopus	TITLE-ABS-KEY ("Domestication theory" AND "Commodification" OR "Appropriation")	11	Some interesting potential articles. Around 4 articles were found that could be used.
09-05	Scopus	TITLE-ABS-KEY ("Domestication theory" AND "Objectification")	3	1 potential article found.
09-05	Scopus	TITLE-ABS-KEY ("Domestication theory" AND "Incorporation")	4	3 of the articles were the same, as the previous search string. But 1 new potential article was found.
18-05	Scopus	TITLE-ABS-KEY ("Privacy at Home")	18	2 or 3 potential articles were found.
18-05	Scopus	TITLE-ABS-KEY ("Smartphone use" AND "Relationship" OR "Family" AND "Home" OR "Household")	38	4 or 5 potential articles were found. This search really helped me in finding good and useful articles regarding my research.

8.2 Appendix B – Informed Consent form

Informed Consent Form for Bachelor Thesis

I am currently doing research about the dynamics between the domestication of smartphones and intimate privacy within households. I feel that some of the information I may get from you will be highly valuable and relevant to this study. As a result, I'm requesting your permission to videotape or audio record this interview with you. Before the interview, you will get the possibility to see the questions I am intending to ask. The questions you prefer not to answer will be removed from the list and will not be asked during the interview. During the interview, you have the opportunity to refuse to respond to questions you consider as sensitive or insulting. You have the right to stop the interview at any time possible if it makes you uncomfortable. You have to keep in mind that your participation in the interview is entirely voluntary.

Please tick the appropriate boxes

Yes No

I have read and understood the information regarding this study.

☐ ☐

I have been able to ask questions about the research and these are answered correctly.

☐ ☐

I freely agree to participate in this study and acknowledge that I have the right to refuse to answer questions and withdraw from the study at any time without explanation.

☐ ☐

I understand that the information I provide will be used for research about the domestication of smartphones and intimate privacy within households and that this is done by a student of Communication Science from the University of Twente.

☐ ☐

I understand that the recordings of the interview will not be shared with other parties.

☐ ☐

I understand that personal information that could identify me (e.g. name and address) will not be shared with other parties.

☐ ☐

I agree to be audio recorded.

☐ ☐

Signatures

Name of participant

Signature

Date

I have read the information sheet to the participant properly and, to the fullest capacity, guaranteed that they understand what they're agreeing to.

Name researcher

Signature

Date

Contact information

Researcher, Joey Parauti, +31637468035 j.i.j.parauti@student.utwente.nl

If you have any questions or concerns regarding the participation in this study and would like to discuss this with someone other than the researcher, please contact the Secretary of the Ethics

8.3 Appendix C – Interview questions

Interview

Algemene vragen

- Welk geslacht identificeert u als?
- Hoe oud bent u?
- Wat is uw nationaliteit?
- Waar woont u?
- Kunt u beschrijven wie er in uw huishouden woont?

Smartphone gebruik in het algemeen

- Kunt u beschrijven voor welke doeleinden u uw smartphone gebruikt?
 - Hoe is je smartphone verwerkt in je dagelijks leven? Hoeveel tijd besteed je eraan?
- Kunt u beschrijven welke applicaties u het meest gebruikt op uw smartphone?
 - Hoe helpen deze toepassingen u in uw dagelijks leven?
- Hoe helpt een smartphone u met zelfexpressie (uiting geven aan de eigen gevoelens en gedachten) en sociale interactie (in contact zijn met anderen)?
 - Gebruikt u apps die deze activiteiten faciliteren? Instagram, Spotify etc.
- Wat voor soort informatie (foto's, video's, wachtwoorden etc.) slaat u op uw smartphone op?

Smartphone gebruik en privacy

- Hoe zou u smartphonegebruik in het algemeen binnen uw huishouden omschrijven?
 - Welke regels zijn er met betrekking tot smartphonegebruik?
- Hoe zorgt u ervoor dat u uw smartphone binnen uw huishouden kunt gebruiken en toch wat privacy krijgt van huisgenoten?
 - Welke ruimtes in uw huishouden zijn geschikt voor privé smartphonegebruik? Waarom?
- Waarom heeft u uw privacy nodig tijdens het gebruik van uw smartphone?
- Welke rol denkt u dat de informatie die op uw smartphone te vinden is, speelt in wie toegang heeft tot uw smartphone in je huishouden?
- Wie in uw huishouden heeft toegang tot uw smartphone? En waarom?
- Hoe beschermt u de informatie op uw smartphone tegen gezinsleden?
 - Welk type smartphonebeveiliging gebruikt u?
- Waarom zou u informatie op uw smartphone beschermen tegen anderen in uw huishouden?
- Hoe wordt uw gedrag met betrekking tot privacy in uw eigen huis beïnvloed door de manier waarop u uw smartphone gebruikt?

- Hoe denkt u dat de informatie die beschikbaar is op uw smartphone (sms'jes, foto's & video's, bankgegevens) uw gedrag heeft beïnvloed met betrekking tot de privacy tussen huisgenoten?
- Hoe denkt u dat uw huishouden wordt beïnvloed door de smartphone die in uw leven is geïntegreerd en de moeite om privacy te behouden?
 - Wat voor een gevoel geeft dit u?