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"Technology Changes, Humans Don't?"

A cultural analysis on how young adult women's ordinary phone call habits led to the refusal of a new smartphone personal security application.

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Abstract

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Since at least 2011, designers and developers around the world have been creating innovative mobile applications for women's use to increase their sense of security while alone in public space; however, there is little known about women's everyday use of personal security applications nor how the personal security application phenomenon is making an impact in society. A small Swedish start-up company designed their own personal security application called *SecurityApp* and as their intern, I conducted an ethnographic research study focusing on young adult women's interaction with their new application. My main findings suggested women having little, if any, use for the application in their everyday lives as they went back to utilizing their old smart-phone calling habits. Hence, the question, technology changes, humans don't? This cultural analysis employed my internship's field material and a variety of theoretical perspectives and concepts from the fields of Ethnology, Sensual Anthropology, Social Interactionism, and Socio-paleontology to interpret the meanings of women's everyday phone call security habits. I suggest that women's phone call habits may be supporting a cultural continuity in how women use technology for safety and security in their everyday lives which may have led to the app being refused. I also provide exploratory insight on the possible norms and taboos surrounding women's sense of security. I lend insight on the personal security application phenomenon from a (ref)user's point of view. I demonstrate how women and their phone call habit seemed to fossilize *SecurityApp,* turning it into a lifeless social fossil, and then implicate that a new social fossil, like a refused mobile application, can be instrumental for both academia and the innovation industry when viewed as *innovation waste.*

Keywords: women; personal security; habits; culture; mobile apps; telecommunications; innovation; science park; Sweden.

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Introduction

1.1 Personal Security Application Phenomenon

In Sweden, many young adult women own smartphones and use mobile phone applications habitually on a daily basis for a variety of tasks. In order to operate a computer-based ‘smart’ mobile phone one *has* to use micro-software or mobile applications, or simply “apps”. Smartphones come pre-installed with default apps so the user is able to at least: make a telecommunications-based phone call, write and send a telecommunications-based text message, create and use a contacts list, set an alarm clock, use a calculator, a camera, browse one’s photo gallery and if Wi-Fi connected surf the world wide web via an internet browser. There have also been millions of third-party apps designed, developed, and made available in online app stores for download (for free or for a fee) that aim to help smartphone owners with everyday tasks, for practical, entertainment, and even personal security purposes.

One niche of apps that have been designed and developed, since at least 2011, are personal security apps. Through their apps, developers aim to help women manage their personal security while alone and mobile in public space. There are a plethora of these apps available in both the Apple App Store (the Apple smartphone app store) and Google Play (the Android smartphone app store), with the most popular in Google Play: *bSafe* (500,000+ downloads), *Women Safety* (100,000+ downloads), *Moonlight* (100,000+ downloads), *My Safetipin* (50,000+ downloads), *Cerberus* (50,000+ downloads) and *iOkay* (50,000+ downloads) (see Table 1. in *Appendix*). Despite the presence of these apps on the marketplace and the knowledge of their number of downloads we know little about how these apps are helping women achieve a sense of security in their everyday lives and if they are solving social challenges, creating new habits, modifying old ones, or simply being abandoned or deleted after their first use.

Knowledge on the use of these apps is difficult because the total number of downloads says very little about the active use of these apps. The number of downloads (only displayed in Google Play and not in Apple App Store) shows how many times the app has been downloaded by individual users, and not if it is actually used on a daily basis or has been deleted since its initial download. The number of downloads of personal security apps are in the millions, which may make it seem like personal security apps are a large socio-cultural and technological phenomenon; however, it may only be a micro-phenomenon after taking into consideration the broader context of smartphone owners worldwide.

Apps, in principle, are available for download on the online marketplace for smartphone owners around the world. It is challenging to grasp a picture of an app phenomenon because neither the app downloader’s country of origin, nor their gender orientation, nor their age, are specified on the app marketplace. Thus, it is difficult to gain information about the downloader of such apps. It is also an estimate when forecasting companies try to attempt to find out how many smartphones are owned and operated around the world. Nevertheless, if we take the download numbers from the top 25 personal security apps available in Google Play there was roughly one million downloads as of August 2019 (see Table 1. in *Appendix*). If I assume that only women downloaded the apps, I can compare the download number to the rough number of Android smartphones owned by women worldwide. I divided the total estimate of active Android operating devices worldwide (which unfortunately also include devices other than smartphones) which was 2.5 billion, into two, figuring that half of Android device owners are women ("There are now more than 2.5 billion active Android devices," 2019). According to this very rough approximation, the number of women who have possibly downloaded a personal security app worldwide on their Android smartphone would be about— 1 out of 1,250— and the number who had possibly not about— 1,249/1,250. These figures are quite limited and do leave out the number of Apple smartphones owned worldwide and the Apple App Store personal security apps, like *Circleof6* which has 300,000+ downloads ("Circle of 6," n.d.). Nevertheless, depending on where you live and who you know, it seems unlikely that you would know a young adult woman who has downloaded, nor uses, a personal security app. With all the above in mind, the personal security app phenomenon is arguably a *micro* one, revealing that many women probably *have not* downloaded *nor use* a personal security app in their everyday lives.

The most interesting and significant aspect of this remains: How is it making an impact in society and why and how is the phenomenon not larger than it is? An understanding of how and why personal security apps are *not* being used and what women are doing on an everyday basis, without the app, to maintain a sense of safety and security could prove meaningful explanations. Insights on app refusal (or a user’s unwillingness to use an app) could help designers and developers understand women’s everyday wants and needs in order to create more useful, valuable, and innovative products in the future as well as lend some foresight on this personal security app micro-phenomenon.

1.2 *SecurityApp*

Much like other designer and developers of personal security apps, a small tech start-up company in Sweden called Safety Solutions, developed their own personal security app to help women, called *SecurityApp*. The app aimed to increase women's sense of security by utilizing functions such as GPS, Wi-Fi, text messages, and telecommunications (for more details, see chapter, *App Description).*

In 2011, Safety Solutions was gaining numerous downloads for *SecurityApp* and a variety of people posted support on the app's Facebook page after its initial release onto the marketplace. There were not only downloads from Sweden, but according to a heat map the company released on Facebook, there were many downloads from several other countries as well. Safety Solutions strived to create a useful and valuable personal security app that would solve a social challenge (women's physical and emotional insecurity while alone in public space) and spur economic growth for Sweden and beyond.

Safety Solutions mainly operated inside Ideon Science Park and had little first-hand knowledge about how women managed their sense of security in everyday life outside of what they knew about personal security and women's smartphone use in general. Wanting to design and develop the most useful and valuable security app for women in Sweden and worldwide, they were motivated to know more about women who they wished to serve. I joined Safety Solutions in the autumn of 2011 as an intern cultural analyst. Safety Solutions believed that an understanding of women's habits and experiences on an everyday level was most likely vital to designing and developing their next and improved version of the app. Thus, my goal was to help them gain new knowledge by conducting an in-depth study with their intended users.

The internship's main objective was to focus on the expected gap between Safety Solutions' *SecurityApp* and women's experiences of the personal security app, the main target user of their app. The objective was crafted after three brainstorm meetings Safety Solutions and I had together. My internship aim was to address and create insights on how Safety Solution's personal security app was fitting into, or not, the experiences, expectations, and everyday habits of their women target users by conducting an in-depth and ethnographic research study.

The CEO of Safety Solutions confirmed the validity of this study as his company did not have the time, expertise, nor the resources to investigate women's personal security app use and refusal, nor their daily smartphone habits from the users' or women's perspective.

Rather, quantitative studies, personal observations, market research, their collaborator's research, and their own surveys and in-house focus groups were emphasized in the design and development process of *SecurityApp*. Due to a lack of resources and expertise with in-depth user research they knew little about the everyday lives of their users, and only understood women's needs from a general perspective.

I was able to share cultural insights, based on my study's ethnographic material, on how women were managing their personal security on an everyday basis and how to possibly improve their next version of the app; however, I was left with my main finding that women in my study did not seem to find use or meaning for the app in their everyday lives and eventually refused to use it.

1.3 Innovation is Key

To understand the relevance of looking into the everyday cultural aspects of personal security app refusal, it is necessary to understand the political, economic, and organizational context in which *SecurityApp* and others have been, and continue to be designed and developed in and to what aim.

In many countries, personal security apps are being encouraged and developed with government funding, such as the United States of America's *Circleof6*, Norway's *bSafe*, and Sweden's *SecurityApp*, to solve the social needs of women. Apps like these are to help women around the world manage their physical and emotional security (from the fear or threat of violence) while alone and mobile in public space. Safety Solutions was supported by several Swedish government funded innovation agencies, like Vinnova, to create an innovative technological solution for women's personal security needs.

Sweden's economic policy is in line with the innovation economics paradigm which emphasizes entrepreneurship, knowledge, technology and innovation as key factors to spur economic growth (Atkinson, & Ezell, 2012, p. 12; "Innovation economics: The economic doctrine for the 21st century," n.d.). In 2012, Sweden's Ministry of Enterprise, Energy, and Communications launched the "Swedish Innovation Strategy" to improve the current and future conditions for innovation design and development to spur economic growth ("Swedish Innovation Strategy," n.d.). In 2015, Sweden as well as fifteen other United Nations member states adopted a sustainable development framework based on The 2030 Agenda- "a plan of action for people, planet, and prosperity" ("Transforming our World: The 2030 Agenda for Sustainable Development," n.d.), This agenda (also embracing innovation economic

principles) proposes seventeen goals for countries to aim for. Safety Solutions, though aiming for this goal before the agenda was implemented by Sweden officially, was in line with the agenda's fifth goal to, "enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women" ("Gender equality and women's empowerment," 2015). As national and international goals merge politically, economically, and organizationally, Sweden supports small tech start-up companies, like *Safety Solutions*, to design and develop innovative products for social challenges in hopes to spur economic growth in a sustainable way.

1.4 Research Questions, Thesis Aims, & Outline

After my internship project was over, I followed the news of the app via online channels and documented the news in my field-notes. In March 2012, Safety Solutions posted on the *SecurityApp's* Facebook page, "*SecurityApp* has now over 10,000 downloads on Google Play and has been downloaded in 133 countries! Thank you for contributing to our success. Hopefully the more we are, the safer we'll be!" One month later, in April 2012, the company posted, "…Today +22,000 have downloaded *SecurityApp* and the trend is very promising". Three years had passed, and I wondered if the amount of downloads had increased. So on a September day in 2015, I went back to the app's Facebook page only to find out that the company had not posted an update on it since June 2013. I then went to the app's website and found that the number of downloads *had* increased, but only to a mere 30,000. In January of 2016, I searched the Google Play store and Apple App store and found that the app was no longer available in both stores. At the same time, I went to the app's website and found it was no longer in service. Despite the app's initial enthusiasm from 2011-2015, as of 2019, the buzz has died down and the app is inactive.

After all of this news, it seemed apparent that some women, like those in my study, did not find the app useful or valuable in their everyday lives. The innovative *SecurityApp's* inactive status, inability to solve social challenges or make change, and lack of economic success, made it even more crucial to investigate women's refusal of a personal security app and made my past field material invaluable to the exploration of this dilemma. I utilized my main internship study findings of women refusing to use the new app in favor of their ordinary smart-phone call security habits to guide this cultural analysis and to shape the central research question of this investigation:

> *How do women's shared smart-phone call habits support their sense of security while alone and mobile in public space and how did they possibly influence the application's significance and usefulness in women's everyday lives?*

As I reviewed my field material to explore possible explanations to this question, I separated the main question into three sub-questions that are specifically addressed in the *Cultural Analysis* chapter:

1. *How could women's shared phone call habits be socially, culturally, and technologically significant in their everyday lives?*
2. *How are women making meaning of a personal security app in relation to their existing phone call habits?*
3. *How did women's refusal of SecurityApp reinforce a cultural continuity regarding technology use for safety and security and how can this insight help designers and developers in future innovation pursuits?*

My aim is to explore women's everyday smartphone call security habits and personal security app refusal by using a cultural analytical approach to interpret ethnographic materials. By analyzing the discrepancy between *SecurityApp* and women's everyday phone call security habits and personal security experiences, and exposing a cultural continuity in safety and security, this research can help identify and give insight into women's current and future wants and needs of technological tools for personal security. This cultural analysis also strives to lend exploratory insight on the personal security app micro-phenomenon from a (ref)user's perspective to aid analysts in forecasting the future of these apps, as well as lend applicable insight and implications for designers and developers for their pursuits to create useful, successful, and sustainable innovative products and services in the future.

This thesis continues with an overview of previous research on personal security applications and studies focused on the refusal of mobile apps by smartphone owners. I then give a description of how *SecurityApp* operates and how Safety Solutions believed it would aid women in their security management. Following, I discuss the research design undertaken for my internship project and how the ethnographic field material for this thesis was created. I also bring forth the theoretical perspectives and concepts employed to analyze my data

which helped me create interpretations to explore my research questions and fulfil my aims. The *Cultural Analysis* chapter explores the meanings of women’s shared smart-phone call security habits and ends with demonstrating how *SecurityApp* ended up becoming a social fossil. To conclude, I provide a summary, implications (including a new concept, *innovation waste),* suggestions for future research, and finish with a final remark and title revision.

2. Previous Research

After the smartphone's rise in 2010, there have been many studies on mobile app use. Since this thesis focuses on the use and refusal of a personal security app this chapter will also discuss past research on personal security apps and mobile app refusal.

There have been multiple studies on the use of apps by smartphone owners in relation to: food delivery (Lee, Lee, Jeon, & Jung: 2017), self-management of depressive symptoms (Pung, Fletcher, & Gunn, 2018), political participation (Levy & Akiva, 2019), dating (Sawyer, Smith, & Benotsch, 2017), persons with visual impairments (Griffin-Shirley et al., 2017), PTSD treatment (Reger et al., 2017), mobile learning (Teri et al., 2013), library and information services (Wei, Chang, & Cheng, 2015), public transportation (Ghahramani, & Brakewood, 2016), fertility awareness-based contraceptive methods (Berglund Scherwitzl et al., 2017), mobile banking (Veríssimo, 2016), and mobile health (Wang, Deng, Wen, Ding, & He, 2019), amongst others. However, there are relatively few research studies investigating the use, or refusal, of personal security apps.

2.1 Personal Security Apps

As stated earlier, since at least 2011, there has been a popular interest in personal security apps as well as many to choose from (see Table 1. in *Appendix*). Personal security apps have been documented and shared to the public by journalists over the years and an

***Figure 1*. Two media sources displaying *SecurityApp* (encircled in black). This figure illustrates *SecurityApp* featured in popular magazines in 2012. Screenshot from Facebook. (2012, Ehde, Y.T.).**

internet search with the entry, "Top 5 personal security apps for women", will present many popular articles and reviews. For instance, two magazines in Sweden, Cosmopolitan (Sweden edition) and Femina, featured *SecurityApp* back in 2012 (see above in Figure 1.). Yet, despite the media coverage, the variety, and the number of downloads, scholarly research on personal security apps has focused little on the everyday use, or refusal, of these apps and have focused more on their design features and software development.

Johansson (2010) investigated the engineering and development of a personal security app for the Android operating system developed in a Swedish context. His keywords were engineering-based terms such as: Java, Sqlite, and Android (Johansson, 2010). His research did not investigate the user or use of the personal security application highlighted in his study.

The *International Journal of Modern Trends in Engineering & Research* published a survey study ("survey on android applications for personal security," 2017) which also investigated personal security apps. It described what personal security apps aim to do, how they work, and provided a survey on the personal security apps available and their various functionalities. I also found a published conference paper on a personal security app. Yarrabothu & Thota's (2015) paper is a proposal where they described a personal security app that they designed and developed called, *Abhaya*. They gave a description on other personal security apps available and then positioned the uniqueness of their app in comparison to the others. Though both papers provided details on existing personal security apps they did not investigate women's actual use of them nor how the apps are fitting into women's everyday security habits.

Bivens & Hasinoff (2018) carried out a very interesting and critical communications study on personal security apps. They conducted a quantitative analysis of more than two-hundred apps designed to prevent sexual violence. Personal security apps, like *SecurityApp*, would fall under this app category. They analyzed the underlying ideology in the design of the app by looking at the intended users and rape strategies supported by the app's features. They critically concluded that these apps are reinforcing rather than problematizing or debunking rape myths about sexual violence, stranger-danger, and victimhood. They point out that even if women may feel safer using them, "Like a weather app that merely warns of oncoming disaster, apps that treat sexual violence like an inevitable force of nature cannot actually help end rape as a social problem." (Bivens & Hasinoff, 2018, p. 1064).

Though I do not specifically analyze how women perceive their vulnerability in relation to sexual violence with personal security apps, I do bring up insight into how these types of apps are being used, or rather refused, in women's everyday life. The insight could

complement upcoming studies on personal security apps, or in Bivens & Hasinoff's terms, "anti-rape apps".

Also to note, feminist media researchers Cumiskey & Brewster (2012), investigated how young adult women in the United States of America utilized mobile phones to achieve a sense of personal security, and mentioned personal security apps in their introduction. Cumiskey & Brewster suggested,

> (Personal security apps) *demonstrate that women feel safer through their access of technology*; however the ambiguity of the effectiveness of this mobile media and how mobile intimacy changes one's perception of the social environment can impede accurate analyses of whether or not this kind of use is truly liberatory. (Author's parentheses & italics, Cumiskey & Brewster, 2012, p. 591)

Since there has been little research conducted on women's actual use of personal security apps in their everyday lives, there lacks an understanding if women *actually do* feel safer through their access to these types of app technologies or not. Though we know personal security apps are being designed, developed, made available, and promoted as well as being described from a software engineering, business, and critical point of view, it would be interesting to understand further if they are being used in everyday life and helping women feel more secure. This cultural analysis seeks to add more perspective to Cumiskey & Brewster's assumptions.

2.2 Mobile App Refusal

The following section presents insights from two relevant studies on mobile app refusal (or the unwillingness to use apps), from the fields of Computer Science and Telematics and Informatics. These studies inspired me to investigate the importance of habits from a cultural analytical approach and I will explain later if their conclusions were also supported by my informants.

Matthews, Pierce, and Tang (2009) from IBM Research and Microsoft Research investigated mobile app use of twenty-seven people (five of them women) via semi-structured interviews in the United States of America. They explored common usage patterns of the smartphone and mobile app use. The most commonly used apps were: the phone, maps, e-mail, web browser, camera, photos, and SMS. They pointed out that though the maps app was used by most participants it was not used on a daily basis. Their findings also revealed that their participants installed apps that were later abandoned or never used, like *SecurityApp*.

Reasons for refusal by their participants were: having no use for it, or it was not useful, the app did not work well or as expected, there were technical problems, there were better apps available, they simply did not like it, as well as it being too time consuming, boring, the need to use it was highly contextual, or it depended on friends being online or no other friends were using it. The researchers suggested that the low barrier-to-entry of apps and the 'app competition' could be reasons for abandoning certain apps (Matthews, Pierce, & Tang, 2009, p. 4). The researchers did not explore how existing habits were contributing to the refusal of apps but acknowledged that refusal for a variety of general reasons was a common phenomenon. My cultural analysis aims to provide more knowledge on how habits underlie user's reasons for app abandonment.

Another important conclusion was "the places and situations in which users employ their phones shape the tasks they undertake and how they make time to use their devices…" (Matthews, Pierce, & Tang, 2009, p. 1). In specific, they found five motivations to initiate interaction with their smartphone: maintain awareness of some information, seek contextually relevant information, *accomplish a concrete tasks*, maintain social ties, or entertain themselves. They concluded that the goal of using the smartphone and apps is to support the goals of an ongoing task and the app must fit in to this situation. Based on their conclusions, refusal of apps could come from their inability to support user's concrete tasks and goals for certain situations.

Suominen, Hyrynsalmi, & Knuutila (2014) also investigated smartphone and mobile app use and their aim was to account for how attitudes and feature valuation of smartphones change over time. They utilized a longitudinal approach and analyzed 1,928 responses to online questionnaires by Finnish students collected at different time points. Two key findings suggested that women respondents had a total lack of interest or knowledge when asked about features such as Bluetooth, Wireless local networks, 3G, 4G, GPS, or voice recording. The second was that the basic telecommunications service — phone and SMS— were more valuable to respondents than the other services and apps available for the smartphone. Overall, they suggest a conservative attitude amongst respondents where "the possibilities offered by the technology (smartphone) are not yet fully understood *and it is used mostly to redo the innovations of the previous technological generation*" (Author's italics, Suominen, Hyrynsalmi, & Knuutila, 2014, p. 279). Though Suominen et al. (2014) point to existing habits, such as calling and texting, as important factors to how apps are valued and used, their study's aims were to provide a quantitative exploration on the matter. I hope to add

perspective to their research by providing a more nuanced exploration of old habits in relation to app use and refusal.

I was inspired by these two studies to look at the habits that could have led to the refusal of the personal security app in more depth. Matthews, Pierce, and Tang (2009) suggested that refusal could come from the app not supporting concrete tasks and user goals, implying that users already have tasks and goals that they are practicing and which they rely on regularly. Suominen et al. (2014) suggested that users are 're-doing' or practicing older technological mediums on a habitual basis that influence user's attitudes and the associated value given to new technological tools, such as apps.

The absence of qualitative research, not only on women's use, but also refusal of personal security apps opens up an area to contribute new understanding on this matter from a cultural perspective. Considering the conclusions made by Matthews, et al. (2009) and Suominen, et al. (2014), and the importance of habits towards new product consumption, it would be beneficial to investigate how habits are influencing women's refusal of a personal security app in their everyday life. To fulfil this aim, I utilize a variety of socio-cultural perspectives and concepts as analytical tools to interpret my field material (see section: *Cultural Analytical Framework*).

After discussing previous research on personal security apps and mobile app refusal, the following gives the reader a brief description of how the personal security app, *SecurityApp* operates before moving into an overview of the research design.

3. Description of Application

Since this thesis focuses on my informants' use, or rather refusal, of a specific personal security app a brief description of how *SecurityApp* works and the functionalities embedded within it is required. An understanding of how *SecurityApp* works will help the reader contextualize the interpretations made in the following chapters.

Before getting into how the app works, it is important to note that the first version of *SecurityApp* (see Figure 2.) was only available in the Swedish language and was available for free. My informants knew Swedish well enough to comprehend the first version of the Android-based application. Later on during my internship, the company released an English version of the same app for both Android and Apple smartphones. I created the following English description based on my own engagement with the English Apple version of the app and reading the app's YouTube tutorial video transcription. I have translated the Swedish word "larma", to its English equivalent "alarm" in this section and when informants refer to this feature later on in this thesis.

To begin, the user goes to Google Play (for an Android smartphone) or Apple App Store (for an Apple smartphone) via their smartphone and searches for *SecurityApp*. The user then downloads *SecurityApp* onto their smartphone and accepts the app's terms and conditions. The first version of the app was free of charge (later versions had upgraded features that required a small fee to use). The user then answers some personal information and creates a username. Next, the user is to set-up the app. The user chooses up to five personal contacts from their smartphone's contact list (the app refers to these contacts as My Companions). After the Companion(s) are chosen, the app puts forth a 'New Message' where a telecommunications-based text message box appears on the screen. This will happen each time the user chooses to include a new Companion to the companion group. The invitation text is already addressed to the Companion(s) with the following default message, "I'm using a personal security app and would like you to be my "Companion". Find out more at: www.SecurityApp.se/en-gs. Thanks! /User's First Name (ex. Yannika)". The user may modify the message or let it be and then taps the text message Send button. The user must send a new telecommunications-based text message for each Companion (up to five), as a mass message does not group the chosen contacts together for a single send. If the Companion(s) has a smartphone and clicks the internet-enabled hyperlink they will be encouraged to download the app as well. Companion(s) without internet-enabled

smartphones will receive an invitation text message but will not be able to open the internet-enabled hyperlink. The chosen contacts will then be stored in the app as Companions under specific Companion icons. Companions can be changed and removed as the user wishes by going into the Help tab of the app. If the user has a photo in their contact list of the Companion they select, the photo will appear inside an icon box instead of the default pink heart on a red background. The name of the contact is also underneath the Companion icon. The Companion icon is also connected to the personal contact's telephone number and if the icon is tapped an ordinary telecommunications-based phone call will be placed.

When the user wishes to use the app they tap the *SecurityApp* located on their smartphone's app shelf. The designers believed that the user would start and use the app before a journey into public space. The user will then be prompted with a message box asking them to turn ON their GPS (Global Positioning System) setting, if it is switched OFF.

Figure 2. The SecurityApp sequence. This figure illustrates SecurityApp's sequence on an Android smartphone. From left to right, screen 1, 2, and 3. Screenshot from Facebook. (2011, Ehde, Y.T.).

The first app screen then appears (see screen 1, Figure 2.). The first box asks, "Where are you going?" which the user clicks the blank box which goes into a rolling tab, where they can choose: Home, Walking, Jogging, Out, or Define (they can type in their own answer if they

wish). The second box asks, “Duration?” which the user clicks the blank box and can choose from a rolling tab 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55 minutes or 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5 hours. The next question asks, "Companions for this activity”. All Companions that were chosen during the set-up phase are selected by default. The user has an option to deselect Companions by tapping on the Companion icon. Once the questions are answered the user taps the green Start (Starta in Swedish) button.

When the user taps the Start button all selected contacts will be put into a mass telecommunications-based text message with a following default start-invite message that could read: “Going walking now and is near Blekingevägen 6-8. Could you be my Companion for 10 min? Click http:77goo.gl/c2kx8 for map.’” This text has a GPS-based location of the user’s starting position, and an internet-enabled link to a map. After receiving this text, the Companion can tap the internet-enabled hyperlink and be directed to a webpage displaying *SecurityApp’s* Logo (top and center), the signature background color, a message, and a picture of a Google map pinpointing the departure address. The message above the map states: “Thanks! And underneath, “You are now a Companion when Yannika goes walking, estimated 10 minutes. Thanks.” If a Companion(s) taps the hyperlink the Companion icon on the user’s screen will light up. If the Companion(s) do not tap the internet-enabled link the Companion icon remains unlit. Thus, the lit/unlit feature is internet-dependent and depends on both the user and Companion(s) to be connected. This feature is to show the user that the Companion has received and accepted the start-invite text to be a Companion. If the Companion(s) does not click the internet-enabled hyperlink, the user does not know the Companion(s) they selected is officially available for them as the Companion’s icon remains unlit. Thus, the Companion(s) does not have a way to notify the user that they received the start-invite message, and will be available for them, unless they manually answer by sending a telecommunications-based text message.

After the user taps the Start button it takes about ten seconds for the app to load, with a pop-up stating: “Starting”. Afterwards, a new app screen appears (see screen 2 in Figure 2). A circular Alarm button is positioned in the middle of the screen (on the *SecurityApp* signature background color of purple/pink) with the selected Companion icons haloing atop the button. The Alarm button encompasses the text “ALARM” (or LARMA in Swedish) and underneath it, “All Companions.” After the Start button is tapped, and the start-invite text message(s) are sent and the timer or timed journey begins. The timer is positioned in two spots. The user can see a thin parallel line rimming the circular Alarm button feature. In a clockwise manner, a green color is moved around the circle as the time goes by. The exact

time of the timer is located digitally at the top center of the screen in 00:00:00 format and counts down the allotted time. If a Companion(s) clicks the internet-enabled hyperlink in the start-invite text their icon will now appear lit on the user's Companion icon. After a while, the app will tuck itself back into the *SecurityApp* on the shelf that the app is located on (either first, second, third, etcetera) depending on where the user has placed the app amongst their other apps on the smartphone's app shelves.

If the user feels the need in times of insecurity to press down the Alarm button or to make a telecommunications-based phone call to a Companion via the Companion's icon, the user must tap the *SecurityApp* and open the app up again. The Alarm button screen will open up. If the user wants to send a text message to all of their Companions chosen for the journey they need to press the Alarm button down for at least 2 consecutive seconds. After that, a 'New Message' text box appears with the following example default text: "I need you HELP! I'm near Blekingevägen 8 Lund. Call or assist me if you can! Map: http://goo.gl/nnlUr." The user must then tap the Send button on the telecommunications-based text message to send this text message to a Companion. They must do this for each text message to each Companion. The designers assumed that in most cases the user will not need to use the Alarm button. So, in an ordinary app session the user would probably not utilize these steps.

Also available, if needed, is a grey tab on the bottom of the Alarm button screen entitled with white small font: "Slide up for emergency number" (see screen 2, in Figure 2.). The user can slide up a tab that then states in white text: "Call emergency number when you need immediate help. Misuses of service is forbidden by law." Adjacent to this text lies a red circular button with white text "SOS ALARM" (see screen 3 in Figure 2). The user can reach the emergency authorities, or 112, if the button is pressed down for a second. After pressing down the SOS ALARM button, a blue pop-up box will ask: "Are you sure you want to make an emergency call?" The user then taps Cancel or Ok. If the user does not take action the tab automatically slides back down after 2 seconds. In sum, to be directed to the emergency phone number 112, the user will first tap (if outside the application) the *SecurityApp*, slide up the grey tab bar, press the SOS ALARM button, and then tap OK to the question, which totals three to four steps.

During a normal session where the Alarm button and SOS button is not needed the timer will eventually run down to the specified time. If a user wishes, they can tap the Extend button on the right of the screen at any time and add more time. When the time is up, the app prompts the user with a vibration, a sound alert (the same as their telecommunications-based text message alert), and a pop-up box asking the user to "Extend activity" (the timer). The

Companion(s) does not get a new text message that the user will extend their time. The user may choose from a rolling tab 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55 minutes or 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5 hours. If they do not extend time, the user taps the DONE button on the left to finish their journey and use of the app. The user may also tap the DONE button if they have finished their journey before the timer ran out. Tapping the Done button will prompt a "New Message" text box including the following example default text: "Have arrived and is near Blekingevägen 8, Lund and am OK. Map: http://goo.gl/PXBZf. Thanks for being my Companion!" The user must tap the Send button on each text message for each Companion(s). In a regular session, the Companion(s) will receive two default text messages (on a smartphone) with a message including the departure GPS location and a message including the destination GPS location. Companion(s) with older non-smart mobile phones or smartphones without internet connection will get the GPS location but will not be able to open it up in an internet-enabled map on their phone. Tapping the Done button is important as it is the final text message to Companion(s) to let them know the user has arrived at their destination and no longer needs the Companion(s) commitment of being available.

Safety Solutions believed that *SecurityApp's* functionalities could increase women's sense of security for a variety of reasons. First, the user's ability to send their departure GPS location and journey time as well as their destination GPS location to their personal contact(s) could serve in surveillance and accountability between the two. Second, the user's ability to send a GPS location in times of need as a way for personal contacts to be able to physically assist them may increase their physical security. Third, the users could feel more secure knowing who was available for them via the lit Companion icon for a certain amount of time in case they experienced an insecure moment in public space. The lit/unlit feature could make it easier for women to know who was available to call in times of need, and the Companion icon would make it easier for them to call the available contact, so women did not have to waste time calling someone that might be unavailable. And last, the SOS button was to help women have an easier way to contact the emergency authorities rather than tapping the numbers 112 into a touch keypad and tapping the call button.

Now the reader might understand better how the app works, its functionalities, and how Safety Solutions believed *SecurityApp* could increase women's sense of security. I now move on to discuss the research design, fieldwork, and methods employed during my internship to create field material on women's use, or rather refusal, of *SecurityApp*.

4. Research Design

To set the stage for the analytical section of this thesis, it is important to provide the various components contributing to the research design to which the field material supporting this thesis was created. The following chapter presents how I conducted this study and where my study was carried out. The first part explains my internship provider and internship project's aims in more detail that influenced my fieldwork. It goes on to describe the field in which the field material was produced. It follows with the methodological tools I used to create the field material including reasons for choosing them. The chapter concludes with the study's limitations, an acknowledgement of my research bias, and discusses ethical considerations.

4.1 Project Setting

As mentioned earlier on, I carried out a three-month internship for a small entrepreneurial technology start-up company, Safety Solutions, during the Autumn of 2011. This internship project was to fulfill a requirement by the Masters of Applied Cultural Analysis program at Lund University in order to gain practical experience in developing cultural insights for contexts outside of academia. Safety Solutions designed and developed *SecurityApp* to increase women's sense of security in the country where this study took place. They also believed the app would be able to help smartphone-owning women living in other countries as well. As evident in their response to a journalist, "We hope to become the first choice for our users and would then be able to reach millions of users." Due to time and resource restraints, this study focuses on young adult women living in Sweden, mostly in the southern region of Skåne where I lived during my studies and internship.

As I previously noted, Safety Solutions were interested in gaining an in-depth understanding of how their app was being interpreted and used by women in their everyday lives. This led to the development of my internship project. Safety Solutions and I decided that I should meet with women in everyday places to get a better understanding of how women felt about the app since Safety Solutions had already done their own in-house research in a professional setting. They wanted to go beyond their own research and analysis, and the bias it may have contained, and know what women really felt about the app when the designers and developers were not around. They also wanted to know how women thought about and used the app in their everyday lives because it was a reality that was difficult for

Safety Solutions to gain access to. Safety Solutions had several areas of interest that they asked me to pursue and research with their user's everyday preferences, expectations, and habits in mind:

- Improvements for user-functionality & user-friendliness.
- Improvements for app's instructions.
- Pinpoint the 'WOW' factors and describe first impressions.
- Identify barriers to, and complications discouraging, app use.

I kept Safety Solutions interests in mind during my research, and was able to develop field material and uncover insights on all four areas. Nevertheless, my field material left me with the most insight on their last area of interest. This became one of the most challenging and important aspects discussed during my final meeting with Safety Solutions, and made up a good portion of the results in my research study's final report.

It became clear to me that the personal security app was more problematic than promising in fitting into women's existing habits. In the follow-up interviews many informants admitted to forgetting to use the app or not finding a need to use it at all, instead doing again what they had always done. During my final meeting with Safety Solutions this was discussed, but there were still many loose-ends that I could not explain further at that time. I was left curious and felt that the topic of women's habits and experiences in relation to the personal security app was significant and ought to be investigated further. I also thought a further investigation would help Safety Solutions in the future and other entrepreneurs designing and developing innovative products and technological solutions for social challenges. With this and the app's news in mind, this thesis came to fruition. My internship study and ethnographic research methods allowed me to create field material suitable for both my applied research project and for this cultural analysis.

4.2 Field Work

The cultural analysis chapter of this thesis is thus based on the field material created during my internship's ethnographic research project. To create a variety of ethnographic material I employed a bricolage of methods including: descriptive observations, field notes, discovery interviews, and open-ended follow-up interviews. I also gathered and made

secondary documents for research material including: Safety Solution's in-house focus group summary (with consent), transcribed audio-recordings of Safety Solution's and my meetings (with consent), printed out news articles and blogs featuring *SecurityApp*, as well as printed out the app's Facebook wall with comments. I took screen-shots of photos shared on the app's Facebook wall. I also took field-notes on the app's presence online (app's website and app' status in the Apple App Store and in the Google Play store, from 2011-2019) and took photos of safety and security messages seen in my everyday life.

The Field

From our first meeting, Safety Solutions was eager to understand how their users felt about their application; especially women, aged 13-30 living in Sweden. Thus began my ethnographic research internship project and development of the field I would be working in and through. The specific field sites were dependent on where and how I talked to my informants, yet they were all located in the larger context of Sweden. As the personal security app is a mobile application, I became a mobile researcher, moving into locations where the informants were and where their smartphones and apps were. As I "followed the object (the app)" (Author's parentheses, Czarniawska-Joerges, 2007, p.106) my field became multi-sited as I met different women in different locations.

To gain a greater understanding of women's smartphone use while alone in public space, or the use-case scenario the app was designed for, I also did fieldwork on other young adult women. The public spaces that I mobilized in while alone and mobile in both Lund and Malmö, two larger cities in Skåne, made up the field where I made field notes and observations on lone women in public space. As a researcher, I was a research instrument myself (Brodsky, 2008), and made use of my mobility at night in public space to observe and note what I felt could be going on with other women around me.

Informant Recruitment

After my third meeting with Safety Solutions, we decided to not include 13-17 year old women in my study due to the complications with parental consent, English as a second language, and recruitment and only to recruit young adult women in the age range from 18-30. In addition, I could only recruit Android smartphone owners as their Apple version of the app was not yet available. Safety Solutions put me into contact with one informant, Olivia, who lived in Norrköping. She was the younger sister of a Safety Solutions member's friend. To recruit more informants in Sweden I posted a an informative flyer on *SecurityApp's*

Facebook Wall as well as placed a recruitment comment on Swedroid (an online forum for Android owners in the Nordic countries) under an article featuring *SecurityApp* that had around 60 personal comments from Swedroid members. After a week of waiting for responses, receiving none, I moved on and tried another approach.

I started asking colleagues and family members if they knew a woman in the age group that owned an Android smartphone. Many did, and I was put into contact with them. Some informants also tipped me on their friends that would be interested in the study, leading to a "snowball sampling" method that helped me gain more informants. This kind of sampling was advantageous to my research aims because it helped me gain access to a specific group of people with similar traits (Naderifar, Goli, & Ghaljaie, 2017, p. 3) or young adult women Android-owning smartphone owners living in Sweden. Since the app was designed to help all women in this age group, there were no strict demographics specified other than age, sex, and smartphone model. Informants were chosen for the cultural knowledge that they could share as young adult women smartphone owners and thus all became key informants. All except Olivia, lived in towns within the region of Skåne. After three weeks I was able to recruit eight informants in the age group owning an Android phone. There were many instances where I could not include willing smartphone owning women because they owned an Apple model instead of an Android. Due to time restraints and since my aim was not to develop quantitative results and generalizations, but more in-depth and nuanced insights, the number of informants was satisfactory for my research aims and optimal to make my deadline for Safety Solutions.

Interviews

Over one month, I conducted fourteen in-depth interviews with women living in Sweden. I made eight discovery interviews and six follow-up open-ended interviews. The first discovery go-along style interviews ranged from one hour to one hour and a half and the follow-up interviews ranged from forty-five minutes to an hour. I audio recorded both interviews, transcribed the interviews, and printed them out as research material. I met informants in their homes or a cafe of their choice and sat next to them or closely across from them. I also had internet-enabled computer-mediated video interviews where both of us were at home and unbothered utilizing the software Skype from a computer. In this case I was sitting across from them where they would show me their phone into the screen if something needed to be pointed out to be understood. I wanted the informants to feel comfortable and relaxed, as well as work around their schedule, so I had them choose where and what time

they would like to talk and what style of communication we were to have, in person or computer-mediated via the internet. I suggested meeting them in person at their homes. However, due to work and school schedules this was not the best option for some. Since my aim was to understand how women felt and used the app from an everyday perspective, by being there where they were (either physically or virtually), it was important that they were alone (with me) in ordinary places and that they felt comfortable and had the time to discuss the app for an extended period of time without feeling rushed.

My aim was to empower women to talk truthfully and open about the personal security app while in my physical or virtual presence and also feel relaxed to be themselves. To do this, I tried to gain trust and build confidence of my informants by stating from the beginning of our interviews that it did not matter if they liked or disliked the app, adding that all their opinions were interesting and relevant to my research. Giving informants some choices in the beginning was a way for me to grant them authority and control. This was in hopes to establish a more egalitarian relationship between us. I aimed, like feminist ethnographers, to establish a non-hierarchal relationship and to empower the perspective of the woman being interviewed (Bell, E., et al., 2018, p. 456). I wanted to avoid a hierarchal interviewer and interviewee relationship, because the interviewer can be felt as intimidating— even if they do not wish to come across that way— where the interviewee feels their statements are being judged or undervalued and thus unwilling to share personal feelings and reflections. Even if I worked to make the interviews more like a friendly conversation to encourage an egalitarian relationship, establish trust, to support confidence and truthful

Figure 3. Four Interview photos. This figure illustrates the context of this study's research interviews. Photo stills from Video-taped discovery interviews. (2011, Ehde, Y.T.).

reflections, rarely if ever is neither a research environment entirely natural, neutral, or ordinary, nor any new researcher skilled at making informants feel more than less at ease.

In addition, I video-recorded seven of the discovery interviews, and did not record one that was in a cafe. For the Skype interviews, I video recorded the screen showing the informant on the other side. Two video recordings turned out not to be helpful due to us moving out of the frame and I not repositioning the video-camera. I employed this method to avoid giving off the busy researcher look. This method made myself available to be engaged with and talked to rather than coming across as disconnected as could if continuously writing notes with my head down in a notebook. The video method was also able to pick up on our interactions together so I could do a "second-hand observation" later on (Flick, 1998, p.151 as cited in Pink, 2007 p. 31). This helped me make out some audio-recorded reflections that were a bit mumbled where I could view and follow my informant's as they mouthed the words aloud. While there is a disadvantage to video-taping, where women could change their behavior or feel embarrassed, my informants did not seem to mind being video-taped, rather they seemed unbothered by it and did not mention it during or after the interview. The video recordings were also used to develop fieldwork photos to provide transparency into my research process (see above, Figure 3.). I also want to note here that I used my Apple smartphone to audio-record our interviews which may have also lessened the formality of our interview context, as the smartphone is an ubiquitous object in Sweden compared to the unordinary presence of a digital tape recorder.

The discovery interview method was chosen as it complemented my aim to understand women's first impressions, reflections, statements, and associations when downloading the app for the first time, without limiting their train of thought with too many structured questions (Elliot, Fairweather, Olsen, & Pampaka, 2016) created by the interviewer.
I began the interviews by telling women what the internship project was about and how, with their consent, their interviews and videos would also be utilized for my internship and this thesis. Even if less structured, discovery interviews usually have some structure, because they are interviews carried out for research. I asked the women a few general questions about their app use and then asked them to download the app in front of me and tell me all about the process (see figure 3.). Since the app is a software program, it has a structure of its own that informants followed quite similarly during the download process. The app provided some structure and as informants followed the app's program and talked aloud, their reflections hit my research aims without having to ask too many structured questions. I did ask them to explain themselves if I was unsure what they were talking about at any given moment and

prompted them to talk aloud when they were quietly thinking or going through the motions of the app. I did ask questions as we went along with the Safety Solution's interests in mind. Many informants talked about the same issues concerning the same functions and also talked about anything they were thinking during their app journey. This provided a myriad of nuances and details, some similar, some different, on their everyday smartphone practices, habits, and security experiences. The only informant who had already downloaded the app before the discovery interviews was Olivia, so our interview was more open-ended and we discussed how she felt about the app and how she was using it in her everyday life.

These discovery interviews were also guided by the go-along research method. The go-along method is usually used by walking and talking along an informant to investigate filters of perception and spatial experience by letting the informants talk about what comes to mind during a journey from A to B. However instead of walking, my informants and I were sitting next to each other (physically or virtually) during their app 'journey' and I was able to go along with them on it. This go-along method is advantageous in that it enables informants to talk aloud about what they are doing and experiencing, vocalizing their "stream of perceptions, emotions and interpretations" that are otherwise kept inside or forgotten (Kusenbach, 2003, p 464). I wanted to illuminate this knowledge that would otherwise be lost as one usually keeps the tacit and internal knowledge they know during the downloading process of new apps to themselves.

As I sat along with these women during their app download I was also shadowing them, or keeping close, and observing what they were doing (see Figure 3.). By being near, patient, and interested when shadowing informants, they were able to explain to me what they were doing, show me what they meant by showing me the app on their phone, and I could see them do things that they didn't verbalize. Like the go-along, I used the "shadowing technique" as a way to increase the possibility of verbal reflections informants would share with me (Czarniawska-Joerges, 2007, p.28) about their usual thoughts and be able to watch them do an app download in an ordinary setting.

After the discovery interviews, two informants told me they would not use the app further and the remaining six said they thought they would use it. I asked those interested to try it out for a two-week period as they normally would. Afterwards, I contacted them again for a follow-up interview. These six interviews were open-ended, when I started with a simple question, "Tell me all about your use with the app." It was in the follow-up interviews where I found that besides the other two, these six women found little use for the app, despite initial interest. The open-ended style interview allowed them to talk longer on the issues that

were most troubling for them where a more structured style interview may have missed the issues that were most important to my informants.

Personal Observations

To complement my interviews, I felt the need to make some personal observations of young adult women who were alone in public space. Since the app was to be used while women were alone and mobile in public space, there was no way for me to accompany my informants and document when, where, and how they used *SecurityApp* to increase their sense of security nor how it fit into their habits. I would have certainly changed the context of use if I was accompanying them. During my own nightly outings in public space, in both Lund and Malmö, I made observations and field notes of young adult women who were also alone and out and about. I utilized the field-note style suggested by cultural anthropologist James Spradley and made descriptive observations (Spradley, 1980, p. 81). Most of my observations were made at public bus stops, train stations, while walking in route from point A to point B, in the city centers, and while hanging out on squares watching passersby. I took note of the context and what women were doing while alone and mobile in public space. These observations and field notes helped me make more sense of the setting and experience informants talked about in our interviews which guided my interpretations.

4.3 Limitations

In this section I address the limitations of this study that should be kept in mind in order to realize what this cultural analysis accounts for and does not account for. First, this study was conducted with eight young adult women between the ages of 18-30 living in Sweden. Thus, it is an exploratory cultural analysis to serve as a starting point for future research attempts, and is in no way generalizing young adult women's behavior or experiences. Younger and older women are not accounted for, which may have provided different and interesting insights. The informants were either employed or a university student. Some were single, others had boyfriends, and one had a husband. Some were living alone, with a roommate, with a boyfriend, or a husband. Informants did not have children. Also, my informants were physically white and seemingly heterosexual. My informants were living in Sweden, though some were not raised in Sweden, but living here for work or study or love for at least two years previous to our interviews. Informants came from the countries of Italy, Iceland, Sweden, and the United States of America and grew up in a Western cultural

context. This study is thereby limited to women in this age group and cultural context as well as limited in that it cannot make any sort of general assumptions on women according to age, race, country, education, income, sexual orientation, relationship status, or residential status. My informants had also never been physically violated or assaulted while alone and mobile in public space. This tragedy would have surely influenced their discussions on personal security apps and it may be beneficial to study women who have experienced this tragedy and how they use personal security apps.

Another limitation is the context in which the research design was developed and the time-span of my research study. I had many applied points of interest in mind when conducting the interviews so the interviews were not solely focused on women's existing habits and experience in relation to the personal security application. I also had time (a three month temporary internship) and resource restraints as a student and did not have the time to recruit more informants or finances to travel very far to meet them (for example, Olivia in Norköpping). A study that focused mainly on how the app fit into or not existing habits could have used other research methods to gain a more thorough understanding. I believe an app tracker could have complemented my research methods, and could have helped spark discussions during the follow-up interviews. Due to a lack of resources, I did not have this option. Even though I had an applied aim, my research methods allowed me to create ethnographic field material that was plentiful, rich, and gave plenty of details and nuances to support this academic cultural analysis.

It should also be noted that my research study was focused on *one* personal security application. There are *at least* 25 other personal security apps available on the Android marketplace and many more in the Apple App Store. This study accounts for only one, and the use, feelings, and practices could be different if another app was in focus. Many of these personal security apps have common functionalities and proposed use-case scenarios, but that does not mean they are all the same and thus this analysis does not mean to generalize all personal security apps and instead only accounts for *SecurityApp.* I chose to focus on how habits may have influenced women's refusal, because I felt they were important to my informants, but their refusal could have come from other reasons as well. It should be kept in mind that there could be a variety of other explanations for women's refusal of SecurityApp.

One last thing to note is the limitations brought on through language. My native language is Californian English and all but one informant's native language of English were different than my own. To most, English was their second-language and although they could express themselves quite articulately, there were moments when they were at a loss for words

or thought it would be easier to explain in their native language. Nevertheless, they thought they got their point across and consented to my use of their interviews for industry-related and academic research. This language barrier should be kept in mind when reading informant quotes. Also, the language of the application, was in Swedish, and may have been a barrier towards use. The informants in this study demonstrated to me that they knew how to use the app and could say and understand the Swedish words the app was using, so the language may not have been detrimental to use anyhow.

4.4 Ethics

In this last section, I address my research bias and the ethical considerations taken into account. I was not only the researcher, with my own limitations and cultural baggage stepping into my research project, but I myself was part of the app's target group. Being a young adult smartphone-owning woman certainly impacted the relationship between me and my informants and what kind of material I created. Our shared gender probably impacted the kind of discussions we had and questions I asked and thus what kind of material was created. The material was not gathered, but produced and filtered by me the researcher (Sunderland & Denny, 2007, p. 51). A male researcher or an older researcher without smartphone knowledge may have created different and interesting material and analyses and have engaged with informants in a different way spurring different reflections.

Also to point out, since I did not have an Android smartphone at the time of the internship I was given one by Safety Solutions in order to test out and possibly use the application for personal use. After testing the app out, before my interviews, I have to admit that I was not interested in using *SecurityApp* for personal use. I tried not to have my own opinions and refusal of the app interfere with other's women's experiences. Though we had discussions about the app, we created them together in an act of mutual discovery. To lessen my personal bias, I understood and kept in mind that all women are different (Johnson & Repta, 2012) and that other women may find use for the app in their everyday life. Without assuming this was going to happen, in the end, my informants and I did share in the refusal of the app after all.

From an ethical standpoint, I in no way wanted to exploit my informants cultural knowledge for financial gain which is why I told them about the internship project and the company I worked for beforehand and asked for their consent to develop applicable insights and this thesis based on their interviews. Also in accordance with The American

Anthropological Association's Code of Ethics section III.A.2, I did not want to cause unanticipated harm to Safety Solutions through publishing this thesis ("Code of Ethics of the American Anthropological Association," 2009). After finding out that the app had not been available on the marketplace for at least three years, that the last comment on the app's Facebook page was posted in 2013, and that the app's website was no longer in service, I felt it a responsible time to publish. Although maintaining a consideration for ethics has been present and at the forefront of my mind, this was not the only reason this thesis has been postponed until now. Quite honestly, numerous life experiences have also played a significant part in that.

Moving forward, my informant's names, the company's name, and the app's name have all been changed to secure their privacy and anonymity. Informant's faces have been blurred in photos to limit recognition as well as *SecurityApp's* real name, logo, and the brand of the Android phone model. I have also changed most all of *SecurityApp's* unique terminology (For example, "Companions" instead of "*SecurityApp's* term").

The following section discusses the cultural analytical framework chosen to investigate and analyze my field material to achieve my research aims. This last section also serves to formulate the conceptual tools I will put to use in the *Cultural Analysis* chapter.

4.5 Cultural Analytical Framework

The main research finding from my internship study was that women ordinarily engaged in phone call security habits in times of insecurity while alone and mobile in public space. I employed the flexible, multi-conceptual, cultural analytical approach to investigate women's refusal of the *SecurityApp* as I believed it was promising to help interpret my research findings and to fulfill my research aims.

Ethnology & Everyday Life

The first conceptual lens and approach I took to investigate women's phone call security habits was turning to ethnological studies, as the focus in this discipline, is the everyday cultural life of ordinary people and their everyday habits. Everyday life is compromised of the routine thoughts, habits, and use of material artifacts individuals carry out in a socio-cultural context. Ethnologists, especially from Scandinavian origins, have focused on everyday life as a primary unit of social and cultural analysis. Damsholt and Petersen (2014) explain ethnologists as,

> …interpreters of habits and everyday life, explaining how seemingly irrational practices of everyday life more often than not have their own logics. This could explain why well-meaning reformers (designers) are met with resistance from citizens and their everyday lives and why new social or material innovations (apps) often do not succeed. (Author's parentheses, Damsholt & Petersen, 2014, p. 7)

I will also investigate and interpret how informant's seemingly trivial habits of making an ordinary phone call seemed to attribute for their refusal of an innovative personal security application. Many ethnological studies focus on habits, such as those published in the anthology, *Force of habit: Exploring everyday culture* (1996). Here, Ethnologists analyze cultural continuity and change by studying humans as cultural beings who engage in shared everyday habits.

I employ Frykman & Löfgren (1996) perspectives on habits when analyzing my field data. They suggest that habits are 'cultural patterns on an immediate, bodily level' (Frykman & Löfgren, 1996, p.10). Habits are acquired in one's socio-cultural environment as 'ready-made solutions' that are exercized with little thought and utilized to carry out tasks (Frykman & Löfgren, 1996, p. 9). Habits also organize life as a way to save energy from a myriad of other choices, and are developed to gain some sort of control over the present and the future. Habits, because they are repeated on an everyday basis by individuals, are the *elementary units* that lead to cultural change or continuity (Frykman & Löfgren, 1996, p. 13). The repetitive practice of habits in everyday life are stabilizing cultural meanings and expectations. Habits are flexible, adaptable, and can be changed, because they must be practiced, but often it is difficult to bring up habits as *cultural stuff* (Wilk, 2009) and to change them because they are so mundane and not reflected upon routinely. They have the ability to sink into the backdrop of everyday life where doing them feels natural or second-nature, until that is, they are provoked by something new and their cultural significance is revealed.

Frykman & Löfgren (1996) explain how cultural norms are grounded in the body through 'the force of habit' and how unless brought up under analysis, or challenged in situ, they can usually go unnoticed;

> Every time you refrain from putting a knife into your mouth, you confirm with the *force of habit* that you are living in a culture in which personal violence, the use of edged weapons is tabooed. Behind the seemingly insignificant rules there is a gradually developed system of control mechanisms. Violence, immediacy, and

> sensuality are surrounded by protective walls. (Author's italics, Frykman & Löfgren, 1996, p.12)

I intend to analyze and interpret my informant's phone call habits by utilizing a strategy suggested by cultural analysts Billy Ehn, Orvar Löfgren, and Richard Wilk which focuses on cultural 'breakpoints' (Ehn, Löfgren, & Wilk, 2015, p.22). Resistance to the app (the breakpoint) came up when informant's existing habits (the force of habit) were challenged by the app's way of managing personal safety and security. From this perspective, the force of habit in everyday life structures and disciplines how individuals live their life as well as shaping their expectations, experiences, and appropriation and use or refusal of new media, such as apps. Löfgren (2014) explains this further,

> Everyday life can be seen as a machinery that drastically changes the forms, functions and futures of, for example, new media. It chews and devours new technologies and *some of them are spit out rapidly because they cannot be integrated into everyday practices and needs.* Others are digested, tested, adapted, and changed. Many of these processes are hard to notice, difficult to verbalize and operate like slow accumulations of change. (Author's italics, Löfgren, 2014, p.81)

Everyday habits of making an ordinary telecommunications-based phone call are not only mundane and blindingly obvious (Miller, 2012) – but learned, encultured, acquired, and exercised in everyday life – influencing the value, expectations, and use of new innovative products. They are also emotionally and physically experienced in a certain time and place. The phone call habit was talked about by my informants in a sensual way especially in regards to their sense of hearing. I turned to insights from sensual anthropology to gain perspective into how I could explore the sensual aspects of the phone call habit and expose their cultural meanings.

Sensual Anthropology

In Western thought there is a predominate favoring of the sense of sight to investigate and explain human life often referred to as Western Occularcentrism (Ede, 2009, p. 61). However, the field of anthropology has taken a 'sensual turn' realizing the need to focus on more than just what meets the eye and to investigate and reveal the significance of all the bodily modes of knowing (Howes, 1991, p.3 as cited in Hemer & Dundon, 2016, p. 110). This has developed sub-disciplines such as auditory culture studies and sound studies and has

influenced the rise of many cultural investigations into the sense of hearing such as those found in Raymond Schaffer's book, *Our Sonic Environment and the Soundscape, the Turning of the World* (1993), Michael Bull and Les Back's book, *The Auditory Cultures Reader* (2003), and Jonathan Sterne's book, *The Sound Studies Reader* (2012). Brought forward by these investigations, is how sound and hearing are integral to the everyday human experience, are cultural, and could therefore be influencing how humans go about organizing their everyday life. By investigating the aural and acoustic dimensions of women's phone call habits I aim to bring forth an understanding on how their sensual experience may be influencing and organizing the significance, or lack thereof, of *SecurityApp's* way of doing safety and security in their everyday lives.

Another important aspect of the phone call habit voiced by my informants was related to the presentation of themselves in front of others while in public space. This led me to employ social interactionist Erving Goffman's ideas of social behavior in everyday life to imbue this aspect with more social and cultural meaning.

Social Interactionism

Goffman (1959) lends us the idea that public space is a social space and also a stage where identities are constructed and played out by social actors or everyday people. Public space is social space, full of social interactions and socially acceptable conduct— rules and behavior— to preserve public order. As a member of society, an actor learns how to navigate oneself and manage one's identity and integrity in a social space full of strangers by knowing the cultural and social rules, positions, etiquette, and cues necessary to get by without facing too many unwanted or challenging social encounters.

He suggested that social actors present themselves in certain ways to others and engage in impression management (Goffman, 1963, p. 34). Social actors occasionally employ "sign-equipment" (for instance, a smartphone) in the performance and presentation of self to others in order to establish a certain presence they hope to be interpreted and respected by nearby others according to shared social and cultural norms (Goffman, 1959, p. 36). The aim for social actors in social public space is to achieve harmonious social interaction with others while maintaining a sense of integrity (Goffman, 1959). Though Goffman's studies were not carried out during the mobile phone era a tele-dense public space, I still find his perspective and concepts useful in analyzing my informant's behavior and phone call habits in public space.

An ethnological perspective, a sensual anthropological perspective, and a social interactionist perspective helped me investigate and give meaning to women's everyday phone call habits. To demonstrate the current status of *SecurityApp* and expose a cultural continuity in women's technology use for safety and security I found it useful to employ a socio-paleontological perspective and its concepts.

Socio-paleontology

The journal *Ethnologia Europaea*, came out with an issue called "Off the Edge: Experiments in Cultural Analysis" that included the chapter "Fossilization" by Elizabeth Shove and Mika Pantzar. They suggested that the application of paleontological metaphors to the study of everyday life could serve as useful tools to describe and document current cultural and social change. Their idea is that "artifacts, ideas, and forms of competence only have meaning and effect (they only live) when integrated into practice… When that stops, fossilization sets in" (Shove & Pantzar, 2006, p. 59). Their definition of fossilization is, "a process of breaking existing combinations of existing elements" and their definition of a social fossil is, "materials, ideas or skills that once formed part of an integrated social practice but that have become separated or stranded" (Shove & Pantzar, 2006, p. 59). They root their metaphor and concepts in practice-oriented theories influenced by Anthony Giddens, Theodore Schatzki, Michel de Certeau and Alan Warde. As mobile phone researcher Sherry Turkle and others have suggested, artifacts, like apps, need a 'human layer' to work (2004, as cited in Barkhuus & Polichar, 2011, p. 637) or in Shove and Pantzar's words, *to live*.

For new innovative products to succeed, they need to be practiced by practitioners in everyday life. This usually involves a consumer/user of a new product (like an app) to break with existing ties to older practices, know-how, and habits and form new ones. They also suggested that there is a probable need to understand how to dismantle old ways of doing before creating products supporting new ideas and forms of competence (Shove & Pantzar, 2006, p. 62). I utilize their concepts to explain how the app seemed to be fossilized by women, how women's habits led to a cultural continuity in how they manage their sense of security in their everyday lives, and how the app, because of this, turned into a social fossil and made little cultural change. (see *Cultural Analysis* chapter, section *Social Fossil*).

I now move into culturally analyzing the informants shared phone call security habit. This chapter is organized into five sections, beginning with, *Socio-cultural Norm,* followed by, *Force of Habit and Breakpoints, Sonic Experience, Impression Management,* and ending with *Social Fossil*.

5. Cultural Analysis

5.1 Socio-cultural Norm

During our interviews, all of my informants told me that when feeling insecure, but not insecure enough to call the emergency authorities, one of the first things they do is to make a basic telecommunications smart-phone call to a close personal contact. With little hesitation, this was a security habit or ‘ready-made solution’ they enacted during times of insecurity. Insecurity moments were often felt when informants felt they were being perceived by others as alone. By being seen alone and disconnected from others they felt they were seen as vulnerable and this might, or might not, open the possibility for a random act of violence from a stranger in public space. While being alone in public space did not always trigger feelings of insecurity, in certain situations, it did. At first, I did not know how important this seemingly trivial habit of their everyday life would be until it was challenged by the app and when breakpoints revealed its significance. Before heading into the breakpoints I think it is important to give a brief socio-cultural context underlying and giving meaning to my informant’s habits of making a phone call. It is a personal habit yet it is also an elementary unit of culture, re-producing social norms and taboos around safety and security.

Telecommunications in the form of a phone call, has been the institutionalized means to safety and security for individuals living in Western societies, like my informants, for over five decades. Making a telecommunications-based phone call, despite all other communication mediums available today (like telecommunication-based text messages, internet-enabled calls, or internet-enabled chat), is the means to increase one’s sense of security and is the socially accepted practice and norm. The emergency telephone number was implemented in Sweden in the mid-1950s and about seventy years later, Sweden as well as other countries, are still utilizing the emergency phone number with hardly any change today (“SOS historia,” n.d.). The social authorities developed the emergency phone number, an SOS Alarm, in order to be able to quickly respond to emergencies and dispatch help across the land, in hopes to, and in many cases, save lives. Those in remote areas or in dense urban contexts could call for help from others and prevent damage done to themselves or those nearby.

The emergency phone number in Sweden went from being the longer five digit number, 90 000 (an easy number to dial on a rotary phone), to the shorter, more practical (for

newer landline, mobile, and smart-phone touchscreen models) and more universal (in Europe) three digit number, 112. According to Sweden’s official emergency services website in year 2019, “The emergency number 112 is used in emergencies when there is a danger to life, property or the environment.” ("SOS alarm in English," n.d.). Along with that number, other official phone numbers to specific social authorities were developed to help people communicate to others while experiencing insecure situations. These hotlines, or open communication services, cater to those who are in need to talk to someone for help including those experiencing such issues as depression and suicidal thoughts, LBTGQ issues, or domestic abuse and violence. In Sweden, there is the “Kvinnofridslinjen” or “Women’s Peace Line”— a phone number and service for women to call and talk to someone if experiencing and needing support from violence or threats ("Kvinnofridslinjen: Sweden's national women's helpline," 2016).

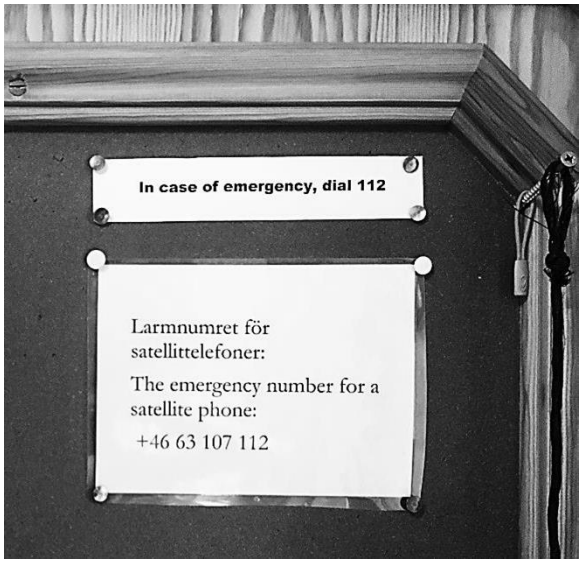

Figure 4. A community bulletin board in the Kvikkjokk mountain cabin. An example of how 112, the phone call, and telecommunications are the institutionalized way to deal with emergency situations in everyday life. (August 25, 2019, Kvikkjokk, Sweden, Ehde, Y.T.)

The institutionalization of the emergency phone number (see example above in Figure 4.) and other social services as the means for all citizens to get help via the phone call has kept the traditional landline network alive and well for those who do not have access to, or who are not using, a wireless internet network via a mobile or smartphone an unable to make internet-enabled calls. The telecommunications network in most Western countries is a wide-

spread network that provides reliable reception service via stations, towers, and copper or fiber optic cable. The telecommunications system is linked to a variety of networks including the landline, 2G, 3G, and 4G and will be to upcoming future networks as well. A phone call is established by the Public Switched Telephone Network (PSTN) between two people with phone numbers, despite what network their phone runs on ("PSTN proves old school tech still has its place," 2018). According to a 2011 report made by The Swedish Post and Telecom Agency, ninety-seven percent of the Swedish population owns a mobile phone and ninety-six percent use their mobile phones for private use (Falck, 2011). An early study on mobile phones suggested that the initial motivation to own a basic mobile phone for many people in at least the United States was for issues related to safety and security while outside the home (Katz, 1997). My informants also brought their phone with them more or less anytime they went into public space, and since they rely on the phone call for safety and security, I assume that this is one reason they bring their smartphones with them. Thus, telecommunications and the mobile phone (including the smartphone) seem to be the means to safety and security.

The state and other social services rely on *acoustic information* rather than textual information when handling citizen issues relating to insecurity, safety, and security. I briefly go over one explanation to keep in mind for why the phone call medium may be chosen over text-based or internet-dependent text-chat mediums. Boden & Moltoch (1994) suggest that communication medium choices are made in relation to what can be communicated during face-to-face conversations where the most information can be communicated between two people. Certain situations require person-to-person (co-present) communication (including both verbal and non-verbal communication) and cannot be worked out via technologically mediated communication, like calling, texting, e-mailing, or textual chatting. Insecure, uncertain, troubling, sensitive or complex situations may provoke the need to choose communication mediums that approximate co-present communication (Boden & Moltoch, 1994). If a person cannot accomplish co-presence then they try to approximate it the best they can. It seems that during moments of insecurity approximating co-present communication by enacting in a phone call conversation has been institutionalized into the chosen alternative.

As Sawhney and Gomez (2002) study suggested mobile phone owners like to have a phone call with personal contacts because it gives them the ability to articulate personal emotions (Sawhney and Gomez, 2000, as cited in Chen & Katz, 2009, p. 181). The phone call is able to relay acoustic information and thus relay informal go-with-the-flow speech, practical information, as well as 'thick information' (Boden & Moltoch, 1994, p. 259) including one's breath, emotional outbursts, and environmental sounds surrounding the

person on the phone. It seems the sound of human voice is full of information to be read through pitch, inflection, volume, quality, rate, and enunciation (Lu & Wang, 2003, p. 75). In times of insecurity, the phone call is utilized to send and receive acoustic and thick information in order to ask for help and receive help. The human voice seems an important factor in legitimizing the emergency and insecure emotions from the caller and in garnering support and compassion from the receiver during insecure times.

Informants have come to learn to trust and make a telecommunications-based phone call and engage in vocal communication in times of insecurity, have come to learn that telecommunications is the most universal communications network, and that the phone, either a basic mobile phone, smartphone, or landline phone, is probably the fastest way to reach a personal contact long-distantly to engage in a vocal conversation. Thus, bringing a mobile phone (basic or smart) and utilizing the phone call as a medium for talking through situations is the social norm towards dealing with insecure situations while alone in public spaces. Informants grew up learning and continue to bring their smartphones for safety and security knowing help is just— a telecommunications-based phone call away. With all this in mind, I now turn to the force of habit.

5.2 Force of Habit & Breakpoints

> …but yea everyone I talked to would agree it’s a really good idea, so I couldn’t figure out why I didn’t use it. *I am super confused by this*. My friend downloaded it, but she hasn’t used it as far as I know, but I talked to her and she thinks it’s a really good idea to use when I go home, but she hasn’t used it either. Hellevi (October 21, 2011)

I will investigate Hellevi's confusing conundrum, shared by other informants as well, a bit further. This section identifies four breakpoints that exposed the significance and influence of informant’s everyday phone call habit as a force of habit which may have led to the app’s insignificance in my informant’s everyday lives and led to a cultural continuity of technological use, or making a phone call, for safety and security. The following will interpret how the force of habit broke the app’s ability to be meaningful in women’s everyday lives.

Phone Call vs. Alarm Button

The first breakpoint that occurred was when informant's first made a phone call rather than using the app's Alarm button to send an Alarm text message in times of insecurity. The Alarm button was competing with informant's everyday security habit, and instinct, of making a phone call. Ella said she wouldn't press the Alarm button but instead rely on her phone call,

> Yea I don't know if it's so why would you press a button instead of calling somebody I mean my first instinct if I was in any danger aa or any potentially dangerous situation I would take my phone and call anybody. Ella (October 11, 2011)

Since the phone call is such a habitual practice, informants forgot to start the application, and instead went on their journeys in public space without the app, knowing they already had a way of dealing with safety and security issues. Like Ember said in our follow-up interview, "I should have used it last week, but instead I called someone." The phone call as a means to safety and security was so embedded in their everyday life that changing this habit to instead start the app before a journey and then press the Alarm button first in times of insecurity was difficult to remember to do. By just bringing their smartphones with them they could engage in their ordinary habits in times of need without thinking about their safety and security, or starting the app, before they left their homes.

The second breakpoint, in relation to the last, was that if my informants did need physical assistance during an insecure time they would need to make a phone call and relay acoustic information to a personal contact. The Alarm text message and textual information was not trusted by my informants nor their personal contacts as evidence to take action. The Alarm text message was not enough to garner support or physical assistance from a personal contact. It seemed that a phone call was a prerequisite that needed to happen before any other action would take place. As stated earlier, relaying acoustic information during insecure times via a phone call has become the socially acceptable means to safety and security, and how to deal with insecure moments. It also approximates co-present communication better and quicker than textual information. This type of acoustic information seems necessary to garner support and help spark empathy and compassion in the receiver to encourage them to react and take action. There is a credibility and trust placed in the sound of a human voice. In

the case of safety and security— *hearing,* not reading, is believing. Seeing and reading a help text message was not as informative or trusted as hearing a personal contact in need.

The Alarm text message asks for help and gives the personal contact the GPS location of the user. The GPS location is given so personal contacts can go to the location of the user. My informants are used to talking out insecure situations via a phone call, so sending or receiving an emergency text message felt strange. Ella and Alicia brought this up:

> Author: (Listening to Ella reflect on the application.)
> Ella: I was thinking if it was useful for mothers and children and parents. Well I don't know I don't have any children but maybe, I'm thinking if it would make me feel safer my child my son or child no matter what, alone with this, hmm… *I would probably have a heart attack if my son said come or a message like that,* well kind of, I am not sure that I would use it, I mean I'm not sure if it would make me feel so much safer, you still have to have the chance to use it, unlock it, you can probably do that, but *I would probably prefer a phone call rather than an SMS* if he could call me that would be better. (October 11, 2011)

> Author: Would your family like you to use this app with you, would they like it?
> Alicia: I don't know, because they live an eight hour flight away. 'Alicia's in this place', it would be really strange, if I was in the same country… but I'd have to be contacting them, *I'd have to tell them* I am walking through unsafe part, or *it would really freak someone out to get a text message* oh 'Alicia feels unsafe and she's here'… and then, do what? Call the police and worry? It would have to be a person closer to me, someone close enough to come get me, for them, or something. (October 6, 2011)

Informants used the expressions 'heart attack' and 'freaked out' to explain how they would feel receiving an emergency text message or how their personal contacts would probably feel. Both of these expressions imply that sending text messages for emergencies are rare and would provoke strange feelings in the receiver. Again, a text message for safety and security issues seems not to be the normal or preferred way of expressing insecurity and recruiting others. Emergency text messages are literal information and do not include enough nuances into the user's well-being and situation.

On another note, my informants rarely needed their personal contacts to come to their location and more than not, they just needed to talk to a personal contact and have a personal contact with them during their insecurity experience. Since my informants are so used to talking to a personal contact in times of need, they expected a phone call back after sending

out the Alarm text message, not a text message back nor that a personal contact would come to their location without calling first. Ember stressed this twice during our interviews, as did Hedwig, Majvi, and Olivia:

> Author: Could you explain how the app works in your own words?
> Ember: It's an app when if you are walking alone or somewhere that you don't feel completely safe, then you choose a couple of friends that you feel comfortable with, that you know will answer you when they get a text, and whenever they get this kind of text, they have to react or call. *If they get the Alarm text it's better to call.* (October 12, 2011)

> Author: (Watching Ember watching an app tutorial video embedded in the app as she waits for responses to her Alarm message)
> Ember: (she's watching the video and gets interrupted by a phone call. She takes the call and then summarizes to me what her personal contact had said.) She said, Are you all right? And was thinking, what the hell is she going on about? She asked, Should I come get you? This is exactly what I wanted to happen. *When I feel insecure or unsafe I choose Companions to call me.* (October 12, 2011)

> Author: How does the Alarm button work?
> Hedwig: When I'm in a situation or something, It's (Alarm) going to inform the one I have chose here to know what's happening, and if they're so close they can help me, *or call me* so they can hear if I am alright, or how the situation is. (October 20, 2011)

> Author: Why do you like the app?
> Majvi: I don't like to walk alone at night. *I'm usually call my friends* but this is easier, so I just walk and press a button and then you *have your friends on the phone* if you need them. (October 25th, 2011)

> Author: Can you call someone from this application?
> Olivia: I don't know, I haven't tried it so much. Like I said, I don't know it would make since that you could call them too, but a text message is easy and fast and then *they call YOU!* (Laughs afterwards.) (October 26, 2011)

Ember, like the other informants, thought that the Alarm text message would instigate a phone call from personal contacts over any other action. My informants also did not expect that their personal contacts would respond to their Alarm text message by either tapping the embedded map hyperlink or sending them back a text message:

> Author: How do you think your personal contacts will respond to the Alarm text?
> Olivia: If they (personal contacts) get a response something is happening I think they will *call me first.*
> Author: Will they tap the hyperlink embedded in the Alert text first?
> Olivia: *They would first call me* then look it up on the net. (October 5, 2011)

> Author: (Observing and listening to Majvi while she talks aloud during the download.)
> Majvi: It says, Alarm all the companions. (Majvi pushes the Alarm button)
> Author: Are any of the Companion icons lit up?
> Majvi: No. (Thinks and talks aloud) Robin click the link, why, oh he's doing something else. I put Ember (another informant in this study) as well, the rest don't know. Pull up for SOS alarm, that's very good.
> Author: Do you think 3 steps is okay to access the SOS alarm?
> Majvi: Yea, okay. Now it's a companion light, it's my boyfriend's sisters. Both of they pressed yes.
> Author: How do you think they will react?
> Majvi: I don't think they will be scared, *but I do think they will call me.*
> (October 25th, 2011)

Olivia and Majvi expected that their personal contacts would call them back after receiving an Alarm text message. Majvi did not think that her personal contacts would feel scared receiving the text message as they knew she was testing out the app inside of her home. What is important here is that she thought they would call her back upon receiving the Alarm text.

Many of their chosen Companions called them back after receiving an Alarm text message during our interviews. For instance, Ember's friend and brother, and Alicia's friend all called them back after receiving the Alarm text message. Rather than texting back or coming to their location, they called back to ask, validate, and confirm if everything was alright by hearing acoustic information. The following demonstrates how Hedwig's brother called her back and how Ella said if she received the Alarm text message from a friend then she would call the user of the app back:

> Author: (Watching and listening Hedwig *take a phone call from her brother* during the interview. She hangs up and turns to me.)
> Hedwig: He was like W.T.F. (what the fuck). Which is quite good, it sends out a good message. (October 20, 2011)

> Ella: Actually, it doesn't give the exact address. I would like, 700 meters is not so few, what if he was going to look for me, I don't know if it's possible, *if I received something like this I would call first* if she, he, didn't answer I would go, but yea, but it's not really precise (the GPS location). (October 11, 2011)

The phone call seems to be a social and cultural practice of safety and security shared by my informants and their personal contacts. In times of need, they utilized the phone to engage in vocal conversation. The Alarm text message was interpreted *as a means* to an ordinary phone call. Since informants and their personal contacts already make a phone call for safety and security issues, the Alarm text message was not a necessary step to take to instigate a phone call. It became an unnecessary burden, and took longer to achieve than their ordinary phone call habit.

Also, in order to use the Alarm button they had to set-up the app before their journey and remember to finish it when they got home, all the while running the GPS function. My informants did not run the GPS function for long periods of time due to GPS running down smartphone battery life. Unlike Suominen et al.'s (2014) conclusions, my informants had very strong views on and knowledge about GPS. Most had the GPS function turned off, and they told me the reason for this was to maintain battery life. Since the phone call habit is a primary means to safety and security they managed their smartphone's battery life to make sure they had enough battery to make a phone call in times of emergency or insecurity. This meant managing and prioritizing their use of other apps on their smartphone. They deleted apps that drained battery life, and used apps that did, like GPS-enabled maps or the app RunKeeper, sparingly. Thus, any app that would run down battery life quickly was deemed insignificant and refused, like *SecurityApp*, which was GPS-dependent to work properly and thus a battery hog.

Phone Call Ringtone vs. Alarm Text Alert

The third breakpoint surrounded the Alarm text message, being as it is, a text message rather than a phone call. Since the phone call is associated with safety and security and a sense of urgency, the phone call's ringtone is an important element in gaining the attention of others for safety and security. Informants trusted that their personal contacts would hear and respond to a ringtone of a phone call much faster than they would a text message alert. The phone call ringtone seemed to be interpreted as more serious and urgent than a text message alert. Informants, like Sigrid, brought up that text messages can be ignored and looked at

later. Sigrid and Ember brought up how text messages can be and were ignored and Hedwig brought up concerns with the text message's alert to get the attention of a personal contact:

> Author: (Listening to Sigrid talk aloud about her smartphone use)
> Sigrid: If someone calls I can choose not to answer it, especially if it's a private number, no. *If I get a text message or email I can always do it later. (October 13, 2011)*

> Author: That's strange that nobody responded to you…
> Ember: Yea, because they knew I was using it.
> Author: Did you ask them why they didn't respond?
> Ember: Yea. I was busy, or I didn't know if you were serious. Because they got a normal sign for a normal text message, they didn't understand it was something special. Ignore their text. (…) I think you need to tell people you are using it, and tell them what it is.
> Author: Do you have to call them and explain?
> Ember: yea, because people get so many messages. (October 27, 2011)

> Author: (listening to Hedwig's reflections on the Alarm message)
> Hedwig: …maybe the ones in the club maybe they don't feel it when they have the text message, maybe they won't notice. (October 20, 2011)

Majvi did not seem to worry about the text alerts as much as others, equating their presence equally to phone calls;

> Author: Who did you choose as your companions?
> Majvi: They are the ones that respond the fastest. One companion is always up at night, and one is very easy to wake up, and then I know *she wakes up by the vibration* of the telephone, if something happened I can call her or send her a text. (October 25th, 2011)

Some felt uneasy about sending a text message during insecure times, because text notifications can be interpreted as spam, ignored, or simply unheard. Majvi, however, felt texts would elicit the same response as the phone call because she knew her personal contact had a vibration option set to both call and text notifications and would feel both equally. However not all informants knew their personal contact's text settings and assumed they were short default text alerts. In contrast to a text message alert, a ringtone is usually louder, ongoing, and more melodic and can even vibrate too. Most informants trusted the ringing

signal of a telecommunications phone call to catch the attention of their personal contact over a text alert because the ringtone signal is more boisterous and closely associated with safety, security, and a sense of urgency and seriousness from the caller. The phone call ringtone, like a fire alarm, is the designated sound to prompt safety and security measures, while other forms of communication alerts, from text messages or internet-dependent chat, seem not to be.

Phone Call vs. Companion Icon

The fourth and last breakpoint I discuss came when the ability to make an ordinary phone call was challenged by being able to make a phone call from the Companion icon in times of insecurity. The app allowed users to tap a Companion icon to make an ordinary telecommunications-based phone call. However, none of my informants called a personal contact through the app during their use of the app but instead called their personal contacts like they usually did. As Alicia, Ella, and Hedwig pointed out:

> I could call whoever that I'm meeting, or leaving from if I feel unsafe. But for an app to do it with me*, it's too much reliance on technology*, to do things for me, *it should be a more personal connection than that.* It seems too much. Alicia (October 6, 2011)

> Author: (Listening to Ella's reflections.)
> Ella: If it's just the comfort of the voice, then I would call the person, or maybe call the person from the app, *but my instinct is to just call.* (October 11, 2011)

> Author: Do you feel that the app would increase your safety and security?
> Hedwig: Well it's kind of a safety to have it, maybe, but I don't know if so many people would use it actually, I don't know if they will take it seriously because it's an app. You know I think well of course its safety, but I think *most people actually call because it goes faster* and you hear the other one is on the line, and you have someone with you then if you use this application. (October 20, 2011)

My informants were able to call a personal contact in mere seconds. Making a phone call was a habitual practice in their daily life and may have been what anthropologist Marcel Mauss (1979) would have called a 'body technique' (Mauss, 1979, as cited in Howes, 1991, p. 182) or a socio-culturally learned way of using the body— like eating, walking, or dancing. Making a phone call the app's way was slower and more cumbersome and not embedded in their bodily and mental know-how or instict of making a phone call. Calling via the ordinary

phone call means was an embodied 'personal' technique that was quicker to perform and possibly affected the Companion icon's significance.

My informants learned as children how to make a phone call in case of an emergency and also made calls for ordinary social communication with friends. My informants have been practicing making phone calls for informal social communication for over the least ten years. All of my informants grew up making calls from a landline telephone in their family's home. They also had owned older mobile phones (prior to their smartphones) where they made calls. They went from learning their friend's phone numbers and manually dialing them in a landline and feature mobile phone keypad to storing the numbers in their smartphone's contact list and tapping the contacts name on the touchscreen to establish connection. Like Sigrid, many informants said that while they still can remember old numbers they could not recall new phone numbers of their personal contacts;

> Sigrid: I know (by memory) the house (phone number) at my parents, and I know their cell phone numbers, and I know my boyfriend's number and mine. I can't even remember my phone number when I had a home number here in Sweden… it's all in my phone. (October 28, 2011).

The smartphone's ability to store a pre-saved contact list has made speed-dial a norm in my informant's everyday lives where they can make a phone call to a personal contact with little effort and great speed. My informant's ability to place a phone call easily and quickly is another aspect underlying their habit. Calling is done almost automatically with little hesitation or thought. Informants made calls on a daily basis and had their own ways of contacting personal contacts in the quickest way. Popular ways of making a call was scrolling through their recent call list, favorites list, or contact's list and tapping the name to place a phone call. For safety and security issues, informants chose telecommunications-based phone calling over internet-dependent phone calling (for example through internet-dependent calling apps such as: Skype, Viber, WhatsApp, Facebook, Snapchat, and Instagram) for all their personal contacts did not have smartphones or had smartphones that were not always connected to the internet. They chose the most universal calling network in times of need to make sure they could connect to a personal contact. Since my informants had Android smartphones we did not discuss other calling features like Apple's smartphone face-time option as a choice in times of need.

Though a minuscule aspect, calling a personal contact from the app, and thus setting-up the app before one's journey, opening the app, and tapping the Companion icon, could have been considered too much effort in relation to what they were used to doing. To call from the app was slower than the ordinary way of making phone calls and took more mental and physical concentration. Informants had to remember first, during times of insecurity, that they could call from the app rather than just calling how they usually did.

The ease and speed of my informant's phone call habit, and their reliance on habit to deal successfully in unforeseen situations, and to feel a sense of control, made the app less useful for them during insecure moments. Since informants had practiced making phone calls on their smartphone so many times via their ordinary means, they came to trust it. Calling from an app was new and did not have the same trust as their ordinary way of making a phone call. They know approximately how long it takes to call a personal contact and what to expect after placing a call the ordinary way. The new way of calling from the app did not have this trust and know-how and informants relied on what they know works during insecure situations to feel a sense of control. This was also the case with calling the emergency authorities through the application's SOS feature. Since it was so rare that they needed to tap 112 into their smartphone to contact the emergency authorities, and since they already knew they number and how to make a phone call quickly, this feature was initially liked, but later deemed unnecessary.

In sum, the phone call security habits are meaningful in my informant's socio-cultural context and a force of habit in their everyday lives. By practicing the phone call habit, informants reinforce notions of safety and security. Insecurity is to be dealt with through telecommunications-based phone calls and vocal conversations. My informant's habits are both structured by and structuring the norms of safety and security on an everyday basis. The habits, or elementary cultural units, are maintained and supporting a cultural continuity in technological use for insecurity issues. This made texting, text message alerts, textual information, waiting, unpredictability, laboring, internet-dependent phone calling, running the GPS function for a long period, and a dead battery— safety and security taboos— where telecommunications-based phone calling, phone call ringtone signal, acoustic information, talking, immediacy, predictability, control, reliability, universality, non-internet dependent communication, GPS used sparingly, speed, ease, and battery life— were the safety and security norms. The innovative *SecurityApp* seemed not able to fit into the norms and habits of safety and security and thus it was refused. I now explore and interpret the possible

significance of women's phone call habits' more sensual dimension starting with a little Greek overture.

5.3 Sonic Experience

The Ancient Greeks termed the word "phone" meaning *voice* (Himonides, 2019, p. 1029) and today, the term "phone" is usually associated with *sound*, as for instance; saxo-phone, xylo-phone, and tele-phone. It seemed that informants not only acted out of a force of habit to make a phone call during times of insecurity, but also enacted the voice, sound, or phone call because it helped them achieve a sensual experience or to achieve the experience of feeling *safe and sound*. My informants talked about making a phone call to engage in long-distant vocal communication during insecure times and many of their expressions related to the sense of hearing and speaking. Keywords such as hear, hearing, listening, and voice were scattered within their statements. Informants were describing themselves in these moments of insecurity not through visual terms, but through auditory ones. Cultural historian Steven Connor (1997) has pointed out that,

> The self defined in terms of hearing rather than sight is a self imagined not as a point, but as a membrane, not as a picture, but as a channel through which voices, noises and music travel. (Connor, 1997, as cited in Damsholt, 2008, p. 62)

The phone call habit was a way for informants to increase their sense of security because it allowed them to change their insecurity experience by hearing technologically-mediated sound from far off personal contacts.

Women's psychological sense of security via the mobile phone was given recognition in Aoki, & Downes (2003) and Cuminskey and Brewster (2012) studies. Cuminksey and Brewster (2012) found in their study that, "the mobile phone was viewed as more than just a deterrent for crime, but as a *source of personal comfort* as well." (Author's italics, Cuminksey & Brewster, 2012, p. 596) They suggested that women may first defend themselves psychologically by calling a personal contact before they defend themselves physically in times of insecurity. Informants in my study also seemed to be calling for personal comfort and I explore the source of it at more depth.

When insecure, informants did not want to *feel* alone, or experience insecurity feelings alone while around unknown others. The phone call helped informants to move from

experiencing a sense of silent and social isolation to that of being in company with a personal contact through technologically-mediated sound. In relation to mobile phone use and social intimacy, sociologist Zygmunt Bauman noted that "silence equals exclusion" (Bauman, 2003, p. 34). Having a personal contact 'with them' during insecure times may have helped lessened my informants experience of social silence (Tacchi, 2002, p. 27) and supported my informant's sense of belonging and togetherness with known personal contacts while alone and around unknown others in public space. As Bull (2004) noted in his study on the portable music device, the Walkman,

> Sound colonizes the listener but is also used to actively recreate and reconfigure the spaces of experience. Through the power of sound the world becomes intimate, known, and possessed. Sound enables users to manage and orchestrate their space of habitation in a manner that conforms to their desires. (Bull, 2004, p. 111)

Even though informants were still alone or physically far off from their personal contacts when experiencing insecurity, they seemed to feel better with a talking and listening companion. They were able to 'reconfigure' their experience in public space by listening and talking to a personal contact via telecommunications. The act of hearing and relaying sounds over the phone call seemed to be a crucial component of the phone call habit's significance during insecure times. What follows explores three possible aural and sonic meanings supporting my informant's phone call habits for security making.

Conversari & Ear-witness

> I mean I am more worried, when I hear a friend walking home by herself, and she is calling because she doesn't want to be by herself, and then I can get worried. Olivia (October 26, 2011)

Olivia gave significance to the app by relating it and exposer to ordinary phone call habit. When Olivia's friend called her, she no longer felt 'by herself', but in a vocal conversation with her friend Olivia. Olivia stayed on the phone with her friend because when she heard that her friend was worried she became worried too. She stayed in a conversation with her friend until she heard that her friend made it home okay. Not only Olivia and her friend do this but many of my informants said they would call a personal contact if feeling insecure

while alone in public space and talk until they felt more secure. The act of long-distance vocal conversing and the transmission of sound allowed my informants, and their personal contacts, to engage in a bond and sense of togetherness. The phone call and vocal conversations have the ability to change how my informants and their personal contacts feel emotionally and physically even while physically separated from each other.

Olivia was able to soothe her friend by sharing her experience with her, give vocal support, and stay with her friend on the line until she felt safe. My informants engaged in the ordinary phone call, rather than a conference type call, where there is only one caller and one receiver on each end of the 'line'. This one-on-one phone call strengthens the bond and responsibility between two people because no one else is included. My informants did not feel more secure that they could notify many Companions with an Alarm text message in times of insecurity. They seemed content and felt more secure with having one companion in one conversation. When a personal contact answers a phone call they make an informal commitment to talk, listen, and keep the person who called in company. To place this in more depth, I bring up the Latin word *conversari,* a word that precedes the word *conversation* and means to 'keep company' with ("Conversation," n.d.).

The smartphone call is supported by a full-duplex sound system where the caller and receiver can send information bi-directionally at the same time ("What is full duplex (FDx)?," n.d.). This supports a 'live' streaming conversation unlike the half duplex system of a two-way radio or text message medium. In most modern countries, and densely populated areas, phone calls are reliable almost all the time and calls are rarely dropped or ended abruptly due to network issues. Thus, the phone call or commitment goes on for as long as the conversation does and is actively broken by both parties when they hang up. While in the locked phone and vocal conversation, the two are *in the company* of each other, committed to each other, and acoustically experiencing a situation together, seemingly, at the same time. As Olivia said at another time point,

> Author: Do you think there is a social need for this app?
> Olivia: I think it's a need, I think its ya know, you heard people calling to each other when they are walking home, or it happens to me, my friend walked home late after the club and we said we will talk each other until we are home, so I knew she was okay and she knew I was okay, and it only took 5 minutes to walk home. (October 5, 2011)

Informants, like Olivia, brought up that they felt more secure knowing that through the phone call their personal contact could hear what was going on during an insecure time, moment by moment. Since the phone call supports an open continuous stream of sound transmission, and since the microphone picks up on not just the callers or receiver's voice, but the sounds that are heard around them, the ability for a personal contact to be an ear-witness during times of insecurity is supported. An informant from Aoki & Downes (2003) study on young adult women's mobile phone use mentioned this aspect as did Hedwig two times during our interviews:

> I've done the same thing, like if I'm in a scary place I'll talk to people (on the phone) . . . I feel better knowing that someone is there listening to what's going on. (Aoki & Downes, 2003, p. 354)

> Author: What do you usually do while walking home alone at night?
> Hedwig: I usually have them (a parent) on the phone, the whole way (home). I think I would start to miss it (the voice call) actually, it always feels like an extra security to hear, to hear that there is another person with me, even if they aren't there, they hear everything. (October 20, 2011)

> Author: What is your first instinct if scared?
> Hedwig: Call someone.
> Author: Could the app replace the call?
> Hedwig: Well maybe sometimes, but that depends on how scared I am, if I'm really scared it's not enough maybe with a message. I'd rather like to hear the other person's voice on the other side so I know they are hearing everything and stuff like that. (November 5, 2011)

Knowing another person can hear the situation via the phone's mini-microphone during a conversation can be comforting as they serve as an 'ear-witness' in moments of insecurity. The phone call medium is able to support an almost real-time open mic between two physically distant people. When the connection is established, one can hear, clearly or not, what the microphone picks up in the caller's situation. A phone call vocal conversation, as a committed and locked experience of togetherness, and the phone call medium's ability to support ear-witnessing, may both be increasing my informant's feelings of trust, protection, support, safety and security during insecure times. These acoustic aspects of the phone call may be underlying the phone call habit's significance in my informant's everyday lives and supporting a cultural continuity of safety and security habits.

Hear and Near

Another aspect of my informant's sonic experience of the phone call relates to sound transmission, technologically-mediated social presence, intimacy, nearness, and touch. The phone call is a sonic medium that transmits and broadcasts the human voice to supernatural lengths. The phone call helps my informant's feel the presence of physically far-off personal contacts in their present situation. My informants felt that when they heard a personal contact they no longer felt physically alone and that their personal contact was 'sort of there'. Hellevi, Ella, and Olivia talked about this sense of mediated social presence and nearness to far off others:

> Hellevi: They (the receiver) are kind of there (during a phone call), they hear what is happening to you, around you, or close to you, they hear it, *they are sort of there*, just not physically. (October 4, 2011)

> Author: What's your first instinct if feeling insecure in public space while you are alone?
> Ella: I mean my first instinct if I was in any danger aa or any potentially dangerous situation, I would take my phone and call anybody. Okay, I would think about my husband first, but if not, a friend or somebody that lives in the same city, and probably most of the time it's not even to say pick me up. To hear that you are not alone, hearing somebody on the phone feels a little bit protection I mean *you are not alone anymore* on the middle of the street. (October 11, 2011)

> Author: Do you feel alone with your smartphone?
> Olivia: Not if I listen to the radio, I don't get soo alone. Or I talk to someone on skype, or chat, but I think the thing listen to another voice like on the radio, I can be like yea, *I hear someone talking, then I feel less alone.* (October 26, 2011)

The smartphone's speaker held up to and situated at ear level, or invasive earphones, sends the recorded sound of a personal contact's voice directly into one's ear. The sounds move straight in and through the ear channel with little environmental interference. Thus, phone talking and listening is very similar to the physical act of a co-present whisper.

In person, whispering is a very quiet act, it is making sounds by one's breath rather than by one's throat. The act brings two people together into a close intimate range of physical nearness and is usually saved for concealing information from bystanders— like secrets, private matters, or little sweet nothings. Yet, ordinary phone talking and listening is like whispering back and forth only that the sound is amplified and the time one is able to do

it is stretched. Phone talking and listening is different than face-to-face conversations because in the latter we usually speak to each other at respectable distances— at least shoulder to shoulder and in the former someone is very far away but whispering loudly in one’s ear.

Imagine having a face to face conversation mimicking the style of phone talk. Your lips would be pressed up against an ear and you would be speaking at a normal sound level, directly into that ear. The phone acts as a mediator and with it a new supernatural type of oral and auditory intimacy is shared amongst two people. The intimacy of ‘whispering’ and the ear-piercing transmission of the human voice directly into the ear, provokes a physical and emotional sensation of nearness and intimacy to a far-off personal contact. The oral sounds of voice are heard and felt as extensions of the personal contact’s body.

To be more specific, when the electronic packets of recorded sound of a human voice is received and broadcasted by the phone’s speaker it moves up one’s ear channel sending vibrations throughout one’s head and stimulates the entire body and brain. To explain what I mean here I take help from music critic Elena Manne utilizing an excerpt from her book, The Power of Music: Pioneering Discoveries in the New Science of Song (2011, as cited in NPR, 2011):

> Daniel Bernard Roumain, a young cross-genre violinist who is known as DBR, thinks one reason music is so powerful is that sound actually penetrates our bodies: "You know when someone says that a piece of music 'touched me' or 'moved me,' it's very literal. The sound of my voice enters your ear canal and it's moving your eardrum. That's a very intimate act. I am very literally touching you, and when you speak to me, you are literally touching me. And then we extend that principle to the sound of a violin. (Author’s italics, NRP, 2011, n.p.)

One’s head and body is penetrated with electronic and audible vibrations. A far off personal contact *is* able to soothe or ‘touch’ you from miles away and you no longer feel physically alone, isolated, disconnected or alienated. One begins to feel, as Hellevi, Hedwig, and Ella expressed, that even though their personal contact is miles away, ‘they are sort of there’, ‘another person with me’, and ‘you are not alone anymore’. The phone call has the ability to mediate a vocal conversation and allows an informant to feel of whispering intimacy, social presence, nearness, and sonic haptic touch.

Good Vibes

Hearing a personal contacts voice through a phone call can provide emotional support, reduce anxiety, and generate feelings of security (Tollmar & Persson, 2002; Chen & Kat, 2009). Sociologist of communication technology, Mary Chayko (2008) suggested that it is not only the physical sound that allows a feeling of intimacy and nearness between two people via mediated communication that supports a feeling of social presence. When engaged in technologically mediated communication and thus connecting with personal contacts, she talks about a certain 'cognitive resonance' that can be experienced as "proximity and presence are perceived by us in ways that transcend the physical" (Chayko, 2008, p. 37). She explained this,

> In the mental map that guides our relationships with such people, they would be very close to use; we would feel warmth and heat, movement and life. These things feel real to us, much as they do in physical space, because our thoughts and feelings *are* real. (Chayko, 2008, p. 37)

Hearing a familiar voice touches you but also provokes both an emotional and physiological response all at the same time, evoking memories, feelings, and bodily sensations, such as smiles, sighs, or goosebumps. In an interview with NPR (National Public Radio), Seth Horowitz, an auditory neuroscientist, provided an example of how sound affects emotion and provides context to the human experience;

> (Soundbite plays.)
> Horowitz: It sounds like the sound of rain falling on a roof, and it brings up associations. You listen to the sound of rain on a roof, and it's a lazy afternoon and nothing particularly going on, and you can either be a little bit melancholy or even just be relaxed, realizing there's nothing really else going on, the environment is fine, until I tell you that that's not actually the sounds of rain on a roof but is in fact the sounds of mealworms eating a bat carcass.
>
> (Again, plays soundbite of mealworms eating a bat carcass.)
> Horowitz: And your brain just went from relaxed rain on the roof to eww (a sound of feeling disgust) in about 300,000ths of a second. Emotion is one of the most complicated things that the brain has to carry out, *and one of the most important drivers of emotion is sound*. And the reason it's so important is because it works underneath our cognitive radar. (Author's parentheses & italics, Horowitz, 2012)

The human voice is unique, to each their own, so personal contact's voices are able to evoke feelings of comfort, safety and security, love, and joy in another person as fast as the sound of mealworms eating a bat carcass can make you feel disgusting. Simply hearing a familiar voice could change one's mood for the better, as brought up Majvi and Ella. I have used the same quote by Ella earlier, but this time I emphasize her reasons for calling a personal contact:

> Author: What's usually the first thing you do when you feel insecure?
> Majvi: I call my mom. She always jokes, she always gets me in a *better mood*, if I'm running in the woods, she would still make me laugh.
> Author: Is there something about hearing her (the mom's) voice?
> Majvi: I know I'm not alone, if something happens, I can throw my phone and call out where I am or say call the police, so if the man or woman who attacks me doesn't know I was talking on the phone, and I do the best I can. (November, 10, 2011)

> Author: (Sits listening to Ella's reflections.)
> Ella: If it's just the *comfort of the voice*, then I would call the person, or maybe call the person from the app, but my instinct is to just call. (October 11, 2011)

Seltzer, Prososki, Ziegler, & Pollak (2012) revealed in their study that hearing a personal contacts voice, in their case a female child hearing the sound of her mother's voice over a phone call, released the oxytocin hormone in the brain. Oxytocin is a hormone that is thought to facilitate and support mother-child bonding and trust amongst two people. It was found that children reading textual messages from their parents did not provoke the hormonal oxytocin rush (Seltzer, Prososki, & Pollak, 2012, in conclusion). The auditory and perhaps at times hormonal sensation of the human voice via the phone call may be supporting women's overall sense of security in insecure times. Perhaps it's the phone call's ability to support the transmission of the human voice and auditory cues that can increase one's mood that is supporting my informant's sense of security.

My informants did not feel comfortable sending a text message during insecure times, and did not replace their ordinary phone call habit with sending a text message. The sonic experience of the phone call habit may have influenced the quiet Alert button's inability to provide a sense of security during insecure times. Informants did not seem to want to quietly read a text message in response to their Alarm text message, but rather engage in a phone call and a sonic experience. My informants are used to an almost immediate sensual experience via the ordinary phone call. Safety and security norms from a sonic experience perspective

seem to include: one-one-one committed company, ear-witnessing, intimacy, nearness, social presence and connection, sound, and positive emotions. Taboos during insecure times seem to be surrounding: multiple companions, distance, alienation, social silence and social isolation, quietness, and negative emotions. I now move on to explore how the phone call habit may have also been significant to my informant by exploring its meaning and use in their impression management around nearby others in public space.

5.4 Impression Management

The following section examines how informant's shared habit of the phone call may have been meaningful in their impression management around nearby others in public space. At times, my informants thought that *not* being perceived as alone would decrease their risk of random acts of violence or unwanted social attention and interaction from nearby others in public space. My informants had experienced a sense of insecurity when they thought they were being perceived as alone and socially disconnected, and thus more vulnerable, by nearby others. They felt they were more vulnerable and more of a target for violence if a nearby other got the impression that they were all alone.

Silva & Wright's (2009) study on young adult women's safety rituals when dealing with the fear of sexual violence in public space pointed out that women's rituals fell under five categories. In no particular order, they suggested that women employ rituals in relation to the use of weapons, *image management*, gathering environmental cues, seeking attention, and leaving the situation or *isolating oneself* (Author's italics, Silva & Wright, 2009, p.763).

Studies by Fox (2001), Plant (2002), Aoki & Downes (2003), Pain, Grundy, Gill, Towner, Sparks, and Hughes (2005), Fox (2006), Foley, Holzman, and Wearing (2007), Chen and Katz (2009), Superle (2007), O'Brien (2010), and McEwen (2010), have also observed and suggested that women feel more secure by bringing their mobiles phones with them while they are alone and in public space and use their phones and engage in phone calls to deter unwanted social interaction. Harmon (2009) also pointed this out in her article where James Katz said, "They are taking a device that was designed to talk to people who are far away and using it to communicate with people who are directly around them" (Harmon, 2009).

Interestingly, the use of mobile phones in this way is not universal. Paragas' study (2006) found that commuters in the Philippines hide their phones for fear of theft, where "the mobile phone (goes) from being a security blanket to being a threat to one's security in public transport" (Author's parentheses, Paragas, 2006, p. 127). There seems to be a Western trend

of women using their phone and the phone call in image and impression management around unknown others in public space on a regular basis.

Though this aspect was not touched on by all my informants, it could nevertheless, be an aspect of their phone call habit. Since the insecurity they voiced stemmed from being perceived as alone to others nearby, they may also be using the phone call to impress others in a certain way when making a phone call in public space as the phone call can send off a certain image. The engagement of impression management (Goffman, 1963, p. 34) similar to previous studies came up by two of my informants Ember and Hellevi and was also stated in Safety Solutions' in-house focus group summary:

> Author: What is the first thing you do when you are scared?
> Ember: Pick up the phone, just talking to someone.
> Author: Does it make you more comfortable to talk to someone?
> Ember: I think that if you talk to someone *people around you know people are listening to you* knowing where you are, if you are just using the app, you can be more afraid since you are always alone, there should be a constant beeping noise for 20 minutes. The reason you call someone, if there's a guy and you don't want to pass him, *if you just use the app in your pocket, the guy would be thinking you are just alone, and attack you or anything, the same guy in the same situation hears you talking to someone, then he knows there is someone*. (October 12, 2011)

> Hellevi: "If I am calling them for the purpose of having them as a company when I am walking home, then ya, I've done that like once or twice, like yea I'm going home can you talk to me for 10 minutes, so yea. *If I'm on the phone, I don't think that I would be, I mean I feel a lot safer, because I don't think that somebody would attack me because I am already talking to somebody who could do something about it."* (October 4, 2011)

> When they are moving themselves and feel insecure, *they talk on the phone with a friend, or pretends they talk to a friend. They do this to scare away potential perpetrators.* They know it's ridiculous and not helping them but it increases their sense of security. Some have called their parents when they feel insecure. (Author's italics, Secondary document, 2010)

It seemed that informants understood that others were listening and looking at them in public space. It seems like Ember, Hellevi, and informants from Safety Solution's in-house focus group, were managing their impressions to nearby others by displaying their phone and engaging in a phone call conversation, either real or fake, while alone and mobile in public

space. The phone call, both the phone as object and the phone conversation, were employed to support an authentic impression that she was *in connection* with a personal contact and thus not virtually alone or socially isolated. My informants also seemed to use the phone call conversation as a way to avoid social interaction with others by giving off the impression that she was *unavailable* for spontaneous social interaction. I now go on to investigate this further.

Symbolic Bodyguard

It may be that my informants are utilizing their smartphones symbolically to impress nearby others and change their image. When the smartphone is out and up as a visible object to nearby others it can be utilized by informants as a conspicuous artifact representing one's status (L. & Veblen, 1925). The phone can symbolize an active communications device and display the status of social connection and affiliation. The mobile phone can also serve as a symbol for self-expression (Castells, Fernández-Ardèvol, Qiu, & Sey, 2009, p. 160). Fox (2001) has described the mobile phone as being a woman's *symbolic bodyguard* while alone and mobile in public space. She found that women in her study often feel more comfortable when showing their mobile phone off to others, because it served as sign of protection and possible connection with personal contacts as well as a barrier to avoid spontaneous social interaction from nearby others. This was also found in Plant's (2002) global study on mobile phone use. By showing one's smartphone, women show others nearby their means towards protection as it serves as: a symbolic bodyguard, a barrier signal (Fox, 2001), a phone-shield (Plant, 2002, p. 62), a badge of networks (Turkle, 2006, p.124) and a means to peer group accessibility (Foley et al, 2007 p. 182). Utilizing the phone as a symbolic prop (Flugel, 1950) and as "sign-equipment" (Goffman, 1959, p. 36) to signal one's status, as well as a sign of self-expression, women can change their appearance from that of being alone to that of being potentially in-company, and that from being disconnected and vulnerable to that of being connected and protected. The phone call may be used by my informants to avoid unwanted social interaction by utilizing the phone's symbolic characteristics to look more empowered rather than vulnerable.

Audiovisual Impression

The phone is a symbolic and visual marker and a physical means of protection and could be helping women's impression management around others. However, it did not seem that only the visual and symbolic elements of the phone or a phone conversation were important in their impression management. When Ember said, "…*hears* you talking", Hellevi

said, "…because I am already *talking* to somebody" and the company's in house focus group summarized, "They *talk* on the phone with a friend…to scare away potential predators I realized that a sense of security from impression management was not only about how one was perceived visually around others, but also how one was acoustically received.

When some informants were feeling insecure it was not enough to just show their phone, they engaged in a phone call (either real or fake) vocal conversation as well. Verbal phone talk incorporates the symbolic aspects of the smartphone and adds another sensual dimension to the overall impression. The phone as a symbol, and the sight of a conversation could help women come across as 'un-available', but does not fortify the idea that she is actually 'in-company'. When my informants felt vulnerable they did not just engage with their smartphones quietly or mouth a conversation over the phone without using their voice. In insecure moments, my informants seemed to create an *audio*visual impression with their phone and long-distant vocal conversations. As in cinematography, adding sound to a silent film to make it a sound picture adds credibility, a sense of emotion, and a feeling of authenticity to the moving image. The visual *and* audio aspects of the phone call and long-distance vocal communication seemed important to broadcast the impression of being in-company with a personal contact, and thus on the line with potential protectors.

She's Involved

Being in a vocal conversation with a personal contact may have also worked as a signal of self-containment (Plant, 2002, p. 42) to deter unwanted attention or interaction and to come across as not just in-company but actually unavailable to others nearby. When the phone call is made, it could serve as what Goffman might have called an 'involvement shield' (Goffman, 1963, p. 40), where during a real or fake phone call, the social actor is involved in the smartphone and thus escapes having to interact with others nearby. To explain further what I mean, I present a descriptive observation I made in public space:

> It's 1 am on a Saturday and I'm standing on the train platform in Malmö waiting for the Lund train to get back home after a fun night out. I notice a young woman quite a distance from me— her voice made me turn to her direction. There are some others around, a group of young men chatting, a man in a suit, an older woman with a dog in a bag, and two young women wearing bag-packs playing on their smartphones. The young woman I notice is not playing but talking on her phone and looking at her fingernails and then looking away again. She is moving side to side, walking around, and not really caring if she's being heard or not. She looks busy and engaged in a

> conversation, like she's talking to a good friend. She's smiling, and laughing, and going on and on about some guy she ran into. The train pulls into the station, we all get on, and off to Lund we go. (Field-notes. November 12, 2011. Ehde, Y.T.)

The young woman I heard and saw was definitely *involved* with her smartphone and the other person on the other end of the line. I would not have interrupted her or her conversation unless I really needed to.

A mobile phone conversation seems to be akin to face-to-face conversations when it comes to social etiquette in public space. The sight and sound of someone engaging in phone conversation is a marker of a two-way conversation. When women talk aloud in conversation with their personal contacts via their smartphone, they materialize the other person into their immediate social space through sound. The missing part of the conversation from the person on the other end of the conversation, and the woman talking aloud into her phone, presents the feeling that she is connected to a personal contact via the phone call. A phone conversation, like a one-on-one conversation, is private and closed off— there is little room for a third party at that moment. Seeing someone in a conversation most likely means they are socially 'unavailable' and 'busy' at the moment and to interrupt, especially when you do not know the person, can be considered impolite (McKee, 2019). The phone-mediated conversation may work in the same way as Goffman (1957) described when he said,

> …a conversation has a life of its own and makes demands on its own behalf. It is a little social system *with its own boundary-maintaining* tendencies; it is a little patch of commitment and loyalty with its own heroes and its own villains. (Author's italics, Goffman, 1957, p. 47)

Thus, the phone call conversation, and the etiquette surrounding conversations, can help support a communicative barrier (Person, 2001) or invisible border (Campbell & Yong, 2008) between others nearby and the person engaging in phone talk. As such, women can give off the impression that they are in-company and unavailable and physically and socially close themselves off from others nearby.

Sound Bubble

Hall (1968) suggested that each person has a personal space bubble, a space that surrounds us and moves with us. It is the space that separates us from other people. Proximity, or the use of personal space, affects human interaction. Gamble & Gamble (2014)

have discussed the difference between men's and women's size of personal space. They suggest that women have a smaller personal bubble than men, are socialized to take up less space, and whose space is invaded upon by others more than men's. When a woman's personal space is invaded upon, she often takes up a less aggressive approach than a man would to defend her space. They suggested that women would rather give up their space than face a challenging social interaction (Gamble & Gamble, 2014, p. 97).

When women are in a phone call her body language is no longer quiet, passive, receptive, nor alone but loud, projecting, dominant, and she looks and feels in-company. Talking to a personal contact brings out the facial expressions, gestures, and postures as when one is talking face-to-face. Katz (2006) has suggested that the mobile phone as a 'wearable' generates a new choreography of the body where one must adjust the body to the phone while mobile. A woman can turn her body inward— wrapped up in conversation— or turn her body outward and walk around boldly (Koskela, 1997). Not only does the phone call conversation impress how she comes across to others by how she looks and sounds, she also makes an impression on others by the way she is acting, the sound she creates, and how she defends her personal space.

The ability to avoid unwanted social interaction and avoid encroachment in her personal space women may be using the phone call to engage her entire body and strengthen her desired impression. Rhoads (2005) presented fashion designer Diane von Furstenberg's idea that the mobile phone as an accessory has become 'part of a woman's body language' (Rhoads, 2005, as cited in Shade, 2007, p. 185). Boden and Moltoch (1994) explain this further,

> The coordinated use of mind, language, and body is a fulfilling mode of being in the world. So much is this the case that most of us use the 'silent language' of the body even when there is no audience for it. Chatting on the phone, we may nod, smile, grimace, even gesture for emphasis. (Author's italics, Boden & Moltoch, 1994, p. 262)

As mentioned, women in phone talk materialize their personal contact into their immediate social space. The sound and vibrations of talking to a personal contact strengthens the 'symbolic bodyguard' aspects of the phone, and broadcasts ongoing connectivity that brings the presence of one's personal contacts into their immediate social surroundings. Listening to the young adult woman in the train station, I could hear she was connected to a personal contact and did not want to get into or too close to her conversation space. It almost

seemed that her personal bubble was as far as her voice was travelling, that she occupied more space by the utilization of sound while in a conversation. It seemed that her phone talk choreography and body language, and the sound of her voice helped her come across as unavailable as well as taking up more space, pushing people away, like me, and preventing others from coming into her vicinity. The sound of her vocal conversation seemed to expand her personal space bubble through sound, as well as put up a sound barrier between herself and others nearby. Her vocal conversation also caught my attention before I actually saw her which means the phone call may be able to impress or intrude on nearby others in a passive yet dominant way.

Bad Vibes

Informants may be using phone call conversations to send out 'bad vibes' to nearby others and to impress and intrude on another's personal sound space (Fluegge, 2018). Sound terrorism (using sound in a forceful way against another to provoke fear) can remind one of drones, jet planes, car alarms, but telephone conversations? Young adult women in Safety Solutions' in-house focus group thought that talking to a personal contact over a phone call would *"scare away potential perpetrators".* The ears are unlike the eyes, they cannot be shut nor closed and they are always in a permanent state of readiness ("Hearing," n.d.). Thus hearing-inclined people are vulnerable to hearing sounds whether they want to or not. As Pallasmaa (2012) has pointed out,

> Sight isolates, whereas sound incorporates; vision is directional, whereas sound is omni-directional. The sense of sight implies exteriority, but sound creates an experience of interiority. I regard an object, but sound approaches me; the eye reaches, but the ear receives. (Pallasmaa, 2012, p. 49)

This biological disposition can be taken advantage of, as some train stations and private residences have done so with the Mosquito device, or an ultrasonic deterrent that penetrates frequencies into the ears of nearby others that are so unbearable that one cannot be around it for too long ("Mosquito Device Anti-Loitering," n.d.). When my informants are engaged in phone talk, many others around them are intruded upon and would understand quite quickly that she is in-company, especially since the human ear hears faster than the eye can see. Nearby others will hear she is in-company without even looking at her first. The sound of a vocal conversation in public space may dominate a nearby other's senses and impress them

before they have time to make their own first impressions. A nearby other may not approach her for social interaction due to her empowering impression of being in-company, or simply feeling her unavailability or polite but bad vibes.

Women's phone call habits and their role in her impression management could be interpreted as a physical defense tactic. This could easily be overlooked, and assumptions that women are not defending themselves physically could be argued, especially if the focus is on women's use of pepper spray for physical defense, as in Cumiskey & Brewster's (2012) study. Perhaps women's mundane ways of image management and isolating oneself off from others does mean that women are physically defending themselves with their ordinary phone call habits which can be challenging to realize because of their mundaneness.

In sum, the Alarm text message did not provide, as the phone call could, a way for my informants to enact and give off their desired impressions of being 'in-company' and 'unavailable', nor did it help them extend their personal space nor send off intentional bad vibes to off-put others. With impression management in mind the norms around safety and security would include: looking in-company, looking and being unavailable, being involved, closed off from nearby social interaction, social politeness, sound bubble, sound barrier, bad vibes, look empowered, act empowered, sound socially connected. Taboos would include: looking alone, looking and being available, open to nearby others for social interaction, social rudeness, lack of sound, smaller personal space bubble, open vibes. The phone call habits are significant for impression management and could be organizing women's meaning-making of SecurityApp. Thus, with the text medium, they did not have a way to defend themselves physically and impress nearby others as they normally could. This may be why the phone call is more significant than text message correspondence during insecure times. The Alarm button and the Companion icons became slow mediators between informants making a phone call to manage their impressions while alone and nearby others in public space. At times, informants may not need the sonic experience as much as they need to use the vocal conversation for impression management, as some informants and women in other studies have been found to perform fake conversations while alone in public space, indicating the need for show rather than content or sound.

5.5 Social Fossil

My informants ultimately refused to use *SecurityApp* in their everyday lives, possibly due to the significance of the smart-phone calling habits. The app did not fit into informant's

socio-cultural norms and their forces of habit created breakpoints leading to its insignificance. The informant's did not utilize the Companion icon and the Alarm button's inability to support a sonic experience nor support informant's impression management while alone in public space may have also led to its insignificance. As Matthews, et al. (2009) suggested, because the app did not support the user's concrete tasks and goals, it was refused. Thus, informants re-relied on their ordinary ways of making a phone call that did not include the app. The three aspects (force of habit, sonic experience, and impression management) of the phone call security habits seemed to break down, dismantle, and fossilize the innovative app's way of doing safety and security rather than the app dismantling, enhancing, replacing, or fossilizing informant's old and ordinary ways of doing safety and security (Shove & Pantzar, 2006).

Informants fossilized *SecurityApp* by refusing to incorporate it into practice into their everyday lives and it eventually became a lifeless social fossil missing its essential human layer and making little impact or instigating cultural change. Unlike conclusions from Matthews, et al. (2009) the new app was not refused due to new competitor apps on the marketplace but from an older and traditional technological medium that lies behind the default phone call app. This also supports the Suominen, et al. (2014) study which suggested that user's associate value to new technology based on their older technological habits such as ordinary calling and texting. Like Matthews, et al. (2009) and Suominen, et al. (2014) the telecommunications-based phone call and text messages were used the most regularly by my informants and some of the most valued features of their smartphone.

Kinkmann (2006) argued that, "you only are able to spot the (cultural) synchrony when you see the things which do not fit" (Author's parentheses, Kinkmann, 2006, p. 82). With this in mind, because *SecurityApp* did not fit into informant's existing habits, was refused, and old habits re-used, this led to a cultural continuation of technological use for safety and security. Women are re-doing their old habits because they are meaningful and this supports a continuation of shared habits, norms, and taboos around security in everyday life. Designing and developing through this cultural continuity may help designers and developers better understand women's ongoing and everyday safety and security habits, experiences, wants, and needs. The norms and taboos explored through the phone call habits discussed earlier, supporting a cultural continuity, can at least point to important areas to explore and keep in mind for the future, especially since new innovations seem to be competing against traditional technologies while also needing to fit, or possibly retro-fit, into ongoing socio-cultural norms and habits.

7. Conclusions

This cultural analysis explored how women's shared smart-phone calling habits were possibly meaningful to them in their everyday lives. The phone call has been and continues to be the institutionalized and societal means towards safety and security where acoustic information is necessary to ask for and receive help and support. The phone call as a force of habit broke the app's features significance. Women's sonic experience and impression management techniques may be organizing how women do their safety and security and how they give meaning to new innovative personal security apps. Women's refusal of the new app in favor of their older habits exposed a cultural continuity in technological use for safety and security.

The phone call is one of women's primary security habits. The phone call is easy to make, speed-dial quick, direct, requires little thought or work, predictable, reliable, universal, and personal. While insecure, women may feel the need to be committed in one-on-one company, take on an ear-witness, be touched by personal contacts and emotionally soothed through sound. They also may feel the need to engage in impression management as a superficial and physical means to avoid social interaction with nearby others to feel more secure. Taboos surrounding women's safety and security seem to include notions of: texting in times of insecurity, lack of sound, solitude, social silence, isolation, alienation, and disconnection, laboring, slow, indirect, unpredictable, and a lack of impression management. I demonstrated that a possibility for why and how women in my study did not find a need or want to use the app in their everyday was that it was not able to support their needs nor enhance their habits. Thus, the personal security application phenomenon made little impact in their everyday lives.

Implications

I demonstrated how *SecurityApp* ended up being refused and fossilized by my informants and eventually became a social fossil. The fossilization of apps is actually a popular occurrence and not a unique situation for *SecurityApp.* It has been estimated that about 9,999 out of 10,000 apps will fail ("9,999 in 10,000 mobile apps will fail: here's why." (n.d.) to be used by their intended users. That is large amount of apps being fossilized into social fossils and ending up in a pile of lifeless innovation refuse.

Failed and refused artifacts usually are accepted and taken as part of the innovation process. As the innovation mottos go— "Anything is possible!" and "You win some, you lose some". These social fossils and their traces tend to be forgotten with time, buried in the Internet archive, the "WaybackMachine" ("Internet archive: Wayback machine," n.d.), serve to inspire in *The Museum of Failure* ("MOX," n.d.), or turn into novel graphic art (see illustration by Jane Driscoll in *Appendix*). Social fossils and failures may benefit society further, if also academically and professionally investigated for their cultural significance. Many scholars are already leading the way and bringing failed artifacts to the forefront of academic analysis. Like the many scholars featured in, *Archaeologies of Waste: Encounters with the Unwanted* (Sosna & Brunclíková, 2016), and those in, *The Material Culture of Failure: When Things Do Wrong* (Carroll, Jeevendrampillai, Parkhurst, & Shackelford, 2017).

Grounded within this cultural analytical research study, I developed a prototypical concept, for both academia and the innovation industry, which I call– *innovation waste.* This concept puts an instrumental spin on present-day social fossils and failures by viewing them as significant new refuse, waste, or a "mess with a message" (Åkesson, 2006, p. 43). *Innovation waste* is a concept that helps view social fossils– that took a lot of time, energy, resources, and human capital to design and develop– as valuable fuel rather than as haphazard failures. One way to turn social fossils into something sustainable is to utilize them, dare I say it, as social fossil fuel. By viewing social fossils and failures in an alternative light as *innovation waste* (or as new and beneficial messes with messages), applicable and academic cultural insights may come forward. For instance, this cultural analysis is a product of viewing *SecurityApp* as *innovation waste*.

Interestingly, I did not find a term like *innovation waste* in popular culture so designers and developers may also play around with this concept in their own ways. I dedicate and attribute the concept of *innovation waste* to Safety Solutions — for their open dedication to, and heart for innovation— and to Orvar Löfgren, who inspired me to innovate during my time in the MACA program.

Even if *innovation waste* is perhaps an inevitable part of the innovation process, taken from a sustainability approach, the point could be to reduce the design and development of social fossils or failures and to increase the design and development of useful innovative products by analyzing and thus utilizing the *innovation waste* available today.

One way for companies in the IT sector (especially those that are small, lack research and development (R&D) resources, and are located near an academic institution) to reduce the risk of designing and developing social fossils, or to at least learn from them, is to host

internships and collaborate with university students from culture-based programs. These students could be beneficial especially in the new phases of product or service development cycles when designers and developers are identifying user-needs, goals, wants, and desires, as well as help designers and developers address their own gender assumptions. Student research could also be helpful when aiming to improve older products and services.

On a local level, companies in Skåne's Ideon Science Park could utilize Lund University's Master of Applied Cultural Analysis' (MACA) internship requirement and host and collaborate with students (beginning in the Autumn semester and lasting for 10 weeks or 300 hours). After my first meeting with the CEO of Safety Solutions he said, "In general this feels good, this (the internship) could be very useful and something we would not have time or resources to do otherwise. I replied, "That's why I'm here." And he wrapped up with, "It's a perfect match." The Science Park and Lund University are in near proximity of one another, so collaboration efforts, like Safety Solutions and mine, could be improved for the sake of innovation, social solutions, and economic growth.

Future Research

This cultural analysis focused on women's everyday habits and experiences and explored possible significance of them, and the possible influence on women's refusal of a personal security application. It would have also been interesting to employ a gender perspective, especially within feminist technology studies, to investigate how gender assumptions by designers and developers are influencing mobile applications final design.

As I documented and explored how vocal conversations seemed important to women for numerous reasons it would also be interesting to study women's sense of security in everyday life with a sole focus on how sound plays a role in everyday life as an auditory cultural expression. Research focusing on the audiovisual impression aspects of the phone call may lead to interesting findings; from a gender perspective, perhaps the image and impression management is a type of gender work that could be investigated and problematized further.

More qualitative and cultural analytical research on personal security apps and their use by women would certainly help gain more insight into this type of technology and its significance, or lack thereof, in women's everyday lives. Also, larger quantitative research studies on personal security application would help place my exploratory interpretations into a broader perspective, and reinforce or challenge my interpretations.

It would also be interesting to find out more about women who *do* use personal security apps on a regular basis. Especially, to interpret how the apps are supporting women's sense of security and possibly leading to cultural and technological changes in relation to habits, norms, and taboos surrounding safety and security.

Concluding Remark

The title of this thesis was inspired from technology analyst, Deborah Schulz's well-known line, "Technology changes, humans don't?" ("Deborah Schultz", 2016). A new personal security app was designed and developed to help increase women's sense of security; however, women in this study re-used their old habits, refused the app, and *SecurityApp* turned into a social fossil or what we can also call, *innovation waste*. So, women do not change despite the availability of innovative products? Well, it seems that even if new technology seems to be innovative and useful from the get-go, women's ordinary habits and experiences are driving factors influencing new technological solutions' usefulness and value. Designers of innovative products could benefit from doing in-depth research on cultural habits and cultural continuity of technology use early on in new product development cycles. Especially, when the aim is to develop useful and valuable innovation products to solve social challenges and spur economic growth.

At first, it seemed that the old telecommunications phone call was just a simple old habit that could be enhanced by an innovative technological product, but through a cultural analytical investigation there seemed to be much more to smart-phone calling habits than meets the eye and much to women's experience of feeling "safe and sound". Women, like my informants, were interested in new technology as techno-realists and they were not interested in modifying their old habits for the app's sake, especially since the app did not enhance their security experience. After figuring this out, I will end with a title revision that may shine a small light on the impact of the personal security application micro-phenomenon, "Technology changed, but women's phone call security habits, didn't!"

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Field Material

Alicia (October 6, 2011). Discovery Interview. Ehde, Y.T. Interviewer.
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Secondary Document. Safety Solutions' in-house focus group summary. (2010)

Appendix

Application Name	# of Downloads
bSafe	500,000+
Women Safety	100,000+
Noonlight	100,000+
My Safetipin	50,000+
Cerberus	50,000+
iOkay	50,000+
ICE	10,000+
React Mobile	10,000+
Silent Beacon	10,000+
GetHomeSafe	10,000+
Emergency SOS Safety Alert	10,000+
Eyewatch SOS for Women	10,000+
SEAM	5,000+
BEAWARE	5,000+
Wearsafe	5,000+
PROtect	5,000+
SOS Emergency	5,000+
SOS App	1,000+
Safety App	1,000+
Mayday Safety	1,000+
ROAR	1,000+
ICRISIS	1,000+
Locater	1,000+

Nimb	1,000+
SOS Lifesaver	1,000+
Total installed:	940,000+

Table 1. Personal security applications available on Google Play on June 11th, 2019. (Ehde, Y.T.). Google Play. (n.d.). Retrieved from https://play.google.com/store?gl=SE

“A young woman deleting SecurityApp under the moonlight.”
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