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Master's Thesis
Academic Year 2022

The Safety Spread Application:
Using Real-Time Crowd Sourcing Mobile
Application to Spread Awareness about Acts of
Sexual Harassment in Public Spaces



Keio University
Graduate School of Media Design
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A Master's Thesis
submitted to Keio University Graduate School of Media Design
in partial fulfillment of the requirements for the degree of
Master of Media Design

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Abstract of Master's Thesis of Academic Year 2022

The Safety Spread Application:
Using Real-Time Crowd Sourcing Mobile Application to
Spread Awareness about Acts of Sexual Harassment in
Public Spaces

Category: Design

Summary

Public sexual harassment (PSH) is a pervasive form of violence against both males and females, damaging them physically and mentally. Vietnam, as a developing Asian country, is behind on the topic as it is stigmatized to mention during conversation as the consequence of perpetuating gender inequality.

Therefore, the Safety Spread mobile application is a contextualized solution, which offers open-sources alert map and emergency report function, to help raising the users' general awareness on PSH. By doing this, Safety Spread attempt to deliver an alternative method to safe-guarding potential victims of PSH in Vietnam as well as creating a sense of 'safety' for the users.

Keywords:

Design Thinking, Sexual Harassment, Application Concept, Education

Keio University Graduate School of Media Design

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And my girlfriend, for always stay by my side. Her existence in my life makes me feel happy that I stay survived.

Chapter 1

Introduction

1.1. Background

1.1.1 Public Sexual Harassment

Even though it is usually associated with gender-based discrimination and women's oppression [1], sexual harassment is a pervasive form of violence against all genders [2]. According to Action Aid Vietnam, the definition of sexual harassment is “unwanted sexual acts or gestures that make other people feel uncomfortable psychologically or physically.” Sexual harassment can take the form of physical, verbal, or visual contact. Namely catcalls, intentional staring, teasing, sexual SMS, and so on [3].

Public sexual harassment (PSH), as a social phenomenon, has a distinct difference from its general definition. While sexual harassment, in general, includes domestic violence, which occurs in private spaces between family members, PSH is distinctively used to mention violations between strangers in public areas such as public transport [4], workplaces [5], on the street [6], and so on.

1.1.2 Public Sexual Harassment in Vietnam Context

A unique story was reported in Vietnam in February 2022 about an 18-year-old boy dragging a 16-year-old girl home, intending to make her his wife. This incident happened in public with many observers during a spring festival of the H'Mong ethnic group. Still, no one stood up to protect the girl, despite her screaming and fighting back, until a police officer on patrol arrived [7]. This incident immediately became popular in the media, portraying the widespread custom of the H'Mong ethnic group in Vietnam called “bride kidnapping.” People started thinking about

the definition of PSH in the Vietnamese context in order to address harmful acts of PSH disguised in the form of daily customs, humor, habits, and behaviors [8].

As an Asian country, Vietnam is behind on the topic of PSH as it is stigmatized in conversation in a daily context [9]. Even though the Vietnamese Government makes an effort to prevent PSH, the regulations on PSH, in general, have only been focused on violations in the workplace, targeting mainly women [10]. According to research, victims of PSH tend to ignore these actions or consider them trivial and unimportant. In a survey in 2014, 87% of women respondents in Hanoi and Hochiminh city reported that they have experienced PSH, and 67% of people witnessing did not do anything to stop it [11].

1.2. Motivation

The victims of PSH suffered a significant setback regarding their psychology. For instance, Care Organization reported cases of factory workers in Vietnam quitting their jobs and having negative thinking, fear, and depression due to suffering from or witnessing PSH happening in their familiar spaces. As a result, victims of public sexual harassment believe that their bodies and mind become more fragile and vulnerable after the incident [12].

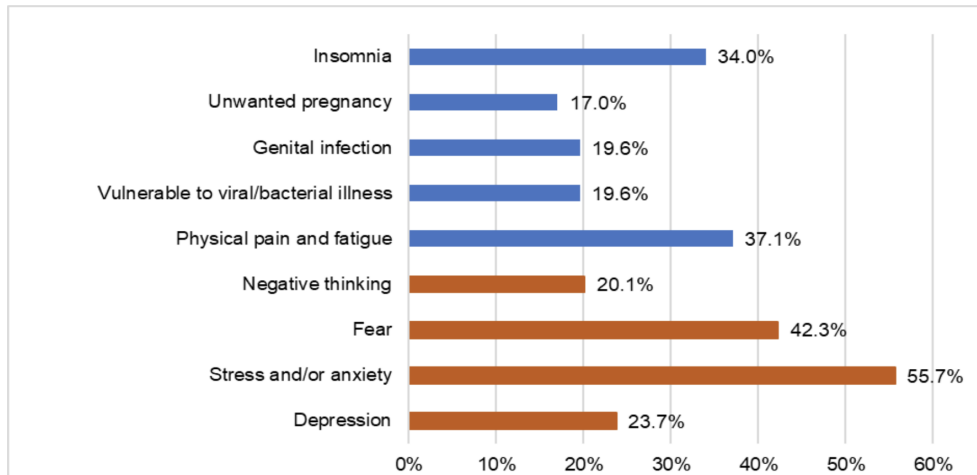


Figure 1.1 Physical and mental health issues caused by SH

(Source: Sexual harassment prevention intervention for factory workers in Vietnam [12])

The researchers proposed many solutions to encounter this matter in Vietnam, namely self-defense martial arts, sexual harassment awareness classes, etc. However, the explanations either focus on efficient reactions to fighting back against sexual assault (self-defense class) nor do they only make an effort to decrease the cases of sexual harassment voluntarily (awareness class). PSH victims cannot proactively approach the problem and solve it as a daily task even though they have to face mild-range PSH nearly every day.

1.2.1 Research Objectives

As previously stated, PSH is a problem that affects people globally. Consequently, as an Asian country, Vietnam has only been open to this matter recently compared to Japan or Singapore. Despite the number of researches that have been made to decrease the frequency of PSH and even try to reverse the problem, facts show that PSH will always exist in society, and it is the researcher's responsibility to acknowledge that problem.

The research will focus on the psychological consequences of PSH with the primary aim to reverse it, making Vietnam's public areas safer for everyone, and how the users can proactively approach the problem, intending to search for safer spaces and more reliable help, using open-source mobile applications; Therefore, help creating a sense of safety for the target users.

1.2.2 Contribution

This thesis introduces an alternative approach to PSH by creating different protocols for "safeguard" purposes in the form of a mobile application. The users can use the application to understand where they are going and what to do in critical situations. This method has been demonstrated as a virtual safe space, such as the Safe YOU mobile application by UNICEF, to safeguard women and adolescent girls from gender-based violence [13]. According to research named Feeling Safe in Our Community, by acknowledging the users that they can find support from connections and community, their psychology will allow them to have an immediate feeling of "safety," which allow them to be more confident in public places knowing that they can report their problem anytime [14]. Therefore, rather

than finding a solution to tackle PSH in a complex environment like Vietnam, the mobile application attempts to influence the users' perception of safety and their awareness of PSH. At the same time, there has been no effective solution widely accepted in the country. In addition, the thesis aims to empower the users with a sense of safety, engage community bonding through a shared platform and give vulnerable individuals chances to improve their life quality.

Chapter 2

Literature Review and Related Work

2.1. Public Sexual Harassment in Vietnam context

2.1.1 Historical Context

PSH Against Women

Through the social-cultural lens of the Vietnamese language, the social order can be contextualized through the way Vietnamese use their proverbs and idioms to demonstrate the gender-role of males and females throughout history. As stated in Gender Practice in Contemporary Vietnam, the saying:

*“Flowers are made for people to pick,
Girls are born for people to tease.”*

Reveals that gender-based sexual harassment has existed in Vietnam for centuries [15]. It is widely accepted and considered a social norm as an influence of Confucianism, describing females as lower social status and bound to obey the other gender as they are dependent on a male in every aspect of life [16]. This perception affects men’s and women’s mindsets until the present. An equal society remains exotic for Vietnam.

PSH Against Men

Gender bias affects not only women’s but also men’s life. The masculinity norms that men are exposed to during childhood affect their well-being and make them how they are today. According to the IDSD report, many men were exposed

as young boys to gender-biased norms through education from adults and from witnessing gender-biased practices in their families and community [17]. Patriarchal practices perpetuate gender roles and stereotypes inside their head, saying that they are the stronger gender; therefore it is forbidden for men to shed tears or healthily express their feelings [18]. It leads to dire consequences facing PSH, where men cannot convince anyone to believe that they are the victims because men are assumed to be the stronger gender and are not likely to be preyed upon. This phenomenon is described best when searching for PSH case studies against men in Vietnam, as there is no precise statistic about this matter, which shows that the topic is not as concerned and urgent as PSH against females.

This circumstance has been reported on Vietnam News, describing how hard it is for both men and women to stand up and report about their cases of PSH and how Vietnam's existing legal tools are insufficient to help them at the moment [19].

2.1.2 Vietnamese Government Policy

The Socialist Republic of Vietnam's guidelines states that part of its mission is to acknowledge, respect, protect and guarantee human rights and citizens' rights of its people [20]. Since 1959, Vietnam has been making an effort to raise women's status in society. Specifically, in the Marriage Law of 1959, the Vietnamese Government regulations on The Marriage and Family Law helped save women from being concubines, forced marriage, precocious marriage, and such [21].

They are also trying to raise the people's critical intelligence by issuing the Education Law in 2005. According to the law, education's primary goal is to shape one's personality and foster it [22]. However, the educational experience is not the same for every child. As learning at school is crucial to nurturing a child's mindset, parents usually take it very seriously. There has been reporting case about gender bias and stereotypes in Vietnam's English textbook [23]. It shows that, despite the efforts, Vietnam's education remains insufficient to raise one's awareness about sexual harassment in general and PSH in specific.

2.1.3 The Public Sexual Harassment Prevention Related Law

In recent years, PSH against all genders has been a critical issue in making laws for Vietnam Lawmaking. The law on this matter is new and needs multiple revisions until it covers most aspects of sexual harassment. In the 2012 Labour Code (Article 8), the Ministry of Labour prohibits acts of sexual harassment [24]. However, they also recognized later that the lack of definition of sexual harassment hindered the victims' ability to protect themselves [25]. The definition then referred to in The Committee on the Elimination of Discrimination Against Women (General Recommendation No.19) as "Sexual harassment includes such unwelcome sexually determined behavior as physical contact and advances, sexually colored remarks, showing pornography and sexual demand, whether by words or actions. Such conduct can be humiliating and may constitute a health and safety problem; it is discriminatory when the woman has reasonable grounds to believe that her objection would disadvantage her in connection with her employment, including recruitment or promotion, or when it creates a hostile working environment" [26]. However, the definition is not officially stated in ILO's convention. The definition heavily suggests that women are the only victims of sexual harassment, which is not valid.

2.1.4 The Culture of Silence and Acceptance - Current Trends

Vietnamese society is at the point where people are gaining more attention to PSH cases. For example, the case study of a man forcefully kissing a woman in an elevator in 2019 pointed out that law-making in Vietnam still has flaws as "public sexual assault" is not considered a crime, unlike rape. The case then drew media and social network attention and became viral. The people following the case finally showed their disappointment and even anger when the pervert was fined 200,000 VND, which was about 8\$ at the time, as the case fell under the administrative category of "indecent speech and behavior," with the maximum fine being 13\$ [27]. On the other hand, Khuat Thu Hong, director of the Institute for Social Development Studies, comments to AFP on the people's reaction "The

reaction is a good sign, society has shown its support to those who are courageous to speak out” [27]. Additionally, several sexual harassment case studies gained attention in the past few years, such as the famous Forbes Vietnam Under 30 List 2022 case study, which went viral after the victims decided to call out the predator, who was nominated in the listing, accusing him of non-contact technology-enabled sexual behavior through messages on social media (Facebook) [28].

According to the case studies mentioned earlier, the youth in Vietnam are becoming more open about their personal experience relating to sexual harassment and PSH. They know the authority is obliged to take specific actions toward this matter once it goes viral. However, United Nations Vietnam (UN), in its 2018 press release, stated that PSH victims in Vietnam still have to face risks (blame, stigmatization, humiliation) if they choose to raise their voices. Therefore, to reach the final goal of gender equality in 2030, the United Nations requires everyone to put their effort into ‘Zero Tolerance’ against sexual harassment and to stop the culture of silence in Vietnam [29]. In conclusion, as discussed throughout this section, even though the legal system regarding PSH has critical flaws, Vietnamese citizens are slowly moving from being silenced and ignored to raising their voices against PSH perpetrators with the help of organizations, practitioners, and the community.

2.2. Mobile Application for Emergency Response

The initial hypothesis for this research focuses on creating a technology-based platform as a virtual ‘safe-place’ for victims of PSH and their trusted ones. This platform does not only support them in emergencies but also helps raise their awareness through daily operational procedures without talking to anyone directly. All of the features will help the users feel ‘safer’ mentally and act as a layer of protection, which gives the users choices to choose and reactions to make when they intend to go outside. However, the scope of this research does not serve the purpose of preventing PSH in any direct way.

In the research article named ‘Designing Mobile Applications for Emergency Response: Citizens Acting as Human Sensors,’ the author claims that a mobile application for emergency response is no longer strange for the community, as

phone these days has GPS, camera, voice recorder embedded in it. To be concise, everyone can be a witness to an emergency [30]. The paper then proceeds to elaborate on their idea of applying this technological advantage to small-scale events. Their main finding points out that in small-scale events such as traffic accidents, and in this case, PSH, the number of related tweets is not significant to capture enough data in time. For this reason, the designing of a conceptualized mobile application is necessary.

2.2.1 Development of an Open-source Mobile Application for Emergency Data Collection

Nowadays, an open-source mobile application is no longer an exotic invention among us. However, despite the number of applications offered in the market, the users are often challenged with the choice of the solution that best suits their needs. The effectiveness of the applications is usually decided by both general and technical criteria [31].

Table 2.1 Open-source mobile application data collection criteria

(Source: A Practical Analysis of Mobile Data Collection Apps Research [31])

General Criteria	Technical Criteria
Free and Open Source	Designing of simple custom mobile forms
Online Documentation	Designing of complex custom mobile forms
The responsiveness of the support team	Interoperability with other technologies/tools
The Frequency of software updates	Programming Languages
Users community	

The criteria is the basic qualification for an efficient mobile application. Based on these categories, below is the recommended app for open-source emergency data collection as well as responsive support for emergencies.

FEMA Mobile App and Text Messages

The FEMA App is developed and released by FEMA Organization in 2012. The application itself is resource-full with an open-source map, a collection of safety tips, and an emergency toolkit to use during a critical situation. However,

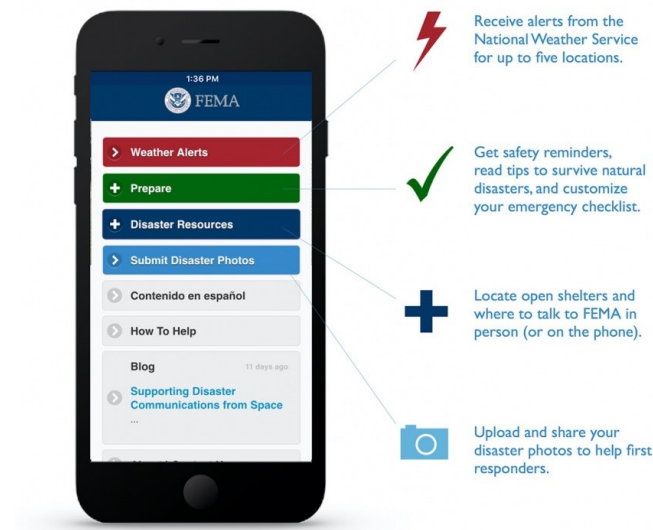


Figure 2.1 FEMA Mobile Application Features

(Source: University of Connecticut [32])

research state that users may find it difficult to alert an exceptional event with the current interface with a list of the features [30]. Design-wise, the type of interface FEMA has is following the rule of unity, which gives the user a feeling of oneness or resolution. However, this type of design also ensures that no single part is more important than the others as the hierarchy is not emphasized [33]. Therefore, this lineup of the features in the app makes them dilute and harder to search for in emergencies.

Another important feature of the FEMA App is the local shelter, where users can locate the nearest shelter and disaster recovery centers with the assistance of a representative person in real-time [34]. This is critical as the speed of assistance can directly affect the users' safety. There is skepticism regarding this matter, questioning the availability of the representatives and their plan for prompt responding to multiple calls at the same time for large-scale disasters. Moreover, the personalization of FEMA, such as personal customization also has low responsiveness compared to newer applications.

Finally, the information in the app is adequate compared to other emergency applications. The only concern about it is that, with that much information,

FEMA needs to find a better solution to convey their news and tips to the users, as the application also aims to raise the users' awareness of emergency situations. In conclusion, FEMA is recommended to complete necessary tasks in response to natural disasters in the American context. Nonetheless, it lacks the influence to affect the user's behavior and alter their psychology before difficult to build a user community.

2.2.2 Developing Mobile Application for Public Awareness on Gender-based Violence

To ensure that gender-based violence-specific services are available and accessible as the earliest stage of minimizing the risks for the affected populations, mobile services, and remote service has been designed to provide guidance, as well as support them [35]. PSH, as another manifestation of gender-based violence, also need special attention regarding their acuteness. That is why developing a mobile application for public awareness on PSH is the fundamental step to ensuring the accessibility of people to essential knowledge and mental stability, especially when the mobile penetration rate in Vietnam is considered high with 93% in 2019-2020 [36].

Safe YOU Mobile App by Unicef FEMA Mobile App and Text Messages

Safe YOU is a virtual safe space for women and adolescent girls developed by Unicef. According to the official document from the Unicef website, the application's main features serve the purpose of creating gender-based violence digital content and safeguarding users from gender-based violence [13]. Moreover, the application also expects users to seek support, ask questions, know where to go to seek help, and in time, replicate the sense of a safe social network with the support of Safe YOU [38].

Developed by Unicef, Safe YOU is a credible source of information for users who are unsure about their GBV case and want to seek help without knowing about local support. The application's features themselves are simple but precise, bringing a feeling of assurance to the users. These features, such as the

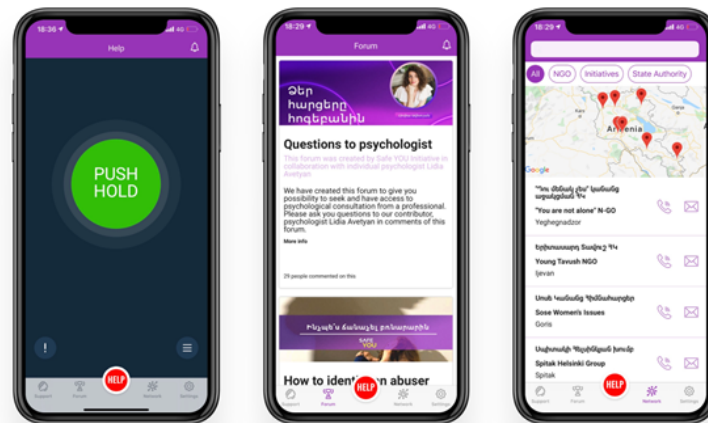


Figure 2.2 Safe YOU Mobile Application main features

(Source: Sexual Violence Research Initiative [37])

help button, support map, and Q&A, are essential for emergencies such as GBV. Nonetheless, putting these features to mitigate situations such as PSH, as part of GBV, is unnecessary. Apparently, Safe YOU only targeted severe cases of GBV, namely sexual violence, which is not the main target of this research. Therefore, there will be certain moderation that mainly depend on the difference in context between PSH in Vietnam and targeted nations of Safe YOU.

Even though there are certain similarities in design, the research focuses on raising awareness and alternating the users' psychology, making them feel safer using the app. To achieve that objective, the same features have to have a different process in order to communicate the information to Vietnamese users in the most effective way. Putting the application in the context of Vietnam, where most of the victims do not aware of the definition of PSH or are willing to raise their voices against the perpetrators, Safe YOU cannot expect to safeguard the users without having them suffer from GBV first. To be concise, the users only seek help and ask questions after they have been affected by the situation, not before. As a consequence, Safe YOU can be considered ineffective in critical situations.

Chapter 3

Design

3.1. Conceptualize Mobile Application for Public Sexual Harassment in Vietnam

Based on the background overview and the related work research, the conceptualization of a technology-based solution is necessary due to the circumstances in Vietnam. To be specific, a mobile application regarding the topic of PSH that can educate and safeguard potential victims will be an integrated alternative to the existing solution serving this mechanism in Vietnam.

3.1.1 Objectives

This research aims to explore Vietnamese's awareness of PSH, as well as their personal feeling of safety when traveling in public areas. The thesis will then analyze the statistics and categorize them in order to understand better the current problem most of the target audience are facing in Vietnam at the moment.

Thus, with the proposing solution, the research aims to create prototyping of an integrated mobile application that can communicate with the users about PSH subtly, throughout their daily interactions without obligate education. By creating the safeguard application, the main purpose of the application is to heighten society's sense of safety. As the result, the coping mechanism can be recognized and widely spread among the Vietnamese population.

3.1.2 Contents

The content topics take notice of the target audience's needs to consume educational digital content on mobile. The proposing topics revolve around the

globalized definition of PSH, and the guidance on how to react when experiencing or witnessing PSH, with or without the Safety Spread Application and the additional Safety Bluetooth Tag. The application also offers the community section, where users can join and discuss related topics under administration to ensure a healthy and friendly environment.

For the prototyping, the Safety Spread App first introduces 5 types of paper, taken from credible non-profit organizations such as the iSEE organization, PLAN organization, and the research paper of Maryland University. These papers will be the content pillars for daily digestible pieces of information in the future. Moreover, the users will gain a better understanding of the topic through daily interaction, which is why the information related to the topic will be distributed to each function. Every function of Safety Spread that requires interactions has a different type of meaning behind them to transform the user's psychology and behavior in the long term.

3.1.3 Target Users

The primary target audience of the research are Vietnamese women over the age of consent, which is 16 years old [39]. These target audiences live where the internet can reach, which refers to most of the landscape of Vietnam. They are comfortable with using mobile applications and care about their well-being as well as their safety. Based on the survey in 2016 [3], among 1506 female respondents, 87% of them reported to experienced sexual harassment. The survey also mentioned that 89% of men and bystanders also witnessed some form of PSH. That is why Vietnamese men are the secondary target audience of this research. It is critical to impact and educate others more than just the main group of the target audience, as the other group can be their friends, lovers, and family, whose knowledge is significant to maintain the feeling of safety for the main target audiences.

3.1.4 Design Process

The initial primary research was conducted on google form with the participation of 57 Vietnamese people of all gender, ages, and geographic. Every person can only access once using their Gmail and real name to ensure the fidelity of the

result. Combined with the secondary research, most of them are credible sources of research papers, documents, surveys, and government reports, to demonstrate the statistical presentation of the topic in the Vietnam context in comparison with other parts of the world.

In the initial survey called “Safety in Public Places”, the author collects the participants’ answers, observing their personal feeling of safety while traveling in Vietnam’s streets and their experiences regarding PSH as well as their views on the problem. The surveyors were asked if they are aware of the PSH situation in Vietnam, their immediate reactions to facing emergencies together with the measures they adopted in order to keep themselves safe during unpredictable circumstances. There is also a section that the participants can choose to skip if they do not want to share their PSH experience. This way, the research can monitor how open Vietnamese people are to the related topic.

From the 57 responses collected, the initial quantitative analysis process was conducted to portray the potential victims of PSH, and the representation of their experience when comparing the patterns of answers in genders, ages, geography, and jobs. Based on these analyses, the designed prototype of the Safer Spread mobile application was executed to safeguard the target users from their most chosen PSH experience, considering their urgency and seriousness.

3.1.5 Design Paradigm

Many SH-related mobile applications build their functions around the concept of preventing PSH through the logic of raising awareness among users. However, there has not been any mobile application of such category in Vietnam that is remarkable enough to raise the public’s awareness, leaves alone change their behavior according to different situations, if necessary. Moreover, the idea of preventing PSH in a country where the concept of PSH is yet complete can be rather risky, as there has been no former procedure. Moreover, an efficient mobile application does not only need to work well theoretically, but it also has to create a friendly interface for the users to freely interact in order to be efficiently engaging.

The main idea of the PSH safeguards mobile applications in this research revolves around the logic of leveraging the power of crowd-sourcing to alert people to unsafe locations. This way, the users can make themselves familiar with

the concepts through daily interactions, and slowly change their behavior before heading outside. The application also aims to increase their feeling of safety when traveling on the street, knowing that they can check for safe areas and receive immediate help if needed. Therefore, Safer Spread is no more than a safeguard mobile application that can provide help according to different situations based on the power of crowd-sourcing, it does not have the power to prevent PSH or have an immediate effect on the problem in Vietnam.

3.2. Design Elements

The mobile application focuses on the functioning effectiveness, that is why minimizing the elements in the interface is important to the process. Considering the effective platforms to use in order to create the interactive prototype of Safety Spread, the author chooses Figma¹, a complimentary interface design tool using vectors, to best demonstrate the outlook of the finished product as well as benefit the following user tests in a shared platform.

3.2.1 Naming and Logo

The application is named after the core value of the research. “Safety Spread” demonstrate the action of spreading safety to the community through daily interaction, which is also a unique name for the application’s category in Vietnam. Therefore, branding-wise, it is distinctive compared to other PSH mobile applications in the Vietnam market.

The logo of Safety Spread first took its shape as a double s letter representing the word Safety Spread itself. However, after many changes, the author decided to illustrate the logo with the core meaning implied in it. With the symbol of spreading motion, the Safety Spread logo wants to demonstrate the feeling of protection living in a safe community.

The official logo was designed in Adobe Illustrator to ensure the preciseness and sophistication of the details. There are three version of the logo, which is red, back, and white to maintain its versatility across different platforms.

¹ <https://www.figma.com/ui-design-tool/>



Figure 3.1 Safety Spread Logo Sketches

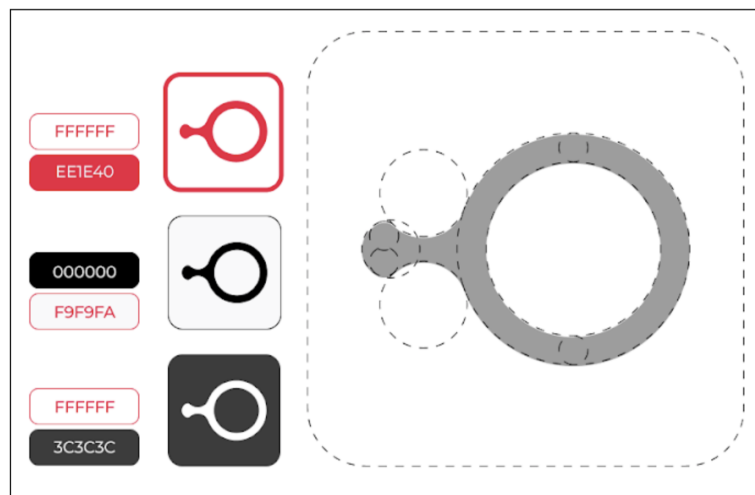


Figure 3.2 Safety Spread Logo Design

As Safety Spread aims to be a credible mobile application in Vietnam, the very first step is to build a recognizable branding, starting with the application's logo. According to research, the logo is the most important identity element of any branding as it is always present in all kinds of communications [40]. Therefore, an easy-to-recognize logo will more likely make Safety Spread prominent to Vietnamese users.

3.2.2 Visuals

The icon set for Safety Spread follows the minimalism style to ensure there are spaces between the elements for the users to interact and easily understand each icon's function. These linear icons are in uniform with the app's style to provide the harmonious while operating.

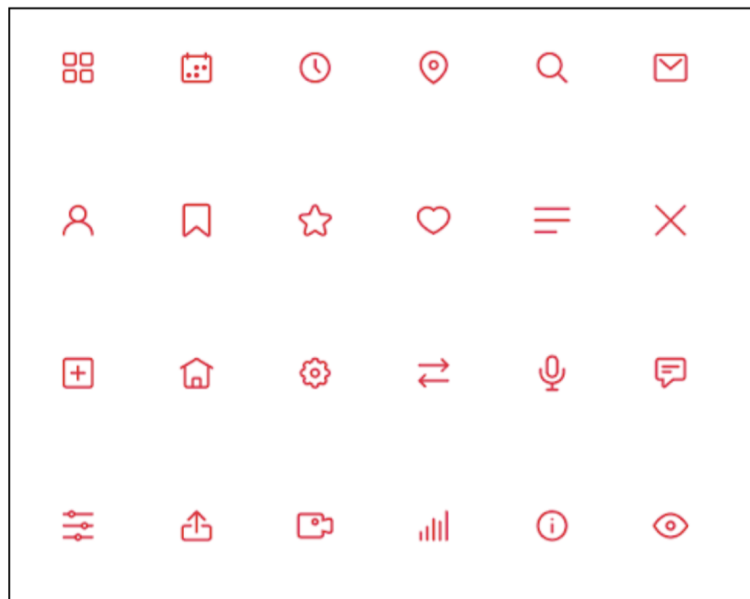


Figure 3.3 Safety Spread Icon Set

Another important part of Safety Spread is the design of buttons and text fields. Figure 3.4 demonstrate how each button and text field will display when they are in different states. The colors also determine the role of each element, whether they want to alert the users or inform them.

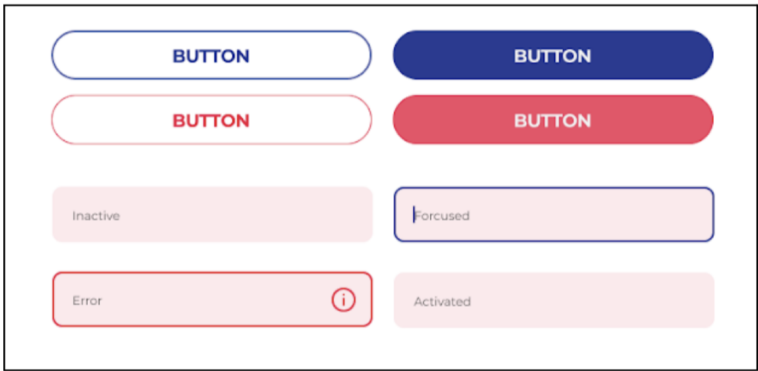


Figure 3.4 Safety Spread Buttons and Text Fields

If the users interact with the elements, they will change colors or fade away depends on the type of interaction such as pressing, sliding or typing. This display allows the app to create connections with the users, attracting their attention as well as monitoring the app better.

3.2.3 Color Palette

The theme color palette in Safety Spread follows the color association to effectively guide the users’ perception while interacting with it. With the primary colors as the theme’s main colors, the author also decreases the hue and opacity of the colors to emphasize the contrast of the elements in the application depend on their roles [41].



Figure 3.5 Safety Spread Color Palette

Red is the most important color in Safety Spread. It illustrates the urgency and seriousness of the depicted elements, such as the report button. The research shows that colors, in general have effect on people affects, cognition and behavior [42]. Each color has its direct affect on people's mind as well as different impressions, which will advocate certain interactions if used correctly. According to research, the red color, being the color with longest wavelength, has the tendency to attract the users' attention more other colors. By stimulating the pulse rate, red indicate a feeling of rushing, implying the urgency of the Report Button [43]. By decreasing the opacity of the red color, Safety Spread also has red-pink color to display other vibrant elements in coordinated with the main features yet strengthen the meaning of the red color as pink is physically soothing to look at.

The second important color in the palette is blue. It usually appears in the same pages with red color to highlight the contrast as well as assisting the other color. For example, if the confirm button is in red, then the cancel button will be in linear blue. The objects in blue do not appear to be as close as the one in red, which will help pulling the users' focus on the elements with red color without making it look unconventional [43].

The third important color of Safety Spread is black. The color is used to demonstrate most kind of information in the app, such as long reading or main titles, as it can refer to efficiency and in some case, emotional safety [43]. Therefore, it is extremely necessary to have black color in the app to create focal point for the users to skimming and scanning through the data without straining the eyes.

There are also other colors in the app such as yellow or white. Yellow is relatively close to red, which is why it is not used frequently to avoid neutralizing the main color of red. It is there to assist red and blue in crucial situation, when the other colors are already been applied to the page. On the other hand, gray-white is subtle as a color. Therefore, it is the background color of Safety Spread, to create a clean and minimal feeling, as well as accentuating the main colors. The author do not choose pure white, as it may strain the eyes or appear to bright for many people affecting the accessibility of the application [44].

3.2.4 Typeface

Montserrat is a popular font developed by Argentine designer Julieta Ulanovsky along with her companions that released in 2011. Until 18th July 2022, there has been more than two thousand billions views on the font, according to Google Analytics [45]. The typeface is geometric san-serif, which based on geometric shapes, is clean and modern [46]. This explains why the kind of typeface has such huge use universally.

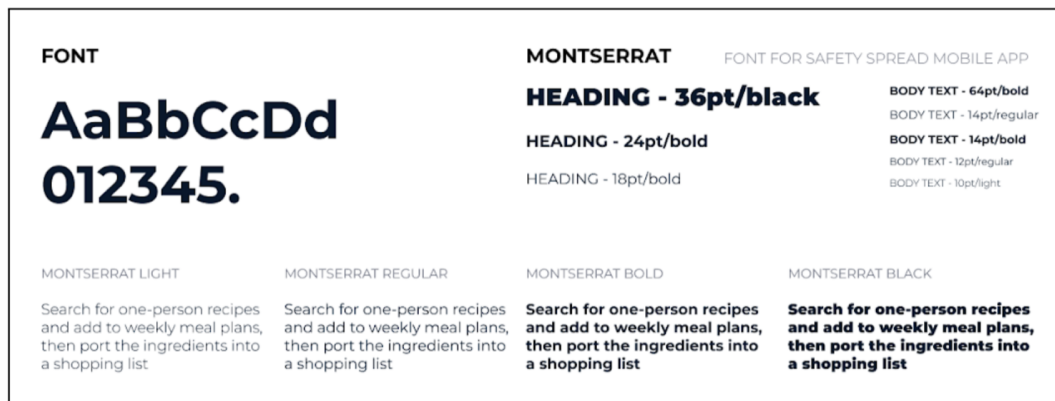


Figure 3.6 Safety Spread Typeface

The author use this typeface as it has eighteen styles and nine weights (from Thin to Black), supported in Underline and Italic [47]. Moreover, the Montserrat typeface also features a large x-height, short decedents and wide apertures, which makes it has high legibility even in small size [48]. All of the above reasons explain why Montserrat is versatile and perfect to use in different domains yet does not lose its uniqueness compared to other typical font such as Futura.

3.2.5 Functions

Case Report Button-Home

Case report button is the main feature of Home interface. It serve the purpose

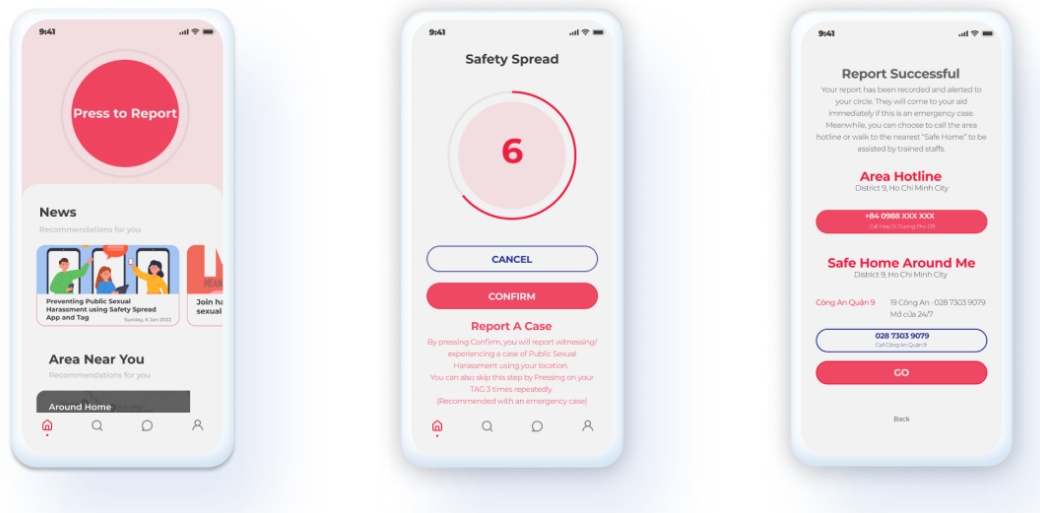


Figure 3.7 Case Report Button feature - Home

of reporting PSH cases to the system. This feature is the most important in the prototype, as it is the center of the application, connecting other features together. The users will press the button to report. In case they press it by mistake, there will be 10 seconds countdown. The users can choose to confirm immediately or cancel. After confirming, they will be notified that the report is successful, and they can either choose other action such as calling the hotline for help, access to the map view to the nearest safe location or simply go back to the main screen.

The design is straight-forward, to allow the user to save as much time as possible in emergency cases. They only need to press twice to confirm a case and even suggested to send an SOS to the caller or run to the nearest destination for help. By doing this, the researcher wants to explore the common feature existing in other region's measures but yet to exist in Vietnam.

Real-time Map View

Real-time map view is an unique feature created for the users' need to feel safer. Its role is to enhance the effect of the case report button. Without it, the user

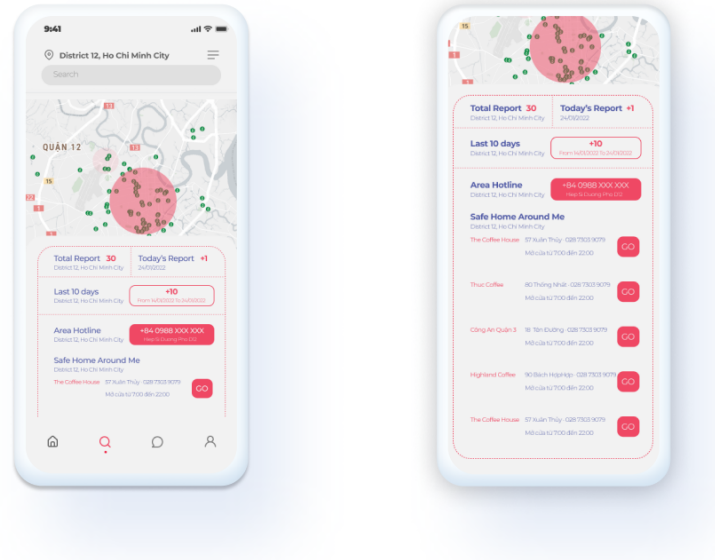


Figure 3.8 Design of Real-time Map View feature

cannot observe their reports in real time, which can lower their faith in the application. By demonstrating basic information about their case on the map, they will indirectly help keeping the community safer. With that mindset, they will also feel more trustful looking up other results on the map. The prototype of the map show an image of the surrounding location based on the result, there are multiple red spots on the map, which indicate the safety of that area. The redder the spot is, the more dangerous that area, as there are many reports in that area.

This feature will help change their behavior from time to time. The user will eventually have the habit of checking the location before heading out. The map also suggest safe spots near the location in case the user need it. Therefore, the user can feel safe as long as they turn on the application while spending their time outside.

Info Update

The info update feature serves the purpose of providing extra information for the community and useful readings for the users. In the initial survey, when asked 'Do you want to hear how PSH victims overcame their past?', 25 out of 26 people chose 'Yes'. As long as there is a need, the Safer Spread application should be

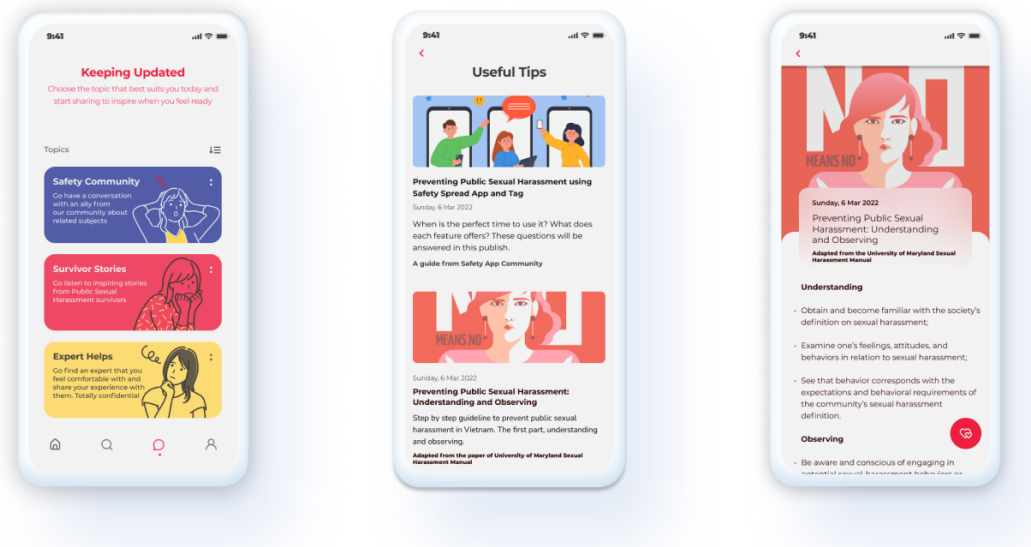


Figure 3.9 Design of Info Update feature

able to provide a platform for the community to read and learn new knowledge about PSH, through other people stories, or through discussion in the community thread under certain surveillance of the admin. This feature can be an important medium for the users to come and seek credible information regarding PSH in Vietnam instead of the Internet, where there are many fake news.

Personal Settings

Personal settings is the feature many other safeguard applications ignored. However, the researcher understand that, to engage the users, Safer Spread needs this feature to personalize other features in the app. Its function is to create harmony in operation, and provide custom settings such as adding their own list of ally or matching their own extra backpack tag (mentioned in the Future Work). The users are allowed to check and change their personal information, if they have the need to change it. These personal information includes name, phone number, email address and date of birth. The settings also support users in term of legal questions. They can search for terms of service and such to understand how the application store and use their information in emergency situations.

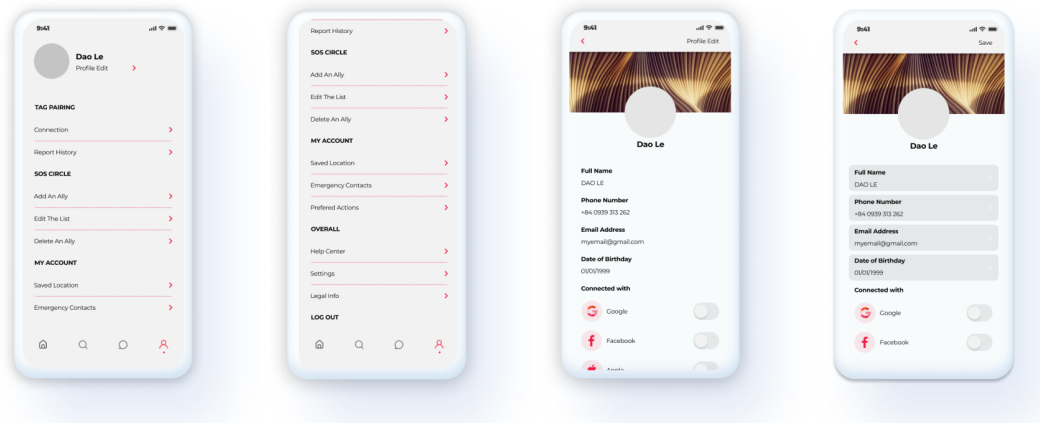


Figure 3.10 Design of Personal Settings function

3.2.6 User Experience and User Interface - Interactive Simulation

The site map of Safety Spread consists of the features designed in the initial version of the prototype, which is also the version that was tested during the user test. This site map demonstrate the logic flow in the app and how each function will have its own branch to best support its role in the app based on the analysed data in the initial survey.

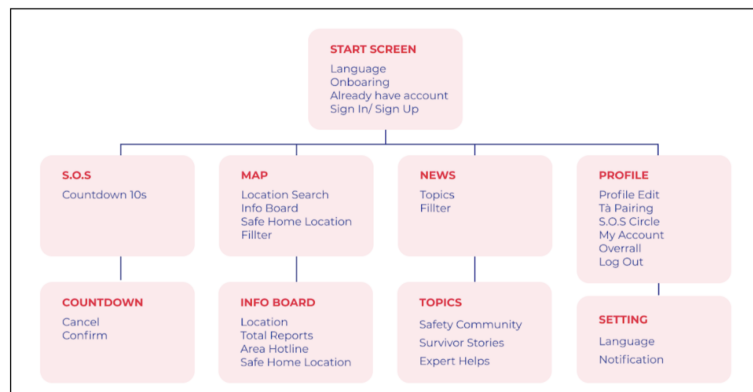


Figure 3.11 Safety Spread Application Site Map

From the site map, the author developed an interactive interface of Safety Spread that contextualized the purposes of the research. The design of the inter-

face below presented how each main function will look in reality if used on iOS devices.

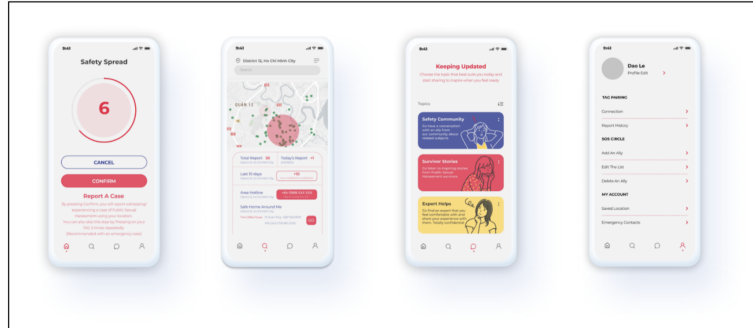


Figure 3.12 Safety Spread Application Main Interface

The elements of the app are positioned to be predictable to minimize the time each user has to use in order to make important task such as reporting PSH cases. Which is why the research point out that the most important function, Safety Report, should be put on the home screen. The Report Button, when pushed, will report the case to the system, as well as the user's circle of trust, which can be edited on the app. The bystander standing 10 meters around the victim will also receive a notification saying that someone near them need help with a case of PSH.

On the other hand, the Safety Map is designed for the users to use daily before they want to go outside. This function's main goal is to make the users feel safer with their surrounding while traveling, as they can monitor how the areas' status on their phone in real time. The Safety Map will update the reported cases of PSH on as soon as it has been verified by the system. The users can see data such as the total report of the chosen area, today's report, the reports in the last 10 days and the area support hot-line as well as the location to the nearest place they can find support if needed.

Raising the users' awareness is a necessary task, which Safety Spread also aim for beside increasing the target audience's feeling of safety and knowledge about the present situation through the Safety Map. For that reason, the Safety News keep everyone updated with the latest papers about PSH, pulling from credible sources, to help them update their knowledge on the topic. The Safety News

function offer the users' topics to discuss together in the Community section, under surveillance of the administrator. Along with other sections that is yet prototype or tested. These sections works together to deliver the topic-related information to the users the most efficient way on a daily basis.

The Personal page is fundamental to an app, especially an safeguard app like Safety Spread, as it allows the users to modify the app according to their personal management. This function offers multiple functions that can assist the users with a broader control over extra pairing with the Safety Backpack Tag through bluetooth to use in case their hands are occupied to use the mobile app. The page also let the users choose a list of close relationship to form a circle of trust. This circle of trust will be alarmed when a member in their list push the report button, regardless of their location.

Chapter 4

Evaluation

4.1. User Test

The user test is conducted to determine whether the features of the Safety Spread App are suitable for the Vietnamese context, and to what extent can the app help the users to extend their feeling of safety while traveling outside. The test also gathers insights about the users' level of knowledge about PSH before and after using the app to verify the efficiency of the mobile app in raising awareness concerning PSH. The language of the user test is English, as it is more convenient to analyse data in the language, while Vietnamese seem easier to communicate with the participants but may indicate false insights through the translation process. The participants of the test all confirmed they are comfortable with using English before entering the test.

4.1.1 User Test participants

The test targets users that are over 18 years old, regardless of their gender, and consent to discuss PSH as well as related topics. These participants come from urban areas and are natives of mobile applications. The participants' characteristics resemble the target audience of Safety Spread to a certain extent to prove the efficiency of the app.

Among the 14 participants, only two did not complete the test due to personal reasons. A participant has to complete all of the required surveys and tests, as well as spend time interacting with the app to be rated as completed.

Based on the recorded profiles (See table 4.1), the participants varied from three main occupations, which is freelancer, office worker and student. Among the participants, there are 8 females (57.1%) and 6 males (42.9%) agreed to conduct

Table 4.1 User Test Participants

No.	Age	Gender	Occupation	Living Area	Participation Status
1	24	Male	Freelancer	Thu Duc City	Complete
2	28	Female	Freelancer	District 1	Complete
3	24	Male	Office Worker	District 5	Complete
4	23	Female	Student	Thu Duc City	Complete
5	22	Male	Freelancer	District 1	Complete
6	24	Female	Student	Thu Duc City	Complete
7	25	Female	Office Worker	District 6	Complete
8	24	Female	Freelancer	Go Vap District	Incomplete
9	23	Male	Office Worker	Thu Duc City	Complete
10	24	Female	Freelancer	Binh Thanh District	Complete
11	26	Male	Office Worker	Binh Thanh District	Complete
12	24	Female	Freelancer	Thu Duc City	Complete
13	24	Female	Office Worker	Binh Thanh District	Incomplete
14	24	Male	Student	District 4	Complete

the test. The participants are categorized into 2 types: (1) Participants who have reasons to be concerned about being in public alone, as known as the primary target audience; (2) Participants who have reasons to be concerned about PSH because their friends, family, and so on are the potential victims.

4.1.2 User Tests Structure

In order to monitor the user's psychological and behavioral developing process throughout the experiment, the user test will take place in 3 days, with 1 day break in between. The following figure (See figure 4.1) demonstrates how the procedure of the main user test is managed to provide both quantitative and qualitative insights for further development of the app, briefly based on the instruction from Usability Testing research article from Morten Hertzum [49].

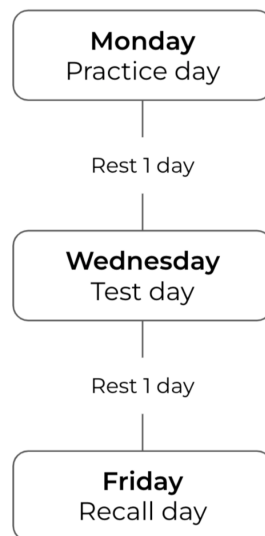


Figure 4.1 User Test Procedure

Based on the research, the evaluator will observe and listen-in on the participants' thoughts throughout the process [49]. Accordingly, the participants will have different amount of time to interact with the application and learn about the main features of Safety Spread. They are allowed to ask questions during the process and is assisted by the conductor in the controlled experiment.

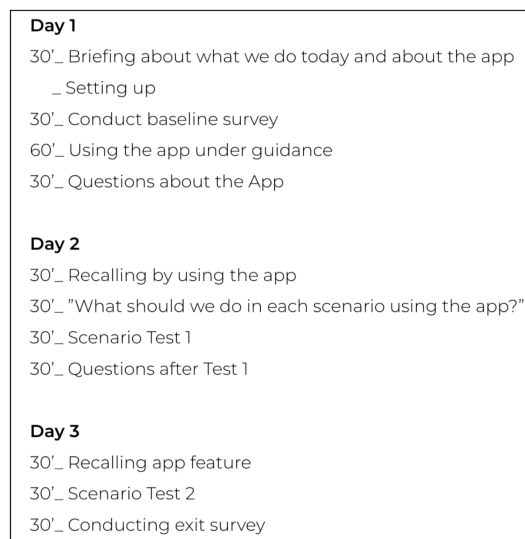


Figure 4.2 User Test Brief Timeline

The timeline of the user test (See Figure 4.2) briefly demonstrates the agenda of the process. The research follow this timeline strictly in order to provide an impartial result.

To monitor the developing progress, two scenario tests will be assigned to each participants during day 2 and 3 of the experiment (See Appendix B). Each scenario test consists three different sequence of events related to PSH. The participants will read the content and decide whether the discussed subject is a perpetrator or not, as well as explaining their thoughts on the situation. They will also have to describe their immediate reaction in according to the situation to justify their psychological and behavioral changes.

In the exit survey, the participants will evaluate the level of knowledge they have pertained during the test compared to their baseline survey. This will be the quantitative insights to classify how effective Safety Spread is in raising the users' awareness. Furthermore, the participants will be asked to depict their experience with the prototype, their most favorite features as well as the changes they recommended to improve their experience.

Baseline Survey

Everyone has their personal opinion regarding the PSH circumstance in Vietnam. The baseline survey is designed to observe the participants' thinking through their answer. The insights then, are used to determine what type of scenario script can occur in their daily life, and what type of scenario will make them feel threatened.

Why is it PSH/Not PSH? Can you explain why? *

Long answer text

Base on the example scenarios, what situation makes you concern about your/your beloved ones' safety when going outside? *

Long answer text

What kind of public places you go to most often? List all. *

Short answer text

What places do you think is more likely to happen PSH? *

Short answer text

Figure 4.3 Questions regarding the participants' habit and psychology about public places

The baseline survey also focus on gathering other personal insights regarding the PSH problem in Vietnam context as an effort to dig deeper into the participants' mental process when they face PSH and their initial thoughts. These answers will be compared with the answer in the exit survey to determine whether the user test has effects on their psychology or not.

Do you think you can proactively ask for help in Vietnam facing Public Sexual Harassment? *

☐ Yes

☐ No

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☐ ☐ ☐ ☐ ☐ ☐ Completely Safe

Figure 4.4 Questions regarding the participants' perception on personal safety

The questions in the survey also mention about the compatible between the participants and their personal preference on using mobile application. Even

though the prototype is only designed as a mock up to do testing interaction, it is important to understand how Vietnamese users perceive it as a potential measure in the future.

How comfortable are you using mobile app? *

1 2 3 4 5 6 7

Not comfortable ☐ ☐ ☐ ☐ ☐ ☐ ☐ Very comfortable

If the app require you to update personal information such as ID for emergency situations, how comfortable are you to share?

1 2 3 4 5 6 7

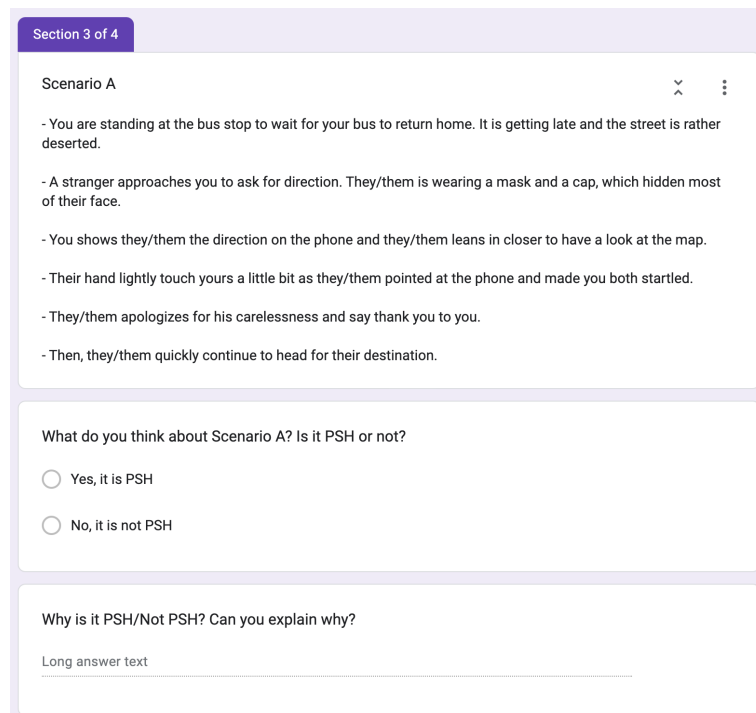
No comfortable ☐ ☐ ☐ ☐ ☐ ☐ ☐ Very comfortable

Do you know any other app that is about Sexual Harassment topic in Vietnam? If yes, what is it? *

Short answer text

Figure 4.5 Questions regarding the participants' perception on using mobile application

Another important note in the baseline survey is the example scenarios given to the participants to understand their observation facing 'real' scenarios that can actually happen to them and their beloved ones. The difference between the initial answer and exit answer can be spotted through keywords to determine whether there are positive changes in their mindset.



The screenshot shows a mobile application interface for a user test. At the top, a purple header bar contains the text "Section 3 of 4". Below this, the interface is divided into three main sections. The first section, titled "Scenario A", contains a list of six bullet points describing a situation at a bus stop. The second section asks the user "What do you think about Scenario A? Is it PSH or not?" and provides two radio button options: "Yes, it is PSH" and "No, it is not PSH". The third section asks "Why is it PSH/Not PSH? Can you explain why?" and features a text input field with the placeholder "Long answer text".

Section 3 of 4

Scenario A

- You are standing at the bus stop to wait for your bus to return home. It is getting late and the street is rather deserted.
- A stranger approaches you to ask for direction. They/they is wearing a mask and a cap, which hidden most of their face.
- You shows they/they the direction on the phone and they/they leans in closer to have a look at the map.
- Their hand lightly touch yours a little bit as they/they pointed at the phone and made you both startled.
- They/they apologizes for his carelessness and say thank you to you.
- Then, they/they quickly continue to head for their destination.

What do you think about Scenario A? Is it PSH or not?

☐ Yes, it is PSH

☐ No, it is not PSH

Why is it PSH/Not PSH? Can you explain why?

Long answer text

Figure 4.6 Questions regarding the participants' perception on 'real' scenarios

Scenario Mockup Test

The participants will engage in multiple discussion about PSH during the 3 days of user test process. On day 2 and 3, they will receive the scenario mockup test to practice their reactions facing scenarios that are most likely to happen, according to their answers in the baseline survey. Their reaction and explanation will demonstrate their changes in mindset, which resulted from the discussion session with the interaction with Safer Spread App prototype.

There will be 3 scenarios for each person do practice in one section (See Appendix B). Each person will have 6 scenarios in total to practice their reactions with before ending the user test with an exit survey. BY comparing the difference in the participants' reactions and their own judgement on whether they feel there is a change in their reactions and mindsets or not, the user test can gather new insights which can be critical to the potential of a safeguard application in Vietnam. By asking the participants about their opinion on the situation, the researcher can receive answers that indicate their observation, judgement and their knowledge on

the situation. The more the participants practice with the scenarios and discuss like they will do on the Safer Community function in the app, the more familiar they will be with the nature of the app in the future.

Do you think it is Public Sexual Harassment? *

☐ Yes

☐ No

If yes, why do you think it is Public Sexual Harassment?

☐ It contains sexual propositioning

☐ It contains leering or persistent staring

☐ It contains following or stalking

☐ It contains sexual gestures

☐ It contains sexually explicit comments

☐ It contains intrusive intrusive persistent questioning

☐ It contains 'catcalling' or 'wolf-whistling'

☐ It contains non-consensual physical contact such as kissing, groping, stroking, etc.

☐ It contains non-contact technology-enabled sexual behavior, such as 'Air Dropping' unwanted illicit image...

☐ It contains 'up-skirting'

☐ It contains viewing or showing pornography in public

Figure 4.7 Questions regarding the participants' judgement facing PSH scenario

What is your reaction if that incident happen to you? *

Long answer text

Who do you think you can ask for help in this situation (if possible)? *

Short answer text

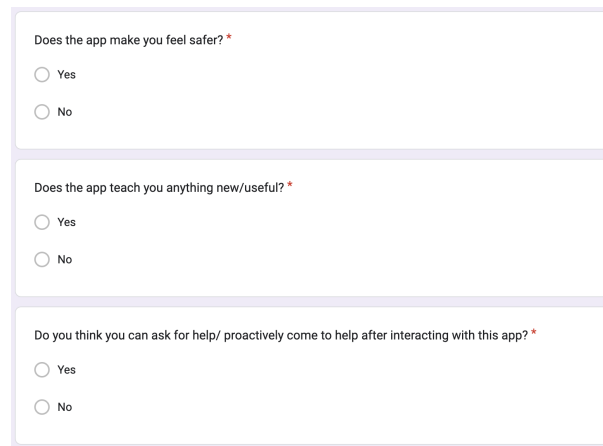
Figure 4.8 Questions regarding the participants' reaction facing PSH scenario

The questions asked in the scenario test will be prototype into the Safer Spread app in the future as the filling information for the case report.

Exit Survey

The exit survey will focus on exploiting the participants' opinion on the prototype of the app and their change in psychology as well as behavior. These two main points can cover the purpose of Safer Spread and its potential in Vietnam market with the targeted audience.

Many yes-no questions in the exit survey have the role of confirmation, to verify the part of information that is critical to determine whether the app's nature is suitable to Vietnamese target audience. These questions are straightforward enough for the surveyors to consider without making them feel pressured.



Does the app make you feel safer? *

☐ Yes

☐ No

Does the app teach you anything new/useful? *

☐ Yes

☐ No

Do you think you can ask for help/ proactively come to help after interacting with this app? *

☐ Yes

☐ No

Figure 4.9 Questions regarding the compatibility of the prototype to users

Other questions regarding the prototype focus on the interest of the surveyors to specific features, and their reasons. These type of questions signify the potential of certain features to the future development. The researcher also gather opinions on the feedback that the users feel necessary after the period they spent interacting with the prototype.

Name your one favorite feature of the app? *

☐ Report Button

☐ Safety Map & Cases Report

☐ News & Related Updates

☐ Personal Customized Feed

☐ Supportive Set of Reactions (Calling for Help, Safe Home around me,...)

Explain why is the feature your favorite? *

Long answer text

Do you want to make any change to the features of the app? *

☐ Yes

☐ No

What is the changes that you want to make? *

Long answer text

Figure 4.10 Questions to future development of the prototype

The exit survey also has designed questions about the changes in psychology and behavior of the participants. However, as the researcher cannot measure the changes in numbers due to the lack of professional tools, the participants only able to consider the effects for themselves without the assistant of any measure tool. Despite the limitation in technology, by asking the participants to evaluate themselves, they can have the time to look back the process and demonstrate the changes clearly, which plays critical role for the final question.

Do you feel that the app changed your psychology facing PSH? *

☐ Yes

☐ No

Do you feel that the app changed your behavior facing PSH? *

☐ Yes

☐ No

What did you do on the 2nd Test that is different from the 1st Test? Why? *

Long answer text

Rating your knowledge about PSH in Vietnam from 1-7 after the process of user test? *

	1	2	3	4	5	6	7	
Nothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Deeply

Figure 4.11 Questions to evaluate the effects of the prototype on the users

Chapter 5

Result and Discussion

5.1. General

Through the user test, the research was able to test the hypothesis to prove that a technology-based mechanism can effectively safeguard the victims against PSH in Vietnam context. Moreover, the thesis also mentioned about PSH effects on the victims, as well as bystanders, psychologically. The hypothesis of safeguarding the target users' feeling of safety was also proven based on the insights throughout the process. The final hypothesis, which is alternative features to act as a subtle method to raise the users' awareness instead of papers and news is tested as well by comparing the prototype features with each other.

5.1.1 User Test Process

When asked if they feel safe traveling alone in Vietnam, the answers varies depend on the gender of the participant. Among the 6 male participants, there are only one person feeling that traveling alone in Vietnam is not safe, and chose a number below average (See Appendix A). However, among the 8 female participants, four chose a number below average (See Appendix A). This shows that overall, female have less feeling of safety among public areas in Vietnam. At the same time, it does not mean that it is completely safe for men to travel alone in the streets of Vietnam, as there are still one in six male participants choosing a number below average.

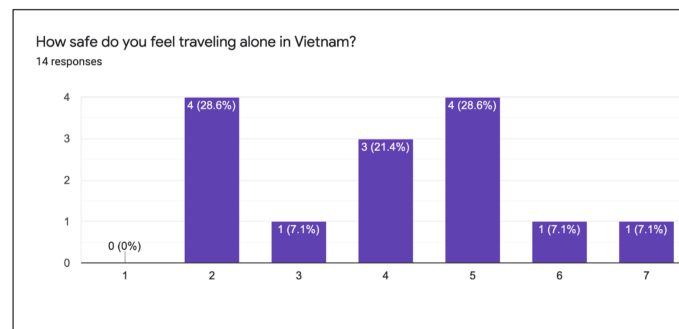


Figure 5.1 Baseline Survey about Personal Feeling of Safety Traveling Alone in Vietnam

Regarding their lack of safety feeling, the participants further address that they feel PSH is most likely to occur in public places such as: On the street, public transport and bus stops.

No.	Answer	Frequency count for each value
1	Anywhere	2
2	On the street	5
	Public transport	4
	Elevators	1
3	On the street	5
4	Anywhere	2
5	Crowded places	2
6	Public transport	4
7	On the street	5
	Gym	1
8	Dark/secluded places	1
9	On the streets	1
	Alleys	2
	School	1
	Public transport	4
10	Bus stops	2
	Crowded places	2
11	Secluded places	1
	Places with people who is focusing deeply on another activity.	1
12	On the street	5
	Public transport	4
	Public restroom	1
13	On the street	5
	Alleys	2
14	Parks	1
	Market	1
	Cafes	1
	Bus stops	2
Keyword		On the street
		Public transport
		Bus stops

Figure 5.2 Public places that are most likely to occur PSH according to the participants

The keywords are picked out and calculated base on their frequency in each

answer. Different words with the same meaning or expression will be counted as one word. This insight shows the gap in Vietnam existing social norm, which normally implicate that PSH happens mostly in deserted places, when it is more likely to occur in crowded places.

In 14 initial participants, 8 stated that they have experienced PSH, 4 stated that they have not while 2 could not identify the events they experienced are PSH or not. 8 out of 14 people also think they do not have the ability to ask for help if PSH happened to them. Therefore, these data can interpret how the PSH problem is in Vietnam at the moment. There are people who acknowledge about the overall situation and aware about their safety in public areas, while there are an amount of people who do not acknowledge the problem. However, 8 out of 14 people do not feel safe in public places, because the existing problem, and also because they do not feel like they are supported by the community to escape the situation, if necessary, as not everyone aware of the situation and willing to help.

Therefore, in the exit survey, when were asked if they think they can proactively ask for help, as well as helping other people with the assistance of such safeguard application, 100% of the participants did not hesitate to choose the 'yes' answer. This can be explain as they feel more secured when the choice is given back to them, whether it is to ask for help or to contribute to the community, to make their surrounding safer in general.

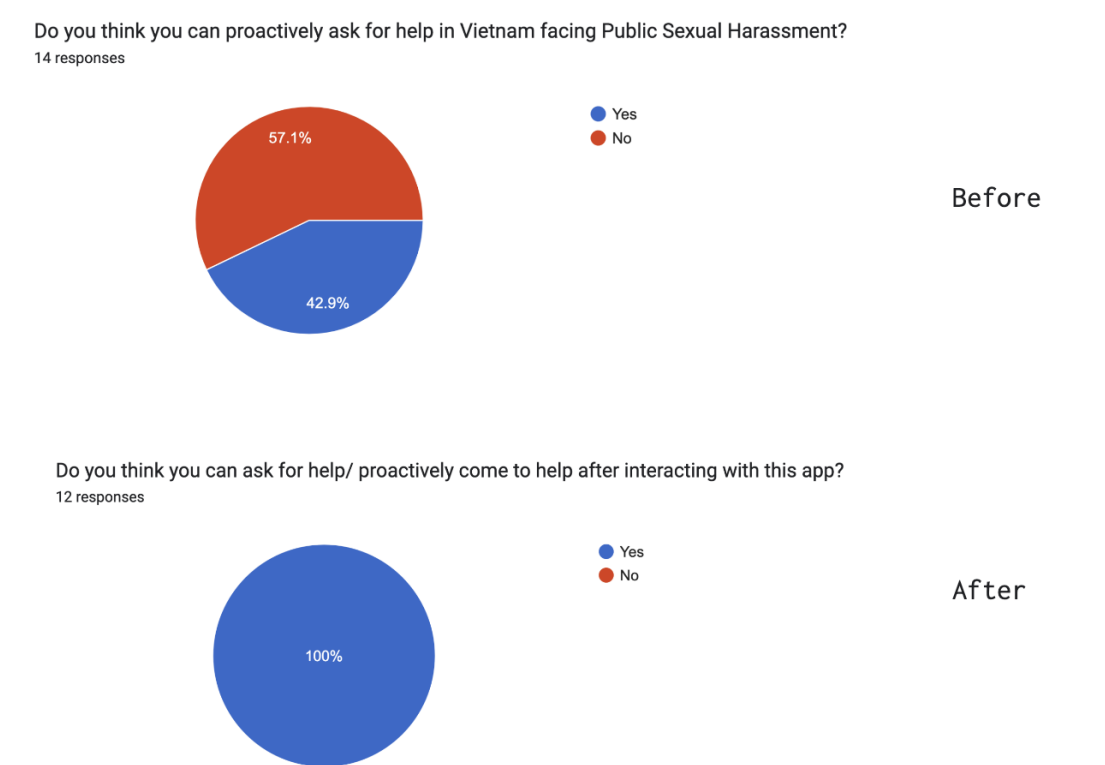


Figure 5.3 Difference between the baseline and exit survey’s answers

Data also presents the fact that the participants suppose they have improvements in knowledge after participating the test (See table 5.2). Averagely, most of the participants will increase 1 level regarding the knowledge of PSH through exposing to simulate situations during the test to imitate real-life events that they have to face. The application’s functions help the users to report and find immediate help, as well as checking for dangerous areas before going out. The average data is calculated by the T-test function in Google Sheet to maintain the accuracy of the results.

Table 5.1 Improvements in knowledge of the user after the test

Participant No.	Before	After	Average
1	5	7	2
2	5	5	0
3	4	5	1
4	4	6	2
5	4	5	1
6	6	6	0
7	4	4	0
8	5	-	-
9	4	5	1
10	5	6	1
11	4	6	2
12	5	6	1
13	7	-	-
14	3	6	3
-	-	-	0.001232717606

5.1.2 User's Interaction Engagement

When asked at the end of the test, among 12 remaining participants, 91.7% agreed that Safer Spread has changed their psychology facing PSH, and 83.3% agreed that the application changed their behavior facing PSH. Overall, they also consider that Safer Spread is suitable for Vietnamese context.

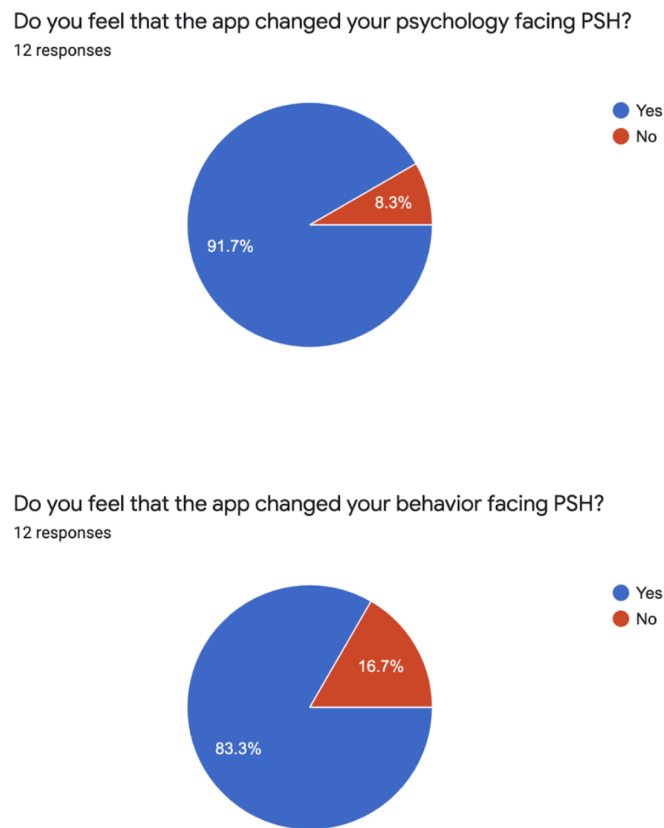


Figure 5.4 The Overall Engagement of Users for Safer Spread

According to the answers, the users think it is necessary to have Safer Spread in Vietnam as “there are not enough support systems for PSH victims”. The app also “enables fast reaction and realistic escape route and support realistic real-time alerts and intervention”, regarding the functions. Overall, “PSH is less acknowledged in Vietnam and would make the first steps more challenging. The App can provide a foundation to spread awareness as well as a safety net for individuals”.

The app’s main purpose is to make the users feel safer and be more confident when traveling outside. With that intention, the Safer Spread prototype is the first to offer a mockup map view of historical reports made in real-time. During the user test, participants have showed their interests in this feature by spending most

of the time on it (See Appendix C). This insight reveals that it is an important feature not taken into consideration by existing applications. Moreover, it is traumatic and unsettling for many people to read the news and sift through the unsavory details to find out about assaults going on in the area, which is why the prototype strikes to make you aware of high-risk locations without needing to examine any details that may make you feel scared or uncomfortable. The users can also learn about PSH through daily interaction naturally without the burden of thinking that they have to learn something new, which can be uninteresting to many.

Another insight regarding the potential of such application in Vietnam, when asked to rate their preference using mobile application from 1-7 scale, 12 out of 14 participants choose the number from 4-7, showing their comfort in using the device and its application. However, when asked 'If the app require you to update personal information such as ID for emergency situations, how comfortable are you to share?', the answer varies from 2-7.

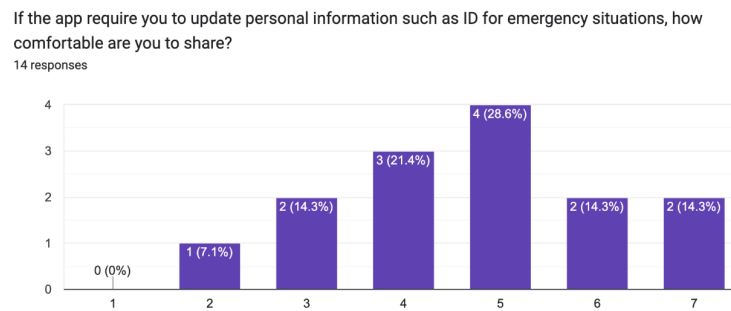


Figure 5.5 How comfortable are the participants to share their personal information

This result is worth considering if the application is developed in the future, as the community will need a long period of time to adapt to the new concept and choose to trust it. This is also a useful finding, which may explain the reason why the app market in Vietnam is not as prosperous as other Asian countries such as China or Japan.

Scenario Test

The scenario tests are designed to provide the user 'real life' scenarios that can happen everyday. It is necessary as there are limited time for the user test, which can minimize the effect of the app concept due to the lack of practical situation. After the two tests, participants are asked about the difference they notice during the test and does it change the way they observe the situation at all. According to their feedback, there are various reasons whether they did not do anything different, or did they change. Notably, among the 4 participants who did not change their reaction, 2 of them did not further elaborate their reasons, while the other 2 explained their reasons as below:

"I did both pretty much the same way since I tend to confront situations with rage and calling out people"

"I did not do anything different since I have a background in educating and supporting victims of sexual harassment and sexual violence."

The remaining 8 participants, on the other hand, have noticed changes in their mindset and behavior. Their reasons have different angles to discuss, which can be presented as below:

"I can identify what is PSH more clearly because I learned more about PSH."

"I have better insight about PSH than the 1st test, because now I've understand the concept with a bigger picture."

"I feel like I paid more attention to what I could do after the incident more for the community, rather than just my own skin."

"My definition about PSH has become clearer. I got to know more definitions about PSH like sexual propositioning. And also be able to differentiate various kind of PSH. Therefore choosing answers are a lot easier and faster."

"I examined the situation more carefully to call for the appropriate help."

"I added report to the app, because I knew it could be a helpful way to solve the problem."

"Deeper understand about PSH after reading 1st test."

"More willing to contact others for support when confronting the offenders."

Among the answers, the participants performed a tendency to be more active in observing and solving the problem. Most of them expressed that they have a better awareness about the overall situation, or understand more about the right term to name the experience they are facing. This insight portray a concrete foundation for concept app such as Safer Spread.

Feedback

This is the qualitative insights, where the participants give out their feedback on the prototype concept of the actual app. Beside the short comments stating that the concept of Safer Spread is suitable for Vietnam context, there are also comments that elaborate further how they think it is suitable.

"PSH is not clearly understood in Vietnam, me and my family/ friends were also a victim of PSH so that the app might help us a lot in finding the same voice to against PSH."

"In Vietnam people have limited knowledge about sexual harassment and still consider it as a taboo, leads to the situation where victims never get too speak up. With this app, even though things wouldn't dramatically change to the better, however it would help raise awareness and also let anyone who have had bad experiences know that they're not alone."

"I think awareness of sexual harassment is not emphasize enough in current Vietnam, so victims or people who cares about the issue would greatly appreciate help. In environment such as schools, bus, the security might be too lax on the subject, which is why it is necessary."

"The app enables fast reaction and realistic escape route and support realistic real-time alerts and intervention."

"It is designed with Vietnamese context and culture in mind, so the way of getting helped is tailored around a network of support that could make sense to Vietnamese people."

"It's suitable for Vietnamese people since there isn't enough of a support system for PSH victims."

"It creates the safe feelings in the context of a careless society I think."

"PSH is less acknowledged in Vietnam and would make the first steps more challenging. The App can provide a foundation to spread awareness as well as a safety net for individuals."

"There are many hot-spots that PSH can happen; the awareness of Vietnamese people against this problem is not high, that can lead victims to mental illnesses; the social-oriented mindset."

"Vietnamese are kind of low in awareness about PSH. Also there are not many ways to prevent PSH or report a PSH case or help people who experienced PSH on time."

"It can helps to prevent (and maybe, reduce) sexual harassment in Vietnam."

Even though the user test can only provide the prototype of the app's concept, the feedback has set a positive trend to an actual development in the future. Through

the comments, the participants show a clear opinion expressing the contribution of the app's concept in the current state of Vietnam, where the public remains to have low awareness on PSH.

5.2. Conclusion

The mock-up of the conceptual application proposed the real-time crowd sourcing map view as a creative feature in term of the purpose of the research, which is safeguarding potential victims and creating a sense of 'safety' for the users. The feedback of the user test participants showed a positive response to the feature, as well as the type of mobile application for Vietnam context. The research has contributed additional findings regarding the on going problem in Vietnam context and points out the gap in existing measures. Vietnamese has adopted multiple measures based on their personal experience out of instinct. There has been no effective measure wide-known to the community until today, which the research is trying to change with a creative and sustainable solution.

The Safer Spread prototype, although does not have functional features as it is an interactive interface for the moment, has been able to provide initial insights for further research on PSH in Vietnam. The user test managed to give more feedback on the importance of the positive psychological effects if offered an intervention to help empowering themselves against the current state of social security. Although the limited reach of the user test does have a limitation on the result, it is still considered valid due to the accuracy in quantitative numbers.

The research also set the foundation of a real-time map function to safeguard users against PSH, which has not been exploited in existing PSH-related mobile application.

5.2.1 Limitations and Concerns

Due to the limitation of the number of participants during the user test, the research cannot point out the distinction in data to signify the results. The test also approaches some distress topics that can make the participants feel dis-encouraged to volunteer. Safer Spread aims to target Vietnam context, which leads to the fact that it is region limited. Any research that follows the principles of the app has to

aware that it does not fit most of the context and need overall modification. The Safer Spread is the first mobile application prototype in Vietnam to target adults in order to raise their awareness through an alternative method, as well as safeguarding the victims against PSH, which may results in significant flaws if brought to use in a larger scale of target audience without monitoring. The research also focusing on proving the effects of the application other than the backpack Safety Tag, as an extra accessory that the user can choose to obtain or not depend on their needs. Therefore, the paper may lack the interactive experiment that support the Safety Tag, as part of the Safety Spread mobile application.

Finally, due to the COVID-19 situation in Vietnam and Japan while conducting the user test, most of the test were done remotely with limited time, which can affect the scope of the research.

5.3. Future Work

The research set a foundation toward making a mobile application to further understanding the gap of safety feelings between the genders, as well as the importance of empowering the potential victims along with educating the public about the basics of PSH in their daily life rather than focusing on severe cases that are less likely to happen based on the insights gathered during the initial survey.

Therefore, it is necessary to make deeper research on the effects of Safer Spread toward a larger scale of users. While doing that, the modification of the app based on the feedback of the users will be taken into consideration and significant updates will be released to the general public. Further testing of actual features function will be developed to validate the usability of the coded app, as the research has only been testing the concept of the app with a prototype.

The mobile application will also be tested again with users in other countries to signify the effects it has in Vietnam context as well as comparing the difference between the feedback to further expanding the use of the research, based on the difference in culture, to different region.

Extra Safety Backpack Tag

The prototyping of the extra safety backpack tag is currently finished. The tag's purpose is to help the victims reach for it in emergency cases, when they cannot reach for their phone. This extra tag can be hanged on the backpack like a normal accessory until needed. By pressing on the tag twice, or pull the string, the victim can report the case immediately without having to confirm it first. The application will prioritise the user's safety and report their location to their circle of trust before any further action.

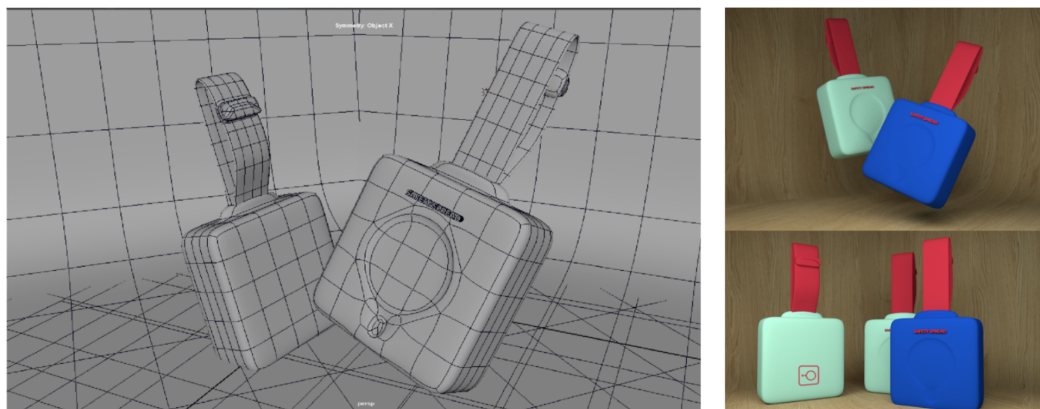


Figure 5.6 Safety Spread Tag 3D Design

The safety backpack tag is partially inspired by Apple Tag. However, the Apple tag's main purpose is to locate and find lost property, while the main purpose of the backpack tag is to send SOS signal to the main application. There has been reported that some individual would use the Apple tag to attract the owner of the lost property to come and abduct, or even harass them. There are also concerns that the backpack tag may be used to serve the same purpose, in order to sabotage the Safer Spread app, as they can use the backpack tag to report ghost PSH cases. However, the researcher has acknowledged this issue and taken it into consideration. The actual application will collect the user's information such as national ID to make sure each user is a real person, and when an account report too many cases a day (the researcher considers more than 3 cases a day are too many, this can be modified depend on the average cases and account report a day to suit the context. better in the future) their account will be locked temporarily until the system can confirm the accuracy in the information. This way, this

process will allow the app to be more secure and trustful.

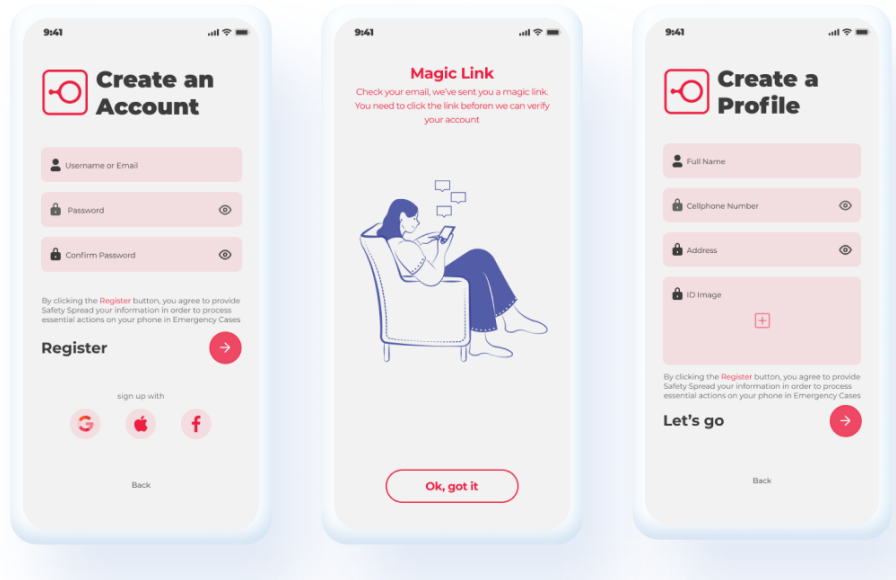


Figure 5.7 Interface design of the sign up screen require user to provide their ID

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Appendices

A. Initial User Survey

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☐ ☐ ☒ ☐ ☐ ☐ Completely Safe

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☐ ☐ ☐ ☒ ☐ ☐ Completely Safe

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☐ ☐ ☐ ☒ ☐ ☐ Completely Safe

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☒ ☐ ☐ ☐ ☐ ☐ Completely Safe

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☐ ☐ ☐ ☐ ☒ ☐ Completely Safe

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☐ ☐ ☒ ☐ ☐ ☐ Completely Safe

Figure A.1 Male Impression on Traveling Alone in Vietnam Streets

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☐ ☐ ☐ ☐ ☐ ☒ Completely Safe

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☐ ☒ ☐ ☐ ☐ ☐ Completely Safe

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☐ ☐ ☒ ☐ ☐ ☐ Completely Safe

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☒ ☐ ☐ ☐ ☐ ☐ Completely Safe

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☐ ☐ ☐ ☒ ☐ ☐ Completely Safe

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☒ ☐ ☐ ☐ ☐ ☐ Completely Safe

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☒ ☐ ☐ ☐ ☐ ☐ Completely Safe

How safe do you feel traveling alone in Vietnam? *

1 2 3 4 5 6 7

Not at all ☐ ☐ ☐ ☐ ☒ ☐ ☐ Completely Safe

Figure A.2 Female Impression on Traveling Alone in Vietnam Streets

B. User Test Imitating Scenarios

Scenario A (Is PSH):

You are traveling alone on a crowded bus, packed with people. It is still a long time before you reach your stop. Suddenly, you notice there is a sudden push on your body from behind. You turn around to see that person nod as if they/them are saying sorry for accidentally push on you because of the crowded bus. You nod back as an understood and try to keep straight but the pushing keep going on and on until you feel weird out as this extend of pushing on the bus is much more than usual. You try to move to another spot but after a while, the same person still appears to stand behind you.

Do you think it is Public Sexual Harassment? Why? What is your reaction if that incident happen to you?

Scenario B (Is PSH):

You are shopping in the mall with your family and suddenly have the need to use the restroom. You go in the restroom to wash your hand then in the toilet booth behind you, a person walks out. That person approaches the washing sink next to you and start chatting to you, compliment your clothes and say: “You are big” without any context. They/them then wink at you and grab their groin before walking straight outside.

Do you think it is Public Sexual Harassment? Why? What is your reaction if that incident happen to you?

Scenario C (Is PSH):

You are returning home from your work. Walk in the building’s elevator, you see a person wearing mask, standing in the corner. You decide to stand in the opposite corner, far from the person. That person standing still, surfing on their phone. The elevator come up to your floor and before walking out, you turn to have a quick glance at the person again just to notice their pants’ zipper is now wide open, with their sensitive part popping out.

Do you think it is Public Sexual Harassment? Why? What is your reaction if that incident happen to you?

Scenario D (Not PSH):

You are in the movie theater watching a movie with your friend. On one of your side is a stranger. While watching, you rest your arms on the chair handle comfortably. But after a while, the person's hand drops on yours just like they/them also want to rest their hand on the handle. You startled and move your hand away while they still keep their hand on the handle and put their legs out on the front seat. At the end of the movie, seeing an unhappy ending, you feel frustrated but the person next to you decided to swear out loud that the script before walking straight out to the exit door.

Do you think it is Public Sexual Harassment? Why? What is your reaction if that incident happen to you?

Scenario E (Controversial):

You are at the swimming pool, spending your day alone chilling. After the swimming session, you feel refreshed and go for a shower before heading home. You open the locker just to see someone has messed with your bag, because you cannot find your clothes (including your underwear).

Do you think it is Public Sexual Harassment? Why? What is your reaction if that incident happen to you?

Scenario F (Is PSH):

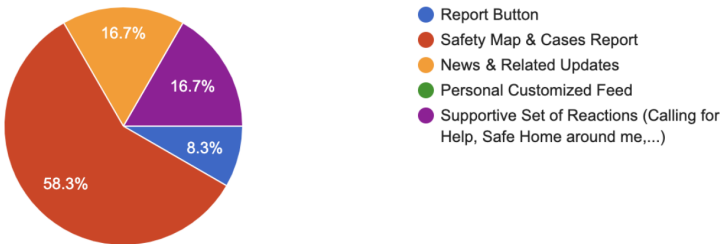
You are having coffee at Nguyen Hue walking street with your friends at night. The street is crowded. You guys start surfing on your phone for a while before there is an airdrop request from someone's phone. You inattentively accept the request, thinking it is from your friends, airdropping earlier group photos. To your surprising, a photo of someone's sensitive part appear on the phone.

Do you think it is Public Sexual Harassment? Why? What is your reaction if that incident happen to you?

C. User Test Exit Survey

What feature did you spend most of the time on?

12 responses



Name your one favorite feature of the app?

12 responses

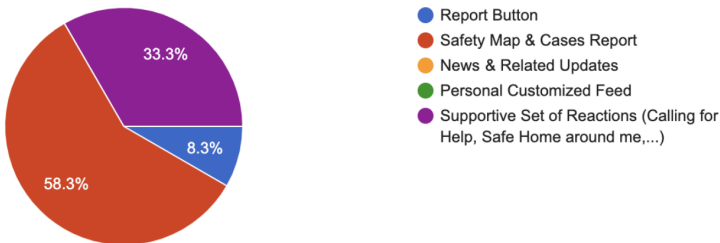


Figure C.1 User Engagement on Safer Spread Features