EXAMENSARBETE INOM MEDIETEKNIK,
AVANCERAD NIVÅ, 30 HP
STOCKHOLM, *SVERIGE 2021*

Designing a Comprehensive Privacy Policy

A qualitative comparative study

LINN PAGES BILLAI

KTH
SKOLAN FÖR ELEKTROTEKNIK OCH DATAVETENSKAP

Abstract

Social media platforms have to provide a privacy or data policy for users of their services and these legal documents tend to demonstrate characteristics of poor user experience design. A majority of users have difficulties understanding the privacy policy due to the long and legalistic nature of these documents, which will result in fewer readers. By investigating the users' attitudes towards the privacy policy on the social media platform Instagram, a prototype of an alternative privacy policy aimed to enhance the users' engagement was designed.

The Double Diamond model was used to investigate the design process of the prototype. This included an initial literature study together with qualitative interviews. The results from the interviews showed that participants rarely read privacy policies due to their long and illegible nature and that a more comprehensible policy would be helpful.

The final design of the prototype was created iteratively after feedback from the user tests. The novel prototype was found to be easy to comprehend and faster to navigate than the original data policy. The majority of the users also expressed a preference for the alternative prototype. The interesting results from this preliminary study can be taken further in a full-scale study with a larger participant sample with representation from different age groups.

Sammanfattning

Sociala medieplattformar måste tillhandahålla en integritet eller datapolicy för användare av sina tjänster och dessa juridiska handlingar tenderar att visa egenskaper av dålig användarupplevelse. En majoritet av användarna har svårigheter att förstå integritetspolicyn på grund av den långa och legalistiska karaktären hos dessa dokument, vilket i sin tur resulterar i färre läsare. Genom att undersöka användarnas attityder till integritetspolicyn på den social medieplattformen Instagram, var en prototyp av en alternativ integritetspolicy som syftar till att förbättra användarnas engagemang utformad.

Double Diamond-modellen användes för att undersöka prototypens designprocess. Detta inkluderade en första litteraturstudie tillsammans med kvalitativa intervjuer. Resultatet från intervjuerna visade att deltagarna sällan läste integritetspolicys på grund av deras långa och oläsliga natur och att en mer begriplig policy skulle vara till hjälp. Den slutliga utformningen av prototypen skapades iterativt efter återkoppling från användartester.

Den nya prototypen visade sig vara lätt att förstå och snabbare för att navigera än den ursprungliga datapolicyn. Majoriteten av användarna uttryckte också en preferens för den alternativa prototypen. De intressanta resultaten från denna preliminära studie kan vidtas ytterligare i en fullskalig studie med ett större antal deltagare och representation från olika åldersgrupper.

Designing a Comprehensive Privacy Policy

A qualitative comparative study

Linn Pagès Billai
KTH Royal Institute of Technology
Stockholm, Sweden
linnpb@kth.se

ABSTRACT

Social media platforms have to provide a privacy or data policy for users of their services and these legal documents tend to demonstrate characteristics of poor user experience design. A majority of users have difficulties understanding the privacy policy due to the long and legalistic nature of these documents, which will result in fewer readers. By investigating the users' attitudes towards the privacy policy on the social media platform Instagram, a prototype of an alternative privacy policy aimed to enhance the users' engagement was designed.

The Double Diamond model was used to investigate the design process of the prototype. This included an initial literature study together with qualitative interviews. The results from the interviews showed that participants rarely read privacy policies due to their long and illegible nature and that a more comprehensible policy would be helpful. The final design of the prototype was created iteratively after feedback from the user tests.

The novel prototype was found to be easy to comprehend and faster to navigate than the original data policy. The majority of the users also expressed a preference for the alternative prototype. The interesting results from this preliminary study can be taken further in a full-scale study with a larger participant sample with representation from different age groups.

Keywords

Privacy Policy; Usability; Prototyping; Double Diamond

1. INTRODUCTION

Social media platforms engage more and more users and with that arise issues of privacy. One of the most popular and fastest-growing social media platform is Instagram which is owned by Facebook, with more than one billion monthly active users [6]. With rising popularity, their advertising revenue also increases, which is coupled to personal data from the users. Instagram collects the content, communications, and other information that the user is providing when using both Instagram, Facebook, and on websites and applications by third parties [11].

Even though companies must provide users with a privacy policy [2], users are often not aware of how to protect their personal information. Privacy policies attempt to inform the users of the collection and use of data, but their primary purpose is often the legal protection of their own company, rather than a tool to create transparency for users [22, 23]. Even though few users are reading these documents [17, 23], approving of the privacy policy has become a precondition to be able to use these services [18]. Given this, there is a clear deficiency of usable privacy policies.

By investigating the users' attitudes towards the privacy policy on the social media platform Instagram, an alternative presentation of the policy to enhance the users' engagement was designed.

1.1 Purpose and Research Questions

This thesis project aimed to design a more usable, engaging, understandable, and interactive privacy policy. By applying a user-centered approach, this study aims to meet the needs of both the user and the companies that are required to disclose their privacy policy.

The research questions that will be addressed are:

1. *What are the users' perceived attitudes towards the data policy on Instagram?*

2. *What design elements will help users to understand the data policy better?*
3. *How can we use the design elements to design a better alternative?*
4. *What are the users' perceived attitudes towards this newly designed data policy?*

2. BACKGROUND

2.2 Privacy and Data Policies

"Privacy policy" is the most common term for the legal document which informs users about the data practices of services provided. However, on Instagram, it is referred to as "Data Policy". Through this report, both terms are used.

Way before the internet existed, companies composed legal communications for the benefit of their organization. Today's privacy policies work in the same manner as fine prints, a more discrete print that often is placed in footnotes, which makes it difficult for the customer to know what they are signing up for. Companies must provide a privacy policy that contains information about the collection, sharing, retention, and processing of data that is linked to a user [2]. However, the legal nature makes it challenging for users to properly read and understand privacy policies [17, 22, 23, 25]. Many texts tend to be long and unstructured [22, 23], which requires the user to scroll through the document to find all necessary information. To adequately understand the content of Instagram's data policy, one has to have a college education [14]. Policies are prone to disengage users and protect the interest of the companies that created them [13]. Further, most policies tend to be uninformative [22, 25] and written in a legalistic language for lawyers by lawyers [7, 23]. Formal policies may decrease users' trust [16] and legal language tends to be deliberately vague to secure freedom for the companies in the future use of the collected data [13]. Reading a privacy policy is demanding and time-consuming [22]. In many cases, people do not understand the full content of the policies [17, 22, 23, 25]. Therefore, privacy policies are interfaces that are often accepted without any further engagement from the user [17, 18].

2.3 GDPR

The General Data Protection Regulation (GDPR) is an EU law regulation on data protection and privacy. One of the primary purposes of GDPR is to make individuals informed and in control of the distribution of their personal data [12]. Therefore, companies have to disclose certain information [12]. Even though big media tech companies like Instagram, Facebook, and Google are not EU-based, GDPR applies to protect data belonging to individuals in the EU [11].

Article 29 Working Party, whose purpose was to provide expert advice to the EU states regarding data protection, declares in the transparency guidelines that GDPR requires user-friendliness and the concept of transparency is user-centric rather than legalistic [1]. As stated in Article 29 Data Protection Working Party, "the quality, accessibility, and comprehensibility of the information is as important as the actual content" [1]. Information should be presented "efficiently and succinctly in order to avoid information fatigue" [1]. To meet that goal, the information has to be provided in concise, understandable, and clear language and, when suitable, visualizations should be used [19].

Unfortunately, GDPR's transparency guidelines are often inadequately applied and privacy policies are often imposed on a system rather than well-integrated [22, 23]. Instead, these are separately attached as links at the bottom of the page and, thus, decoupled from the users' interaction [22].

2.4 A Usable Privacy Policy

Legal documents like privacy policies tend to demonstrate the characteristics of poor user experience design [18]. The decoupling of policies represents the lack of cooperation between designers and engineers, who are building these systems, and lawyers, who are responsible for the privacy policy [22]. Due to its presentation, users are likely not to read the privacy policy [25] and it has been suggested that a simplified and more attractive privacy policy can solve the problem of the users' unwillingness to read it [25]. The trust for the website increases along with the users' perceived understanding of the privacy policy [7] and therefore, it should be in companies' best interest to design a more usable privacy policy.

To meet the needs of the user when communicating legal information, there are several new innovative ways. One of these is to use visualizations like icons, images, animations, and color-coding. GDPR promotes privacy communications to be provided in combination with standardized icons [20]. Yet, in 2017, only 9% of the most trafficked websites had any visuals on their privacy policy [7]. Images and icons, depicting various concepts of privacy, can be challenging to develop [23]. However, combining icons and textual explanations in

privacy policies may increase the efficiency of how the policy is received [23] and allows for quick comprehensibility [10] as shown by Renaud et al, who advocate using images to inspire trust and to use icons to improve accessibility and to help bookmark different sections [21].

Another way to develop a product that is simple to use is to use a layered approach. This approach consists of providing a short policy containing key information which includes links that expand each section, revealing a second layer or a link to more detailed information. This helps the users to get immediate access to the information they are searching for. GDPR transparency guidelines encourage the privacy policy to follow a layered approach since this avoids scrolling through large amounts of text [1].

Further, nutrition labels or just-in-time notices can be used [23]. The nutrition label approach standardizes the privacy policy and makes it easier for the user to scan and compare. Just-in-time notices will notify users when a data practice becomes relevant.

2.5 State-of-the-art Analysis

There are a few previous attempts to design privacy policies that meet the users' needs. One study by Pierce et al. [18] is approaching privacy policies as, not only documents or legal agreements, but as interfaces by critically investigating the formats and redesigning these to make the content more digestible. Approaching privacy policies as interfaces reveal the obvious shortcomings when it comes to usability. Pierce et al. provided a variety of people with printed booklets of some of the most popular social media platforms' privacy policies to understand people's perceptions and to conceptualize design alternatives to existing privacy policies. The booklets highlighted important extracts of text, which facilitated closer reading and engaged a discussion with the reader.

Figure 1: Printed booklets of privacy and data policies by Pierce et al [18].

In another effort, Juro [15], a company that helps businesses to create and manage legal contracts, updated their privacy policy in an attempt to make it more readable to the users. In the design process, they worked on solving three main problems: information overload, understanding the policy and legislature and understanding exactly when their data is being collected. To solve the first problem, the information was presented in layers. Instead of minimizing the content, the policy was displayed in a layered approach, which allows the user to scan through for an easy overlook and then to immerse themselves in specific details. The second problem was solved by adding icons to enhance users' understanding. To help users understand when their data was being collected, a diagram of the process of data collection was illustrated.

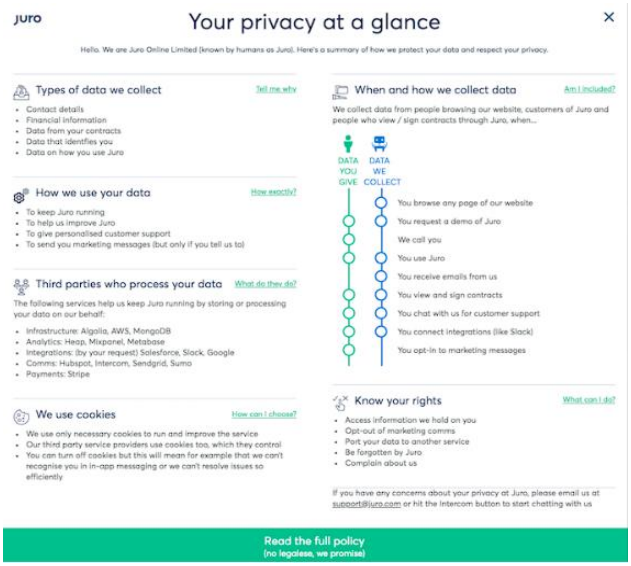

Figure 2: Juro privacy policy [15].

In yet another study, after exploring problems with existing policies, Jones et al. [13] developed a prototype of a 'reimagined' privacy policy of a media service platform. The new policy was designed with a layered approach and was written engagingly and simply, avoiding legal and confusing terminology. Visualization was used to show the user how the company will use data rather than describe the process with text. When evaluating the prototype, they found that it generated higher levels of interest and interaction, which in turn led to self-reported improvements in understanding and engagement in the policy.

Figure 3: Reimagined privacy policy by Jones et al [13].

Attempts to implement design patterns to fill the need for standardization have also been made. Haapio et al. [7] claim that visual and interactive design patterns are lacking in most privacy policies and propose a design pattern library as a re-usable solution to the problem. Some of the design patterns that developed were: visual iconography, a step-by-step walkthrough of the terms, gamification, dashboard control center, and storytelling.

To both meet the needs of GDPR and of the users, Renaud et al. [21] compiled GDPR requirements into a checklist and a user guideline for privacy policies and contributed with a privacy policy template. The policy was simple and concise with icons to bookmark different sections and images to inspire trust in the user.

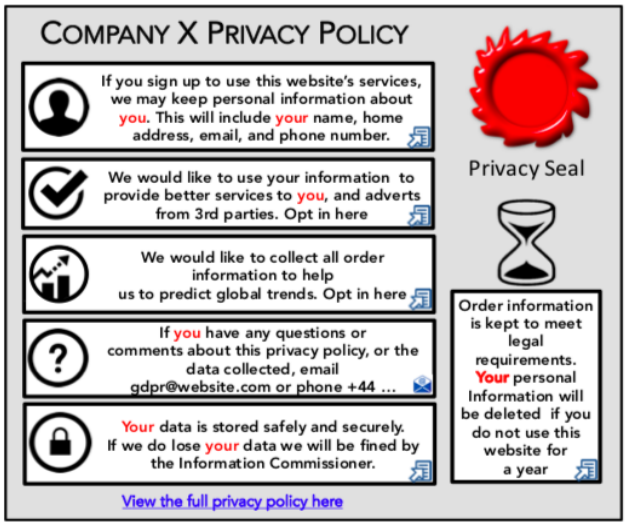

Figure 4: Privacy policy template by Renaud et al [21].

3. METHOD

The following section describes the methodology used in this study. This includes how the interviews were performed, the prototype development, and how user-tests were conducted and structured according to the double diamond design model. Due to the restriction enforced by the Covid-19 pandemic, all interviews and user tests were performed online.

3.1 The Double Diamond Design Model

The double diamond design model was used to investigate and design the prototype. The model corresponds to the project's user-centric and iterative workflow and was therefore chosen. The two diamonds represent a process of exploring an issue more widely and then take focused action. It is divided into four phases and is presented following the structure: Discover, Define, Develop, and Deliver [4].

3.1.1 Discover

To understand the problem, the Discover phase consisted of a literature study and a state-of-the-art analysis, which is being presented in the background section. During this phase, qualitative interviews were also conducted. To perform a deeper analysis of the research problem and get a better understanding of how the users' reason and thinks of privacy on Instagram, interviews were conducted with users of Instagram, who are subjects of the existing privacy policy. The target audience was users between 20 and 30 years who use Instagram daily.

The interviews were semi-structured with a duration of about 20 minutes. The participants were briefed about the interview and how their contributions would be used in this study. The participants were also informed that no private information will be published and that they, at any point, would be able to cancel the interview. The interviews were voluntarily audio-recorded and consisted of two parts; the first part focusing on the users' online behavior on Instagram and the second part on the users' attitudes and opinions about sharing private information. The interview questions are presented in appendix A.

Thematic Analysis [3] was then used as a method to identify patterns of meaning in the data. All of the recorded interviews were transcribed verbatim. The transcribed data were processed by familiarization, coding, and then grouped into themes.

3.1.2 Define

From the results of the interviews and the state-of-the-art analysis of the Discover phase, a research question was framed and defined in order to design a prototype. The original purpose of the interviews was to focus on targeted advertising on social media platforms. The interviews revealed that users have lots of questions and concerns regarding privacy on social media, but the privacy policies are often unread. Due to the gap found, I decided to focus on the data policy on Instagram.

3.1.3 Develop

Based on knowledge gained from the previous phase, the design process initiated with lo-fi prototype paper sketches of alternative data policies. The intention was to create two different versions of Instagram's data policy for these two prototypes to be compared. One prototype was imitating the original, and the other one was an alternative version. The sketches were then digitalized into high-fi prototypes using the design tool Figma. The two different versions differ in design but contain the same text. Both of the prototypes are designed to fit with Instagram dark mode.

3.1.4 Deliver

During the Deliver phase, the user tests of the prototype were conducted to investigate the perceived attitudes and usability of the two different prototypes. The user tests were conducted remotely through the video conference software Zoom. The users were asked to share their screens and open up the prototype to perform the set tasks. Before performing the user test, the Think-Aloud protocol method was explained [24]. The users were requested to think aloud when performing a set of specific tasks.

The users were randomly divided into two groups. All participants were exposed to both prototypes but in a different order. This test method was chosen to make it easier for participants to contrast and discuss the differences between the prototypes. Group 1 started the test by performing tasks on prototype 1 (alternative version) and finishing with tasks on prototype 2 (original version). Group 2 started with performing tasks on prototype 2 and ending with prototype 1.

Each test duration was about 20 minutes and was screen and sound recorded to capture the interaction on the prototypes and have the possibility to go through the following interviews. The users were asked to perform tasks when testing each of the prototypes. Three tasks on prototype 1 and three different tasks on prototype 2. Because of the learning effect, the tasks on each prototype differed. They were, however, kept similar to be comparable and the answers were to be found in the same area in the policy text. Following the tasks on each prototype, interview questions concerning usability were asked [26]. The tasks and the interview questions are presented in appendix A.

After performing the user tests, the prototype design was refined after the obtained feedback as an alternative, improved, and more usable design for future policies.

4. RESULT

In this section, the result of the interviews, the design of the prototype, and the user test will be presented.

4.1 Analysis of Interviews

The group of interviewees consisted of 7 participants of whom 4 were men and 3 were women. The age range was between 23 to 30 years with a mean age of 26 years. All of the participants use Instagram daily. The interviews were held in Swedish and were translated into English in the transcription for thematic analysis.

4.1.1 Theme: Knowledge about data collection

Most of the participants did not know what information they are sharing with Instagram. However, a few of them knew that they are sharing login information, age, photos, and how they as users behave on the application. This includes what they like, share, and what their search patterns on the application are.

All participants understood that the collected information is stored but most of them did not know how.

"I know that it is stored somewhere in Facebook's big-data system, but I do not know exactly where it is stored."

The fact that the user's data is valuable for Instagram as a company, divided the participants. Three of the participants had no problem with sharing information as an exchange for using the product and helping Instagram develop the application. However, providing Instagram with data bothered the remaining participants more and one said:

"It's like we all work for them for free."

4.1.2 Theme: Personal integrity

The participants expressed difficulty in drawing clear lines of demarcation between private and public. One of the participants said that information that cannot be found online is private. Another participant said that everything you do online will be saved, therefore it is

not private. However, another participant had a completely different view and said:

"Everything is pretty much private."

Nearly all of the participants agreed that sharing data online is not something that they worry about. However, they do not like it, and they feel it is important to be aware of what you are sharing when browsing online. One of the participants described it as being forced to share information to be able to enter websites and applications. Another participant was troubled by the personal information that he as a user share and said:

"I do not want anyone to know anything."

At the same time, he said that he was not concerned since he is one of the billions of users on Instagram.

4.1.3 Theme: Privacy policy

None of the participants have read Instagram's data policy, except for one participant who read a summary in an article a few years ago. All of the participants said that they have not read the policy because it is too long and too much text, one even said:

"I never read privacy policies, they are as long as novels."

One of the participants additionally said that he did not care about the content.

However, almost all of the participants said that they would appreciate the policy to be presented differently. Some suggestions the participants had were less and easier text to read and more intelligible.

"It would be better to make it easier to read because many people read it and don't understand it."

"It would be great to announce key points in a way that is easy to take in."

Most of the participants wanted to know what kinds of data Instagram takes and what they are doing with this.

4.2 Initial Prototype

From the result of the qualitative interviews and the state-of-the-art analysis, several needs could be identified along with the usage of Instagram's data policy. The interviews revealed that users do not know how Instagram handles their personal information and none of the participants have read the privacy policy. Even if the users' opinions differ when it comes to personal integrity, they agreed on the importance of knowing what they as users are sharing on the application. Some of the participants expressed a lack of trust in the application which could be improved by an enhanced understanding of the privacy policy. Also, the participants expressed a demand for an improved design. The results were connected to different types of shortcomings in the current data policy and my suggestion was that an alternative version of Instagram's data policy could help the users to a better understanding of how Instagram handles their personal information. Moreover, the goal was to encourage more users to read the policy and to make it easier to scan through for specific answers.

The intention with the initial lo-fi sketches was to describe the user flow and decide what visual attributes would be included. In the high-fi prototype, design choices like color, text font, illustrations, and icons were made to be aligned with Instagram dark mode.

The original policy has a long text containing eleven main headlines with additional information below. Based on previous implementations and studies [13, 15], I decided to layer the information to reduce user fatigue by less scrolling. To improve navigation, the alternative version shows an overview of these headings which, in turn, can be expanded for further information. To help the user to a better understanding of the policy, an illustration and icons were added as suggested by previous studies [15, 20, 21]. Both the icons and the illustrations were found on Flaticon, a database of free icons, and were chosen to suit the headlines.

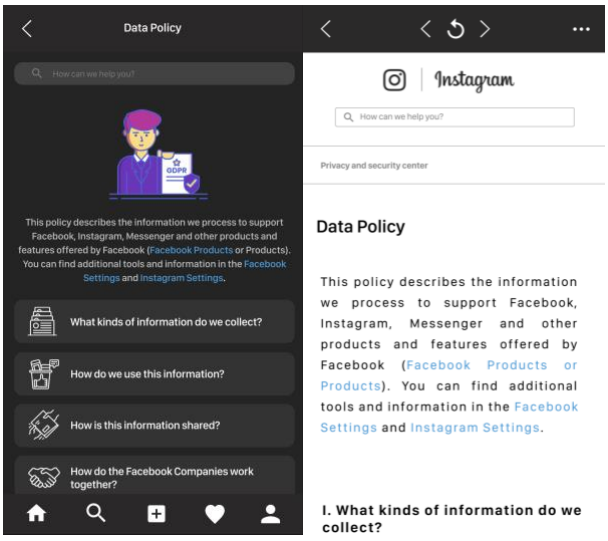

Figure 5: Initial version of the prototypes. The left side shows prototype 1 and the right side, prototype 2.

4.3 User Tests

A total of 8 participants performed user tests. Divided into two groups, group 1 started with performing tasks on prototype 1 and finishing with prototype 2. Group 2

started with prototype 2 and ended with prototype 1. Out of the 8 participants, 5 were women and 3 men. The age range was between 23 to 30 and the mean age was 25.6 years.

In both group 1 and group 2, three out of four participants finished the tasks faster on prototype 1, see figure 6.

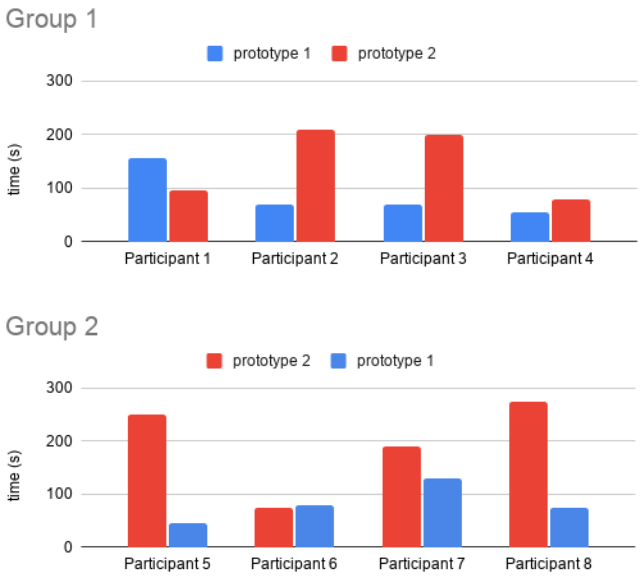

Figure 6: The time in seconds the participants completed all tasks for each prototype. The order of tests is presented from left to right. The blue color represents prototype 1 and the red color represents prototype 2.

4.3.1 Prototype 1

Group 1 started with performing tasks on prototype 1. Two of the participants expressed it confusing to know what to look for on task 1 due to the difficulty interpreting the task. One of the participants had difficulties in completing task 2 and expressed that the information sought was misplaced. Other than this, the remaining tasks were performed with relative ease. All participants reported the prototype's accessibility and clarity for finding the information of choice. All participants expected the policy to have more text and that it would be more difficult finding the sought information.

"It doesn't feel like this version has as much text as a policy usually has. It had shorter descriptions and lots of icons. This was not what I was expecting."

None of the participants expressed that anything was missing or unnecessary. When asking for ideas of improvement, one of the participants expressed that the list of the first categories could be divided into additional categories. There was further suggested for an FAQ section on the first page of the application. All of the participants agreed that the prototype was easy to use.

"I thought this one was better than other policies. It usually is one long text that is difficult to navigate through. This one is clearer."

Group 2 performed the tasks on prototype 1 after performing tasks on prototype 2. Two of the participants expressed no difficulty when performing the tasks. The other two perceived the prototype as a bit cluttered with too many buttons to click. One participant expressed that the prototype would have been easier if he was not unfamiliar with this kind of policy. However, the remaining participants found it easy to navigate because of the layered approach.

"This was way easier because you get an overview and know which headline to go to."

None of the participants expected the appearance of the policy. Almost all of the participants were positive towards the novel appearance and usability of the prototype, which they found modern, simple, and intuitive.

"It even has icons. I did not expect this when I suggested the improvements on prototype 2. All policies should look like this."

It was expressed that the illustration and icons could be inessential. However, the participants found that the icons gave a friendly impression. Other than that, the participants did not report on anything unnecessary with the prototype. Suggestions for improvements were bigger text font and that the first headline buttons should be open and not be presented in layers. Two of the participants found the prototype as easy to use and the remaining two were indecisive.

"Maybe you will get used to it. I have some vision problems, so I would like to have bigger text."

The two participants who were hesitant to prototype 1 perceived it as a bit cluttered with too many buttons. However, one of these participants completed the tasks faster on prototype 1. The other participant who completed the tasks faster on prototype 2 with only 5 seconds implied that it was because he was unfamiliar with this kind of policy. He said that, if he would have gotten used to the alternative version, it would have been simpler for him to use it.

4.3.2 Prototype 2

Group 1 performed the tasks on prototype 2 after performing tasks on prototype 1. All of the participants agreed on the difficulty of finding the information of choice. The mentioned reasons for this were longer text

and that some lines begin with blank tabs. All participants also agreed that there were too much scrolling and too much unnecessary text. The participant that completed the tasks faster on prototype 2 said that she suspected the answers to be found below each other in the text and that she learned to look for keywords from the test on prototype 1. The policy was in line with the participants' expectations of a long text that was difficult to read and are hiding information.

"This is a more typical data policy. It is not very clear, and it feels almost a little conscious like they want to hide something."

Components that the participants felt were missing were clearer categories, less scrolling, and all of the participants wanted the ability to minimize the text. All participants agreed that the application was easy to use since it was just scrolling through a text. However, they preferred prototype 1 since they found it easier to navigate.

"In prototype 1, it was pretty easy to quickly see the information and you could click on the paragraph you wanted to read. Now I want this version to be like that."

Group 2 started with performing tasks on prototype 2. One of the participants expressed it challenging completing task 2. This was because the participant got stuck in the text when scrolling since she was wondering if she could find something more on-point in the text. Some of the participants expressed difficulties navigating. One participant expressed difficulties in remembering which headline they were under when reading the policy.

"You get so far under the headline that you forget if you read about what kind of data they collect or what they use the data for."

One of the participants expressed positivity towards the clear headlines. None of the participants were surprised by the design of the policy, one said it felt like a standard privacy policy and that it should be hard to find information. This indicated that an uninformative privacy policy, written in a legalistic language tends to be the norm.

"This is what it should look like, a long text with information. It should be hard to find stuff."

All participants perceived the prototype as easy to use. Further improvements of the prototype's usability were a table of contents and minimization/maximization of headlines to avoid scrolling.

"You could have two main headlines and when you click on them you come to the other subheaders, and then you click again and there you have the info under the subheader. Then it would have been easier for me to quickly finish the tasks."

4.4 Final Prototype

Based on the user tests, the font size was maximized, and some color changes and shadowing were made. The space between the buttons was increased to make the appearance less cluttered. The first illustration was replaced with one more in line with Instagram's design, inspired by a current illustration in one of the setting pages on Instagram.

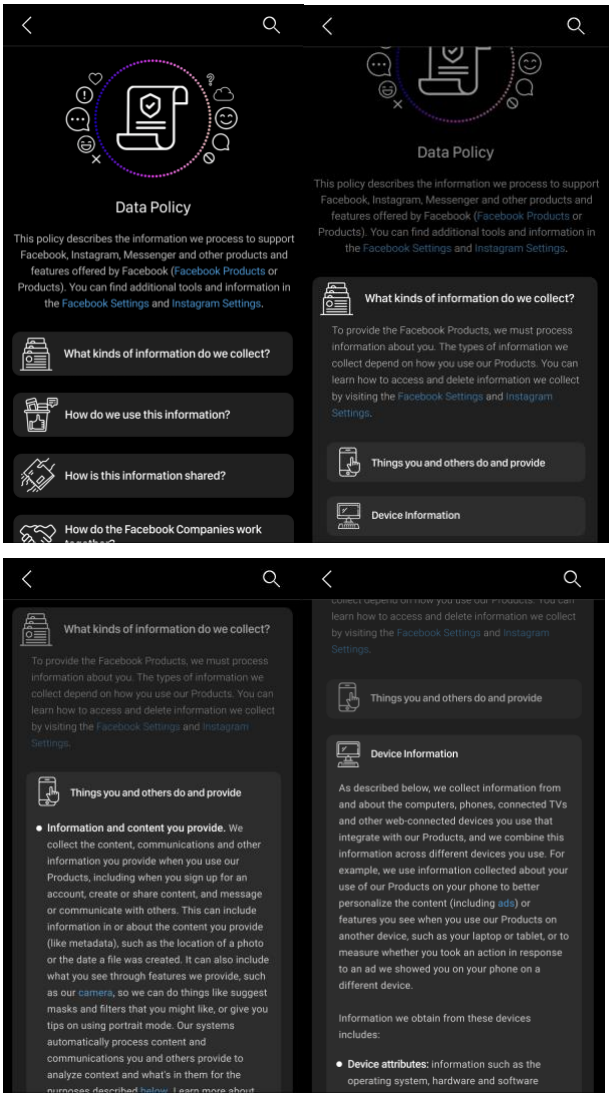

Figure 7: Final version of the prototype. The first screen shows the first overview of the data policy with the main heading as buttons. The second screen shows what is layered under the first button. The third and fourth screen shows what is layered under the buttons showing on the second screen.

5. DISCUSSION

Aiming to design a more usable, engaging, and interactive privacy policy, the four following questions were asked:

1. *What are the users' perceived attitudes towards the data policy on Instagram?*
2. *What design elements will help users understand the data policy better?*
3. *How can we use the design elements to design a better alternative?*
4. *What are the users' perceived attitudes towards this newly designed data policy?*

To answer the first question, interviews were performed with regular users. The users' demand for a more comprehensible privacy policy is in line with previous research [25]. The interviews confirmed that users rarely read privacy policies, which was consistent with previous researchers' statements [17, 22, 23, 25]. The reason for not reading Instagram's data policy was that it is a lengthy document with too much text - an attitude that has been described earlier by others [22, 23]. However, the interviews also revealed that one of the participants expressed a lack of interest in reading Instagram's data policy. Does the user not care about what Instagram collects and what they do with the data? Or could the reason for the lack of interest be that the user does not share information that they consider private? Another reason for not care to read the data policy could be the high number of users who validate the use of Instagram. The first question was also answered by the user tests when testing the prototype imitating the original data policy (prototype 2). The participants found Instagram's current data policy difficult to navigate with too much text that required the participants to scroll to find the sought information which is consistent with previous studies [22, 23]. The participants felt that the policy concealed information which could be due to the vague legal language that is used to secure freedom for the companies in the future use of the collected data [13].

The second and third questions were answered by the state-of-the-art analysis and the literature review, but also from holding user tests evaluating the two prototypes. The design elements of the privacy policy that can help users understand the policy better were based on the state-of-the-art analysis and were used in the prototype development. To improve navigation, the alternative policy presentation was divided into different layers as previously suggested [13, 15]. The layered approach was also requested when holding the user tests of the original policy. To make the privacy policy more comprehensible, visuals, like illustrations and icons, were used as previously proposed [15, 20, 21]. The results from the user tests comply with design elements as layers and visuals can help users understand the privacy policy better.

To answer the fourth question, user tests were held. While the sample number is too small for quantitative analysis, 75% of the participants completed the tasks faster on the prototype of the alternative data policy (prototype 1) in both groups. The result suggests that the alternative policy is easier to comprehend and faster to navigate compared to the prototype imitating the current data policy on Instagram (prototype 2). However, a larger sample of participants in the study is required to be able to draw a quantitative conclusion. Consisting with related studies [11], the majority of the participants in this study expressed a strong preference for the novel and improved privacy policy and almost all of the participants were pleasantly surprised. The layered appearance was received positively by the participants as intuitive and easy to use. Many of the participants also perceived that prototype 1 had less text than prototype 2 had, which speaks for the alternative version.

Since Instagram is an application that addresses both children over 13 and adults, the legal communication should be in clear and plain language so that it could easily be understood [19]. To design an even more legible privacy policy, the legal content could be rewritten [13]. The amount of text could be reduced to the most essentials. But while data collection practices become more advanced, reducing the content becomes more complicated. Other ways to enhance understanding made by previous researchers could be to highlight important extractions in the policy [18] or use visualization to easier describe how the company processes the data [13, 15].

A set of the right icons would be required for a complete user experience. To find the right icon for the intended message user testing could be suitable. In the development of Juro's privacy policy, potential icons were shown to the user and they were asked to choose which made the most sense to them [15]. When using icons correctly, these can guide users. But, when using them wrong, and the user does not understand the meaning of the icon, these can instead confuse the users. This could be due to cultural differences in understanding specific icons [10]. Despite this, the

icons were kept to provide a friendly and nice look to the prototype.

The suggestion of having a FAQ section on the first page could be a future improvement of the policy. However, adding this section now would require interviews and user tests to establish which the most frequent questions are. Two of the participants requested the first buttons to be open, but another participant suggested that the buttons could be divided into additional categories therefore the categories were not changed.

A more usable, engaging, and interactive privacy policy does not necessarily correspond to more readers, but users could be more willing to read it. Just-in-time notices that inform the user when a data practice becomes relevant [23] could help nudge users to read the privacy policy. The notice could, for example, contain a link to the privacy policy together with the information.

At the same time this project ends, the Facebook-owned messaging service WhatsApp has created a concern concerning privacy among its users. After an inadequately explained update of the privacy policy, the company lost about 30 million users to competitors [8]. They are now making a new attempt with a new privacy policy containing no different information but containing more details to allay users' concerns [9]. This shows the importance of a usable privacy policy.

5.1 Reflection and Future Work

The double diamond model was suitable for this thesis project's user-centered approach and iterative workflow. However, due to the limited time frame, the double diamond could not be fully explored, and the prototype could be improved by more iterations. To gain a higher understanding of the users' attitudes towards Instagram's data policy and the alternative version, it would have been beneficial with a higher number of participants for both the interviews and user tests. An extensive user test would be fitting to test the final prototype for additional improvements. I considered exposing participants to both prototypes to be the best design for the user test because it made it much easier for participants to contrast and discuss the differences in the prototypes. Problems that may arise could, however, be user fatigue and learning effects. The tasks differed on each prototype but were kept similar because of the learning effect. However, having the same tasks on each prototype could have resulted in a different outcome. The user test would preferably be performed in person and tested on a smartphone device instead of a computer. Also, the data policy was in English when the participants were Swedish speaking. What if a data policy in Swedish would result in another outcome?

It would be interesting to try out different designs in the alternative policy and compare them against each other. The different designs could be to vary colors and test the prototype align with light mode for the participants that use it on their smartphone. Another future way to further develop this study could be to involve a lawyer in the design process to get additional feedback.

6. CONCLUSION

Aiming to design a more usable, engaging, and interactive privacy policy, a prototype of an alternative Instagram data policy was designed. By a user-centered approach, the users' perceived attitudes towards the privacy policy and an evaluation of the opinions about the presentation of the alternative policy for Instagram were examined. Interviews with users showed that they rarely read privacy policies due to their long and illegible nature and that users want a more comprehensible policy. An interactive prototype of an alternative privacy policy for Instagram was developed. The results from the user tests imply that the novel prototype is easier to comprehend and faster to navigate than the original data policy. The majority of the users also expressed a preference for the alternative prototype. The interesting results from this preliminary study can be taken further in a full-scale study with a larger participant sample with representation from different age groups.

7. ACKNOWLEDGMENT

I want to express my gratitude to my supervisor, Adrian Benigno Latupeirissa, for all the support and feedback during this study. I also want to thank everyone who participated in this study, and my family for all the support.

8. REFERENCES

[1] Article 29 Data Protection Working Party, (2017) Guidelines on Transparency under Regulation 2016/679, Available at: http://ec.europa.eu/newsroom/just/document.cfm?doc_id=48850 (Accessed: 5 February 2021)

[2] Article 12 General Data Protection Regulation (GDPR), Available at: https://gdpr-info.eu/art-12-gdpr/ (Accessed: 5 February 2021

[3] Braun, V. and Clarke, V. (2012) 'Thematic analysis.' American Psychological Association.

[4] Design Council (2021) *What is the framework for innovation? Design Council's evolved Double Diamond.* Available at: https://www.designcouncil.org.uk/sites/default/files/asset/document/Ele venLessons_Design_Council%20(2).pdf (Accessed: 4 February 2021)

[5] Ermakova, T. *et al.* (2014) 'Privacy policies and users' trust: does readability matter?'

[6] Facebook (2021) Available at: https://www.facebook.com/business/marketing/instagram#

[7] Haapio, H. *et al.* (2018) 'Legal design patterns for privacy', in *Data Protection/LegalTech Proceedings of the 21st International Legal Informatics Symposium IRIS*, pp. 445–450.

[8] Hern, A. (2021) 'WhatsApp loses millions of users after terms update', *The Guardian*. Available at: https://www.theguardian.com/technology/2021/jan/24/whatsapp-loses-millions-of-users-after-terms-update (Accessed 26 march 2021)

[9] Hern, A. (2021) 'WhatsApp to try again to change privacy policy in mid-May', *The Guardian*. Available at: https://www.theguardian.com/technology/2021/feb/22/whatsapp-to-try-again-to-change-privacy-policy-in-mid-may (Accessed 26 march 2021)

[10] Holtz, L.-E., Nocun, K. and Hansen, M. (2011) 'Towards Displaying Privacy Information with Icons', in Fischer-Hübner, S. et al. (eds) *Privacy and Identity Management for Life*. Berlin, Heidelberg: Springer Berlin Heidelberg, pp. 338–348.

[11] Instagram (2021) Available at: https://help.instagram.com (Accessed: 4 February 2021).

[12] Integritetsskyddsmyndigheten, Dataskyddsförordningens syfte och tillämpningsområde, Available at: https://www.imy.se/lagar--regler/dataskyddsforordningen/dataskyddsforordningens-syfte-och-tillampningsomrade/ (Accessed: 5 February 2021)

[13] Jones, R. and Kerlin, L. (2017) 'Probing the Design Space of Usable Privacy Policies : A Qualitative Exploration of a Reimagined Privacy Policy', pp. 1–12.

[14] Litman-Navarro, K. (2019) 'We Read 150 Privacy Policies. They Were an Incomprehensible Disaster.', *The New York Times*. Available at: https://www.nytimes.com/interactive/2019/06/12/opinion/facebook-google-privacy-policies.html. (Accessed: 16 February 2021).

[15] Mabey, R. (2019) *How to write a privacy policy*. Available at: https://blog.juro.com/how-to-write-a-privacy-policy (Accessed: 4 February 2021).

[16] Martin, K. (2016). Do privacy notices matter? Comparing the impact of violating formal privacy notices and informal privacy norms on consumer trust online. The Journal of Legal Studies, 45(S2), S191-S215.

[17] Obar, J. A. and Oeldorf-Hirsch, A. (2020) 'The biggest lie on the internet: Ignoring the privacy policies and terms of service policies of social networking services', *Information, Communication & Society*. Taylor & Francis, 23(1), pp. 128–147.

[18] Pierce, J. *et al.* (2018) 'An Interface without A User : An Exploratory Design Study of Online Privacy Policies and Digital Legalese', pp. 1345–1358.

[19] Recital 58 EU General Data Protection Regulation (GDPR), Available at: https://gdpr-info.eu/recitals/no-58/ (Accessed: 5 February 2021)

[20] Recital 60 EU General Data Protection Regulation (GDPR), Available at: https://gdpr-info.eu/recitals/no-60/ (Accessed: 5 February 2021)

[21] Renaud, K. and Shepherd, L. A. (2018) 'How to make privacy policies both GDPR-compliant and usable', in *2018 International Conference On Cyber Situational Awareness, Data Analytics And Assessment (Cyber SA)*. IEEE, pp. 1–8.

[22] Schaub, F., Balebako, R., & Cranor, L. F. (2017). Designing effective privacy notices and controls. IEEE Internet Computing.

[23] Schaub, F. *et al.* (2015) 'A design space for effective privacy notices', in *Eleventh Symposium On Usable Privacy and Security {SOUPS} 2015)*, pp. 1–17.

[24] van Someren, M. W., Barnard, Y. F. and Sandberg, J. A. C. (1994) 'The think aloud method: a practical approach to modelling cognitive', *London: AcademicPress*. Citeseer.

[25] Talib, S. *et al.* (2014) 'Perception analysis of social networks' privacy policy: Instagram as a case study', in *The 5th International Conference on Information and Communication Technology for The Muslim World (ICT4M)*. IEEE, pp. 1–5.

[26] Qualaroo (2019) *Step by Step: Testing Your Prototype*. Available at: https://qualaroo.com/blog/step-by-step-testing-your-prototype/ (Accessed: 4 February 2021).

APPENDIX A

Interview questions:

Online behavior:
For how long have you been using Instagram?
What do you use Instagram for?
How often do you use Instagram? If every day, how many minutes per day?

Attitudes about sharing private information:
What is your attitude towards leaving information such as data and metadata after yourself on the internet?
Do you know what information you share with Instagram?
Do you know if the information you leave behind is being stored and where it is being stored?
The information you share with Instagram is a valuable part of their income, what do you feel about that?
Are you concerned about the private information that is available about you? If yes, do you change any behaviors?
Where do you draw the line between private and non-private information?
Have you ever read Instagram's privacy policy? If no, why not?
Would you appreciate it if the policy was presented differently?
What would you like to know when reading the policy?

Tasks for prototype 1 (alternative version):

1. Check if Instagram collects data about the information and content you provide.
2. Check if Instagram collects data from cookies that are stored on your device.
3. Check if Instagram uses the collected information to conduct research.

Tasks for prototype 2 (original version):

1. Check if Instagram collects data about transactions that you make on their product.
2. Check if Instagram collects data from operations you perform on your device.
3. Check if Instagram uses the collected information to communicate with you

Interview questions after tasks on each prototype:

1. What was difficult about these tasks?
2. What was easy about these tasks?
3. What didn't look the way you expected?
4. Was there anything you thought was missing?
5. Was there anything you thought was unnecessary?
6. What would you change or improve with the application?
7. Do you think this application was easy to use?