



A Digital *Fritidsgård*

Conceptualizing a Digital System for Young People
Experiencing Feelings of Social Anxiety

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Popular Science Summary

There has been much discussion about how digital technology, including devices like computers, tablets, and mobile phones, has had an effect on the mental health of young people. Benefits include being able to meet people from all over the world and receiving answers to questions very quickly, but experts have also noticed drawbacks like low self-esteem and cyberbullying. Mental health problems in young people are often not treated and can have negative effects that last into adulthood, affecting physical health and career opportunities. Many studies have tested mental health apps with young people, but few have looked at creating digital systems in general while keeping positive mental health in mind. This study looks specifically at social anxiety among teenagers age 13–16, with the aim of creating requirements for a digital media system with this issue in mind. A case study approach was used in partnering with Flamman, an organization helping the youth of Malmö, Sweden. Comprehensive interviews with teenagers and parents were conducted, while shorter surveys were also delivered to local schools. Patterns were identified, grouped under the three themes of safety, social interaction, and support. This may help provide a basis for further research for anyone designing digital systems for young people. Following the study, a simple prototype was developed based on the results.

Abstract

The negative impacts of digital technology on the mental health of young people have been a topic of much discussion. A number of digital solutions (encompassing mobile applications or websites) have been tested with young people to gain their feedback, but these tend to be very clinical or explicitly target certain diagnoses. A case study approach was used to focus on Flamman, an NGO delivering social programs to youth in Malmö, in order to conceptualize the requirements for a digital media system for people aged 13–16 experiencing feelings of social anxiety. Qualitative interviews were conducted with four teenagers (age 14–15) and four guardians, surveys were delivered to two local schools, and observations were made on the workings and interactions at Flamman. Three main themes emerged from transcription and coding of all interviews: safety, social interaction, and support, each with several sub-themes. Based on the themes and survey results, a low-fidelity prototype was developed with an initial focus on security. Future work includes the implementation of additional themes into the prototype and user testing with teenagers and adults.

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1. Introduction

Much attention has been focused on young people worldwide facing a mental health crisis, coinciding with the ubiquity of the digital world (Hollis, 2022). With much of daily communication happening online through digital platforms like social media, these interactions can act as a source of support but have also been linked to problems like depression, self-harm, and suicide, especially among those from marginalized groups (Abi-Jaoude et al., 2020). Several organizations and publications, including the American Psychological Association, the *Financial Times*, and *The New York Times*, have attached the term “crisis” to mental health in the youth population (Abrams, 2023; Richtel & Flanagan, 2022; Smyth & Murphy, 2023).

The COVID-19 pandemic in the early 2020s has especially affected mental health globally, with uncertainty concerning the future education and careers of young people (Organisation for Economic Co-operation and Development [OECD], 2021; Schweizer et al., 2023). However, it is not the sole factor behind mental health problems, and we have to zoom out to examine the broader context of the digital world we live in.

Many negative effects of digital technology on mental health in youth have been discussed, encompassing issues including negative body image, rising levels of anxiety and depression, low self-esteem, and cyberbullying (Abi-Jaoude et al., 2020; Internetstiftelsen, 2023). With many of young people’s social interactions happening through digital means, it is important that these issues of mental wellness are addressed. There are recommendations for early intervention in mental health support, including equipping adolescents with practical life skills, raising awareness of mental health issues in youth, and providing young people with tools to maintain positive wellbeing (Wilson, 2020).

However, digital technologies can have a positive impact on mental health in young people, such as decreasing levels of anxiety (Wright et al., 2023). Solutions in the form of social media sites have also shown positive results for young people with anxiety or depression, though more research is needed in this area (Bailey et al., 2018; Karim et al., 2021, Lim et al., 2019; O’Bree et al., 2021). Many studies make use of mobile apps or websites designed to specifically target certain mental health conditions, but few look at the general requirements for a digital media system (Babbage et al., 2018; Garrido et al., 2022). This project aims to address this research gap and contribute to the literature helping young people experiencing feelings of social anxiety.

1.1 Aim of the Study

The purpose of this thesis is to contribute to the research into the mental health crisis affecting young people, and to collaborate with various stakeholders involved to best capture what they need as members of a digital generation. These stakeholders include guardians, educators working with young people, and organizations dealing with mental health. The main aim of the thesis is to conceptualize the requirements for a digital media system designed for people aged 13–16 experiencing feelings of social anxiety.

Table 1*Overview of Educational Groupings by Age in Sweden*

Educational grouping	Educational year	Age range
<i>Gymnasium</i> (Upper secondary school)	Year 3	18–19
	Year 2	17–18
	Year 1	16–17
<i>Högstadiet</i> (Secondary school)	Year 9	15–16
	Year 8	14–15
	Year 7	13–14
<i>Mellanstadiet</i> (Middle school)	Year 6	12–13
	Year 5	11–12
	Year 4	10–11

Note. The English translations here are the ones used by Internetstiftelsen (2023).

Varying definitions of “young people” are used in academic papers and grey literature, making it challenging to compare figures from different sources. For this paper, the target group is people aged 13–16, which corresponds to students attending *högstadiet* (secondary school) in Sweden (see Table 1). A small number of these people may additionally fall under students attending *mellanstadiet* (middle school) or *gymnasium* (upper secondary school). These educational groupings are used for statistical purposes in the *Svenskarna och Internet* [The Swedes and the Internet] report, most recently published in 2023 (Internetstiftelsen).

This area of research is thought to be particularly meaningful due to the potential implications of the social skills of future generations growing up in a world that seems to be increasingly digital.

1.2 Research Question

The research question is as follows:

RQ: How can we conceptualize the requirements for a digital media system addressing young people’s feelings of social anxiety in an organizational context?

The term “digital media system” is used because a solution does not have to take the form of a novel web or social media platform; rather, it may take the form of an extension or addition to an existing digital medium.

To answer the research question, a few specific objectives have been outlined as follows. Firstly, a literature review was done for young people and mental health, specifically related to digital technology. Next, a number of young people were identified for collaboration and participation in the design process. Thirdly, semi-structured interviews were conducted with these people for whom the system is designed, as well as with their guardians. Quantitative data was also gathered from a larger subset of young people using surveys. Next, a set of requirements was created for the digital media system based on themes stemming from their perceptions. Finally, a prototype was designed based on the set of requirements, which includes parents, legal guardians, or other adults as users of the system.

2. Literature Review

In order to get a sense of the scope of the study, a literature review has been conducted, encompassing grey literature and popular science publications in addition to academic papers. The broader context of the digital world is first discussed, before exploring the state of mental health in young people and the relationship between these two, both positive and negative. Finally, the potential of digital solutions is examined before the presentation of the research gap.

2.1 The Digital World

Young people are being brought up in a world that is increasingly digital, affecting nearly every aspect of their daily lives. In 2023, 93% of households in the EU had access to the Internet, with 86% of individuals using the Internet daily (Eurostat, 2024b). When looking specifically at younger populations, the figure is higher, with 97% of individuals in the EU aged 16–19 using the Internet daily (Eurostat, 2024a). Similarly, 97% of individuals in Sweden aged 8–19 are daily Internet users (Internetstiftelsen, 2023). With how prevalent the Internet has become for the younger generation, it may be difficult to imagine a world without it.

It is then perhaps unsurprising that most communication with young people happens with the aid of digital technology. In Sweden, 93% of children aged 8–19 have their own mobile device, with more than half of them having received their first one before the age of 10 (Internetstiftelsen, 2023). This comes at a time when children are still developing how to think, interact with peers, and learn how society works. Anyone working with the development of digital technologies therefore needs to be aware of this reality and treat younger users with special consideration, even if they are not part of the target group.

In Sweden, children aged 13–19 primarily use social media platforms as a news source; the most popular platform for news is TikTok, followed by Instagram and YouTube (Internetstiftelsen, 2023). This is in contrast to older generations, who often use more traditional forms of media such as television and radio. While it may have the benefit of spreading stories quickly, receiving news from online platforms that may lack journalistic oversight or fact-checking standards can lead to the spread of information that is misleading or even incorrect. In a world that is changing so fast, young people should have access to sources that they can trust.

2.2 Mental Health with Young People

Search results from Google Scholar, show that mental health in the youth population is a broad topic with much published literature. As of 13 February 2024, around 2.6 million all-time hits were found from searching “mental health” and “youth”, joined by a Boolean operator (see Table 2). The number of results increased in the 2010s as compared to the previous decade.

Table 2*Google Scholar Results for Queries on Youth Mental Health*

Search term	Results (all-time)	Results (2000–2009)	Results (2010–2019)
“mental health” AND youth	2,590,000	451,000	959,000
“mental health” AND “young people”	1,970,000	158,000	716,000
anxiety AND youth	2,900,000	64,700	326,000
depression AND youth	3,020,000	280,000	569,000
“mental health” AND pandemic	811,000	21,000	42,300
“mental health” AND covid	1,490,000	not relevant	not relevant
“mental health” AND “social media” AND youth	644,000	12,900	36,200

Note. Figures obtained in February 2024.

The World Health Organization (WHO, 2021) estimates that one in seven people aged 10–19 experience mental health issues, much of which is undiagnosed or untreated. The UN’s World Happiness Report has shown that young people around the world are struggling and overall feel less happy than their elders, especially in North America and Western Europe (Persson, 2024). It has been noted that people in Generation Z (born after 1995) are experiencing mental health problems such as depression and anxiety more than any other generation (Haidt, 2024). Numerous countries have reported a rise in young people seeking help for mental health-related problems (Cross & Lewis, 2021; The National Board of Social Services, Denmark, 2022; Northcott, 2023). Not addressing these problems can lead to consequences in both physical and mental health in adulthood (WHO, 2021). This reinforces the importance of paying special attention to this portion of the population.

There are a number of reasons that may explain this crisis, and digital technology may be one of them. Regardless, the COVID-19 pandemic at the start of the 2020s has been a catalyst, significantly contributing to a decline in mental wellness in young people. Lockdowns worldwide have led to the shut-down of educational institutions, which has especially affected young people from marginalized groups (OECD, 2021). In addition, the closure of many workplaces, especially from the food and tourism industries, means that young people have been negatively impacted disproportionately due to the increased likelihood of them losing their jobs because they have less tenure

(OECD, 2021; Wilson & Papoutsaki, 2021). This is a concern as “long-term unemployment is a risk factor for poor mental health” (OECD, 2021, p. 8). It is therefore a priority to focus on the mental health of young people and future generations.

2.3 Digital Technology and Mental Health

The relationship between digital technology and mental health in young people is complicated. While there are many benefits such as fostering social connections and enhancing creativity, there are also negative aspects such as cyberbullying and possible addiction. According to a 2024 report by the Health Behaviour in School-aged Children (HBSC) in collaboration with the WHO, around one-sixth of adolescents reported being cyberbullied, a figure which has increased compared to statistics from before the pandemic (PA Media, 2024). For children in Sweden aged 12–19, one-seventh reported being the victim of negative comments, with no significant difference between genders (Internetstiftelsen, 2023). One-fourth of these children say that this has affected them negatively; however, nearly 60% of their parents say that they have seen this affect their child negatively. The difference in the statistics between children and their parents may suggest that children are not aware of the impacts cyberbullying is having on them, or may be afraid to admit it. Conversely, parents may feel more technophobic and choose to lay the blame for their children's behaviour on online interactions.

On the other hand, many parents are not aware that their children are victims of cyberbullying, though parents of girls are generally more aware than parents of boys (Internetstiftelsen, 2023). It is possible that teenage boys may not feel as comfortable reporting incidents of cyberbullying. In many cultures, there is a stigma that exists surrounding mental health; young people may not feel comfortable discussing their mental health with their family members or have their problems dismissed (Wies et al., 2021). This can be made worse through cyberbullying and causes people to avoid seeking help.

In his book *The Anxious Generation: How the Great Rewiring of Childhood Is Causing an Epidemic of Mental Illness*, psychologist Jonathan Haidt (2024) details how the proliferation of smartphones and social media in the early 2010s has led to problems for this generation's mental wellbeing. He argues that children saw a transition from a “play-based childhood” in the 1980s to a “phone-based childhood” in the 2010s; in doing so, they were becoming more dependent on their parents and less likely to develop basic social skills. Haidt uses the term “the anxious generation” to refer to people born after 1995, as a result of the colliding patterns of “overprotection in the real world and underprotection in the virtual world” (p. 9).

There are other studies, however, that show that the evidence between the use of digital technology and declining mental health in young people may not be as strong. Some researchers have found that most studies have been based on correlation and not causation (Odgers and Jensen, 2020; Vuorre et al., 2021). Vuorre and Przybylski (2023) note that there is only very small “evidence suggesting that Internet-technology

adoption is more negatively associated with young individuals' mental health than older groups" (General Discussion section, para. 4). Regardless of these conclusions, it is important to address mental wellness in young people, and to do it using digital means. The adoption of more digital technologies was one of the adaptations people have had to make due to the COVID-19 pandemic. For better or for worse, it can be difficult for many people to live their lives without these technologies, which means their consequences need to be addressed.

2.4 The Potential and Challenges of Digital Solutions

With so much of young people's time being spent online, it is natural that digital solutions have been created to address mental wellbeing among young people. It is generally recommended that digital solutions not only be used to normalize depictions of positive mental health but also to provide information and lead users to further resources (Cash et al., 2018; Jayman et al., 2023). In addition, people with feelings of social anxiety find the Internet to be a more comfortable place (Prizant-Passal et al., 2016).

Various digital solutions have been tested with young people, most of which have a primary aim to improve their mental health. For example, a platform called Entourage, aimed at young men, incorporates clinical-based features, notably cognitive behavioural therapy; it combines elements of a social network with graphic medicine and clinical treatment (Rice et al., 2021). O'Bree et al. (2021) tested this platform with 70 participants aged 14–25 and found that they most benefited from learning about practical techniques and strategies to manage their mental health. Another solution, in the form of an app called +Connect, used gamification in order to help young people strengthen social connections (Lim et al., 2019). The pilot project was tested with nine people aged 18–25 with diagnosed social anxiety disorder, with the results showing promising results and no negative outcomes.

Though there are many benefits in a digital world, it is important to be mindful that there are also a number of challenges involved when looking at digital tools for mental health with young people. This age group is more vulnerable to online misinformation or deception (Wies et al., 2021). The stigma surrounding mental health may mean that teenagers are not willing to download certain apps if their guardians are able to track their mobile activity, which can prove to be a challenge for apps specifically advertised to address issues like anxiety or depression.

2.5 Similar Studies

To narrow the focus of the thesis, it was decided to look at studies that specifically examine the requirements of a digital media system helping young people with mental wellness, including social anxiety. Most of these have their participants test out an app or website specifically designed to help users with their anxiety or their mood. This section presents an overview of these studies, which is revisited in the discussion section for comparison purposes.

Babbage et al. (2018) conducted interviews with 14 young people in the UK about what they looked for in a digital tool that manages mental well-being. Their responses show that they valued a stress-free environment, positivity, resources for additional support, privacy, flexibility, and engagement. However, the authors indicate that they only worked with a small group of users and concluded therefore more research was needed. Also in the UK, Taylor (2018) worked with 13 young people, who were asked to give feedback on an app or website that aims to nurture positive mental health, and not ones that treat or prevent mental health issues. The results also provided positive feedback on helpful resources but also highlighted the importance of digital accessibility and a narrower age range for the target user group. The focus of interviewing teenagers aged 13–16 in this study came partly from the findings of Taylor’s research.

Garrido et al. (2019) conducted focus groups with 23 young people to gain feedback on six apps designed to address mental health. They recommended participatory design be used when developing apps like this in order to best meet the needs of young people. Garrido et al. (2022) later conducted more research in this topic, testing MoodyTunes, an app for young people to manage their mood using music. They aimed to gather feedback on the functionalities and design of the app, with the results identifying three main themes: privacy, user empowerment, and engagement. Within the theme of privacy, participants expressed a desire to use the app anonymously in order to feel more comfortable, with some preferring to sign up without using their real names. There were also some participants who voiced concerns over how users’ data would be used or handled, fueling the need for clear communication about the confidentiality of information gathered by the app. The second theme of user empowerment dealt with the app’s function of nudging a user when it detects that one’s mood has been low; users favoured the option of making their own decisions regarding their mental wellbeing and not necessarily with notifications or reminders. It was also important that the app uses specific yet gentle language, such as “Would you like to talk to someone today?” instead of “Do you need help today?” to create a safe space instead of a sense of urgency. The customizability of the app was also desired by many participants, both for the sound and frequency of notifications as well as the user interface for tracking one’s mood. Finally, there was a sense that a focus on engagement over achievement would be more beneficial for users, who felt that gamification features or an element of competition could negatively affect one’s mental health. Though this perspective was not as widely shared as those from the first two themes, most participants felt that any rewards implemented in the app should recognize the skills that are developed in managing one’s mood rather than good mood itself.

The study by Jayman et al. (2023) was structured a bit differently than the others, in that it explored young people’s experiences of social media and content related to mental health in general, as opposed to a specific platform. The authors’ results identified three themes from their general perceptions; since the focus of this study is more on how a digital solution can be helpful to young people, it was only relevant to consider the study’s third theme and its sub-themes of “key ingredients for effective

online mental-health and wellbeing support” and “whole-world approaches (WWA) to mental health and wellbeing” (p. 455). Firstly, the study highlighted the importance of “clear and simple messaging in effective online communications” (p. 457). Due to the prevalence of digital media in the lives of young people, the participants felt it was important to have eye-catching colours and short messages that would be easier to understand. Secondly, the implementation of music was universally praised for drawing people’s attention and for its perceived calming effect.

2.6 The Research Gap

The studies that exist in this area tend to be very clinical, with solutions that explicitly aim to target mental health diagnoses such as anxiety or depression. However, there are few studies that aim to provide an adequate digital solution from the beginning. In addition, there were no studies found that also interviewed parents in their methodology. The goal of the study is to produce a list of requirements that would be needed for a digital media system keeping in mind mental health issues but also not exacerbating them. It was important to be cognizant of the social anxiety that young people generally tend to face. Thus, further research can develop their solutions based on the resulting list of requirements. If systems were designed with the mental wellness of teenagers in mind from the beginning, there may not be as much social anxiety among them.

It is important to keep mental wellness in mind in general when creating digital products, especially for young people. Hollis (2022) discusses this in the context of the digital world:

As well as designing a wider digital environment that supports young people’s mental health, we need services to acknowledge that youth with mental health problems may engage with the online world differently, and that they need help to develop the skills and competencies to build resilience and maximize the benefits of the digital world for their mental health and well-being. (p. 82)

3. Methodology

A case study was chosen to address the research question. This technique is most suited for answering research questions that demand a thorough grasp of a specific phenomenon or scenario (Yin, 2018). The research question informs case selection, as well as subsequent data collection and analysis.

The first stage was to identify the case(s) that best fit the research question. The selection was based on relevance to the study subject, access, data availability, and the capacity to conduct extensive and thorough analysis. The decision was made to focus on Flamman socialt förebyggande centrum (in short, Flamman), an organization committed to giving help and resources to the young people of Malmö, Sweden. Flamman consists of a *fritidsgård*, a recreational centre for young people, as well as a meeting place for people focused on improving conditions for the future of youth at various governmental levels in Sweden (Flamman socialt förebyggande centrum, n.d.). In this paper, the Swedish term *fritidsgård* is used, due to the lack of an established English translation.

To ensure objectivity and eliminate prejudice in our approach, a structure was used in which the authors (Linus and Yves) worked in two different roles: Linus, as a contracted employee of Flamman, was in direct contact with the organization and had access to its stakeholders, including the target group for data collection, while Yves acted as an unaffiliated neutral intermediary, thereby avoid bias as much as possible. This type of engagement provided a balanced and thorough perspective throughout the requirements-collecting process. The authors would like to point out that even though Linus is an employee of Flamman, this thesis had not been ordered by the organization and differs in scope, goals, and timeline. Specifically, Flamman has the aim of creating a digital version of a *fritidsgård* for all young people in Sweden, a project which is expected to take three years (Allmänna arvsfonden, 2023). Linus's role at Flamman helps to ensure access to internal documents and data collections.

Data was collected through interviews, observations, document analysis, and archival research. These approaches attempted to collect comprehensive and detailed information regarding Flamman's efforts to create a digital media system for young people experiencing social anxiety. Other activities include interviewing key stakeholders in the organization, observing their activities and interactions, examining documents such as reports and financial papers, and assessing any existing data or materials linked to the development project. The authors were mindful of studies that highlight the significance of trust, safety, and motivation for engagement in digital spaces (Cortesi et al., 2021; Pietiläa et al., 2021).

3.1 Research Strategy

To address the research question of conceptualizing the needs of a digital solution for young people who experience and who have experienced social anxiety, a case study was conducted using a range of data sources and approaches to gain a thorough

understanding of the needs and preferences of the target group. One of the chosen data collection strategies used was surveys disseminated with the help of Flamman. These allowed for the collecting of quantitative data in an anonymous way and to gain a better understanding of the target group's experiences with social anxiety and the use of digital media. This method helps to give an overview of trends and patterns among respondents (Ponto, 2015).

Furthermore, in order to have a comprehensive understanding and collect data from different sources, which is essential for a case study (Yin, 2018), the decision was made to read secondary reports from Flamman as well as academic studies on social anxiety and digital media use. These sources provided a basis for the understanding of the topic and helped in the comparison and identification of important themes, which are investigated and discussed in section 4.

To identify and develop survey and interview questions, the themes from the Flamman studies were used, as well as published articles on mental health and digital technology use identified in the literature review. This allowed for the creation of relevant and meaningful questions to elicit insightful responses from the target audience and in turn help in gaining a deeper understanding of the target audience's preferences (Yin, 2018).

Convenience sampling was used in the selection of participants; even though random sampling generally leads to more unbiased results, it was deemed too cumbersome and costly for this study (Emerson, 2015). Qualitative interviews help in developing a more detailed understanding of users' experiences, needs, and preferences, thereby allowing the development of more specific and effective requirements for the digital media system (Denscombe, 2014). The decision was made to not conduct focus groups due to the sensitive nature of the topic and the possibility of making participants feel uncomfortable or vulnerable. Garrido et al. (2019) noted how having participants who had known each other may have influenced the discussions of their focus groups. Instead, the plan was to conduct interviews individually or in pairs, which would allow for more personal and comprehensive insights from each participant (Brinkmann & Kvale, 2009).

Finally, observations from Linus's time working at Flamman were incorporated into the project, including conversations with employees at the organisation as well as young people at the *fritidsgård*. A notebook was kept during his time at Flamman, which carefully documented events and observations. Denscombe (2014) suggests a similar approach to research, emphasizing the need of taking meticulous notes to aid in the analysis and interpretation of findings. Linus was able to better grasp and analyze the witnessed occurrences by including personal insights and remarks in his notebook's notes.

3.2 Interviews

A portion of the interviews were conducted with guardians of teenagers. By including an equal number of women and men, the intention was to collect a varied set of viewpoints and experiences. The rest of the interviews were with teenagers, also with the aim of having a gender balance. This division is deliberate in order to gain a better and broader understanding of different requirements and preferences in the field (Denscombe, 2014). No compensation, monetary or otherwise, was involved with any of the interviews.

Participants were given the option of conducting the interviews either in-person or digitally, whichever makes them feel more comfortable. The respondents additionally had the choice of responding in Swedish or in English. The interviews included consent to audio recordings to assist with transcription and analysis at a later stage.

3.3 Ethics

When working within the field of mental health, there is much opportunity for challenges related to personal data like medical information. For this study, no personal data was collected from the interview participants; the interviews were conducted anonymously and no questions were asked regarding medical diagnoses related to social anxiety or other mental health conditions. The participants were only asked about age and gender identity, with the latter being an optional question.

As Denscombe (2014) discusses, accuracy is one of the factors taken into account to ensure that the interviews are open, honest and trustworthy. Therefore, the interviews were initially conducted in a more relaxed and safe environment to help respondents feel comfortable discussing their views and experiences. The questions were then asked in an open, non-judgemental way throughout the interview.

Furthermore, a flexible semi-structured interview method was used, including an interview manual. Respondents were encouraged to express their stories and experiences at their own pace and according to their specific needs (Denscombe, 2014). This meant to be sensitive to the respondents' emotional state and adapt the interview style accordingly, thereby ensuring a positive and satisfying connection. Finally, all interview participants were informed of their role in the study; that their responses would be kept confidential and that they would only be referred to using a pseudonym or by another identifier in the results and discussion sections of this paper.

3.4 Interview Questions

To start off the interviews, basic personal information such as age and gender was collected, which was helpful to note any patterns or major differences in the responses of the different participants; for example, young females may express different experiences regarding social anxiety compared to their male peers. The interview then moved on to open-ended questions regarding certain topics. Depending on the respondents' answers, clarification or follow-up questions were asked. The topics

included participants' experiences or views toward *fritidsgård*, as well as with social anxiety. Since not all teenagers may be familiar with the term "social anxiety", an explanation was prepared for all participants. Some examples of the open-ended questions asked are "Tell me about some times in which you have felt social anxiety." and "How can we create a digital environment to be more comfortable for you and others your age?" For a full list of the interview questions, see Appendix A.

3.5 Interview Analysis

3.5.1 Transcription

Following the interviews, the data were carefully transcribed, documented, and evaluated to discover patterns, themes and notable insights. This methodical approach ensures the extraction of useful information from the interviews and helped to shape the creation of the requirements for a digital media system in this comprehensive case study (Denscombe, 2014).

3.5.2 Thematic Analysis

Thematic analysis is a method for methodically identifying, organizing, and analyzing patterns and themes that appear in textual and conversational data (Bryman, 2008/2018). It is a versatile approach that enables scholars to thoroughly investigate and comprehend various elements of their research topics. In a thematic analysis, the researchers categorize data from transcribed interviews or other sources into different themes or groupings relevant to the study's topic or research goals.

To begin the thematic analysis, the transcribed material was carefully analyzed for understanding. After detecting patterns, codes, and significant aspects, the data were then grouped into distinct topics or groups. These themes must be related to the study's goal and based on the obtained data (Bryman, 2008/2018).

3.6 Open Coding and Comparison

Open coding was used as the primary analysis technique to evaluate the transcribed data from the interviews. As mentioned by researchers such as Yin (2004), open coding allows for a flexible and exploratory approach to identifying patterns, themes and significant features in collected data.

Open coding was chosen to allow for an organic and comprehensive interpretation of the transcribed interviews and information. Content can be captured in its natural form and context by letting the data speak for itself, free from fixed categories or preconceived notions. This approach is considered particularly appropriate for the research because of the intent to be open to new ideas, perspectives, and phenomena that may develop through the analysis process (Yin, 2018). Using open coding also enables an in-depth and diverse evaluation of the data, allowing the recognition of not only obvious patterns and themes, but also more subtle subtleties and complexities that may be important to the research question.

The coding was conducted separately by the co-authors. Afterwards, they met to discuss and compare each other's findings. This independent coding was deliberate to allow for intercoder reliability (ICR), which compares how different coders code a given data set (O'Connor & Joffe, 2020). ICR can help to ensure the coders come to the same results. In addition, it ensures Yves' role as a neutral observer compared to Linus's role as an employee of Flamman. From this, one set of themes was produced, with the aim of helping to develop the prototype of the solution moving forward.

Additionally, to ensure the reliability and validity of the findings, the generated themes were compared with current literature in the field. This comparison allowed for validation and to explain the findings with respect to the existing knowledge base, as well as to contribute to the advancement of previous research (Yin, 2004).

3.7 Survey Questions

In order to gain a broad viewpoint and perspectives from potential users, survey questions were created in collaboration with Flamman. The survey was intended for potential users in local schools and contained mostly closed-ended questions to ensure faster data collection and analysis. Doing so speeds up data gathering and simplifies quantitative analysis by providing organized responses that can be compared and generalized (Denscombe, 2014). Closed-ended questions are effective for assessing certain variables and acquiring a quantitative insight of respondents' attitudes and behaviours (Bryman, 2008/2018).

The survey started with statistical questions asking for the participants' gender identity and age, both of which included the option of "prefer not to answer". Two slightly different sets of survey questions then followed for different age groups: one aimed at those aged 9–13 years and the other to those aged 13–17 years. The age ranges were already decided by Flamman; note that their range of 13–17 differs slightly from this study's target range of teenagers aged 13–16. One example of a survey question was "Which activities or games do you enjoy playing with your friends?", where users could select as many options as they wanted. For the 9–13 group, the answer options included tag, *UNO*, *Minecraft*, *Fortnite*, and "other", whereas the 13–17 group could choose between *Fortnite*, *Minecraft*, music games, board games, sports, and "other". For a full list of the survey questions, see Appendix B.

Surveys were sent to two public schools in Malmö in March 2024, with Flamman's goal being to receive responses from at least 180 participants. The survey questions were in Swedish and were anonymous, with no e-mail addresses or names being recorded.

3.7 Prototyping

After analyzing the survey and interview data and identifying patterns and themes, a prototype was designed to illustrate and conceptualize the digital solution. This took the form of wireframes with the use of Figma, a popular tool for designing prototypes. Representatives from Flamman then reviewed and provided feedback on these

wireframes to verify that the design decisions and its features aligned with the needs and aspirations of the target audience. This iterative approach allowed for a second iteration of the prototype to better align with the requirements and preferences of the target audience (Schwarz, 2023). Since prototyping is not a primary aim of this study, but a follow-up from the generated requirements, it is examined in section 6, following the discussion section.

3.8 Validity and Reliability

In terms of reliability and credibility in qualitative investigations, it is critical to recognize that correctness cannot be guaranteed. Nonetheless, actions can be taken to enhance the study's credibility. Denscombe (2014) underlines that trustworthiness can be assessed using certain criteria. One such criterion is our respondent validation, which requires us to be able to contact them again to confirm findings and interpretations. If there are any questions about the respondents' answers, they can be contacted again for clarification.

Understanding and applying key concepts is critical for ensuring dependability and credibility in qualitative research. Validity is a traditional phrase that refers to how well study findings measure the intended phenomena (Denscombe, 2016). According to Bryman (2008/2018) and Yin (2018), credibility is an important phrase in qualitative research and can be regarded as a component of validity. Credibility involves determining if study findings are reliable and reasonable. Credibility needs a variety of strategies and procedures, including respondent validation, data triangulation, and reflectivity. According to Denscombe (2016), respondent validation can be especially effective for increasing trust in findings by validating facts and interpretations with participants. Bryman (2008/2018) also highlights data triangulation as a means of ensuring consistency and reliability in study outcomes. Yin (2018) recommends the use of reflectivity to reduce prejudice and assure impartiality in readings.

4. Results and Insights

This section summarizes the findings from the qualitative interviews, followed by the themes gained from their analysis. In addition, the results from the surveys and observations at Flamman are presented, followed by a list of requirements in answering the research question.

4.1 Results from Interviews

Interviews were conducted with a total of eight people, consisting of four teenagers and four adults. Of the teenagers interviewed, half were male and half were female, with ages ranging from 14–15 years. The adults, all of whom were parents of teenagers, also consisted of an equal number of males and females, with ages from 39–55 years. All interviews were chosen to be conducted online using the videoconferencing software Zoom in April 2024. All participants were living in the county of Skåne, Sweden; as a result, interviews were conducted in Swedish, the native language of all participants. The responses of the teenagers, followed by the adults, have been summarized below.

Respondent 1, a 15-year-old girl, recalled multiple situations when she felt socially anxious, including a presentation at school when she felt judged by her classmates and when she was forced to engage in a group activity in which she was uncomfortable. She mentioned that she felt anxious when meeting someone new, especially someone of the same age. She felt she would embarrass herself and thus felt more comfortable talking with someone over the Internet as it removes some of the social pressures that she may face in person.

Respondent 2, a 15-year-old girl, discussed her experience with attending *fritidsgård* and her thoughts on social connections, both online and offline. She discussed not having pleasant experiences at the *fritidsgård*, finding it dirty, and she felt she had difficulty making friends there. Furthermore, she never went there alone, describing her experiences with social anxiety as feeling uncomfortable in large social settings and uneasy when speaking to individuals she does not know. She also expressed more ease in conversing with others online, where she feels more calm and comfortable. In terms of building a comfortable digital environment, respondent 2 underlined the desire of separate rooms based on interest. She suggests that there should be the ability to communicate, play games, produce music, and compete in different activities. At the same time, she was concerned about the platform's safety and security, believing that adults should be present to provide support and direction.

Respondent 3, a 14-year-old boy, had limited experience with *fritidsgård*, as he was raised in a small village. Instead, he spent his free time participating in sports and other activities. He expressed not experiencing social anxiety in the same manner as the others, but admits to feeling nervous in certain social situations when he was younger. When it comes to talking to others his age, he prefers face-to-face encounters, but he is not opposed to communicating via the Internet, especially with topics that interest

him. To establish a comfortable digital environment for himself and others his age, he proposes striking a balance between parental oversight and user control. He believes that adults should be available to guide young people while also allowing them to explore and learn on their own.

Respondent 4, a 14-year-old boy, began visiting *fritidsgård* around the age of ten, visiting around once a week, and had generally favourable experiences. He generally attended with friends and participated in a variety of athletic and musical activities. Despite having a generally pleasant experience and forming new friendships, he discussed experiencing social anxiety on certain occasions, particularly when confronted with new people or difficult social contexts. He prefers face-to-face encounters over online communication. To improve a digital platform, he recommends clear guidelines for behaviour and a safe setting in which young people can express themselves. He believes that while parents should be present in the digital realm to provide support and safety, they should also allow young people to grow and explore independently.

The interviews with the adults showed that they perceive various advantages to such the proposed system, including the ability to socialize safely and participate in activities that would possibly be difficult for teenagers with social anxiety to do. They generally requested rigorous security measures to protect their children online, with a focus on monitoring and identifying users, but also recognizing the importance of an inclusive and balanced environment. Some of them expressed a wish to monitor their children's use of the system and to have some involvement in their online activities.

Both the adults' and teenagers' expectations of a digital system are different, based on their experiences and needs. The guardians were in favour of strict measures to keep their children safe online, as well as an inclusive and positive environment. The teenagers expressed a clear need for areas catering to different interests, the ability to build their own digital environment, and a clear procedure to deal with potential problems such as bullies or other online dangers.

The common ideas expressed, such as safety, control, social engagement, moderation and security measures, reflect the importance that guardians and young people place on a digital system. Our respondents consistently stated that a strong digital system should combine these in a responsible way to meet users' demands and expectations.

4.2 Insights from Interviews

When reviewing the interviews with the teenagers, major differences were not noticed between the male and female interviewees. Both discussed the desire to play online games on a digital media system, but the boys tended to talk more about aspects of games, including having a gamification component and to gain rewards for customization of their user profiles. On the other hand, the girls tended to be more interested in social interactions and chatting with others. Within the topic of social anxiety, the girls were open about experiencing such feelings during face-to-face

interactions whereas it was more challenging to gain a response from the boys, indicating that it wasn't really on their mind. It took some more follow-up questions to have the boys discuss social anxiety, and even then, they mentioned it in terms of public speaking.

Table 3

Themes, Sub-themes, and Supporting Quotations from Participant Interviews

Theme	Sub-theme	Sample Quotation
	T1.1: Identification and authorization	"There should be some sort of supervision on the site... it would be good to have a way for people to identify themselves."
T1: Safety	T1.2: Clear expectations	"It should be safe and secure, without bullying or nasty comments."
	T1.3: Adult support and moderation	"It is very important that there are adults who can be there and support and help if needed."
T2: Social interaction	T2.1: Meeting new people	"It should be easy to talk to new people and make new friends."
	T2.2: Games and social activities	"[There should be] a room with lots of sofas where you can sit and chill or if there is a room with a TV where you can watch a series you like or something."
	T2.3: Creativity	"It would be nice if you could create your own profile and your own room that you can decorate and so on."
T3: Support	T3.1: Learning new things	"A site for teenagers to learn things that are important to talk about. For example, stress, anxiety and depression or puberty."
	T3.2: External support	"A place where people can ask questions and someone can help. Random questions. Or if someone has a problem."

After the interviews were conducted, they were transcribed and independently coded, as mentioned in the methodology section. Table 3 presents the list that came as a result of discussion and comparison of individually coded themes. Three main themes were identified: safety (T1), social interaction (T2), and support (T3). Each of these themes have their own subthemes, as outlined in the table. They provide insights into how young people and their guardians feel in terms of a digital media system that would support mental wellbeing. In this paper, all quotations have been translated from their original Swedish into English.

The most mentioned theme for the digital system was one of security or safety, which came up in the interviews of all participants. Both teenagers and guardians expressed that the users should feel safe and be comfortable on the platform. A digital *fritidsgård*, according to guardians, provides an opportunity for young people to make new acquaintances and feel comfortable in their community. It is especially important that teenage users are interacting with real teens and not catfish, bots, or other deceptive users. Some respondents suggested logging in with the use of BankID, an electronic identification system used in many aspects of daily life in Sweden, as a way for people to verify their identities (T1.1). In addition, several respondents wanted to see clear expectations for the platform (T1.2), such as rules or a code of conduct. One respondent said it should be clear that there should not be any form of bullying allowed. There should be an established set of norms so that users feel comfortable on the platform. Finally, in the event of a conflict, respondents wanted adults to be available for support (T1.3). Some pointed to a way for users to report any problems that arise while they are using the platform. Overall, it is important to establish some sort of balance between freedom and responsibility. Adults wanted to ensure a safe environment in which young people could freely express themselves without fear of being bullied or abused.

The second theme falls under social interaction, with all users expressing a desire to have fun and make new friends as a primary motivator for using the platform. All teenage respondents were interested in a way to meet and chat with people who share common interests (T2.1), primarily via text. Some respondents also mentioned wanting to use voice chat or video chat functionalities. Additional features desired included games and social activities where they could play with or against each other (T2.2). They suggested that these activities should be personalized to users' interests and preferences in order to draw them to the platform and keep them engaged. One reason that participants gave for not going to a physical *fritidsgård* was the lack of activities available so T2.2 aims to address this. Creativity (T2.3) was another sub-theme that came up in the interviews; users were interested in expressing themselves through music or design. This also led to some respondents wanting a way to customize the appearance of an avatar or one's digital space. Some also wanted to help develop the platform by providing feedback or suggestions for improvements.

Thirdly, a theme of support was brought up, in which respondents were interested in a way of receiving assistance for a variety of topics. This included general questions about homework, but also learning about a variety of topics (T3.1), from puberty and

sexuality to mental health issues like depression and anxiety. Users wanted to be able to get help from experts if they had any questions or a personal problem they wanted to discuss (T3.2).

4.3 Results from Surveys

A total of 12 survey responses were received, all from the 13–17 age group, with the respondents' ages ranging from 16–17 years. The respondents consisted of 6 girls, 5 boys, and one person who identified as "other". The majority of the respondents were 17 years old (8), with the remainder being 16 years old (4).

The survey results shed light on teenagers' preferences and demands, as well as their online interactions. In terms of activities that respondents like to do with their friends, *Fortnite* and sports were the most popular choices, with a few expressing interest in music games. A large number of respondents expressed a desire in learning more about the topics of programming, graphic design, and personal growth.

When it came to aesthetic features on the platform, the majority of users expressed a desire for socialization areas, as well as online games. Finally, respondents expressed an interest in engaging in movie or TV marathons, gaming tournaments, and subject discussion groups at online meet-ups. These findings could help designers and planners create activities and features on a platform that meet users' interests and requirements in a meaningful way.

4.4 Results from Observations

In his role at Flamman, Linus has had the opportunity to interact with a diverse group of young people, many of whom have shared their experiences with social anxiety and related issues. What has stood out as remarkable to him is their ability to thrive when given a digital forum to express themselves. A theme he noticed is that many young individuals struggling with social issues sought refuge behind a computer, where they were able to connect without the presence of someone physically close to them. One example was a conversation with a 15-year-old girl who expressed her relief at being able to mute the microphone if someone was rude. She explained that this control is not attainable in real life, which gave her a sense of safety and security.

It was apparent to Linus that digital communication technologies provided a protective shield for young people experiencing social anxiety, and that this screen allowed them to express themselves more confidently and freely. However, while this helps them to thrive in the digital world, it generates a sense of inequality and lack of understanding in the "real world", as if existing communication options don't meet their demands or make them feel comfortable. This results in a situation in which more extroverted young people benefit, while those who are already insecure or lonely retreat even more.

Furthermore, Linus reflected on the fact that most young people seek a platform that provides security and responsibility, noting how many of them prioritize safety over sensation or excitement. Their longing for a safe environment where they do not have

to worry about being mistreated or ostracized reflects the fear and insecurity that many young people seem to experience in today's society.

Finally, the observations indicate a definite need for a digital platform that not only provides a safe space for young people to express themselves, but also prioritizes their safety and well-being. The proposed online *fritidsgård* that meets young people where they are, with tools and features tailored to their needs, could play a critical role in alleviating the loneliness and isolation that many young people face today.

4.5 Requirements

Table 4 presents a list of requirements based on the results from this study. They are adapted from the themes (see Table 3), but provide a more clear guide for developers of social networks and other digital media systems. The wording has been intentionally kept vague to adapt to systems varying in background and purpose, though some examples are provided in the accompanying descriptions. These proposed requirements are the basis on which the prototype will be developed in section 6.

Table 4

Requirements for a Digital Media System Addressing Social Anxiety in Young People

Requirement	Description
Authorization in accessing the system	Ensure all users are real individuals with a commonly used electronic identification system (e.g., BankID, Freja).
Clear expectations	Rules and expectations should be introduced at sign-up, using clear language for the target audience.
Adult support and moderation	Adults should be available in some way to help resolve conflicts and ensure safety.
Meet new people	Users should have a function to meet new people, preferably with common interests, and be able to send messages.
Spaces for different activities	Provide different areas for activities and interests, allowing users to interact at the same time (e.g., games, music).
Customization	Allow users to personalize their digital environments, expressing their individuality and creativity (e.g., avatars, colour changes).
Resources	The system should have easy access to educational material in simple language on mental health and other relevant topics (e.g., sexuality, puberty).

5. Discussion

The themes generated from the qualitative interviews (see Table 3) can be discussed in the context of existing knowledge. Table 5 revisits the studies first mentioned in section 2.5 and presents relevant themes and sub-themes. One of those studies only identified main themes while the others went into more detail in identifying sub-themes. For the purpose of consistency and clearer discussion, some of the themes and sub-themes that were not explicitly numbered by their authors (i.e., Garrido et al., 2022; Jayman et al., 2023) have been assigned numbers in the order that they appear in their articles.

To reiterate, the three main themes are safety (T1), social interaction (T2), and support (T3). Even though T1 is titled safety, this includes digital safety aspects including privacy and confidentiality, which happen to be “the most frequently mentioned risks of digital mental health technologies addressed in the literature” (Wies et al., 2021, p. 5). Studies have shown that a surprising number of apps aiming to better one’s mental health do not have a clear privacy policy (Parker et al., 2019). It is therefore important that users are aware of how their data is collected and processed with the solution that is developed, and also that there is a terms of use page that is written in language that is easy for young people to understand.

On the other hand, it is important to keep in mind the privacy paradox, in which users say they are concerned about their data yet they take little action to protect it (Barth & de Jong, 2017). Nevertheless, developers of media systems should be mindful of users’ potential privacy concerns. Guidelines that can be taken to best work with this specific to the mental health field include only collecting relevant data from users, continuously asking for user authentication, giving users the option of modifying the level of privacy, and de-identifying data to hide the identities of the users (Zhang et al., 2021).

Sub-theme T1.3 came from the findings from the interviews that most parents wanted to be involved in some way with their children’s online safety, but were also cognizant to not be overinvolved. This aligns with findings that parental overcontrol was connected to higher levels of social anxiety in young people (Festa & Ginsburg, 2011). It is therefore important that any digital solutions conduct thorough testing to ensure a reasonable balance between safety and freedom for teenage users.

T2 came with many activities that respondents had suggested or expressed interest in, which is categorized into three general sub-themes. The fact that many of the teenagers expressed wanting to play games and socialize with others correlates with the statistic that nearly 70% of people aged 8–19 in Sweden have spent time hanging out with friends on digital gaming platforms such as *Fortnite*, *Roblox*, or *Minecraft* (Internetstiftelsen, 2023). Incorporating some sort of games as social activities would therefore make sense to draw users into using the platform.

Table 5

Overview of Studies with Relevant Themes for Requirements of a Digital Solution Addressing Mental Health in Young People

Authors, year	Description	Participants	Themes
Babbage et al., 2018	Semi-structured interviews to find out what young people want from digital tools that help them manage their mental well-being	14 people aged 12–18 in England (11 male, 3 female), with experience in using digital technology	<p>T1: The ideal tool should allow oneself to be immersed in a stress-free environment T1.1: A means of distraction from stressful thoughts T1.2: A means of relaxation or escape</p> <p>T2: The ideal tool must have an uplifting effect T2.1: Use of videos to motivate or to make one feel better T2.2: Use of music to help regulate mood</p> <p>T3: The ideal tool should assess and direct one to resources that match one's needs T3.1: Provides resources to overcome negative emotions T3.2: Provides information and direction for further support</p> <p>T4: The ideal tool should be sensitive to privacy T4.1: Provides safeguards as needed to limit disclosure of personal data T4.2: Parental involvement is acceptable when necessary</p> <p>T5: Flexibility in choice and resources is a desired feature in the ideal tool T5.1: Choice for reflecting different emotional states T5.2: Games and puzzles to suit individual preference T5.3: Videos provide a variety of resources T5.4: Music for individual preference</p> <p>T6: The ideal tool should enable engagement with others T6.1: Communication with friends for connection T6.2: Anonymous communication for support</p>
Taylor, 2018	Individually reviewing one of 11 apps or websites aimed at improving youth mental well-being	13 people aged 12–18 in Scotland (6 male, 7 female)	<p>T1: Highlight any age limits T2: Prove practical resources T3: Improve findability T4: Ensure accessibility from school hardware T5: Identify if young people were involved in design process</p>

Authors, year	Description	Participants	Themes
Garrido et al., 2019	Gathering feedback from young people on 6 apps for mental health	4 focus groups of 23 people aged 13–25 in Australia (8 male, 15 female), excluding those with current suicidal thoughts and extremely severe depression	<p>T1: Personalization</p> <ul style="list-style-type: none"> T1.1: Opt-in, opt-out T1.2: Personalized content T1.3: Customizable appearance T1.4: Set preferences <p>T2: Simplicity</p> <ul style="list-style-type: none"> T2.1: Minimize number of features T2.2: Easy to navigate and find information quickly T2.3: Information that is easy to absorb T2.4: Minimalist design <p>T3: Accessibility</p> <ul style="list-style-type: none"> T3.1: Access from home T3.2: Compatibility T3.3: Cost <p>T4: Motivation</p> <ul style="list-style-type: none"> T4.1: Missions, rewards, objectives T4.2: Tracking mood T4.3: Notifications T4.4: Statistics <p>T5: Social connection</p> <ul style="list-style-type: none"> T5.1: No substitute for face-to-face help T5.2: Peer communication settings T5.3: Anonymity T5.4: Links to professional help <p>T6: Credibility</p> <ul style="list-style-type: none"> T6.1: Original material T6.2: Not dumbed down T6.3: Not telling people what to do T6.4: Knowing the source

Authors, year	Description	Participants	Themes
Garrido et al., 2022	Gathering feedback on functionalities and design of MoodyTunes, an app to help young people manage their mood with music	4 focus groups of 24 people aged 13–25 in Australia (10 male, 14 female), excluding those with current suicidal thoughts and extremely severe depression	T1: Privacy T1.1: Data usage T1.2: Anonymity T2: User empowerment T2.1: Retaining choice T2.2: Gentle and sensitive language T3: Engagement vs. achievement
Jayman et al., 2023	Participatory-action research to evaluate online platforms with mental health content	Focus group of 10 people aged 16–18 in England (10 female)	T3: Cultivating mental-health and wellbeing provision for a digital generation T3.1: Key ingredients for effective online mental-health and wellbeing support T3.2: WWA (whole-world approaches) to mental health and wellbeing

Note. The study by Garrido et al. (2019) includes second-level sub-themes, which are omitted here for brevity. The study by Jayman et al. (2023) includes two themes that are not relevant to a digital solution.

T3 shows that many teenagers have questions not only about topics related to mental health, but also physical health and other personal issues. With many young people using the Internet as a source for information on mental health (Burns et al., 2010), this can not only be informative for the target users, but can also help to build the platform as a trustworthy source.

5.1 Comparison with Similar Studies

Table 6 presents comparisons between the themes gathered from the qualitative interviews (see Table 3) and the themes from other studies (see Table 5). It contains sub-themes drawn from this project and corresponding themes or sub-themes from previous studies mentioned in section 2.5.

It is noted that all of this study's sub-themes can be matched up with one or more sub-themes from other studies. Some of these include the idea of having the solution provide helpful resources for teenagers for their mental health, especially related to what to do in the event of a crisis (Babbage et al., 2018; Taylor, 2018). A recurring theme can also be seen in users making connections with others and communicating with them for support (Babbage et al., 2018; Jayman et al., 2023). In addition, whereas T2.3 has a broad theme of creativity, two studies had identified music specifically as an important addition (Babbage et al., 2018; Jayman et al., 2023).

One study highlighted anonymous access as a theme, with some respondents preferring a login system without the use of one's real name or e-mail address (Garrido et al., 2022), while another study had mixed views from its participants (Garrido et al., 2019). This directly contradicts this study's T1.1, where participants said they would feel more safe if real identities were used on the platform. A large part of this may be due to the feedback of guardians; adults may be more concerned with their children's safety on the Internet than the children themselves. This also may be due to the interviewees being Swedish, which echoes the results of a study looking at Swedish teenagers' views on the security of their health records online, showing that the most felt that mental health information was the most sensitive (Hagström et al., 2024). A secure login system using users' real identities may be best suited for a Swedish user base. Furthermore, it is important to make a distinction between anonymous access and anonymous usage. It is possible to have users log in using an electronic identification system, but browse or interact using a chosen alias or username. This may be a reasonable compromise to meet the wishes of both teenagers and guardians in addressing T1.1.

There were a number of themes from other studies that did not appear in our list. This can be explained by these previous studies asking for feedback on existing websites or mobile apps. For instance, one of the common themes was accessibility, in which participants felt it was important that an app or website be compatible across a variety of devices and operating systems, as well as being accessible from school hardware (Garrido et al., 2019; Taylor, 2018).

Table 6*Comparison of Sub-themes with Those from Literature*

Sub-theme	Connected sub-theme
T1.1: Identification and authorization	T4.1: Provides safeguards as needed to limit disclosure of personal data (Babbage et al., 2018) T5.3: Anonymity (Garrido et al., 2019) T1.2: Anonymity (Garrido et al., 2022)
T1.2: Clear expectations	T2.2: Easy to navigate and find information quickly (Garrido et al., 2019)
T1.3: Adult support and moderation	T4.2: Parental involvement is acceptable when necessary (Babbage et al., 2018)
T2.1: Meeting new people	T6.1: Communication with friends for connection (Babbage et al., 2018) T5.2: Peer communication settings (Garrido et al., 2019) T3.1: Key ingredients for effective online mental-health and wellbeing support (Jayman et al., 2023)
T2.2: Games and social activities	T5.2: Games and puzzles to suit individual preference (Babbage et al., 2018)
T2.3: Creativity	T2.2: Use of music to help regulate mood (Babbage et al., 2018) T5.4: Music for individual preference (Babbage et al., 2018) T1.3: Customizable appearance (Garrido et al., 2019) T1.4: Set preferences (Garrido et al., 2019) T2.1: Retaining choice (Garrido et al., 2022) T3.1: Key ingredients for effective online mental-health and wellbeing support (Jayman et al., 2023) T5: Identify if young people were involved in design process (Taylor, 2018)
T3.1: Learning new things	T3.1: Provides resources to overcome negative emotions (Babbage et al., 2018) T5.4: Videos provide a variety of resources (Babbage et al., 2018) T2: Provide practical resources (Taylor, 2018)

Sub-theme	Connected sub-theme
T3.2: External support	T3.2: Provides information and direction for further support (Babbage et al., 2018) T6.2: Anonymous communication for support (Babbage et al., 2018) T5.4: Links to professional help (Garrido et al., 2019) T3.2: WWA (whole-world approaches) to mental health and wellbeing (Jayman et al., 2023)

Another theme that did not arise in this study's interviews dealt with requirements about the specific aesthetic of the solution; some participants from previous studies preferred a minimalist design (Garrido et al., 2019). Furthermore, some previous studies' participants had feedback regarding the specific language used: that it should be easy to understand with gentle wording (Garrido et al., 2022; Jayman et al., 2023).

5.2 Surveys

The results of the surveys show that young people are interested in learning about mental health topics. As a result, it would be appropriate to incorporate tools that support these themes, such as forums or group chats for discussing and sharing experiences with these topics. When it comes to customization of the platform, most participants wanted a comfortable space but also a place where they could play games with their friends. Respondents also expressed an interest in participating in movie or marathons of TV series, in addition to group discussions of timely and relevant topics.

However, if the survey findings' key comments and wishes had been considered, there are various improvements that may be incorporated to improve the prototype. According to the findings, a substantial percentage of respondents expressed interest in topics such as programming, graphic design, and online personal development, indicating the need for tools and resources in these areas. As a result, the integration of services like online courses or guides on these topics could serve to fulfill users' interests and learning needs.

5.3 Limitations

Our study has some limitations. To begin, our target age group was 13–16 years old but the interviewees were aged 14–15. Furthermore, survey responses were only received from those aged 16–17. This reflects a bias in the data and may limit the generalizability of our findings to the full target group. Furthermore, our survey questions were not especially designed to ask about social anxiety, a component that could be investigated more thoroughly, as was done during the interviews. This could have influenced the breadth and precision of our findings in terms of understanding young people's social anxiety and its associated demands and preferences.

Another limitation of this project is the small number of responses received for the survey. Even though the survey was sent out to a large number of students, it is probably the case that the only responses were from students who found the topic interesting. Because of this, it is difficult to say that their responses give an accurate picture of how teenagers are feeling overall. In addition, there were a number of respondents who had selected the "other" option on certain questions, but then did not fill in the field next to it, so it is difficult for us to know what they were thinking when answering the question. Furthermore, the closed-ended questions as well as the anonymity in the survey do not allow for further follow-up. Finally, guardians were not considered as the participants for the survey. Their inclusion was initially thought to be superfluous but the insights from the interviews show that they can add valuable feedback.

Within the time limitations of this thesis and due to the non-clinical nature of this project's scope, no clinical psychologists were consulted. However, it is encouraged that anyone creating a solution to address mental wellness consult with medical professionals for best practices in this area.

Due to restrictions on time and the scope of the project, further work has been left for the future. This includes conducting additional qualitative interviews with teenagers as well as with guardians. In addition, follow-up interviews with the participants would help gain more feedback specifically on mental health-related elements of the digital solution.

6. Prototyping

Based on the results and discussion, some preliminary work has been started on a prototype. Its purpose in this study is more exploratory and was done in order to elicit more conversation with employees of Flamman. Flamman suggested a website or mobile app is the best medium on which to build a digital *fritidsgård* (Allmänna arvsfonden, 2023). This is due to the fact that most teenagers are already quite familiar with using mobile devices and accessing social platforms.

Wireframes were created using the design application Figma, which is a tool commonly used for prototyping (Stoeva, 2021). The decision was made to focus our prototype primarily on the theme of safety (T1), addressing its sub-themes of identity and authorization (T1.1), clear expectations (T1.2), and adult support and moderation (T1.3). Using these sub-themes, the decision was made to implement four functions: standards and guidelines, BankID, a warning system, and a forum for guardians.

Appendix C shows screens of what each function could look like. Firstly, a screen showing clear expectations was included establishing standards and guidelines for platform use. Secondly, BankID is used to identify users, guaranteeing that they are genuine people rather than bots or false accounts. There were no figures found for usage among teenagers, but BankID is used by 92% of the adult population in Sweden (Internetstiftelsen, 2023). There is no standard age limit to using BankID; it is determined by each bank and is commonly 13 or 18 years old (BankID, n.d.). Otherwise, Freja can be used, as it is available to Swedes who are at least 8 years old (Freja eID Group, n.d.), and is used the most in Sweden by those born in the 2000s (Internetstiftelsen, 2023). Thirdly, adult support and moderation includes a warning system to alert users of inappropriate behaviour and adult presence to deal with any conflicts that may arise. Finally, a forum has been created for guardians to help monitor their children's activities, providing them with more ease of mind.

6.1 Prototype Evaluation

Following feedback from a Flamman employee, a second iteration of the prototype was designed to increase functionality (see Appendix D). An additional feature allowed for users to report any problems they encountered on the site. An instructional video was also included to educate users who have received a warning regarding inappropriate behaviour (see Figure 5). To access the platform, users would have to watch a video and answer questions based on the video's contents. This effort intends to enhance awareness of the platform's behavioural guidelines, as well as improve user engagement.

Greyscale was used as an aesthetic throughout the prototype, as it has been demonstrated in studies to induce calm feelings in smartphone users, which can help the user experience (Holte et al., 2023). However, with T2.3, it may be a good idea to add a few other colour schemes that users would be able to choose from.

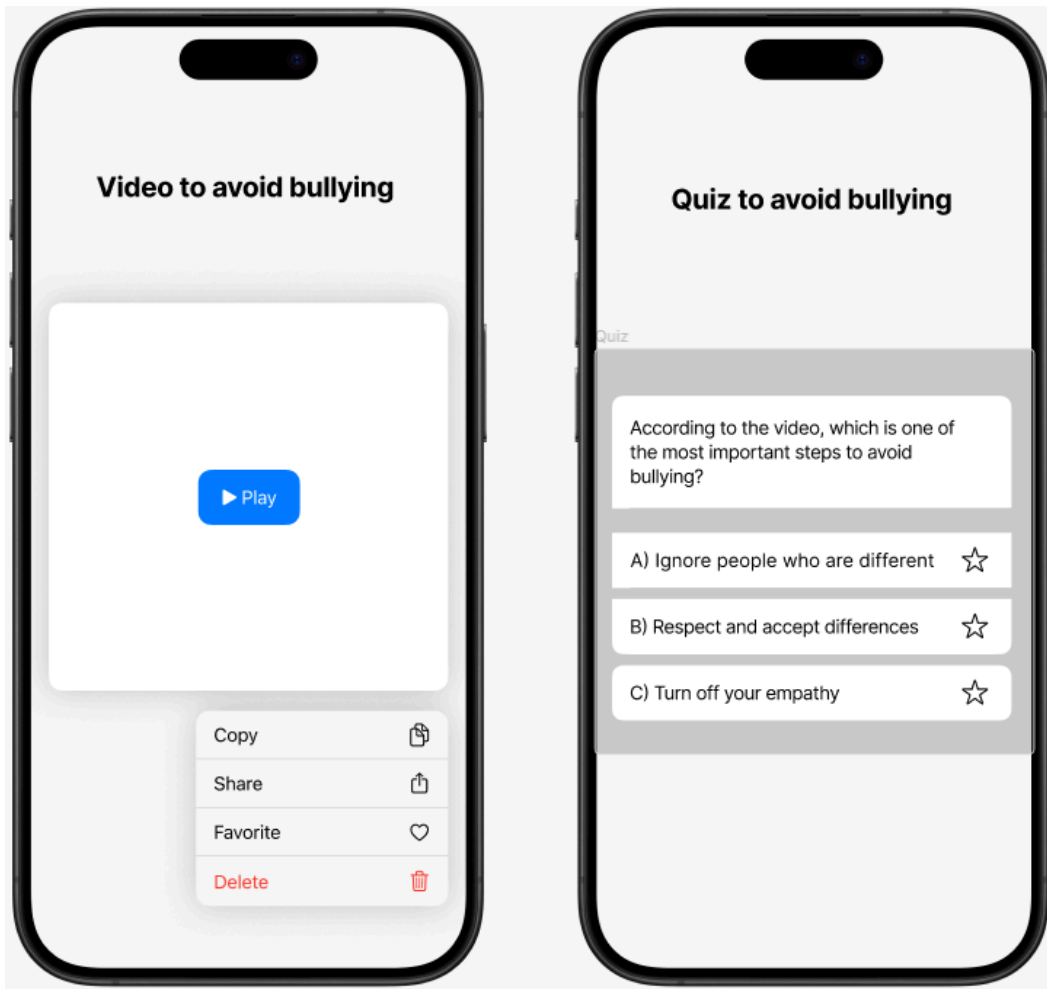


Figure 5: Screens showing anti-bullying video (*left*) and quiz (*right*).

6.2 Next Steps

Next steps for our prototype include more development for a third iteration. The logical next features to add deal with interactivity, which was the second-most discussed theme from the interviews behind safety. This includes features like chat rooms for socialization or a way to meet peers based on common interests. The incorporation of video features would also be an appropriate next step in the prototype. Eventually, it would be useful to include young people in future design co-creation, as well as adults and other stakeholders.

7. Conclusion

Digital technology has had a profound impact on young people, especially their mental health. The insights from interviews with both teenagers and parents reveal safety, social interaction, and support as main themes for a digital media system designed with mental wellness in mind for young people. Of these, the first was deemed the most important. Future work includes more development on the prototype to incorporate the other two themes and then testing with both teenagers and adults. By providing a platform that prioritizes safety while also integrating social, interactive, and artistic features, we may be able to lessen their social anxiety when navigating and interacting on a digital platform that resembles a physical *fritidsgård*. Such platforms that meet these needs can provide a safe and supportive atmosphere in which young people feel comfortable exploring, communicating, and expressing themselves freely.

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9. Appendices

9.1 Appendix A: Interview Questions

9.1.1 Interview Questions for Teenagers

Basic questions

Age:

Gender: Male / female / non-binary / prefer not to answer

Starter questions

Hänger du på en fritidsgård? Varför, varför inte? Berätta om dina erfarenheter med fritidsgårdar?

Probing questions

- What age were you when you went?
- How often did you go (ex. once a week)?
- Tell us about some good experiences with fritidsgårdar. Bad experiences?
- Did you usually go with friends or by yourself?
- Did you make many friends there?
- What types of activities did you usually do at fritidsgård?

Simple explanation of our thesis: We would like to implement a digital version of a *fritidsgård* where young people can socialize and participate in activities with other youth in a digital way. We are especially looking to create an environment that will be comfortable for everyone and minimize teenagers' feelings of social anxiety.

More in-depth questions

1. Kan du berätta om några tillfällen då du har känt social ångest?
2. Hur känner du för att prata med någon i din ålder som du inte känner så väl ansikte mot ansikte?
3. Hur känner du för att prata med någon i din ålder som du inte känner så väl över internet?
4. Hur kan vi göra en digital miljö mer bekväm för dig och andra i din ålder?
5. Hur engagerad tycker du att vuxna borde vara i en sådan miljö?

Mer kring webbsidan

1. Vad skulle du vilja göra på Fritidsgård.se? Vilka aktiviteter är du intresserad av att delta i? (Exempel: Spela spel, lära dig nya saker, prata med andra...)

2. Vad är det du vill lära dig mer om på plattformen? Finns det något specifikt ämne eller intresseområde som du är nyfiken på? (Exempel: Musik, matlagning, kreativa projekt...)
3. Vilka ämnen tycker du skulle vara spännande att diskutera eller ha workshops om? Vad skulle du vilja lära dig mer om och prata med andra om? (Exempel: Vänskap, skola, personlig utveckling...)
4. Vad tycker du att vi borde ha i de olika rummen på Fritidsgård.se? Vilka typer av utrymmen skulle vara mest lockande för dig? (Exempel: Musikrum, spelrum, skaparrum...)
5. När det gäller event online, hur skulle du vilja delta? Finns det några specifika typer av evenemang du skulle vara intresserad av att delta i? (Exempel: Livekonserter, tävlingar, föreläsningar...)
6. Vad är det du behöver mest hjälp med på plattformen? Finns det några specifika områden där du skulle vilja ha mer stöd eller resurser? (Exempel: Läxor, stöd från organisationer som Friends, RFSU och BRIS...)
7. Hur tror du att externa företag kan bidra till plattformen? Vilka typer av samarbeten skulle vara mest givande för dig? (Exempelvis, Lego, Fortnite, Redbull, Friends osv)
8. Hur vill du interagera med andra på plattformen? Vilka funktioner eller möjligheter för kommunikation och samarbete skulle du uppskatta mest? (Exempel: Chatta, spela tillsammans, delta i diskussioner...)
9. Vilka organisationer skulle du vilja se samarbeta med Fritidsgård.se? Finns det några specifika organisationer som du tror skulle kunna bidra till din erfarenhet på plattformen? (Exempel: Friends, RFSU, BRIS...)
10. På vilket sätt tycker du att fritidsgårdsledare bör vara delaktiga och interagera på plattformen? Vad förväntar du dig av deras närvaro och stöd?
11. Vad skulle du vilja kunna göra i dina egna rum på plattformen? Hur skulle du vilja kunna anpassa och använda dina personliga utrymmen på bästa sätt? (Exempel: Dekorera, bjuda in vänner, ha privata samtal...)
12. På vilket sätt skulle du vilja vara involverad i utvecklingen av Fritidsgård.se? Vilka möjligheter skulle du vilja ha för att ge feedback och bidra till förbättringar på plattformen? (Exempel: Ge feedback, delta i enkäter, delta i möten, se en bild, en video...)

9.1.2 Interview Questions for Guardians

1. Vad är dina tankar kring möjligheten att ditt barn använder en digital plattform som fritidsgård.se för att tillbringa sin fritid?
2. Hur nöjda är ni med dagens fritidsgårdar?
3. Vilka funktioner skulle du vilja se på plattformen för att känna dig trygg med att ditt barn spenderar tid där?
4. Hur viktigt är det för dig att plattformen erbjuder möjligheter för ditt barn att interagera med andra ungdomar och delta i aktiviteter som liknar dem på en fysisk fritidsgård?
5. På vilket sätt skulle du vilja kunna involveras i ditt barns användning av fritidsgård.se för att känna dig delaktig och säker?
6. Vilka åtgärder eller säkerhetsåtgärder skulle du vilja se implementerade på plattformen för att skydda barnens integritet och säkerhet?
7. Hur ser du på kravet att använda vårdnadshavarnas BankID för att säkerställa barnens medlemskap och trygghet på plattformen?
8. Vad tycker du är viktigast när det gäller att skapa en säker och inkluderande digital miljö för barn och unga?
9. Hur tror du att AI-övervakning och rapportering av normbrytande beteende kan bidra till att skapa en trygg digital miljö för barn och unga på plattformen?

9.2 Appendix B: Survey Questions

9.2.1 Survey Questions for Ages 9–12

1. Vilka spel eller lekar tycker du mest om att leka eller spela med dina vänner?
Välj alla alternativ som stämmer:
 - a. Kull
 - b. Uno
 - c. Minecraft
 - d. Fortnite
 - e. Annat (specificera: _____)

2. Vilka ämnen eller aktiviteter skulle du vilja prata om eller lära dig mer om med andra barn på plattformen? Välj upp till tre alternativ:
 - a. Skola och läxor
 - b. Musik och sång
 - c. Konst och målning
 - d. Spel och dataspel
 - e. Idrott och motion
 - f. Annat (specificera: _____)

3. Om du hade ett eget rum på Fritidsgård.se, vilka funktioner skulle du vilja ha tillgång till? Välj upp till tre alternativ:
 - a. Spelrum med konsoler och brädspel
 - b. Musikrum med instrument och möjlighet att lyssna på musik
 - c. Pyssehörna med material för att måla och skapa
 - d. Studierum med tillgång till läxhjälp och studiematerial
 - e. Chatt- och diskussionsrum för att prata med andra barn
 - f. Annat (specificera: _____)

4. Vad skulle du vilja göra under en online-träff med andra barn? Välj upp till två alternativ:
 - a. Filmkväll
 - b. Spelkväll med Minecraft eller andra onlinespel
 - c. Musikquiz
 - d. Pyssekväll med olika kreativa aktiviteter
 - e. Diskussionsgrupp om intressanta ämnen
 - f. Annat (specificera: _____)

5. Behöver du hjälp med något i skolan? Välj alla alternativ som stämmer:
 - a. Matte
 - b. Svenska
 - c. Naturvetenskap
 - d. Annat ämne (specificera: _____)
 - e. Jag klarar mig på egen hand

6. Hur föredrar du att kommunicera med andra barn på plattformen? Välj ett alternativ:
- Chattmeddelanden
 - Röstchatt
 - Emojis och gester
 - Annat (specificera: _____)
7. Vilka organisationer tror du kan vara till hjälp för oss på Fritidsgård.se? Välj upp till två alternativ:
- Organisationer som stöttar unga med psykisk hälsa
 - Organisationer som erbjuder läxhjälp och skolstöd
 - Organisationer som främjar kreativitet och konstnärlighet
 - Organisationer som fokuserar på digital säkerhet och mediekompetens
 - Annat (specificera: _____)
8. Vill du vara med och bidra med idéer för aktiviteter på Fritidsgård.se? Välj ett alternativ:
- Ja, jag vill vara delaktig i planeringen och genomförandet av aktiviteter.
 - Nej, jag föredrar att bara delta i aktiviteter utan att vara involverad i planeringen.
 - Jag är osäker.

9.2.2 Survey Questions for Ages 13–17

1. Vilka spel eller aktiviteter tycker du mest om att göra med dina vänner? Välj alla alternativ som stämmer.
- Fortnite
 - Minecraft
 - Musikspel
 - Brädspel
 - Sportaktiviteter
 - Annat
2. Finns det något speciellt du skulle vilja lära dig mer om online? Välj upp till två alternativ.
- Programmering
 - Musikproduktion
 - Grafisk design
 - Språkstudier
 - Annat
3. Vilka ämnen eller aktiviteter skulle du vilja prata om eller lära dig mer om med andra tonåringar på plattformen? Välj upp till tre alternativ.
- Klimatförändringar
 - Mental hälsa och välbefinnande
 - Populärkultur och trender

- d. Personlig utveckling och målsättning
 - e. Annat
4. Om du hade ett eget rum på Fritidsgård.se, hur skulle du inreda det? Välj upp till tre alternativ.
- a. TV och spelkonsoler
 - b. Musikinstrument och ljudsystem
 - c. Avslappningsområde med kuddar och filtar
 - d. Studiehörna med skrivbord och läxmaterial
 - e. Annat
5. Vad skulle du vilja göra på en online-träff med andra tonåringar? Välj upp till två alternativ.
- a. Film- eller seriemaraton
 - b. Musikjam eller karaokekväll
 - c. Spelturning eller turnering i e-sport
 - d. Diskussionsgrupp om aktuella ämnen
 - e. Annat
6. Behöver du hjälp med läxor eller något annat i skolan? Välj alla alternativ som stämmer.
- a. Matte
 - b. Naturvetenskap
 - c. Språkämnen
 - d. Jag klarar mig på egen hand
 - e. Annat
7. Hur föredrar du att kommunicera med andra tonåringar på plattformen? Välj ett alternativ.
- a. Chattmeddelanden
 - b. Röstchatt
 - c. Videochatt
 - d. Användning av memes och emojis
 - e. Annat
8. Vilka organisationer tror du kan vara till hjälp för oss på Fritidsgård.se? Välj upp till två alternativ.
- a. Organisationer som stöttar ungdomar med psykisk ohälsa
 - b. Organisationer som erbjuder karriärrådgivning och mentorprogram
 - c. Organisationer som främjar jämställdhet och mångfald
 - d. Organisationer som fokuserar på ungdomskultur och kreativitet
 - e. Annat

9.3 Appendix C: Prototype Screenshots (First Iteration)

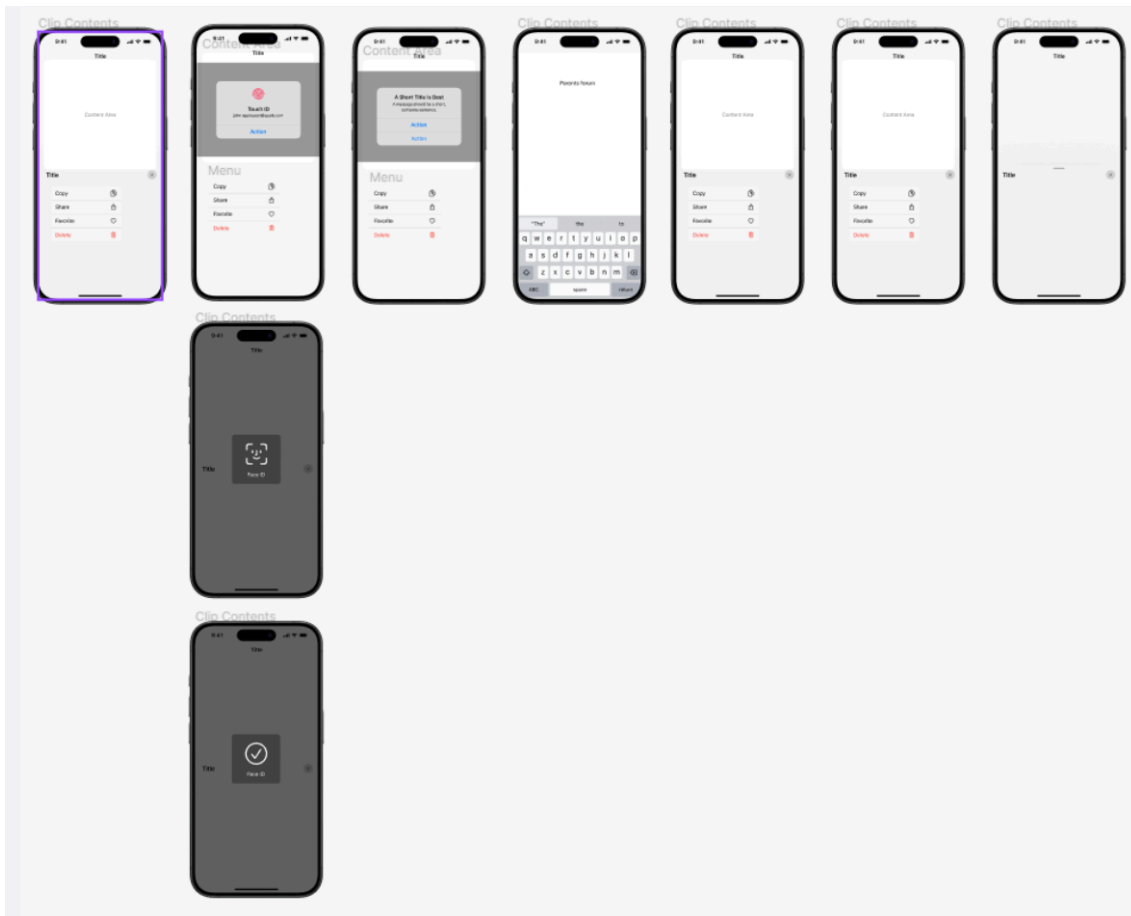


Figure 2: Preliminary mock-up.

9.4 Appendix D: Prototype Screenshots (Second Iteration)



Figure 3: Screens showing standard agreement (*left*) and BankID verification start screen (*right*).



Figure 4: Screens showing BankID verification process (*left*) and successful login (*right*).

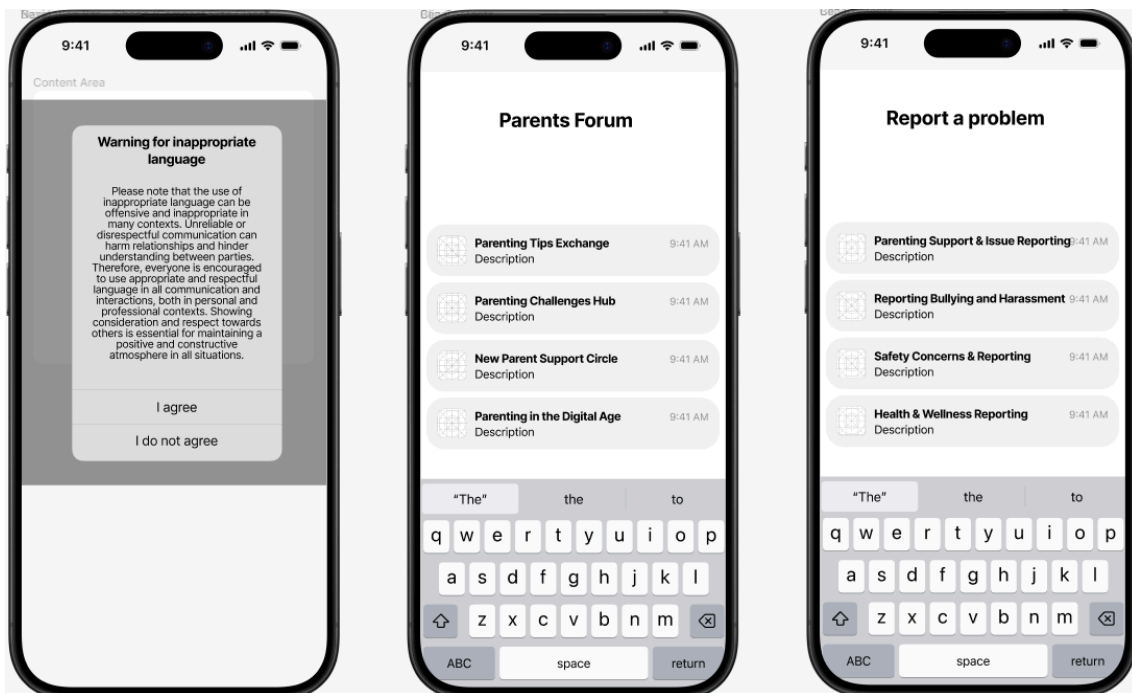


Figure 5: Screens showing warning message (*left*), parents forum (*centre*), and problem reporting (*right*).