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Department of Information and Computing Science

Human Computer Interaction Master thesis

**Exploring Motives and Their Impact on Perceived
Emotional Support in Social Media**

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*Ai miei genitori, a papà e mamma, a mamma e papà, che dir si voglia
Non vorrei vivere un'altra vita che è senza di voi*

Abstract

Social relationships are crucial for human well-being. They are the main source of socio-emotional support, which is linked to improved health and longevity. Traditionally, such support has been derived from face-to-face interactions. However, with the rise of social media, a new dimension of social connection has emerged, where communication is instantaneous and can connect people distant from one another. This raises the question: how does emotional support manifest in social media, and how can it be enhanced in these digital environments? To address this, it is important to consider individual differences and users' motives, such as affiliation, power, and achievement, which shape social interactions and needs. The study identifies key social media elements and functionalities influencing perceived emotional support, the link with one's own motives, and finds that the choice of social media elements for seeking emotional support does not depend on an individual's motives. Instead, some key elements are found to be universally useful when seeking emotional support, regardless of one's motives. A prototype intervention is developed to increase the perception of emotional support on Instagram based on one's explicit need for support. The prototype is evaluated and generally well-received by participants, specifically regarding usability and perceived effectiveness.

Key Words: Emotional Support, Perceived Emotional Support, Motives, Explicit Motives, Instagram, Social Media, Evaluation of Technologies.

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1. Introduction

Throughout history, humans have sought to form and maintain social relationships in order to survive (G. N. Sadikov, 2018; Unsalver et al., 2021).

According to the Social Safety Theory, establishing and nurturing positive social relationships is a fundamental aspect of human behavior (Slavich, 2020), to the extent that social relationships have been proven to be linked not only to mental well-being but also lower mortality rates (Holt-Lunstad et al., 2010).

Social support has been shown to impact longevity and improve survival chances positively (Chou et al., 2012; Thong et al., 2007). High levels of emotional support, a component of social support (Desens et al., 2019), have been linked to increased survival rates in various clinical populations, e.g. HIV-positive patients, and act as a protective factor against stress, anxiety, and depression (Gordillo et al., 2009; Pilkington et al., 2015; Reblin & Uchino, 2008).

In the current era of scientific and technological advancement, humans have expanded their living environment to include the *technosphere*: the realm of technology, encapsulating machines, factories, computers, cars, and mobility infrastructure (G. N. Sadikov, 2018). With the advent of social media, emotional support traditionally provided through face-to-face interactions is being replicated online (Manago et al., 2012).

Given the imperative importance emotional support holds, this study investigates a novel approach to boost the perception of emotional support in social media, considering communication through social media platforms and individual differences in motives, defined as the underlying reasons for behavior (Das, 2016). Understanding users' motives could provide a more effective way to enhance their perception of emotional support, by providing tailored solutions based on each individual's motive.

The research project aims to study the potential of design interventions to enhance perceived emotional support in social media based on users' motives.

1.1 Research Questions

This thesis aims to answer the following main research question:

RQ: How to design an intervention to boost perceived emotional support in social media, considering users' motives?

The main research question has been further divided into 5 sub-research questions:

SRQ1: What is the known relationship between social media, motives, and emotional support?

Emotional support is undeniably important, but how does it translate on social media? Given the significance of motives as individual underlying reasons for behavior (Das, 2016), it is essential to explore what role they play in shaping the perception of emotional support. To answer these questions, Chapter 2 provides a literature review on the perception of emotional support in social media and its connection to user motives.

SRQ2: Which elements of social media platforms are associated with the perception of emotional support?

A focus group study was conducted to understand which elements of social media platforms are associated with the perception of emotional support. Chapter 4 provides an overview of how the focus groups were conducted, concluding with their findings.

SRQ3: When looking for emotional support, does the choice of social media elements depend on motives?

After defining the elements that shape the perception of emotional support online, the survey study is introduced in Chapter 5 to examine the relationship between the selection of social media features and users' motives. This

chapter details the methodology of the study and shares findings that address the sub-research question.

SRQ4: How can a prototype be designed to foster the perception of emotional support in social media?

Once the relationship between motives and perception of emotional support online, if any, has been researched, Chapter 6 describes the prototype developed using insights from both Study 1 (Focus Groups) and Study 2 (Survey).

SRQ5: What is the perceived effectiveness of the resulting design intervention?

The final step involves testing the prototype to assess the perceived effectiveness of the new design concept. Chapter 7 describes the evaluation process, conducted through cognitive walkthroughs, and analyzes the prototype's perceived effectiveness.

This thesis concludes with Chapter 8, which discusses the findings, offers final reflections, addresses the study's limitations, and proposes directions for future research.

Lastly, Chapter 9 summarizes the key findings and highlights the implications of this research project.

2. Literature Review

This chapter aims to define the concept of emotional support, building upon the definition of social support. It will distinguish this concept between perceived and received support and discuss methods for measuring emotional support. Additionally, the concept of social media will be investigated, with a focus on its relation to mental health and emotional support. Another aspect of the literature review will delve into explaining motives and methods for measuring them. Finally, the chapter will define the relationship between social media, motives, and emotional support, while identifying research gaps and motivations for this study.

2.1 Emotional Support

Emotional support is a complex concept that encompasses multiple disciplines. To comprehensively define the complex concept of emotional support, it is essential to delve into the broader concept of social support. This entails understanding support in terms of perception and reception too, and it's the aim of the next sections.

2.1.1 Emotional Support as a Category of Social Support

Emotional support falls within the overarching framework of social support (Yao et al., 2015) which entails both verbal and nonverbal communication between individuals, i.e. recipients and providers. Social support has a deep and wide-ranging positive impact on mental and physical health and health behavior (Reblin & Uchino, 2008; Umberson et al., 2010). One of the areas where social support has the most impact is stress, because of its pivotal role in assessing stressful events as more manageable and reducing their negative emotional impact (Acoba, 2024). As numerous sources can provide social support, such as family, friends, or pets (Allen

et al., 2002; Ford et al., 2007), it has been shown that support from family and significant others reduces perceived stress (Cohen, 2004). One way social support improves physical health is through stress buffering (Cohen, 2004). It helps by reducing the impact of stress, encouraging more positive views of challenges, and supporting effective coping strategies (Cohen, 2004). One's mental and physical health can benefit from it not only in hard times but also in times where no evident source of stress is present (Cohen & Wills, 1985), as stressors can greatly impact mood, well-being, behavior, and health (McLean et al., 2023). While short-term stress responses can be beneficial for young, healthy individuals, prolonged stress, especially in older or unhealthy individuals, can lead to long-term health issues (Schneiderman et al., 2005). About this, a study examining male and female first-year college students in Ireland found moderate levels of both social support and perceived stress (McLean et al., 2023). Individuals with higher levels of social support tended to experience lower levels of stress, leading to a positive connection between perceived stress and social support (McLean et al., 2023). Compelling evidence indicates that persistent stress significantly contributes to the development of severe and impairing psychiatric disorders, such as depressive disorder, bipolar disorder, and post-traumatic stress disorder (Davis et al., 2017). Moreover, research shows that social support could mitigate genetic and environmental susceptibilities, i.e. factors that make an individual more susceptible to stress and its negative effects, and confer resilience against stress, through its impacts on numerous neurological pathways, such as the hypothalamic-pituitary-adrenocortical system, the noradrenergic system, and central oxytocin pathway, which influence a wide range of phenomena in the mind and the body (Ozbay et al., 2007).

Hence, social support positively contributes to well-being (Siedlecki et al., 2014). For instance, research confirmed the protective role of social support in the well-being of Moroccan adolescents, directly correlating with their overall sense of well-being (Lopez-Zafra et al., 2019). Social support is confirmed to increase levels of life satisfaction in adolescents (Lopez-Zafra et al., 2019). Greater levels of social support from both family and friends

have been observed to correlate with higher life satisfaction (Harikandei, 2017) and less overall loneliness in young adulthood (C.-Y. S. Lee & Goldstein, 2016).

The complex concept of social support has been categorized by Cutrona and Suhr (Desens et al., 2019) into five main categories:

- **Informational support** involves messages containing knowledge or facts, such as advice or feedback.
- **Emotional support** encompasses expressions of caring, concern, empathy, and sympathy.
- **Esteem support** consists of messages that bolster one's skills, abilities, and intrinsic value.
- **Social network support** fosters a sense of belonging to a specific group with similar interests or situations.
- Finally, **tangible support** involves physically providing necessary goods and services.

Each category includes several subcategories, contributing to the diverse landscape of social support dynamics (Cutrona & Suhr, 1992). However, among these categories, emotional support is the type of social support mostly related to mental health (Shensa et al., 2020; Yao et al., 2015).

Emotional support refers to the provision or perception of care, concern, empathy, love, and trust (Kort-Butler, 2018). More specifically, emotional support is defined as interaction leading an individual to believe that they are cared for and loved, esteemed, and members of a network of mutual obligations (Watts & Crimmins, 2008). Emotional support serves the dual function of reducing individuals' emotional distress and helping them understand and work through the challenges that they face (Burlison, 2003; Heaney & Israel, 2008; Langford et al., 1997), just like social support (Jurgens & Helsloot, 2018).

Emotional support aims at reducing uncertainty about situations, oneself, others, or relationships, thereby enhancing personal control in one's experiences (Albrecht & Adelman, 1987). The concept of uncertainty aversion has

been studied in various fields of study, including neuroscience (Sarinopoulos et al., 2010). When faced with uncertainty, the amygdala, a brain region linked to fear and anxiety, and the prefrontal cortex, responsible for decision-making and problem-solving, become activated (Sarinopoulos et al., 2010). These activations can result in sensations of unease, anxiety, and stress (Sarinopoulos et al., 2010).

2.1.2 Perceived and Received Support

As previously mentioned, various sources can offer social support; however, the perception of the same provided level of support may vary among individuals. For this reason, it is necessary to make a distinction between actual provided support (e.g. the actions taken to support somebody) and perceived support, which is the support that the recipient believes to have received (Siedlecki et al., 2014).

Among various definitions of social support, some highlight specifically the reception of it, defining it as social and psychological assistance individuals receive from their family, friends, and community (Awang et al., 2014; Zimet et al., 1988). Received social support denotes the practical assistance extended by individuals close to someone, highlighting both the quantity and the quality of the support offered (Wu et al., 2022). In a 2015 study aimed at understanding when received social support is related to perceived support and well-being, received support was measured by asking participants about the frequency of emotional and tangible support they received (Melrose et al., 2015). For emotional support, participants were asked how often someone listened to them talk about their private feelings (Melrose et al., 2015). For tangible support, they were asked how often someone helped them with tasks that needed to be done (Melrose et al., 2015). These questions were designed to reflect typical monthly experiences (Melrose et al., 2015). Another way received support could be measured is through the Received Social Support Scale, which was developed for persons with Serious Mental Illness in 2022 which proposed a three-factor structure (Chronister et al., 2022):

- Day-to-Day Living Support focuses on helping individuals manage basic needs (like food and transportation) and fight isolation through emotional encouragement and check-ins.
- Mental Health Support refers to addressing challenges related to coping with mental health symptoms, accessing care, and understanding how mental health impacts daily life.
- Adherence Support ensures individuals receive reminders and assistance with attending medical appointments and taking prescribed medications.

Perceived social support, on the other hand, is a more subjective view of social support (Wu et al., 2022). It entails how individuals personally evaluate the availability and sufficiency of their social connections, including the support they feel they receive from family, friends, and significant others (Wu et al., 2022). In other words, perceived social support refers to the perception that support would be available if needed (Acoba, 2024) and can refer to both emotional and instrumental support (Treppe & Scharkow, 2016).

While the positive impact of providing social support remains incompletely investigated, numerous studies have examined and confirmed the positive effect of receiving social support (Xin, 2023). Day and Livingstone proposes that an individual's perception of their social support network has a significantly greater coping effect than the actual receipt of support (Day & Livingstone, 2003), as the perception of having social support readily available can serve as a buffer during periods of stress, elevate happiness, and increase psychological well-being (Barrera Jr, 1986; Cohen & Wills, 1985; Winemiller et al., 1993). Additionally, the Behavioral Risk Factor Surveillance System (BRFSS) data, a telephone survey system gathering state-level data on health-related behaviors among U.S. residents, revealed that individuals reporting high levels of perceived emotional support had an 87% lower likelihood of reporting current depression (Brinker & Cheruvu, 2017).

The match between the source, type, timing, and the individual's needs determines the effectiveness of social support (Cohen & McKay, 2020; Cutrona

& Russell, 1990; Jacobson, 1986). Social media, defined as internet-based and persistent channels of communication that combine elements of personal and mass interactions, derives its value primarily from user-generated content (Carr & Hayes, 2015). These platforms have become significant in daily life by facilitating perceptions of interaction among users (Carr & Hayes, 2015). While traditionally associated with face-to-face interactions, perceived emotional support can also be effectively provided through social media, as these platforms replicate many aspects of in-person relationships in terms of communication and emotional connection (Shensa et al., 2020).

It has been shown that culture is a significant moderator in the association between perceived emotional support and well-being (Uchida et al., 2008). It is essential to denote that the absence of any benefit of perceived support is unique to cultural contexts that privilege independence (e.g. European and American culture) rather than interdependence (e.g. Asian culture) of the self (Uchida et al., 2008). Resilience can arise from relational and social factors, such as family bonds and supportive connections (Howard & Hughes, 2012). Resilience is intertwined with mental health, as positive mental health necessarily counts on the capacity to manage and adapt to stress (Srivastava, 2011). Perceived social support is broadly acknowledged as an external safeguard for resilience, a conclusion resulting from several prior studies (Howard & Hughes, 2012; Rutter, 2012; Yang et al., 2020).

2.1.3 Measuring Social and Emotional Support

As demonstrated above, social support, particularly emotional support, plays a significant role in maintaining mental health and overall well-being. Consequently, researchers have devoted time and resources to developing methods for measuring an individual's level of social support.

2.1.3.1 Social Support Scale (SSS)

One such method is the Social Support Scale (SSS) (Sarason et al., 1983). The SSS is a 27-item questionnaire designed to assess perceptions of social support and satisfaction with it (Sarason et al., 1983).

Originally crafted in 1983, it has undergone redefinition into several shorter versions (Sarason et al., 1987). One such version was introduced in 1987, comprising a condensed questionnaire of 6 items, maintaining the same aim and structure (Sarason et al., 1987). Subsequently, the questionnaire has been widely used in numerous studies to demonstrate and measure health outcomes in various populations, for instance, in Australia, to examine how social support influences the health of Aboriginal and Torres Strait Islanders (Santiago et al., 2023). The abbreviated 6-item questionnaire version, indicated in the list below, predominantly focuses on questions about the perception of factors defining emotional support (Sarason et al., 1987). Each item is divided into two parts: the first part asks participants to list individuals who match the description in the question; the second part evaluates participants' satisfaction with the support provided by these individuals using a 6-point Likert scale, prompted by the question, "*How satisfied?*" (Sarason et al., 1983).

- "Whom can you really count on to listen to you when you need to talk?" or "With whom can you totally be yourself?"
- "Whom could you really count on to help you out in a crisis situation, even though they would have to go out of their way to do so?"
- "Whom can you really count on to be dependable when you need help?"
- "Whom can you count on to console you when you are very upset?"
- "Who do you feel really appreciates you as a person?"

2.1.3.2 Perceived Emotional Personal Support Scale (PEPSS)

A scale that solely focused on perceived emotional support is the Perceived Emotional Personal Support Scale (PEPSS) (Slavin, 1991). This particular scale was developed to measure perceived emotional personal support for adolescents (Slavin, 1991). The questionnaire is divided into three sections, each containing four items (Slavin, 1991). Each section aims to explore the perception of emotional support within a specific group (Slavin, 1991). Section A includes questions about family, section B focuses on questions about

professors, and section C addresses questions about friends (Slavin, 1991). The same four questions are repeated for each section, and a 4-point-likert scale is indicated for the participant to answer (Slavin, 1991).

PEPSS questions are indicated below:

- "How much do you talk to them about personal concerns?"
- "How close do you feel to them?"
- "How much do they talk to you about their concerns?"
- "How satisfied are you with the help and support they give you?"

2.1.3.3 Two-Way Social Support Scale

The Two-Way Social Support Scale (2-Way SSS) was developed to provide a comprehensive measurement of social support, capturing both its emotional and instrumental dimensions (Shakespeare-Finch & Obst, 2011). Unlike previous tools, this scale integrates the dual aspects of giving and receiving support across four key domains (Shakespeare-Finch & Obst, 2011):

- receiving emotional support
- giving emotional support
- receiving instrumental support
- giving instrumental support

Evidence from samples highlights the scale's clear structure, reliability, and accuracy, with strong consistency across all areas (Shakespeare-Finch & Obst, 2011). The scale also includes practical support, such as providing or receiving help during times of physical or financial need (Shakespeare-Finch & Obst, 2011). With its broad scope and flexible design, the 2-Way SSS is a useful tool for research across different settings, enabling meaningful comparisons between studies and groups (Shakespeare-Finch & Obst, 2011). A study (Obst et al., 2019) has confirmed that the 12-item 2-Way Social Support Scale is a reliable and valid measure for assessing the four key domains of social support, as the scale shows robust psychometric properties, making it a valuable tool for understanding social support (Obst et al., 2019).

2.1.3.4 Multidimensional Evaluation of Enacted Social Support (MEESS)

The Multidimensional Evaluation of Enacted Social Support assesses enacted, or also called received, social support across three dimensions (Goldsmith & Griscom, 2017; Ray & Mikkelson, 2023):

- relational assurance (i.e. supportiveness)
- problem-solving utility (i.e. helpfulness)
- emotional awareness (i.e. sensitivity)

It consists of 12 semantic differential items on a 7-point scale. The items can administered directly to participants or used by observers to evaluate conversations (Goldsmith & Griscom, 2017). This multidimensional framework enables researchers to assess supportive messages as they can vary in quality across the three different dimensions (Ray & Mikkelson, 2023). The scale has been used in a multitude of research projects, including HIV disclosure discussions, bullying conversations within families, and cancer survivors reflecting on received advice (Goldsmith & Griscom, 2017). A study (Ray & Mikkelson, 2023) has disclosed what should be the best practices to perform this evaluation, to enhance the utility of the multidimensional scale. It is recommended that items are to be grouped by factor and researchers are advised to use consistent terminology when referencing scales, such as consistently referring to the MEESS by its full name in all related studies, to avoid confusion in communication (Ray & Mikkelson, 2023).

2.2 Social Media

In this section, the realm of social media is introduced, examining its connection to mental health and emotional support.

2.2.1 Social Media and Mental Health

Communication and information exchange have been subject to the concept of restless reinvention (Studios, 2018) over the centuries, culminating with the advent of the Internet and the World Wide Web (Hunsaker & Hargittai, 2018).

The earliest form of the Internet, namely Web 1.0, offered only a read-only environment (Ibrahim, 2021). As the initial iteration of the Internet emerged, users could view websites and access information but lacked the ability to interact with the creators, websites, or the information itself (Ibrahim, 2021). Social-sharing networks (blogs, video-sharing platforms, instant messaging platforms, etc.) have deeply revolutionized Web technology, offering read/write technologies (Darwish & Lakhtaria, 2011; Ibrahim, 2021). In fact, Web 2.0 is commonly associated with web applications that facilitate interactive information sharing, user-centered design, and collaboration on the World Wide Web, allowing users to interact with one another or edit or add to website content (Darwish & Lakhtaria, 2011). The rise of Web 2.0 functionalities in the early 2000s revolutionized the social aspect of internet use (Obar & Wildman, 2015). Coupled with declining online data storage costs, it provided access to user-centered spaces for generating content and opportunities for linking them to form virtual social networks (Obar & Wildman, 2015). Social media platforms rapidly emerged as both commercial and social phenomena (Obar & Wildman, 2015). These platforms, such as Facebook founded in 2004 and Twitter founded in 2006, are just a fraction of the numerous initiatives aiming to leverage social media functionalities and integrate Web 2.0 features into various online services (Obar & Wildman, 2015). Two decades after the advent of social media, technologies, designs, and functionalities have evolved alongside the most prominent and

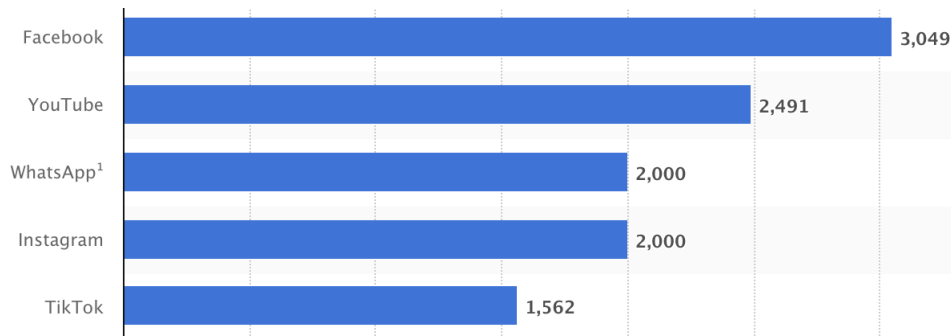


Figure 2.1: Most popular social networks worldwide as of January 2024, ranked by number of monthly active users in millions (Statista, 2024)

widely used social media platforms worldwide (Storey et al., 2014). These platforms have grown not only in terms of user base but also in their significance as key players in the digital landscape (Storey et al., 2014). The environment is so diverse that it makes it difficult to provide a single and satisfying definition for social media (Obar & Wildman, 2015). Therefore, in this research, social media will primarily refer to platforms that can enable users to share content, establish and maintain connections with individuals, and engage with a global audience through various features like messaging, photo/video sharing, and live streaming. For the same reason, it is noteworthy to clarify that the terms "social media" and "social network" are used interchangeably in this research, as they convey the same meaning and represent the same concept.

According to the quantitative data from January 2024 published by Statista (Statista, 2024), online resource for current statistical data (Gullen & Plungis, 2013), the five most popular social networks worldwide as of January 2024, ranked by number of monthly active users in millions, are, in order from the most used to least used among these, Facebook, YouTube, WhatsApp, Instagram, and TikTok (Statista, 2024).

Therefore, in the contemporary and diverse landscape, it is irrefutable that social media exerts a significant influence on our culture, economy, and global perspective (Wike et al., 2022).

The evolution of these platforms from being initially tailored for larger screens to now being constantly accessible on our mobile devices makes them increasingly pervasive and ingrained in our daily lives (Wike et al.,

2022). For instance, a study reports that the proportion of Ontario's adolescents who indicated spending 5 or more hours daily on social media rose from 11% in 2013, to 16% in 2015, and to 20% in 2017, a trend inexorably linked to the prevalence of smartphones and their accessibility (Abi-Jaoude et al., 2020). This has a sure impact on our lifestyle and habits, resulting in social media significantly influencing not only our physical health but also impacting mental health, contributing to increased rates of anxiety and depression (Amedie, 2015). A systematic review study (Keles et al., 2020) has classified findings into four domains of social media, namely time spent, activity, investment, and addiction. It has been found that depression, anxiety, and psychological distress all correlated with the aforementioned domains (Keles et al., 2020).

Data shows a rise in depression among recent adolescent cohorts coinciding with the widespread adoption of social media (Haidt & Allen, 2020). Recent discussions propose that it is social media usage, rather than general digital device use or screen time, that is most strongly associated with depression risk (Haidt & Allen, 2020). Nevertheless, social media usage does not only impact adolescents; other age groups are also widely affected (Vannucci et al., 2017). A study investigated the relationship between social media usage and anxiety among emerging adults (Vannucci et al., 2017). It revealed that increased time spent on social media correlated with heightened symptoms of dispositional anxiety (Vannucci et al., 2017), which refers to a tendency for individuals to experience anxiety across various situations (Maner et al., 2007). Moreover, a higher frequency of social media use was associated with an increased likelihood of having an anxiety disorder, underscoring the importance for clinicians to incorporate considerations of social media usage into their approach to treating anxiety among emerging adults (Vannucci et al., 2017). Especially individuals experiencing depressive symptoms and low self-esteem are particularly susceptible to harmful social comparisons on social media sites, which could exacerbate their mental health issues (Verduyn et al., 2020). A study (Hurley, 2018) investigated the relationship between social media, coping, and resilience. The study reported results indicating that those who were addicted to social media were

more depressed, measuring addiction levels through the Bergen Social Media Addiction Scale (BSMAS), which is a scale to assess the outcomes of excessive social media use (Andreassen et al., 2016; Hurley, 2018).

Moreover, social media can significantly contribute to collective coping during disasters, facilitating three coping strategies: communicating safety status, collectively constructing reality, and commemorating and moving forward from the disaster (Jurgens & Helsloot, 2018; Tandoc Jr & Takahashi, 2017).

Therefore, as social media usage has a great impact on mental health, it is possible to infer that social media usage may influence the extent and amount of perceived emotional support (Beyari, 2023). As explored in the next section, what is challenging to define is whether this impact is positive or negative, as there are numerous studies supporting both perspectives.

2.2.2 Social Media and Emotional Support

Face-to-face relationships are recognized for enhancing emotional support (Manago et al., 2012). In line with this, for example, evidence indicates that having larger social networks and perceived audiences in social media can lead to greater life satisfaction (Manago et al., 2012). Hence, electronic social networks may replicate the effects of face-to-face relationships (Manago et al., 2012). This is especially true for people in specific situations, for whom it may not be as easy to connect otherwise: for example, social media serves as a vital resource for pregnant women seeking emotional support from other pregnant women or mothers during their physical and role changes in pregnancy (J. Y. Lee & Lee, 2022). Here, emotional support increases and is sought on social media primarily regarding shared experiences about family and mood during pregnancy (J. Y. Lee & Lee, 2022).

However, higher usage of online social media platforms might not always result in increased emotional support (Islam et al., 2022). For example, a study on the negative impacts of seeking emotional support on social media during the COVID-19 pandemic stress found that the threat of COVID-19 and unemployment fueled obsession with the virus, which led to seeking

emotional support through social media (Islam et al., 2022). Nonetheless, this increased social media exhaustion ultimately contributed to the intention to reduce social media usage (Islam et al., 2022). Moreover, social media use has been generally associated with lower face-to-face emotional support (Shensa et al., 2016). A review of 43 empirical studies revealed that although many individuals start using social media to maintain connections with their offline social circles, prolonged usage is linked to reduced engagement in real-life communities, lower academic performance, and relationship issues (Kuss & Griffiths, 2011). Part of the reason why literature in this area is conflicting is that current conceptual frameworks and methods for measuring emotional support are built on traditional face-to-face relationships and may not fully capture the dynamics of contemporary young adult relationships, which often rely on or are conducted through social media (Kuss & Griffiths, 2011). Furthermore, it is plausible to note that the social media landscape is continuously changing: differences in platform and features offered may further prevent across-studies generalizability.

As an illustration, emotional support is frequently associated with feelings of trust within a relationship (Buunk & Schaufeli, 1999; Langford et al., 1997). Consequently, certain emotional support scales in use inquire individuals about their access to a confidant (Cella et al., 2015), however, this might not be directly translatable in social media environments (Shensa et al., 2020). Indeed, a newly established theoretical framework regarding adolescent peer relationships in the context of social media suggests that relationships on social media are unique and mark a shift away from traditional face-to-face interactions (Nesi et al., 2018). This framework defines a distinction between two types of communication: face-to-face communication for in-person relationships and computer-mediated communication (CMC) for social media interactions, each with significant differences. Computer-mediated communication (CMC) is described as any form of human interaction facilitated by the use of two or more electronic devices (McQuail, 2010), whereas face-to-face communication involves direct interaction where individuals converse in each other's presence, allowing for the immediate exchange of feedback and the observation of non-verbal cues like

facial expressions and gestures (Ean, 2010). This lack of cues in CMC can reduce communication efficiency and foster a sense of anonymity and disconnection from the social environment (Bordia, 1997). Consequently, this perceived anonymity is often blamed for the increased occurrence of discourteous, offensive, and unrestrained behavior (Bordia, 1997). Given these considerations, it could be argued that each type of communication may differently influence emotional support, suggesting that measurements should be tailored accordingly for each communication type.

Past research in computer-mediated communication has shown that the characteristics of this communication form, specifically, the electronic exchange of messages with lower costs in time, effort, and resources compared to other means, tend to enhance the exchange of various types of social support, particularly emotional support, especially within online communities such as support groups (Constant et al., 1996; Walther & Boyd, 2002). Yet, much of the earlier research has mainly concentrated on how informational support is provided within these online settings, rather than on emotional support (Ridings & Gefen, 2004).

In the realm of education, the emotional support provided by teachers has been shown to boost students' motivation (Saccardi & Masthoff, 2023). However, teachers often face constraints due to limited time, which can hinder their ability to offer support to students (Saccardi & Masthoff, 2023). To address this challenge, a recent study delved into the potential of technology to bridge the gap between teachers and students (Saccardi & Masthoff, 2023). Through online interventions, a conversational agent can play a crucial role (Saccardi & Masthoff, 2023). It not only collects students' experiences with teamwork but also delivers supportive messages (Saccardi & Masthoff, 2023). These interventions serve as a valuable support system for students, offering various forms of support such as celebration, emotional reflection, empathy, reassurance, advice, and support (Saccardi & Masthoff, 2023).

From a supply and demand standpoint, the dynamics between perceived and received emotional support are complex: while information providers

may offer emotional support, it does not guarantee its acceptance by the public (Depoux et al., 2020). Excessive provision can lead to an infodemic, an overwhelming amount of information, both true and false, that complicates finding trustworthy guidance (Ahmad & Murad, 2020). This type of information can fuel fear and anxiety, as misinformation spreads and threats are exaggerated. Social media amplifies both fake news and factual information, leading to confusion and panic (Ahmad & Murad, 2020; Depoux et al., 2020; pageTanya Basuarchive page, 2020). Building on prior health research, which differentiates between perceived and received emotional support as distinct concepts (Wethington & Kessler, 1986), another study verifies that this distinction holds in the realm of online emotional support as well (Hu et al., 2022). This finding indicates that perceived emotional support does not seamlessly convert into received emotional support in online environments (Hu et al., 2022). In this research, research on both emotional support and social support is reviewed. While the primary focus is on emotional support, studies on social support have been considered due to their relevance. This inclusion is based on the similarity of elements examined in social support research to those in emotional support, further recognizing and validating that emotional support is a subset of social support.

2.3 Motives

In the previous section, examples from diverse contexts and groups have been mentioned. Emotional support on social media seems to be beneficial in specific groups (e.g. classes) or specific situations (e.g. the pandemic), suggesting that the reason why people seek emotional support on social media may be crucial in determining its benefit. When examining the reasons why people behave in certain ways, it is important to look at people's motives. Motives are defined as the underlying reasons for behavior (Das, 2016) or also described as "disposition to be concerned with and to strive for a certain class of incentives or goals" (Emmons, 1989; Winter et al., 1998).

To understand how motives have been coined, it is essential to begin with Abraham Maslow's hierarchy of needs, introduced in 1943 (Poston, 2009), as this framework has greatly shaped our understanding of human motivation (Stoyanov, 2017). Abraham Maslow, a foundational figure in psychology, first articulated the hierarchy of needs in 1943, presenting a structured progression of human needs: physiological, safety, belonging and love, esteem, and self-actualization (see Figure 2.2) (Poston, 2009).

Extending Maslow's insights, David McClelland developed the Motive Disposition Theory, also called Learned Needs Theory, which identifies three primary motives: achievement, affiliation, and power (McClelland, 1987).

- Individuals with a strong **affiliation** motive tend to enjoy being around friends or others, readily accept and form connections, and prioritize maintaining social relationships (Das, 2016).
- Those driven by a **power** motive often seek to control their environment, influence others, assert their opinions, and assume leadership roles (Das, 2016).
- Individuals with a high **achievement** motive focus on tackling challenging tasks, setting ambitious goals, and committing to long-term objectives (Das, 2016).

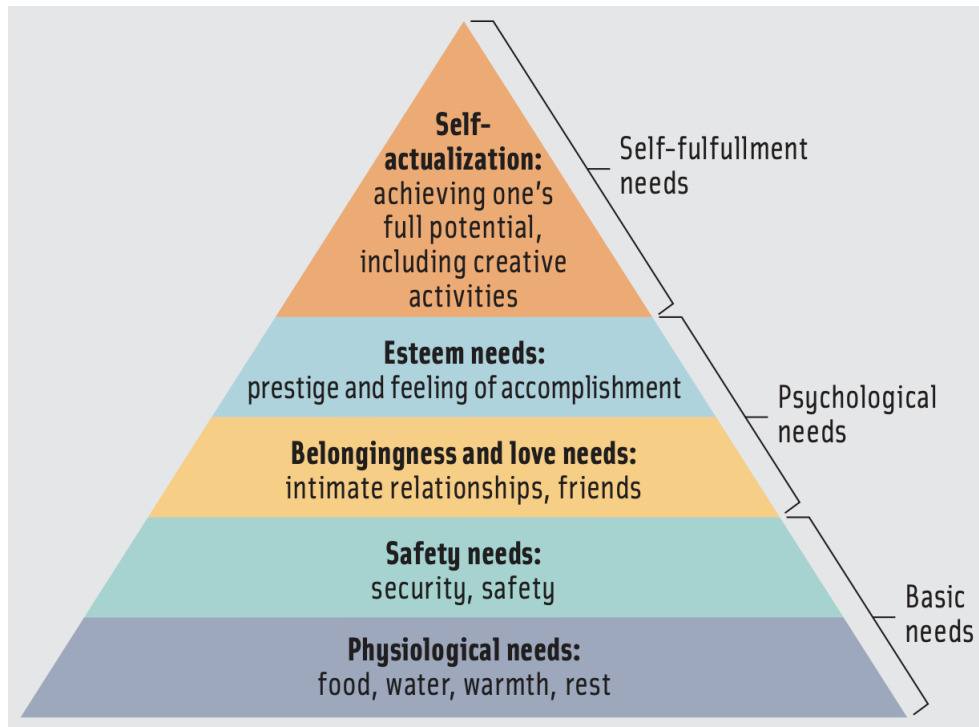


Figure 2.2: Maslow's Pyramid of Needs (Poston, 2009)

Motives energize, direct, and select behavior (Brunstein, 2018). McClelland argued that these motives are not innate but are acquired through life's experiences and the cultural environment, emphasizing that while these needs coexist within an individual, the dominant motive is influenced by cultural norms and personal history (Sheldon & Schüler, 2011).

2.3.1 Measuring Motives

A further distinction between explicit motives and implicit motives has to be made. The distinction arises because two methods that are used to measure motives, i.e. the Thematic Apperception Test (TAT) and questionnaires, do not correlate strongly (Brunstein, 2018). The Thematic Apperception Test (TAT) uses a series of ambiguous pictures to prompt respondents to create spontaneous stories, from which their underlying motives are inferred (Brunstein, 2018). The two methods demonstrate discriminant validity, meaning that these methods capture distinct constructs, even when examining the same motives (e.g., achievement, power, or affiliation) (Brunstein, 2018).

For instance, a meta-analysis reviewing 36 studies found that the average correlation between TAT and questionnaire measures of achievement motivation was very low, indicating minimal alignment between implicit motives, assessed by TAT, and explicit motives, measured by questionnaires (Brunstein, 2018; Spangler, 1992).

Therefore, **explicit motives** predict respondent behavior, which is stimulus-driven and represents an intentionally controlled response to an external objective stimulus (Das, 2016). They represent the individual's self-perception and are evaluated through self-report instruments, e.g. questionnaires (Brunstein, 2018).

On the contrary, **implicit motives** are predictors of operant behavior, which occurs spontaneously and without an objective external trigger (Das, 2016). They can only be measured indirectly, for example, by interpreting stories spontaneously produced in response to motive-arousing picture cues, as these are inaccessible to introspection (Brunstein, 2018).

2.3.1.1 Measuring Implicit Motives

Implicit motives, which operate on a non-conscious level, are measured indirectly through the interpretation of imaginative stories prompted by pictorial stimuli (Schüler et al., 2015). To effectively measure implicit motives, individuals are asked to interpret the feelings, thoughts, and behaviors of others depicted in pictures rather than describing themselves as possessing the motive directly (Schüler et al., 2015).

The picture story exercise (PSE) is one approach to measure implicit motives (Fraleley, 2007), and the TAT is one of them (Brunstein, 2018). Pictures depicting various social situations (Köllner & Schultheiss, 2014) are presented to the participant, and the PSE instructions include guiding questions to prompt participants, such as "What is happening?" or "What do the people want?" (Fraleley, 2007). Participants are informed that these questions are guides and they are not obligated to answer them directly (Fraleley, 2007). Instead, they are encouraged to write whatever story comes to mind (Fraleley, 2007). This open response format of the PSE allows for spontaneous and



Figure 2.3: A PSE picture with a high degree of implicit power motive (Brunstein, 2018; C. P. Smith, 1992)

unstructured responses (Fraley, 2007). An example of a picture presented to the participant is shown in Figure 2.3.

2.3.1.2 Measuring Explicit Motives

On the other hand, explicit motives are self-attributed, allowing for direct measurement through self-report questionnaires (Schüler et al., 2015). These questionnaires typically involve rating pre-formulated items using restricted response formats and are described followingly (Schüler et al., 2015).

Two research-acclaimed questionnaires can be distinguished in this case, namely the UMS (Unified Motive Scales) (Schönbrodt & Gerstenberg, 2012) and PRF (Personality Research Form) (Jackson, 1974).

Firstly, the UMS (Schönbrodt & Gerstenberg, 2012) scales were developed by analyzing existing motive scales and selecting the best items for each motive using Item Response Theory (IRT) (Schönbrodt & Gerstenberg, 2012). The optimal items were selected to measure dimensions like power, achievement, affiliation, intimacy, and fear (Schönbrodt & Gerstenberg, 2012). The resulting UMS scales offer enhanced precision and provide short (six-item) and ultra-short (three-item) scales (Schönbrodt & Gerstenberg, 2012).

The UMS incorporates statement and goal formats, with consistent scale labels (Schönbrodt & Gerstenberg, 2012).

Secondly, The PRF (Jackson, 1974) is a personality assessment tool developed by Douglas N. Jackson and published by Sigma Assessment Systems (Tubré et al., 2020). Originally introduced in 1967, it underwent revisions in 1974 (Second Edition) and 1984 (Third Edition) (Tubré et al., 2020). The PRF evaluates up to 20 personality dimensions along with two validity scales (Tubré et al., 2020). While rooted in Murray's theory of personality based on needs, the PRF dimensions are referred to as personal qualities or traits (Tubré et al., 2020). Each scale, depending on the form, comprises 16 to 20 true-false items (Tubré et al., 2020).

2.4 Social Media, Motives, and Emotional Support

Several studies have been conducted to explore the relationship between emotional support, social media usage, and motives (Marco Leimeister et al., 2008; Stockdale & Coyne, 2020). These are mostly limited to healthcare scenarios (Marco Leimeister et al., 2008). A study investigated whether online communities serve as environments where cancer patients can establish social relationships to cope with their disease through social support (Marco Leimeister et al., 2008). The said study analyzed the elements contributing to the formation of virtual relationships online (Marco Leimeister et al., 2008). It was found that highly active Internet users may view the Internet primarily as an information source rather than a platform for social interaction, that aids individuals in perceiving social support (Marco Leimeister et al., 2008). The distinction between active participation, such as posting, and passive engagement, such as lurking, may better indicate the inclination to cultivate social relationships online (Marco Leimeister et al., 2008). The study also identified three possible motives for internet usage, namely "interaction", "pass time", and "information seeking" (Marco Leimeister et al., 2008). Only interaction, meaning the interaction between two users, was

found significant as a motive to build a virtual relationship, supporting the discovery that patients who actively engage in online interaction services, like posting, are more prone to forming virtual relationships than those who only passively use them (Marco Leimeister et al., 2008). Moreover, significant factors influencing internet use were CMC advantages, such as the advantage of being able to use the internet regardless of the time of day, and the ability to find peers who have had similar experiences (Marco Leimeister et al., 2008). The hypothesis that virtual relationships in virtual communities would positively affect the provision of virtual social support to cancer patients was confirmed (Marco Leimeister et al., 2008). The aforementioned study is not recent, as it was published in 2008, and only took into account cancer patient users' perspectives, rather than a broader range of users (Marco Leimeister et al., 2008). Moreover, late adolescents and emerging adults primarily use social media to stay connected, find support, alleviate boredom, and seek information, though passing the time on social media is linked to problematic use. (Stockdale & Coyne, 2020)

Finally, a 2015 study examined the relationship between explicit and implicit measures of affiliation, power, and achievement motives and their influence on social networking site (SNS) behavior (Das, 2016). The researchers chose not to investigate the achievement motive in SNS behavior, citing previous studies that identified platforms like Facebook as primarily social rather than academic or professional tools (Das, 2016). Users typically do not use SNS to construct achievement-related identities or pursue career or academic goals, and such platforms are often viewed as distractions from these tasks (Das, 2016). The study found that participants with an affiliation motive spend more time on SNS to strengthen meaningful personal relationships (Das, 2016). They also engage in uploading pictures, as it may help build connections with other users (Das, 2016). For power-motivated individuals, explicit power motives are associated with a higher number of virtual friends, and the number of pictures uploaded is also linked to the explicit power motive (Das, 2016). However, the study did not explore how each motive specifically contributes to the provision or perception of social or emotional support within the context of SNS usage.

2.5 Research Gaps and Motivation

To answer the SRQ1 mentioned in Chapter 1, the relationship between social media, perceived emotional support, and motives has been mostly focused on how social media can shape and improve our lives in terms of support and what are our motives behind the reason why we look on social media for support. These studies have not been conducted with the final hindsight of exploring how to boost the perceived emotional support considering user motives, in particular affiliation, achievement, and power motives, as well as social media features. In the absence of this empirical evidence, it is a must to investigate the correlation between these aforementioned topics and explore whether the perception of emotional support can be enhanced through the use of social media considering user motives. Since this question remains unanswered, conducting a study is necessary to address this gap.

This thesis aims to reveal how motives, namely affiliation, achievement, and power, influence users' interaction with social media features to shape the perception of emotional support. It further seeks to provide insights into enhancing this perception within social media environments through the development and testing of a design intervention.

3. Research Method Overview

This chapter will outline the chosen methods for addressing the research questions of this master thesis.

The following main research question has been formulated in Chapter 1:

RQ: How to design an intervention to boost perceived emotional support in social media, considering users' motives?

In order to answer the main research question, 5 sub-research questions were defined as follows:

- **SRQ1:** *What is the known relationship between social media, motives, and emotional support?*

This question aims at uncovering the known relationship between social media, motives, and emotional support and has been answered through the literature review outlined in Chapter 2, which highlights that the reviewed studies were not conducted with the specific goal of boosting the perceived emotional support considering users' motives.

- **SRQ2:** *Which elements of social media platforms are associated with the perception of emotional support?*

This question seeks to investigate the elements that influence perceived emotional support in social media. By "influence", it means the elements that could influence perceived emotional support, either boosting or diminishing it. These have been found during the focus groups and are detailed in Chapter 4.

- **SRQ3:** *When looking for emotional support, does the choice of social media elements depend on motives?*

This question seeks to explore any relationship between motives and perceived emotional support in social media. This has been addressed via the survey implementation further explained in Chapter 5.

- The subsequent hypotheses were formulated for this sub-research question:

H1: *The choice of social media feature for seeking emotional support depends on the individual's motives.*

H0: *The choice of social media feature for seeking emotional support does not depend on the individual's motives.*

- **SRQ4:** *How can a prototype be designed to foster the perception of emotional support in social media?*

This question has been answered by crafting a design intervention whose goal is boosting the perception of emotional support on social media. A more in-depth explanation of this prototype feature can be found in Chapter 6.

- **SRQ5:** *What is the perceived effectiveness of the resulting design intervention?*

This question aims to validate the results coming from Chapter 6 and to test the effectiveness of the implemented solution, which has been achieved through cognitive walkthroughs.

4. Study 1: Focus Groups

The focus group initiative's objective was to investigate which elements in social media platforms exactly can boost or diminish perceived emotional support within social media platforms, as outlined in the SRQ2 in Chapter 3. In the scope of this research, these elements represent specific functionalities or user interface components that are common to the most popular social networks worldwide as of January 2024 (Statista, 2024), namely Facebook, YouTube, Instagram, TikTok, and WhatsApp. The types of content shared on these platforms can include videos, reels, images, text messages, voice messages, and video messages. These functionalities most closely replicate F2F relationship interactions.

4.1 Participants

Participants were recruited using voluntary response sampling (Murairwa, 2015) and convenience sampling (Sedgwick, 2013).

This study had multiple inclusion criteria. First, participants' age had to be between 18 and 30 years old. Older individuals were not considered based on previous work. This is because users aged 18 to 30 and those aged 30 to 50 behave differently when selecting features, especially in how they use functions like posting comments and sharing media (Quinn et al., 2011; H. Smith et al., 2003). An exception was made for one participant aged 34 to ensure sufficient recruitment. A second inclusion criterion was the use of at least two of these five above-mentioned social networks, for a minimum of 30 minutes per day and a maximum of 2 hours per day. This is because the participants of the study had to be familiar enough with the social networks aimed to investigate. However, the criterion of a minimum of 30 minutes to a maximum of 2 hours per day is set to control the variability of participants in terms of social media usage. A total of 21 participants were recruited and

divided into 5 focus groups, each consisting of a maximum of 5 participants and a minimum of 4.

4.2 Materials

Focus groups were held in various rooms that were furnished with whiteboards, pens, and sticky notes ready for the researcher's use and participants. At the start of each session, participants received an information sheet and consent form. Participants were provided with sticky notes and pens. Refreshments were available throughout the sessions. The transcription of all audio recordings was done using Microsoft Word, while the analysis was conducted using Miro.

4.3 Procedure

Participants were welcomed into a room in the university building, and once they were seated, consent forms and information sheets were handed out to each participant. After signing the consent forms, participants were asked for consent to audio record the session. Once the recording began, the focus group commenced. The sessions started with a presentation of the study, an introduction of the moderator, and an explanation of what a focus group entails to ensure participants understood what to expect. Focus group guidelines were provided, emphasizing that everyone could freely express opinions and only one person should speak at a time. A brief introduction to the topic of emotional support and perception of emotional support was also given as follows:

"Emotional support is all about showing someone you care about through both words and actions. It's about offering reassurance, understanding, and comfort to let them know they're not alone and that their feelings are valid and accepted."

"Perceived emotional support manifests when (some)one feels cared for, loved, valued, and connected within a network of mutual social obligations."

When everyone agreed the definition was clear, the focus group could continue.

Following this, each participant in the focus group was invited to briefly introduce themselves with their name or nickname, so that the other participants could address them during the focus group. The next questions investigated on what the participants perceived as a possible source of support in general. The scope of this question was to start reflecting on the main topic and they were first asked what are some nice things someone can tell a close friend to support them, according to their opinion, and then about the reasons they currently use social media.

At this point, after being introduced to the topic and having the opportunity to discuss it, participants were invited to write a short story on sticky notes about a individual named Andrea who is in need of emotional support. Andrea's gender was not disclosed. Moreover, the instructions did not specify whether the scenario had to be positive or negative.

Sticky notes were collected and mixed before reading the scenarios aloud to prevent identifying the authors of the short stories. For each scenario, participants raised their hands to vote. They were instructed to choose the scenario they found more relatable, knowing it would be used for discussion later in the focus group. The scenario with the most votes was selected for further exploration during the focus group.

The next section focused on the scenario that had the most votes, deemed therefore the most relatable by participants. The scenario was read aloud once again. Then, using another sticky note, participants were asked to write up to three different actions they would have liked to receive if they were in Andrea's shoes, considering that Andrea was alone at home with a cellphone that had social media apps installed, namely TikTok, Facebook, WhatsApp, and Instagram.

Once the sticky notes were collected, mixed again, and read aloud, the participants were asked to express their opinions on the listed actions. For example, they considered what actions they would find effective for emotional support if they were Andrea, or what would matter most in that situ-

ation. They were also prompted to share their thoughts on how effective seeking emotional support on social media would be for Andrea. As a group, participants were encouraged to identify which actions would be most effective in making Andrea feel emotionally supported and why. To conclude the focus groups, participants were asked to imagine a new way to provide Andrea with emotional support more quickly and effectively on these platforms and to describe or sketch what it would be on another sticky note. Before ending the focus groups participants were thanked for their precious time. The focus group’s overview is shown in table 4.1. The script that was followed for focus groups can be viewed in the Appendix B.2. While the aim was for the focus group sessions to last 45 minutes, all sessions lasted at least 50 minutes.

Table 4.1: Focus Groups Structure Overview

Section	Sub-Section
Introduction	Moderator and Focus Group Introduction
	Guidelines
	Topic Introduction
	Participants’ Introduction
Transition Questions	Engagement Questions
	Reflection and Examples questions on Emotional Support
	Reflection and Examples questions on Emotional Support
Key Questions	Reflection and Ranking Actions
Ending Questions	All things considered and Final Questions
	Thanking and goodbyes

4.4 Results

The focus groups provided valuable insights that could inform the next phases of the thesis project, especially the survey one whose structure is mostly based on the results of the focus groups, and highlighted what is truly meaningful for perceived emotional support during online interactions, both with close contacts and unfamiliar individuals. The results are

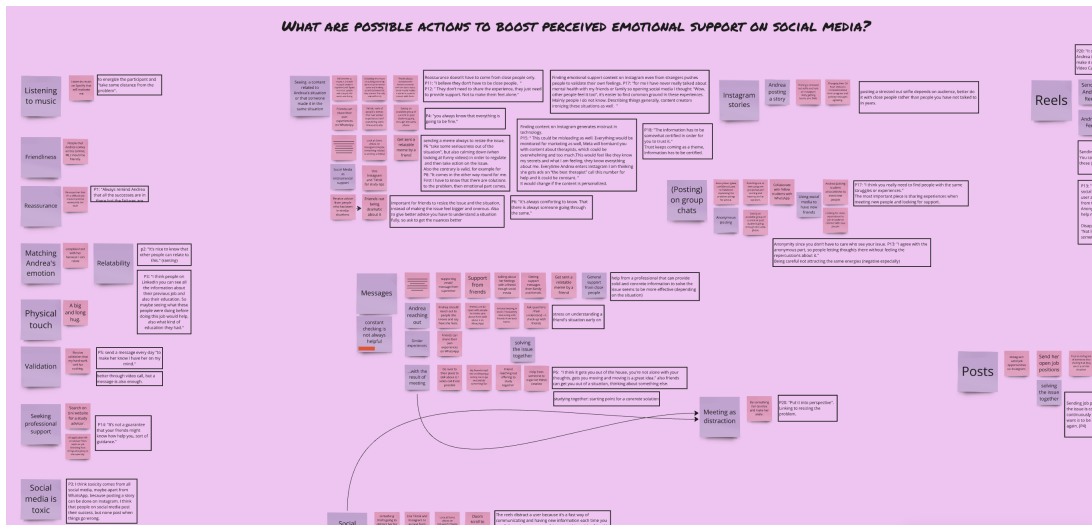


Figure 4.1: Focus Group Miro Analysis

based on data from 21 participants, consisting of 13 females and 8 males, with an average age of 25.28 years.

4.4.1 Data Preparation

To begin data preparation, the audio recordings were transcribed, ensuring data was anonymized by replacing participant names with codes (e.g., P1, P2, up to P21). Only their gender and age were retained separately.

For the data analysis in Miro, the sticky notes were transcribed into virtual sticky notes on Miro, organizing the scenarios, resulting actions, and innovative ideas. Using the script in Appendix B.2, all questions asked during the focus groups were gathered and, for each question, participant responses were summarized on sticky notes in keywords. Key quotes from participants were placed in boxes to highlight the most relevant points.

4.4.2 Data Analysis

The participants' responses were summarized, keywords were identified, and these were further categorized by topic. At this stage, all the notes were clustered in larger themes, while keeping the associated questions nearby, e.g. as a title, for reference. An example of how this was done is shown in Figure 4.1.

The detailed results taken from Miro for the focus groups can be found in Appendix B.2 Section B.3. The overall results are reported in the following subsections.

4.4.2.1 Participant Initial Perceptions and Scenarios of Emotional Support

Participants understood the definitions on emotional support and the perception of emotional support 5 out of 5 times. The most frequently mentioned scenarios involved university, work, and relocation, such as Andrea feeling anxious about their thesis, losing their job, and moving to a new city without knowing anyone. The most voted scenarios chosen in each focus group revolved around these topics. This could be due to the fact that most of the participants were students or young professionals. Negative scenarios were mostly brought up when participants were prompted to think about a scenario where a person may need to perceive emotional support. When a positive scenario was shared, participants thought it was a surprising case. Scenarios that were chosen to be the topic of the discussion were all solvable scenarios, revolving around common concerns, such as the anxiety of finding a job, moving away, and stress because of a studying load. More negative scenarios were proposed, such as the loss of a loved one, but excluded because of the difficulty of dealing with intense emotional distress.

It is important to note that the following findings are based on a comprehensive analysis of all the data collected. Some points emerged as key themes, frequently mentioned and discussed in every focus group, while others were still raised, but less often. When asked about how support can be shown to a close person, at the beginning of the focus groups, participants claimed that the person in need of emotional support should feel heard, they are not alone, listened to, should be asked how it is going, and should be provided with motivation; an unplanned call from a friend, even if unexpected, can brighten someone's day and serve as a small yet meaningful gesture of presence; the major providers of emotional support are

friends and family, so close people to the person in need. However, anonymous support is also welcomed, but it is not perceived as effective.

4.4.2.2 Typical Reasons for using Social Media

Participants mentioned that social media is mainly used to stay connected with friends, socialize, share content, and interact with those who are far away. However, users can also experience FOMO (fear of missing out) when they engage with these various experiences online but are not physically a part of them. Other reasons for using social media include browsing memes, catching up on news, finding entertainment, and engaging with pages on specific topics. It is also often used as a way to distract oneself.

4.4.2.3 Elements that boost Perceived Emotional Support on Social Media

When asked about actions that could boost the perception of emotional support on social media, participants provided a wide range of responses. The effectiveness of these actions varies based on the scenario, mood, and personal preferences.

It is crucial to note that mistrust in social media was mentioned during focus groups. Social media is sometimes perceived as toxic due to its association with dopamine addiction, the tendency for users to share only positive content while avoiding negative experiences, the endless scrolling on platforms like Instagram, and its role in inducing FOMO. This can create reluctance to use it for emotional support. However, this perception can shift when content is personalized to the individual's needs, such as social media delivering messages in a tone that resonates most with the user. Nevertheless, certain key elements in social media can be identified as essential for individuals needing emotional support, including:

- **Closeness.** Those in need should not feel isolated. They should feel they can express themselves freely, vent, and be treated with warmth and friendliness.

- **Validation and Reassurance.** It's essential that individuals feel their efforts are meaningful, that their feelings are validated, and that things will eventually be okay.
- **Anonymous Support.** The option for anonymous support can make individuals feel safer in sharing their struggles. Connecting with strangers who have similar experiences can still provide meaningful support.
- **Help.** Emotional support can be strengthened by practical assistance. Individuals should feel safe enough to seek help, whether through advice from someone with similar experiences or tips that are immediately useful.
- **Practical Information.** This includes practical resources, like contacts for professional support (e.g., student advisors, therapists, etc.) or relevant knowledge to help in specific scenarios.
- **Understanding.** There should always be a full understanding of the individual's situation, feelings, and nuances, especially when providing relevant and supportive advice.
- **Relatability.** Friends can share their own experiences, send relatable memes, or help users connect with others facing similar challenges. This could include entertainment content, from or about people who have gone through the same phase.
- **Encouragement.** A close circle should be able to encourage individuals in need of emotional support to focus on the bright side. Additionally, content that helps "resize" the problem, making it feel more manageable rather than overwhelming, can provide strong support. This approach suggests that those close to the user should aim to create a sense of calm around the issue, rather than amplifying its importance or making it seem more burdensome.
- **Distraction.** Social media can serve as a temporary distraction to help people cope with emotions. While distractions can be helpful, spending time with friends may be a healthier alternative to prolonged 'doom scrolling'.

4.4.2.4 Social Media Functionalities that convey Perceived Emotional Support

The aforementioned elements that can boost the perception of emotional support are conveyed through some common functionalities in social media platforms. These are:

- **Video Calls and Calls.** Video calls are often seen as an effective way to offer emotional support, as they provide the opportunity to listen to the person and check in on how they are doing. For many, a call with good friends, especially via video on platforms like WhatsApp, is the most personal way to stay connected with loved ones. Video calls can be a space for collaboration, where both people sit down together, discuss their problems, and support each other in real time. A key advantage of video calls is the ability to see the other person and observe their emotional state, which can help in providing more tailored and effective support. Initiating a video call can also be a way to motivate each other, particularly when working on separate tasks, as it creates a sense of shared presence. Synchronous communication, like video calls, was found to be more effective for emotional support than messaging, as it allows for real-time interaction and connection. However, in-person meetings (F2F) were still preferred by the majority of participants, as they felt this provided a deeper and more genuine connection. Video calls are particularly useful when the person is close, as it makes it easier to discuss personal and sensitive topics. Despite these advantages, for example for participant P10, messaging can be preferred over video calls because it allows for time to collect thoughts and emotions, enabling more careful expression. Additionally, not all participants agreed on the effectiveness of video calls. In 2 separate focus groups participants expressed that during moments of vulnerability, they found it difficult to speak openly and felt the need to regulate their emotions before they could participate in a video call.
- **Posts.** It is preferred to send posts based on the situation, such as sharing job opportunities, addressing issues together, or showing that oth-

ers are experiencing similar challenges. However, in one focus group it was mentioned that sending job postings on social media can be perceived as stressful.

- **Reactions to users' content.** Posting a post on Instagram is said to boost the perception of emotional support because seeing a reaction to a post on Instagram, such as receiving a significant amount of comments or likes, it might signify encouragement as mentioned by five participants. However, this may not spark interest, as one participant clarified. This is similar to situations where users comment on others' posts and receive likes for their comments, which can boost their sense of validation and self esteem. Moreover, reactions to Instagram or WhatsApp messages have been mentioned as well.
- **Reels.** Sending a reel is a way to connect with friends, as it allows users to share relatable content or motivational videos that can enhance emotional support. Watching short videos or scrolling through reels are examples of distractions, which offer quick, varied information. Additionally, content needs to be tailored to the user's mood. For example, continuously being recommended sad content while scrolling can be harmful to mental health, as it reinforces negative emotions rather than offering supportive or uplifting content.
- **Stories/Statuses.** Posting an Instagram story, such as a stressed-out selfie, to seek emotional support is a personal choice. However, for the majority of participants, it is better to share such content with close people rather than strangers or distant friends. While some may take the proactive step to post for support, it requires considerable effort and strength, as noted by one participant (P19), who mentioned, "It takes strength to post it."
- **Text messages.** Sending multiple messages throughout the day to check in on someone can show that they're on your mind. Nevertheless, constant checking can sometimes cause anxiety, according to what was mentioned during one focus group. While messages are a common way to offer emotional support, it's important for the person

who needs support to reach out to people they know and express how they feel. Being proactive and asking for support can help them feel understood. Understanding a friend's situation early on is crucial to providing the best support. For example, a friend offering to study together can be both a way to motivate and support the person in need, as emerged during one focus group. Messaging is often the first step in solving an issue together, whether it's proposing to study or simply organizing a meeting. Doing something fun to help them relax and make them smile can also be a helpful way to distract and reframe the problem.

- **Anonymous Group Settings.** Posting anonymously on Facebook to explain a problem and ask for advice can provide confidence, as it allows individuals to share without concern for judgment. Sharing experiences in group chats can also foster connections with new people and open opportunities for additional support. Similarly, seeing a group of current or past students going through the same experiences can offer reassurance. Collaborating with fellow students via WhatsApp or reaching out to program group chats to vent or gather opinions also provides emotional support. Anonymity is often preferred in these cases, as it allows individuals to share openly without worrying about who sees their issue, making it easier to express themselves. However, it's important not to rely on this functionality too often, as it may reinforce negative thoughts and keep users stuck in a negative cycle. This has been noted during one focus group.

4.4.2.5 Conditions for effective Perceived Emotional Support on Social Media

When is an action effective for perceived emotional support on social media, combining functionality with the elements mentioned above? Effectiveness is influenced by certain conditions:

- The action should be **adaptable** to the person needing support. Effectiveness can depend on how well the person's preferences for support

are understood by the person providing support, which may be influenced by the length and quality of the relationship.

- The action is more effective if it addresses the underlying problem **directly**.
- If a person's friends are geographically **distant**, social media can play a stronger role in providing support.
- Social media support may be particularly helpful if **real-life emotional support** has not been **sufficient**.
- If the user has friends on social media, seeing **others live their best lives** might not feel supportive, and can instead emphasize feelings of isolation. Trust between parties is crucial in these cases. If the user does not have friends on social media, this has been described as "better than nothing" (P6). Different platforms can serve unique roles based on shared interests. For example, Participant P7 noted that on platforms like Discord, people connect over common interests even without knowing each other. Similarly, Participant P9 suggested that studying with others online can be effective for those lacking study motivation.

4.4.2.6 Innovative Ideas to Perceive Emotional Support on Social Media

At the end of the focus group sessions, participants were asked about innovative ideas to further enhance the perception of emotional support. The most common suggestions were adaptable social media support and intelligent support systems. For example, social media could detect a user's emotional state and understand its reason. It could also learn the user's preferred way of receiving support and show content that aligns with their needs.

Ideas centered around having a 24/7 support buddy, such as a chatbot, that could assist when there is no other way to communicate. This adaptable support would be personalized to the individual's preferences and situation. Participants suggested the idea of a personalized emotional AI friend, similar to ChatGPT, but more private and tailored. Some partici-

pants believed that this might offer help and logical advice when no one else is available. However, human support is trusted more. As one participant said: "Personally, I don't believe in it, because you need human connection. No technology could ever substitute that." Adaptive social media could also prompt users to start conversations or talk about their feelings.

While privacy was not frequently mentioned, participants came from diverse backgrounds, including computer science and psychology. AI could specialize in mood detection, but it should avoid being too invasive. For example, it could alert users if they've been on social media for too long, without directly recommending who to talk to. The goal would be to create a space of comfort and trust for the user.

4.5 Discussion

This study uncovered significant insights to inform the next phase of the thesis, specifically the survey study. When participants were prompted to describe scenarios where individuals might require emotional support, they predominantly highlighted negative but solvable situations. This observation could require further exploration to determine whether enhancing the perception of emotional support is primarily beneficial in such negative contexts.

The research identified **nine elements** that contribute to boosting perceived emotional support on social media:

- Closeness
- Validation and Reassurance
- Anonymous Support
- Help
- Practical Information
- Understanding
- Relatability

- Encouragement
- Distraction

These elements all enhance emotional support on social media by fostering connection and closeness, especially through validation, relatability, and encouragement, while creating safe spaces for sharing via anonymity and understanding. When asked about functionalities that could enhance the perception of emotional support, participants suggested **seven diverse functionalities**:

- Video Calls and Calls
- Posts
- Reactions to users' content
- Reels
- Stories/Status
- Text messages
- Anonymous Group Settings

These functionalities balance real-time and delayed communication, with video calls and calls enabling deeper, personal connections and text messaging offering thoughtful, yet low-effort exchanges. Visual content, like reels, posts, and stories, provides relatable or motivational support. Notably, anonymous group settings can also serve as valuable sources of support, particularly in specific situations, whereas video calls, phone calls, and text messages appear to be applicable in most scenarios requiring emotional support.

While social media was recognized as a useful tool for fostering emotional support, its effectiveness appears to depend on the ability to personalize content and whether emotional support is already available outside of social media. The conditions that allow for effectiveness, in this case, range from how content is presented on social media (e.g., personalized for the user) to the behavior and proximity of the user's social network (e.g., are friends distant? Do they post content that induces FOMO?).

Innovative ideas for enhancing perceived emotional support on social media were also proposed, and this information was utilized in the development of a prototype later in the project's stage. The prototype was designed with consideration of both the findings from this study and insights expected from the next phase of research. It is important to highlight that mistrust in social media emerged as a recurring theme during the focus groups. This mistrust may prevent users from fully trusting social media environments and hinder their openness to perceive emotional support through these platforms.

The next phase of this research will focus on understanding how these findings relate to user motives. Specifically, how emotional support can be effectively boosted when a user's underlying motives are identified.

5. Study 2: Survey

The survey has been constructed to help answer the SRQ3 outlined earlier in Chapter 3. The main objective was to understand the motives that define participants and what they consider useful in terms of elements and functionalities that convey emotional support. The aim was to see if a predominant motive is associated with a recurring choice of functionality or element.

5.1 Participants

The participant recruitment methods and criteria outlined in Chapter 4 were also applied in this study. Convenience sampling and voluntary response sampling were used to recruit participants. To be eligible, participants needed to be between 18 and 30 years old and familiar with social media platforms such as Instagram and WhatsApp. This time, the scope of social media was narrowed to two platforms: WhatsApp and Instagram, as these were the most frequently mentioned during the focus groups. All the functionalities listed in the findings are relevant to either of these platforms. Familiarity with these social media was a prerequisite for completing the survey. The amount of time spent using social media was not accounted for in this study, as the goal was to make the survey results relatable to a broader range of groups. 94 survey responses have been collected, however, 17 were discarded because incomplete, resulting in 77 analyzable survey responses.

5.2 Materials

The survey for this study has been implemented through Qualtrics and has been divided into three parts, which will be further explained in the following sections.

The UMS (Universal Motive Scales) was used to assess participants' motives. Participants responded to 30 statements, split into two sets of 15 statements each. The first set required agreement or disagreement on a six-point Likert scale (from 'Strongly Disagree' to 'Strongly Agree'), while the second set assessed importance on a six-point scale (from 'Not important to me' to 'Extremely important to me'). These statements were designed to measure the three identified needs, affiliation, power, and affiliation, with their order determined by the UMS.

Microsoft Excel has been used for data preparation. The analysis for this study has been conducted on multiple platforms: IBM SPSS Statistics, for the statistical analysis, Microsoft Excel for descriptive statistics, and Miro for qualitative data.

5.3 Design

The survey opened with a consent form for the participants, describing the purpose of the study, who carries the study, how it is conducted, how the data is handled, possible risks and benefits of participating in the study, and information about the participants' rights. No personal data, such as name, specific age, or gender are collected. The survey responses were completely anonymous.

The first part of the survey aimed to capture the distribution of specific motives, such as the need for achievement, affiliation, and power, across participants as indicated earlier. Participants were invited to be as honest and accurate as possible, as they should have not been concerned with maintaining consistency among responses.

Following the section on motives, participants were presented with a scenario to understand which social media functionalities enhance the perception of emotional support and the reasons behind these choices. The scenario saw Alex as the protagonist, wanting to feel emotionally supported after an event has happened in their life, such as being happy after getting a promotion, i.e. a positive scenario, or feeling anxious about their thesis,

i.e. a negative scenario. The protagonist's name in this scenario has been changed to better ensure gender neutrality, which was the intention in the focus group scenarios as well, where the name "Andrea" was used. Participants were reminded of the perceived emotional support definition at the beginning of this question. No specific scenario was provided, but participants were informed that Alex's situation was a solvable one and that Alex had only access to WhatsApp and Instagram in this scenario. The participants were presented with a list of functionalities present in social media, and they were tasked to label those that they believed would help Alex perceive more emotional support as "useful" and those that they thought would be least effective in making them perceive that support as "not useful". The listed functionalities that shape the influence of social media interaction on emotional support perceptions have been discovered and outlined in Chapter 4. Each functionality identified in the focus group findings was adapted for the survey design. Video calls, calls, and texting were presented without a passive (e.g. receiving a call) or active (e.g. giving a call) connotation. However, for certain functionalities, such as posts, stories, reels, and positive reactions, a passive or active role based on focus group data was specified. Stories were only considered for posting, while posts could be both posted and received, reels only received, and positive reactions solely received. The 'anonymous group setting' functionality, identified as functionality that conveys emotional support in the focus group result, was labeled 'Join a Live on Instagram' in the survey to align with the concept of an anonymous group setting while adapting it to an Instagram-specific context. This resulted in the following list:

- Having a video call
- Having a call
- Texting with somebody
- Post an Instagram story
- Post a video and/or picture on Instagram
- Receive a post

- Receive a reel
- Receive a positive reaction on something Alex posted earlier
- Join a live on Instagram of an account Alex follows

Then, the participants were asked to select the most relevant reasons why they chose these functionalities as useful, i.e. why it would be useful for Alex to engage in a specific functionality. The reasons have been defined in Chapter 4 as elements that boost the perception of emotional support. The reasons have been redefined to be checked as the following:

- Alex can vent to someone
- Alex feels that their feelings are validated
- Alex can get anonymous support
- Alex can ask for help
- Alex can get to know practical information
- Alex feels understood
- Alex feels that others can relate to their situation
- Alex feels encouraged
- Alex can be distracted

The reasons that had been selected beforehand were brought to the next question, where participants were tasked with their ranking from the most important to the least important one, where the first one is the most important reason and the last one is the least important reason.

The survey ended with a general open-ended question on the reason behind their choices throughout the survey, which led to qualitative data, followed by a note expressing gratitude for the time they invested in the research and confirmation that their answer had been recorded.

5.4 Procedure

After running the focus group sessions and analyzing the data, new participants who have agreed to participate in the survey have been sent a questionnaire link through WhatsApp. Responses have been collected for each part of the survey and stored in Qualtrics. Once the data is collected, then it has been cleaned and processed in Microsoft Excel. Afterward, statistical analysis has been run on IBM SPSS. Finally, Microsoft Excel has been used to perform descriptive statistics. Miro has been used to process the qualitative data gathered in the survey.

5.5 Results

5.5.1 Data Preparation

The first step in analyzing the data was working on the Excel file downloaded from Qualtrics. Then, the data was cleaned up to analyze the survey responses. First, the total number of responses was 94. However, 17 responses were deleted because they were incomplete.

All gathered data was coded in Microsoft Excel as follows:

- Responses to the UMS questionnaire were reordered by each motive statement (10 for each motive) and coded from 1 to 5, corresponding to the Likert scale positions. This coding allowed the computation of each participant's average core for each motive.
- The average score for each explicit motive, Power (denoted as Pow), Achievement (Ach), and Affiliation (Aff), was calculated for each participant. To begin, the median was calculated for each explicit motive: 3.4 for Pow, 4.6 for Ach, and 3.9 for Aff. Whenever a participant's score for a motive was equal to or above the median, it was categorized as "high" for that motive. Scores below the median were categorized as "low" for that motive. Table 5.1 shows an example of two participants' motive scores and how they were categorized.

Table 5.1: Merged Motive Scores and Categorization for Participant 1 and 6

Motives Scores and Categorization			
Participant	Pow (Score, Category)	Aff (Score, Category)	Ach (Score, Category)
P1	3.2, Low	4.1, High	4.8, High
P6	1.6, Low	4.0, High	3.3, Low

Table 5.2: Useful and Not Useful Functionalities across Motives

Functionality	Power Motive		Affiliation Motive		Achievement Motive	
	Low Pow	High Pow	Low Aff	High Aff	Low Ach	High Ach
Video Call	Useful	Useful	Useful	Useful	Useful	Useful
Call	Useful	Useful	Useful	Useful	Useful	Useful
Texting	Useful	Useful	Useful	Useful	Useful	Useful
Post Story	Not Useful	Not Useful	Not Useful	Not Useful	Not Useful	Not Useful
Post Video and/or Picture	Not Useful	Not Useful	Not Useful	Not Useful	Not Useful	Not Useful
Receive Post	Not Useful	Useful	Not Useful	Neither	Useful	Not Useful
Receive Reel	Useful	Useful	Useful	Useful	Useful	Useful
Positive Reaction	Useful	Useful	Useful	Useful	Useful	Useful
Join Live	Not Useful	Not Useful	Not Useful	Not Useful	Not Useful	Not Useful

- Each functionality deemed useful was coded as 1, while those considered not useful were coded as 0.
- Reasons why a functionality was considered useful were listed for each participant, with rankings processed as numerical values.
- Qualitative data at the bottom of the questionnaire was copied to Miro for thematic analysis.

5.5.2 Descriptive Statistics Overview

For this step, the aim was to determine whether, for each category of each motive (e.g., low power motive, high power motive), a functionality (e.g., having a video call, having a call) was considered useful or not. The most frequently chosen value for each of the six categories of motives (low and high for the three motives) was examined in terms of "useful" and "not useful." Then, the data was filtered by high or low motive and the median value for each functionality was computed.

The results obtained are presented in table 5.2.

As shown in the table 5.2, no significant relationship was found between the functionalities and the category of the power motive, as reflected by the median scores. Specifically, the functionalities that contribute to the perception of emotional support remain consistent across both low and high-power motives. Video calls, calls, texting, receiving a reel, and receiving positive reactions are consistently rated as useful, irrespective of whether the individual's power motive is high or low. This pattern suggests that these functionalities are broadly perceived as valuable for emotional support, independent of the strength of the power motive.

Similarly, functionalities such as joining a live on Instagram, posting a story, or posting a post are consistently rated as not useful across both high and low power motives. The only functionality that demonstrates a noticeable difference is receiving a post. This functionality appears to be valued by individuals with high power motives and low achievement motives, where it is rated as useful. However, the only exception was observed for individuals with a high affiliation motive, where the value was rated at 0.5, indicating a sporadic finding.

At this point, with the useful functionalities outlined, it is important to examine why they were chosen, specifically the reasons behind their selection. In other words, what are the elements conveyed through each functionality that make it useful?

Each time a functionality was identified as useful by participants its specific reasons for its usefulness were recorded. Subsequently, the frequency of each reason mentioned for each functionality was calculated. For example, for texting with somebody, the most frequently mentioned reason was that Alex felt understood. This approach allowed to tally the number of times each reason was chosen for every functionality. By computing the median, it was possible to categorize the reasons into two groups: those most strongly associated with the functionality and those that were less frequently mentioned. Only the reasons that are greater than the median have been considered for the rest of the project.

Table 5.3: Main reasons for the consistently useful functionalities

Main Reasons for the Consistently Useful Functionalities					
Reasons	Functionalities				
	Having a video call	Having a call	Texting with somebody	Receive a reel	Receive a positive reaction on something Alex posted earlier
Alex feels understood	Yes	Yes	Yes	Yes	Yes
Alex can vent to someone	Yes	Yes	Yes	Yes	Yes
Alex feels that their feelings are validated	Yes	Yes	Yes	No	No
Alex can ask for help	Yes	Yes	Yes	Yes	Yes
Alex feels encouraged	Yes	Yes	Yes	Yes	Yes
Alex feels that others can relate to their situation	No	No	No	Yes	No

As shown in Table 5.3, this is a list of the reasons associated with the functionalities that were consistently considered useful. Specifically, the key elements that contribute to the boost in emotional support are matched with the functionalities that convey them. The reasons, first column of the table, are written as they were in the survey. It is important to note that "Alex feels understood", "Alex can vent to someone", "Alex can ask for help", and "Alex feels encouraged" emerged as the highest-scoring reasons for the usefulness of every functionality. Moreover, "Alex feels understood" scored the highest in terms of occurrences across all functionalities, compared to other reasons.

5.5.3 Data Analysis

The data was analyzed quantitatively using a multinomial logistic regression and qualitatively through a thematic analysis in Miro, both of which are explained in the following sections.

5.5.3.1 Multinomial Logistic Regression

A multinomial logistic regression to predict the likelihood that a functionality would be considered useful or not, based on a specific explicit motive for boosting perceived emotional support.

Multinomial logistic regression was chosen for data analysis. Here, the medians of explicit motives were considered as independent variables, and each functionality was treated as a dependent variable.

A logistic regression was performed to ascertain the effects of each motive categorization into high or low on the likelihood that participants prefer a functionality for the boost of emotional support. The logistic regression model was not statistically significant for every functionality. This is shown in greater detail in the following tables.

Having a video call	
Median	Sig.
Median_Pow	.944
Median_Aff	.230
Median_Ach	.141

Table 5.4: Multinomial Logistic Regression Results: Assessing the Functionality of Having a Video Call with the Three Median Motives

Having a call	
Median	Sig.
Median_Pow	.384
Median_Aff	.572
Median_Ach	.712

Table 5.5: Multinomial Logistic Regression Results: Assessing the Functionality of Having a Call with the Three Median Motives

Texting with somebody	
Median	Sig.
Median_Pow	.490
Median_Aff	.688
Median_Ach	.307

Table 5.6: Multinomial Logistic Regression Results: Assessing the Functionality of Texting with somebody with the Three Median Motives

Post an Instagram Story	
Median	Sig.
Median_Pow	.731
Median_Aff	.127
Median_Ach	.381

Table 5.7: Multinomial Logistic Regression Results: Assessing the Functionality of Post an Instagram Story with the Three Median Motives

Post a video and/or picture on Instagram	
Median	Sig.
Median_Pow	.974
Median_Aff	.653
Median_Ach	.947

Table 5.8: Multinomial Logistic Regression Results: Assessing the Functionality of Post a video and/or picture on Instagram with the Three Median Motives

Receive a post	
Median	Sig.
Median_Pow	.453
Median_Aff	.980
Median_Ach	.251

Table 5.9: Multinomial Logistic Regression Results: Assessing the Functionality of Receive a post with the Three Median Motives

Receive a reel	
Median	Sig.
Median_Pow	.831
Median_Aff	.270
Median_Ach	.443

Table 5.10: Multinomial Logistic Regression Results: Assessing the Functionality of Receive a reel with the Three Median Motives

Receive a positive reaction on something Alex posted earlier	
Median	Sig.
Median_Pow	.565
Median_Aff	.108
Median_Ach	.223

Table 5.11: Multinomial Logistic Regression Results: Assessing the Functionality of Receive a positive reaction on something Alex posted earlier with the Three Median Motives

Join a live on Instagram of an account Alex follows	
Median	Sig.
Median_Pow	.849
Median_Aff	.989
Median_Ach	.903

Table 5.12: Multinomial Logistic Regression Results: Assessing the Functionality of Join a live on Instagram of an account Alex follows with the Three Median Motives

5.5.3.2 Miro and Thematic Analysis

Each participant was required to provide reasoning for their choices in the sections of the questionnaire related to the boost of emotional support.

A total of 77 statements were transferred to Miro, labeling them according to their high or low motive and tagging them accordingly. The data was then organized into 8 categories:

- High Power motivated
- High Affiliation motivated
- High Achievement motivated
- High Power and High Achievement motivated
- High Power and High Affiliation motivated
- High Affiliation and High Achievement motivated
- No high motive
- All high motive

Themes were then identified for each motive, and differences across the various motives were explored.

No findings were directly related to the fact that participants had a higher motive.

5.6 Discussion

A multinomial logistic regression was conducted to determine whether participants' motives influence their choice of functionalities or elements on social media to enhance the perception of emotional support.

The hypothesis **H1**: *"The choice of social media functionality for seeking emotional support depends on the individual's motives."* proposed in SRQ3 (Chapter 3) was disproven, and the null hypothesis **H0**: *"The choice of social media functionality for seeking emotional support does not depend on the individual's motives."* was accepted. This means that, for this study, the choice of social media functionalities for seeking emotional support does not depend on an individual's motives. This suggests that motives might not influence how individuals enhance perceived emotional support, indicating that boosting the perception of emotional support may be universal and independent of affiliation, power, and achievement motives. However, the survey facilitated the alignment of the elements that enhance the perception of emotional support, as already identified in Chapter 4, with the functionalities that convey emotional support, also identified in Chapter 4. The functionalities that have always been found useful have been:

- Video Calls
- Calls
- Texting
- Reels
- Reactions to users' content

The main reasons cited for why these functionalities are considered useful have been:

- Alex can vent to someone
- Alex feels that their feelings are validated
- Alex can ask for help
- Alex feels understood

- Alex feels that others can relate to their situation
- Alex feels encouraged

It is possible that other reasons, i.e. elements that convey emotional support, are significant but have not been predominantly considered in this context. However, these elements may become more relevant in specific situations and scenarios. Building on these findings, a design intervention prototype was developed that does not take into account individual users' motives. Instead, it offers personalized recommendations to users based on their mood and specifically how they wish to perceive emotional support. These recommendations pair the identified elements with corresponding functionalities or actions, suggesting functionalities that users can engage with to enhance their emotional support experience.

6. Study 4: Design Intervention

The prototype for the design intervention was developed to answer the SRQ4 presented earlier in Chapter 3 and was based on the survey results, integrating qualitative insights from the focus groups and innovative ideas proposed by participants. The following sections will outline a new feature concept for Instagram, designed to boost users' perception of emotional support.

6.1 Design approach and brainstorming for the final design idea

Since calls, texts, and content-sharing functionalities were frequently discussed in the focus groups, the survey scenario described Alex as needing emotional support while alone at home, with both WhatsApp and Instagram installed on their phone. For the new design intervention, Instagram was chosen as the focal platform. This choice was made because Instagram includes a full range of functionalities for calling, texting, and content sharing (e.g., sending reels or posts), whereas WhatsApp primarily offers calling, texting, and status updates. The design intervention was created in Figma, utilizing an original Instagram features prototype, i.e. a UI kit ¹, which helped build the concept behind the designed feature utilizing the UI components from Figma.

The ideas were generated based on the previous focus group content, the section on innovative ideas, and the results of the survey. The main points are summarized in Table 6.1.

¹Instagram - UI Kit 3.0 (Gursky Design, 2024)

Table 6.1: Several ideas for an Emotional Support Feature on Instagram

Feature	Description
<p>Content Filters for Customizable Support (see Figure 6.1)</p>	<ul style="list-style-type: none"> • It allows users to customize their Instagram feed by applying filters based on tags or categories. It also enhances emotional support by displaying personally resonant content (e.g., videos of dogs for uplifting material). • It is focused on mental health maintenance rather than boosting emotional support.
<p>Real-Time Emotional Sentiment Analysis and Timeline Visualizations</p>	<ul style="list-style-type: none"> • It analyzes the emotional sentiment of posts/comments in real-time, visualizing emotional trends over time. Due to this, it can suggest supportive actions like sending reels or starting video calls when emotional distress is detected. • It raises potential privacy concerns due to constant sentiment detection.
<p>Context-Aware Emotional Support via Emotion Status</p>	<ul style="list-style-type: none"> • It introduces an “Emotion Status” functionality for users to share emotional states (e.g., stress, happiness) with close friends. It uses a color-coded system for visibility and prompts friends to provide support (e.g., video calls or voice notes). • Its challenges include privacy concerns, difficulties in publicly sharing emotions, and cultural/colorblindness issues.
<p>AI Chatbot for Emotional Validation</p>	<ul style="list-style-type: none"> • It provides validation through meaningful prompts and conversations (e.g., “How are you feeling today?”) and acts as a temporary outlet when human interaction is unavailable. • However, results from focus groups and the survey indicate emotional support should ultimately come from humans, not AI.
<p>Gamification for Emotional Support</p>	<ul style="list-style-type: none"> • It introduces “Emotional Care Points” and “Empathy Badges” functionalities to reward users for supportive actions. This encourages activities like offering emotional support or achieving personal goals. • The feature can appeal to achievement-motivated individuals but may lack universal relevance if motives are not tied to emotional support perception.

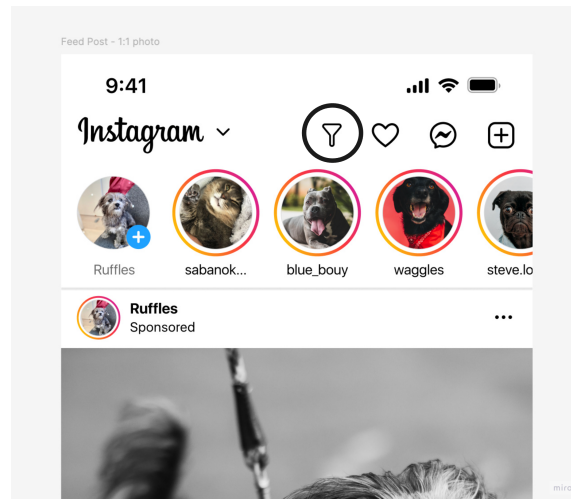


Figure 6.1: Example of how a new version of Instagram that allows for content filters for customizable support could look like

6.2 Final Feature Concept

The results of this research indicate that there is no significant difference among people with higher power, affiliation, or achievement motives in terms of how their perceived emotional support is boosted. However, this research successfully identifies social media functionalities that are universally useful across all motive types, along with the reasons why these functionalities are indeed effective, as shown in table 5.3. The final idea for the design incorporates elements of the aforementioned ideas and strongly relies on the focus groups and survey results.

Finally, a feature has been developed inspired by Instagram's user interface, designed to offer personalized recommendations based on the user's mood to enhance the perception of emotional support. The feature functions as a pop-up that appears when a user opens Instagram for the first time during the day.

The text that welcomes the user, Alex for the prototype idea, cites this way: *"Welcome to Instagram newest feature! Instagram wishes for you to feel more emotionally supported and we believe we can play a big role in that. To help us help you, in the next screen you'll be able to express if you need any support today."*, as illustrated in Figure 6.2.

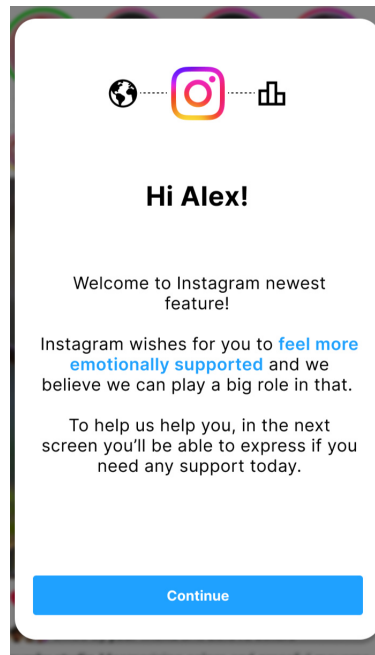


Figure 6.2: Pop-up Welcome

This is to show Instagram cares about one's emotional state and support and create a safe space for the user to open up. Alex is then prompted to assess their emotional state by selecting from a variety of options, listed below:

- "Everything is fine" (No emotional support needed)
- "I want to share something on my mind" (Closeness)
- "I'm seeking reassurance or validation" (Validation and Reassurance)
- "I'm looking for advice or help" (Help)
- "I need some encouragement today" (Encouragement)
- "I'm looking for experiences like mine" (Relatability)

These options are intended to identify specific emotional needs in Chapter 2 Section B.3 which, according to the results of this study, are critical elements in boosting the perception of emotional support. As the reader may observe, the element of 'Understanding' has been excluded from the scope of this design idea. This decision has been made because, as previously discussed in section 5.5.3.1, understanding consistently received the highest scores across all functionalities. Therefore, it can be concluded that

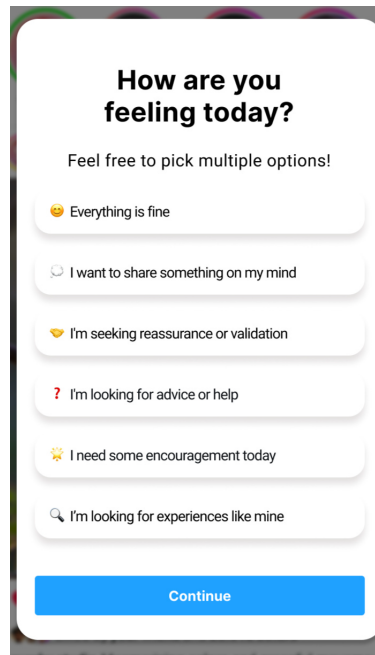


Figure 6.3: Pop-up Mood Selection

understanding is always a prerequisite for boosting emotional support in any given scenario. Based on the user's input, the system provides a tailored recommendation. For the purpose of this study, these recommendations are classified into two categories: active and passive. Active recommendations are those that involve direct interaction, such as reaching out to others for help, venting, or seeking validation. In contrast, passive recommendations involve less direct interaction, such as viewing content that aligns with the user's emotional state, such as viewing reels shared by close friends or receiving positive reactions to their posts from other users. This is because, during data analysis, it was found that when individuals seek emotional support for venting, validation, or help, they prefer active engagement, such as communicating directly with others. However, when users seek encouragement or wish to encounter experiences similar to their own, they exhibit more passive behaviors, such as receiving emotional content from their social network. This distinction between active and passive behaviors forms a key element in the design of the feature, with the intent of enhancing the perception of emotional support through tailored, context, or user's mood-specific recommendations.

6.2.1 Prototype Flows

Based on the information given above, 4 flows have been constructed for this new Instagram feature prototype, each corresponding to a type of different recommendation:

- Flow number 1 - Active Recommendation
- Flow number 2 - Passive Recommendation
- Flow number 3 - Mixed Recommendation (similar to both Active and Passive recommendations)
- Flow number 4 - No specific recommendation

Every flow begins with the user being welcomed to the newest emotional support-sensitive Instagram feature, as shown in Figure 6.2. When the user clicks 'Continue,' they are prompted to indicate their mood for the day, as depicted in Figure 6.3. The user is allowed multiple options.

6.2.1.1 Active Recommendation

This flow is termed 'Active' because it requires the user to engage actively to perceive emotional support. In this case, the user feels like venting, seeks validation for their feelings, and would appreciate receiving help.

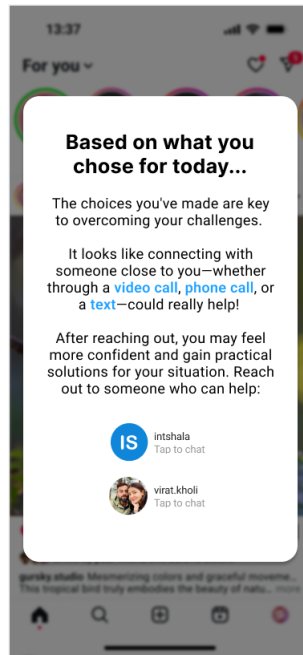


Figure 6.4: Flow 1: Active Recommendation (Screen 1)

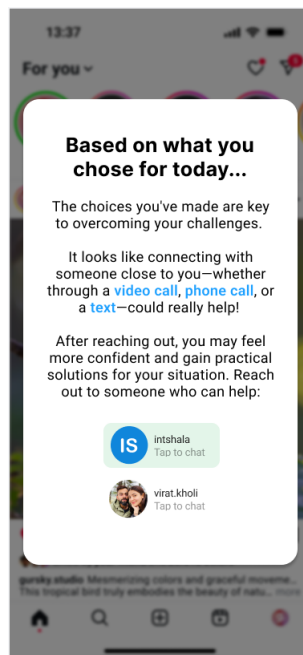


Figure 6.5: Flow 1: Active Recommendation (Screen 2)

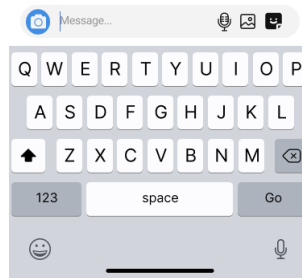
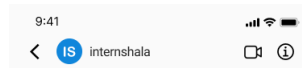


Figure 6.6: Flow 1: Active Recommendation (Screen 3)

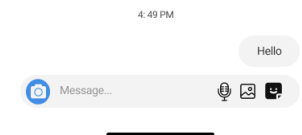


Figure 6.7: Flow 1: Active Recommendation (Screen 4)

In this scenario, the user selects these options.

- "I want to share something on my mind"
- "I am seeking reassurance or validation"
- "I'm looking for advice or help"

This selection, as illustrated in the figures 6.4, 6.5, 6.6, and 6.7 leads to the recommendation of functionalities such as having a video call, making a phone call, or texting someone. Each recommendation is accompanied by a rationale in the pop-up, explaining how connecting with someone close could boost confidence and provide practical solutions, as emerged through the survey's qualitative data. The user is encouraged to reach out to someone they trust. In the prototype's next screens, by clicking on a recommended chat, the user is redirected to a messaging interface where they can initiate a conversation with their friend.

6.2.1.2 Passive Recommendation

This second flow, termed 'Passive,' suggests that rather than engaging in direct action like making a call, the user is prompted to explore new content, such as notifications or recently shared reels. This approach aligns with scenarios where the user seeks encouragement or wishes to view stories that resonate with their own experiences. In this scenario, the user picks:

- "I need some encouragement today"
- "I'm looking for stories or experiences like mine"

This guidance leads to 'passive' functionalities, such as checking notifications for quick encouragement or opening chats to see which friends have shared reels that may relate to the user's current situation. An accompanying text explains the recommendation, noting that feeling encouraged and seeing relatable experiences can provide comfort and may help the user more effectively address their concerns, as illustrated in Figure 6.8.

If the user taps on 'Notifications', as shown in figures 6.9 and 6.10 the user can view their latest updates.

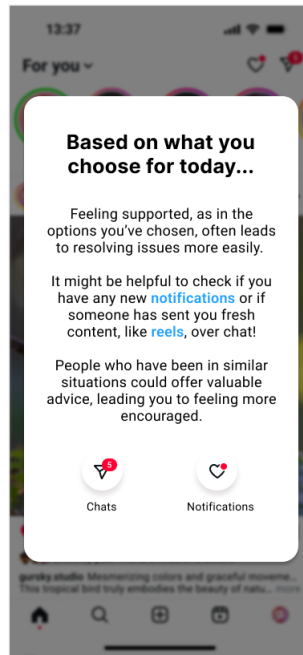


Figure 6.8: Flow 2: Passive Recommendation

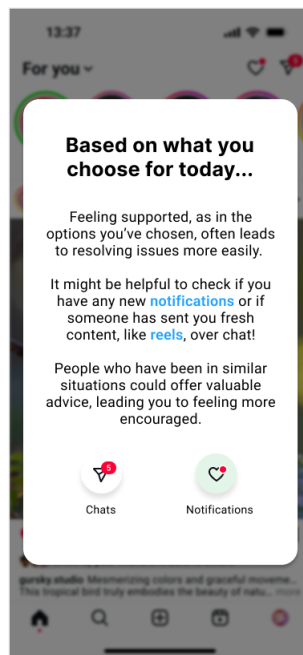


Figure 6.9: Flow 2: Passive Recommendation (Notifications - Screen 1)

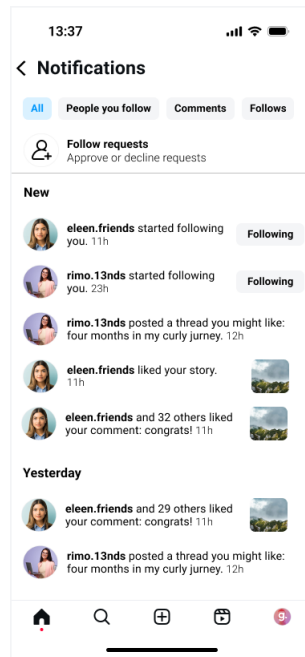


Figure 6.10: Flow 2: Passive Recommendation (Notifications - Screen 2)

In the case of checking reels, as shown in figures 6.11 till 6.14, the user taps on the chat icon and sees a few recommended chats, likely from friends who have sent them reels. The user can then choose to reply or start a conversation.

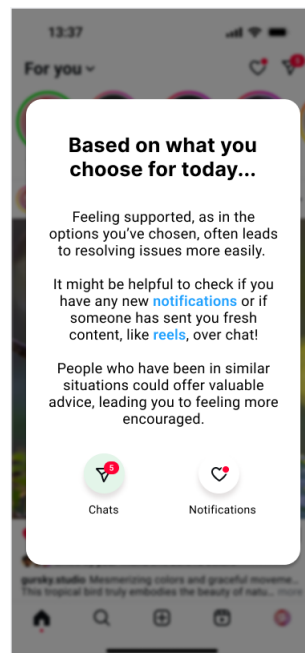


Figure 6.11: Flow 2: Passive Recommendation (Checking for new reels sent by friends - Screen 1)

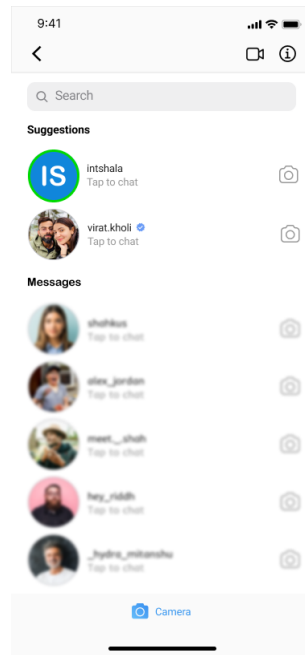


Figure 6.12: Flow 2: Passive Recommendation (Checking for new reels sent by friends - Screen 2)

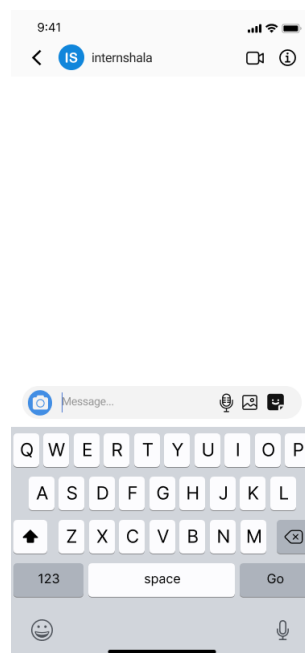


Figure 6.13: Flow 2: Passive Recommendation (Checking for new reels sent by friends - Screen 3)

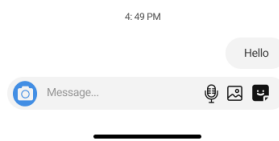


Figure 6.14: Flow 2: Passive Recommendation (Checking for new reels sent by friends - Screen 4)

6.2.1.3 Mixed Recommendation

In the third scenario, the user experiences a more mixed set of emotions. Unlike the distinct cases described above, people do not always feel a single, defined way. In this example, although other combinations are possible, the user feels the need for validation of their feelings and wants to view stories that resonate with their experiences.

The user picks:

- "I'm seeking reassurance or validation"
- "I'm looking for experiences like mine"

In this scenario, as indicated in figures 6.15 till 6.18 the user is directed to engage in both an active action, like calling someone, and a more passive action, such as checking if they have received any new reels from contacts. The recommendation is accompanied by an explanatory message, and suggested chats from people the user may be close with are highlighted.

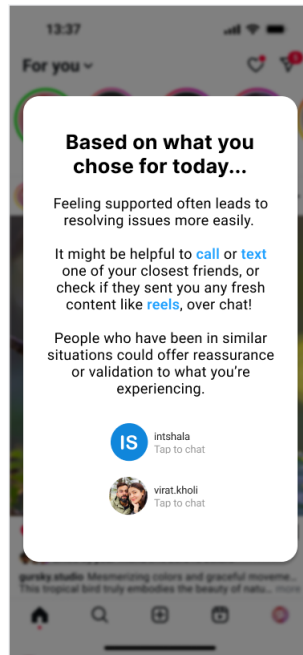


Figure 6.15: Flow 3: Mixed Recommendation (Screen 1)

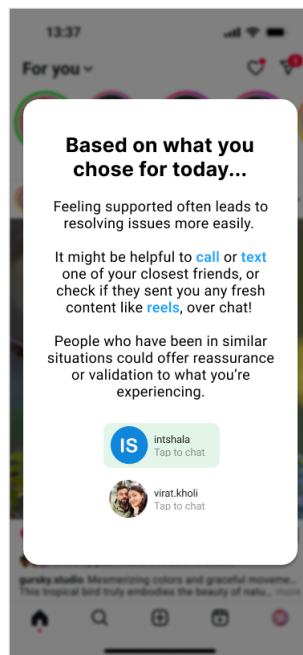


Figure 6.16: Flow 3: Mixed Recommendation (Screen 2)

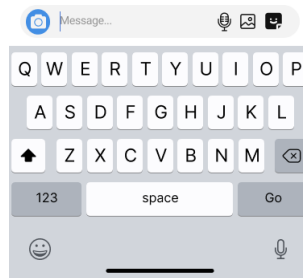
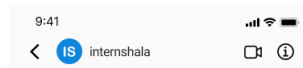


Figure 6.17: Flow 3: Mixed Recommendation (Screen 3)

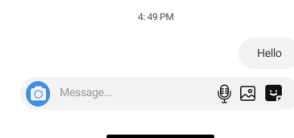
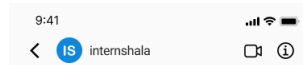


Figure 6.18: Flow 3: Mixed Recommendation (Screen 4)

Therefore, both 'active' and 'passive' recommendations are provided, allowing the user to choose the extent of direct interaction they wish to engage in.

6.2.1.4 No Specific Recommendation

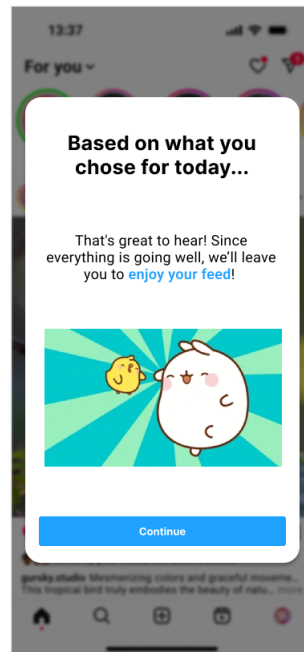


Figure 6.19: Flow 4: No Specific Recommendation

Ideally, there will be times when the user does not feel the need for emotional support. In this final case, the user may simply select this single option:

- "Everything is fine"

In this case, as shown in Figure 6.19, Instagram acknowledges that everything is going well for the user and encourages them to enjoy their feed. A cheerful GIF is also displayed to further lighten the user's mood.

7. Study 4: Cognitive Walkthroughs

Cognitive walkthroughs were designed and conducted to address the final sub-research question, SRQ5, introduced earlier in Chapter 3. The following sections detail this study, including its setup and data analysis, with the primary objective of evaluating the perceived effectiveness of the implemented design intervention presented in this thesis.

7.1 Participants

Participants for this study were selected to align with the demographic requirements of the first two studies and included student advisors currently employed at Utrecht University. Student advisors have extensive experience working with individuals aged 18 to 30, who may require emotional support.

A total of 9 participants were recruited, with no personal data collected apart from their job positions. This approach was adopted to facilitate the analysis of data from experts, such as student advisors, as well as potential users. Of these participants, two were student advisors, three were university students, two were recent graduates seeking employment, and two were young professionals. This time, the participants were selected only using convenience sampling. The student advisors were contacted via email, and their addresses were obtained from the official university website where they are employed.

7.2 Materials

At the start of each session, participants were provided with an information sheet and a consent form. For online sessions, these documents were sent and signed in advance. During the in-person sessions, participants com-

pleted the prototype tasks using a computer provided by the researcher. For online sessions, participants guided the researcher on which actions to perform in the prototype. The prototype referenced is the one presented in Chapter 6.

The questionnaire containing the System Usability Scale (SUS) was created on Qualtrics. The SUS is a standardized questionnaire for the assessment of perceived usability (J. R. Lewis, 2018). The most common and standard form of the scale is 10 items, where negative and positive tones are alternated.

7.3 Design

The cognitive walkthrough is a method for evaluating user interfaces by analyzing the cognitive steps users take to complete tasks (C. Lewis & Wharton, 1997). Its main goal is to identify interface issues and suggest possible explanations (C. Lewis & Wharton, 1997). Specific tasks are selected from the interface's intended tasks, with correct action sequences defined for each (C. Lewis & Wharton, 1997). This method was selected to evaluate the four flows outlined in Chapter 6, section 6.2.1.

At the start of the cognitive walkthrough, each participant was introduced to the session's content, informed that it was expected to last around 30 minutes, and provided with a definition of perceived emotional support to ensure alignment on the topic. Following this, each flow was tested with a unique scenario for the participant to complete regarding Alex, an individual in need of emotional support, resulting in a total of four scenarios designed to test each specific recommendation:

- Active Recommendation
- Passive Recommendation
- Mixed Recommendation
- No Specific Recommendation

These have been further explained in Chapter 6, section 6.2.1.

Each flow was tested for completeness, and follow-up questions were asked, such as whether participants encountered any difficulties in completing the tasks, how they think Alex will feel after receiving the recommendations, and their rating of the solution's effectiveness in boosting the perception of emotional support on a scale from 1 to 10.

Toward the end of the cognitive walkthrough, the participant was invited to share when and where they would access this feature when using Instagram. At the end each participant completed a System Usability Scale, to assess the usability of the newly introduced Instagram feature and was asked whether they had ideas or improvements that could be implemented.

7.4 Procedure

Participants were first invited to the sessions, which were conducted either online or in person, with some taking place in university rooms. Six out of the nine sessions were conducted in person, with the remaining three held online. Each session began with participants reading the information sheet and signing consent forms, which included consent to audio recording. Once the audio recording started, the cognitive walkthroughs began. Participants were provided with an additional sheet containing only the tasks, allowing them to review them independently if needed.

Participants were encouraged to share their honest opinions about the prototype. At the start of each session, participants were asked to state their job positions. They then completed four tasks on the prototype, with follow-up questions posed throughout. At the end, participants filled out the Qualtrics questionnaire. Most cognitive walkthroughs lasted approximately 30 minutes, as planned, though one session was 18 minutes and another extended to 39 minutes. Audio recordings from all sessions were transcribed using Microsoft Word, the analysis was conducted on Miro, and the SUS scores collected through the Qualtrics questionnaire were calculated in Microsoft Excel.

7.5 Results

7.5.1 Data Preparation

The data analysis phase began with transcribing the nine session audio recordings in Microsoft Word. Following this, the data was transferred to Miro, for qualitative analysis. The SUS scores were computed separately in Microsoft Excel after downloading the participants' responses from Qualtrics.

7.5.2 Data Analysis

Data was analyzed in Miro through thematic analysis, leading to the identification of main themes and the reporting of general findings. Perceived effectiveness scores and System Usability Scale (SUS) scores were also computed and analyzed.

7.5.2.1 General Findings

9 out of 9 participants responded positively to the idea of the new feature. It was described as intuitive, straightforward, and useful in boosting the perception of emotional support. 3 out of 9 expressed that it made them feel like Instagram cares, and they appreciated this thoughtful addition. The feature also provides an opportunity for users to reflect on their own moods, offering a moment of introspection.

Each task was analyzed based on difficulty, completeness, perceived effectiveness, and participant comments. Moreover, comments on how to access the feature and new ideas have been analyzed. The System Usability Scale (SUS) score was calculated individually for each participant and as a total score. The results for each task's difficulty, completeness, and perceived effectiveness are summarized in Table 7.1. Completeness here refers to whether participants selected at least one of the correct mood options to receive the appropriate recommendation within each flow. The results for each participant and for each task can be viewed in the Appendix D.3.

Table 7.1: Results on Task Difficulty, Completeness, and Perceived Effectiveness

Task	Difficulty	Wrong Inputs	Perceived Effectiveness Score
Task 1	No participant	3/9	7.2
Task 2	No participant	1/9	6.7
Task 3	No participant	0/9	7.4
Task 4	No participant	0/9	8.0

No participant experienced difficulty in following the task structure and order. The first task where most participants struggled to understand what mood to choose, as shown in Figure 6.3, was the task.

The task with the highest perceived effectiveness was the last one, where Alex did not need any emotional support, followed by the third one, where the recommendation was the 'Mixed' type (See Chapter 6, Section 6.2.1).

7.5.2.2 Perceived Effectiveness

The average perceived effectiveness score across the four tasks is 7.3; moreover, a few findings regarding perceived effectiveness are worth mentioning:

- The recommendation to text, call, or video call is seen as a first step and push for the user to perceive emotional support, rather than a universal and definite source of emotional support, according to 5 participants. Its effectiveness depends on factors such as how much time passes before receiving a response, how a person subjectively prefers to receive support, and whether Alex is an extrovert or introvert. While this is a helpful tip, true support ultimately comes when the message is actually received.
- Likes and comments can make the user feel better. However, according to 1 participant, the ultimate responsibility for feeling better lies with Alex. The effectiveness also depends on how a person uses Instagram. If the user seeks validation, this recommendation may be highly relevant.
- Providing more options allows greater freedom, which in turn can increase the perceived effectiveness of the recommendation, as men-

tioned by 3 participants. When the user does not need emotional support because everything is fine, participants were split between viewing the recommendation to enjoy the feed as irrelevant or believing it actually boosts their mood and sense of emotional support.

7.5.2.3 Main Themes

The following main themes about the new feature and how to improve it have been found:

- **Push for Emotional Support.** The recommendations offer a helpful nudge for users to seek emotional support. However, 3 participants suggested that prompts, additional guidance, or specific content could be provided to help users express their feelings and ideas more effectively.
- **Contact Suggestions.** Users need to feel confident about the reason behind why certain contacts are suggested, as support is most effective when the right people are suggested for emotional support. 5 participants shared this view. An idea to accommodate this could be to refresh contact recommendations, similar to how Spotify curates music suggestions, ensuring the list stays relevant.
- **Response Speed.** How quickly someone responds is very important when a user reaches out. This theme was pointed out by 2 participants. A fast reply makes the user feel more supported, while slow responses can lead to frustration and a weaker sense of connection.
- **User Interface Improvements.** The majority of participants, 5 out of 9, commented on UI improvements. For example, participants preferred less text to maintain engagement. Additionally, certain actions, such as tapping on a user to message them, could benefit from the inclusion of a confirmation button.
- **Reels recommendation.** Participants have confirmed that reels can improve the feeling of relatability. However, if the reels are negative, they might lower the user's mood. There should be a way to control this, according to 3 participants. Watching too many reels can also be

a form of avoidance, so it would be helpful to alert users if they've spent too much time watching them.

- **Notifications.** Notifications are a quick way to get validation, as highlighted by 3 participants. It would be beneficial to include a dedicated section for encouragement within notifications. For example, the screen could be divided into two tabs, similar to some highlight features, distinguishing between general notifications and a special section focused on encouragement.
- **Number of Options.** Providing the user with multiple options gives them more freedom and increases the feeling of emotional support, as expressed by 3 participants.
- **How to access the feature.** The user should have control over when and how the feature is accessed. This was a common viewpoint among 4 participants. In general, it should not pop up every time the app is opened, as reported by 8 participants. This could become annoying for the user. Instead, it could be displayed twice a day, either in the morning or evening and/or based on the user's preferences.
- **Ideal Statistics.** 2 participants out of 9 mentioned that they would like to access analytics and statistics for this feature.
 - How the user has felt over the past month: This can track the emotional trends or moods the user experienced, offering insights into their emotional state.
 - Who the user has chatted with the most: This provides a list of contacts the user has interacted with most frequently, which could help in understanding their social interactions and support network.
- **Trust in Social Media.** 3 participants out of 9 felt that social media, especially Instagram, is designed to keep users engaged and trapped in a so-called "rabbit hole" through endless content like reels. They seem to have accepted that Instagram already knows what they share and are resigned to the fact that their privacy is compromised.

- **List of Moods to choose from.** It was noted that "I need encouragement today" was frequently selected, specifically it happened for 5 participants out of nine for the first task, even though the task did not specifically instruct participants to choose it. One participant mentioned preferring to have the option to select "I am seeking reassurance or validation" as a default or recurring choice, as they often feel the need for reassurance or validation.

7.5.2.4 System Usability Scale Score

The average System Usability Scale (SUS) score is 86.7 with the highest score being 97,5 and the lowest 75. This indicates that the product shows strong potential. However, this does not guarantee high acceptability in real-world use (Bangor et al., 2008). The full list of SUS scores for all participants can be found in the Appendix D.3. The feature was already embedded into the Instagram platform. It can be assumed that perceived usability would be higher if Instagram actively supports and incorporates this feature to boost the perception of emotional support. No existing functionality is removed from Instagram at this stage and only new features are added. It would be valuable to examine this in a between-subjects study, comparing perceived usability and emotional support in the updated, emotionally aware version of Instagram with the current standard version.

7.6 Discussion

The prototype was well-received by the testing audience, and described as intuitive, straightforward, and useful, with tasks scoring above 6.5 in perceived effectiveness, for an average of 7.3, indicating a relatively positive outcome. The task where most participants struggled to understand what to choose from in the list of moods was the first one. This could be because the task required more choices to be made, which may have made it difficult for participants to remember all the options. Additionally, the application was deemed highly usable. The recommendations serve as a starting point to encourage emotional support, but genuine support depends on

user actions and their perspective on social media, in this case, Instagram. In positive scenarios, participants were divided on whether they wanted recommendations, suggesting that some may find the feature useful only in negative situations or in both contexts. This preference was echoed in focus groups. Trust in social media, specifically the perception that platforms may not prioritize users' best interests, emerged as a recurring theme in both the focus groups and cognitive walkthroughs. Participants expressed concerns about social media's intentions, particularly its design to keep users engaged through endless content. While the idea was well-accepted, refining the prototype is essential, incorporating feedback on UI improvements, access points, recommendation adjustments, and adding analytics.

8. General Discussion

This study investigated ways to enhance the perception of emotional support on social media, with the ultimate goal of developing a design intervention to improve perceived emotional support, taking into account users' motives.

The relationship between social media, user motives, and emotional support was first explored. Findings highlight three primary motives for internet use: interacting with people, distractions for passing the time, and finding information where interaction is the strongest predictor of virtual relationships and emotional support (Marco Leimeister et al., 2008). Late adolescents and emerging adults use social media for connection, support, boredom relief, and information, but excessive use can be problematic (Stockdale & Coyne, 2020). Affiliation-motivated users focus on fostering connections through activities like uploading pictures, while power-motivated users prioritize visibility and expanding their network (Das, 2016). However, existing studies have not examined how specific motives, combined with platform functionalities, can enhance emotional support.

Key elements were identified through focus groups as fundamental for the perception of emotional support in social media. These include closeness, validation, reassurance, anonymous support, help, practical information, understanding, relatability, encouragement, and distraction. These align with findings from the literature in Chapter 2. These elements are conveyed through functionalities like video calls, calls, posts, texts, reactions to user content, reels, stories, and anonymous group settings. A survey examined the role of motives in selecting functionalities that enhance emotional support, but no significant relationship was found. This is probably because emotional support on social media is perceived universally, i.e. not based on one's individual motives. The survey also found that the most useful functionalities were video calls, voice calls, texting with some-

one, receiving reels, and receiving positive reactions. These functionalities were most commonly associated with feeling understood, venting to someone, having one's feelings validated, asking for help, feeling encouraged, and feeling that others relate to the user's situation. A design intervention was crafted, incorporating the findings to strengthen the perception of emotional support. The design intervention focuses on adapting to users' moods and providing tailored recommendations to enhance the perception of emotional support. This led to a prototype integrating Instagram's existing functionalities within a new feature designed to recommend specific actions or content based on users' moods.

The design intervention was tested through cognitive walkthroughs. The prototype was well-received by participants, who found it intuitive, straightforward, useful, and effective. The recommendations provided in the prototype offer a helpful starting point for enhancing the perception of emotional support. They serve as a gentle push, encouraging users to engage with functionalities that foster a sense of support. Trust in social media also emerged as a concern, with participants expressing skepticism about the platforms' real aim: while they found the overall intention commendable, it was mentioned that social media platforms, and especially Instagram, encourage users to "stay in the bubble" through endless content, such as reels, and that it does not handle their data appropriately, as the users' privacy is believed to be compromised. It has been found that participants would appreciate Instagram demonstrating care for their emotional well-being. Although the prototype was positively received, further refinement is needed, such as improving the UI based on the suggestions provided by participants and refining how the feature should be accessed.

8.1 Limitations

Several limitations affected the studies conducted in this research project.

A few of those arose from participant selection criteria. Focus groups were intentionally controlled for participant variability, with participants required to belong to a specific user demographic: individuals aged 18 to

30. This age restriction also applied to the survey. This represents the first limitation; while the findings are applicable and controlled for a specific group, they may not be generalizable to a broader audience. Similarly, in the cognitive walkthroughs, participants were primarily within the 18–30 age range. Still, the study also included older individuals, such as study advisors with expertise in understanding how younger people manage their emotions. This introduced some variability, but it was intentional in incorporating expert perspectives.

A similar limitation applies to the restriction on social media usage time in the focus groups, which was restricted between 30 minutes and 2 hours per day. However, this criterion was removed in the survey, as outlined in Section 5.1, to ensure the results could resonate with a more diverse range of users.

Another limitation arises from the fact that some participants may have worked in or been familiar with the field of human-computer interaction. Their expertise could have influenced the findings, potentially introducing biased perspectives and shaping the focus of the evaluations in the focus groups, surveys, and cognitive walkthroughs. These participants may have had insights that influenced their feedback, which could differ from that of individuals without such expertise, as they may have approached the evaluations from the perspective of a designer rather than a user.

It is also important to take into account social processes that may affect focus group methodology, such as social desirability bias and groupthink. Social desirability bias may have caused participants to withhold their genuine thoughts, opting instead to provide responses they believed would gain social approval, as highlighted in a study (Bispo Júnior, 2022). Similarly, groupthink can occur in focus group settings, where participants conform to dominant opinions, potentially censoring their views to align with the broader consensus.

Regarding the design intervention and its evaluation, an alternative evaluation method that could have been particularly compelling is a diary study. By completing the prototype and making it more interactive, a diary study

would have provided a longitudinal measure of perceived effectiveness. A possible design for such a study could involve a between-subjects approach, where one group of participants (e.g., 30 individuals) uses the prototype with the added feature for a week, while another group (e.g., 30 different participants) uses Instagram without the feature. At the end of the study period, perceived effectiveness and usability scores could be gathered from both groups and compared, so to gain deeper insights into how the feature boosts the perception of emotional support over time.

A limitation of this study is that it is difficult to create a testing environment where participants actually experience the need for emotional support. It is important to note that evaluating emotional support functionalities without real emotional needs in the moment of testing may affect the authenticity of the results.

8.2 Future Work

An intriguing path for future research lies in examining how the valence of a scenario, whether positive, negative, or severely distressing, affects the perception of emotional support. In this study, focus groups and surveys were designed around manageable scenarios, which participants knew could be positive or negative. For instance, during focus groups, participants first individually considered scenarios where emotional support might be needed and then voted on the most relatable one, with no restriction on whether the scenario was positive or negative. Similarly, in the survey, participants categorized functionalities as useful or not for a manageable scenario. More intensely distressing situations were deliberately not explored in the focus groups or the survey, as the goal was to ensure participants' safe and controlled environment and any type of distressing situation would have raised important ethical concerns. This raises an important question: would the functionalities for boosting emotional support differ in scenarios of high emotional distress compared to those that are merely challenging? Investigating this distinction could provide deeper insights into tailoring emotional support on social media.

Additionally, the age range of participants could be expanded, or multiple age groups could be included, to broaden the scope of future studies.

Moreover, further studies could experiment with alternative methods for measuring motives. This study measured explicit motives, and no significant relationships were identified between the functionalities and explicit motives. However, this opens the door to testing implicit motives, for example, through tools like the Picture Story Exercise (PSE). Implicit motives can be measured using the Picture Story Exercise (PSE), in which participants are shown pictures depicting various social situations and asked to describe what the people in the images want or what is happening, as introduced in Chapter 2. This method could help eliminate social desirability bias, which can distort data when measuring explicit motives, as participants may alter their responses to appear more socially desirable 2.3.1. Perhaps this approach would yield different results.

Finally, this research has identified the functionalities and elements that contribute to the perception of emotional support on social media. Building on these findings, a scale to measure perceived emotional support in digital or social media contexts could be developed. Such a scale would be beneficial for quantifying a user's mental health and identifying how social media usage could be optimized to enhance their perception of emotional support.

9. Conclusions

This thesis provides a few key findings that can be used when crafting interventions for personalized and adaptable emotional support on social media, and more generally regarding the role of social media in emotional support.

The first step in this process was to explore the existing knowledge on social media, motives, and perceived emotional support. Focus groups were conducted to identify the elements and functionalities that enhance the perception of emotional support on social media.

A survey explored whether users' motives influence their choice of social media elements for emotional support, but no significant relationship was found. The research uncovered the preferred functionalities and the reasons behind their effectiveness in boosting the perception of emotional support on social media.

Based on the findings from these studies, a design prototype was developed to provide tailored recommendations to individuals seeking emotional support.

The design was then evaluated through cognitive walkthroughs to assess its perceived effectiveness. It was regarded as intuitive, straightforward, useful, and effective in addressing emotional support needs.

This thesis offers key insights for designing personalized, adaptable emotional support interventions on social media. While social media can offer valuable emotional support, it is viewed as a secondary option compared to real-life connections: social media can be a new medium to connect people, not a source per se. Spending time with close friends in real life is preferred, as it allows for both meaningful distraction and a stronger sense of emotional connection. Support from close, trusted individuals is consistently seen as more impactful than impersonal interactions. Participants emphasized that feeling understood and that their emotions are validated, which

are foundational steps for perceiving emotional support. Distraction, while helpful in providing a temporary break, is not seen as a long-term solution. Across studies, some themes arose multiple times, namely user control, clarity, and trust. Users want to understand recommendations, maintain freedom in engaging with social media features, and feel confident in the process. However, there is a general mistrust toward social media platforms. Many users report being aware that their privacy is compromised and would be surprised at findings that Instagram would genuinely care about their emotional well-being. This mistrust stems from a broader perception of social media as a toxic environment, a “dark place” that keeps users trapped in endless engagement cycles.

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A. Appendix: Quick Scan

Response Summary:

Section 1. Research projects involving human participants

P1. Does your project involve human participants? This includes for example use of observation, (online) surveys, interviews, tests, focus groups, and workshops where human participants provide information or data to inform the research. If you are only using existing data sets or publicly available data (e.g. from Twitter, Reddit) without directly recruiting participants, please answer no.

- Yes

Recruitment

P2. Does your project involve participants younger than 18 years of age?

- No

P3. Does your project involve participants with learning or communication difficulties of a severity that may impact their ability to provide informed consent?

- No

P4. Is your project likely to involve participants engaging in illegal activities?

- No

P5. Does your project involve patients?

- No

P6. Does your project involve participants belonging to a vulnerable group, other than those listed above?

- No

P8. Does your project involve participants with whom you have, or are likely to have, a working or professional relationship: for instance, staff or students of the university, professional colleagues, or clients?

- Yes

P9. Is it made clear to potential participants that not participating will in no way impact them (e.g. it will not directly impact their grade in a class)?

- Yes

Informed consent

PC1. Do you have set procedures that you will use for obtaining informed consent from all participants, including (where appropriate) parental consent for children or consent from legally authorized representatives? (See suggestions for information sheets and consent forms on [the website](#).)

- Yes

PC2. Will you tell participants that their participation is voluntary?

- Yes

PC3. Will you obtain explicit consent for participation?

- Yes

PC4. Will you obtain explicit consent for any sensor readings, eye tracking, photos, audio, and/or video recordings?

- Yes

PC5. Will you tell participants that they may withdraw from the research at any time and for any reason?

- Yes

PC6. Will you give potential participants time to consider participation?

- Yes

PC7. Will you provide participants with an opportunity to ask questions about the research before consenting to take part (e.g. by providing your contact details)?

- Yes

PC8. Does your project involve concealment or deliberate misleading of participants?

- No

Section 2. Data protection, handling, and storage

The General Data Protection Regulation imposes several obligations for the use of **personal data** (defined as any information relating to an identified or identifiable living person) or including the use of personal data in research.

D1. Are you gathering or using personal data (defined as any information relating to an identified or identifiable living person)?

- Yes

High-risk data

DR1. Will you process personal data that would jeopardize the physical health or safety of individuals in the event of a personal data breach?

- No

DR2. Will you combine, compare, or match personal data obtained from multiple sources, in a way that exceeds the reasonable expectations of the people whose data it is?

- No

DR3. Will you use any personal data of children or vulnerable individuals for marketing, profiling, automated decision-making, or to offer online services to them?

- No

DR4. Will you profile individuals on a large scale?

- No

DR5. Will you systematically monitor individuals in a publicly accessible area on a large scale (or use the data of such monitoring)?

- No

DR6. Will you use special category personal data, criminal offense personal data, or other sensitive personal data on a large scale?

- No

DR7. Will you determine an individual's access to a product, service, opportunity, or benefit based on an automated decision or special category personal data?

- No

DR8. Will you systematically and extensively monitor or profile individuals, with significant effects on them?

- No

DR9. Will you use innovative technology to process sensitive personal data?

- No

Data minimization

DM1. Will you collect only personal data that is strictly necessary for the research?

- Yes

DM4. Will you anonymize the data wherever possible?

- Yes

DM5. Will you pseudonymize the data if you are not able to anonymize it, replacing personal details with an identifier, and keeping the key separate from the data set?

- Yes

Appendix: Quick Scan

Using collaborators or contractors that process personal data securely

DC1. Will any organization external to Utrecht University be involved in processing personal data (e.g. for transcription, data analysis, data storage)?

- No

International personal data transfers

DI1. Will any personal data be transferred to another country (including to research collaborators in a joint project)?

- No

Fair use of personal data to recruit participants

DF1. Is personal data used to recruit participants?

- No

Participants' data rights and privacy information

DP1. Will participants be provided with privacy information? (Recommended is to use as part of the information sheet: For details of our legal basis for using personal data and the rights you have over your data please see the University's privacy information at www.uu.nl/en/organisation/privacy.)

- Yes

DP2. Will participants be aware of what their data is used for?

- Yes

DP3. Can participants request that their personal data be deleted?

- Yes

DP4. Can participants request that their personal data be rectified (in case it is incorrect)?

- Yes

DP5. Can participants request access to their personal data?

- Yes

DP6. Can participants request that personal data processing is restricted?

- Yes

DP7. Will participants be subjected to automated decision-making based on their personal data with an impact on them beyond the research study to which they consented?

- No

DP8. Will participants be aware of how long their data is being kept for, who it is being shared with, and any safeguards that apply in case of international sharing?

- Yes

DP9. If data is provided by a third party, are people whose data is in the data set provided with (1) the privacy information and (2) what categories of data you will use?

- Not applicable

Using data that you have not gathered directly from participants

DE1. Will you use any personal data that you have not gathered directly from participants (such as data from an existing data set, data gathered for you by a third party, data scraped from the internet)?

- No

Secure data storage

DS1. Will any data be stored (temporarily or permanently) anywhere other than on password-protected University authorized computers or servers?

- Yes

DS2. Does this only involve data stored temporarily during a session with participants (e.g. data stored on a video/audio recorder/sensing device), which is immediately transferred (directly or with the use of an encrypted and password-protected data-carrier (such as a USB stick)) to a password-protected University authorized computer or server, and deleted from the data capture and data-carrier device immediately after transfer?

- Yes

DS4. Excluding (1) any international data transfers mentioned above and (2) any sharing of data with collaborators and contractors, will any personal data be stored, collected, or accessed from outside the EU?

- No

Section 3. Research that may cause harm

Research may cause harm to participants, researchers, the university, or society. This includes when technology has dual-use, and you investigate an innocent use, but your results could be used by others in a harmful way. If you are unsure regarding possible harm to the university or society, please discuss your concerns with the Research Support Office.

H1. Does your project give rise to a realistic risk to the national security of any country?

- No

H2. Does your project give rise to a realistic risk of aiding human rights abuses in any country?

- No

H3. Does your project (and its data) give rise to a realistic risk of damaging the University's reputation? (E.g., bad press coverage, public protest.)

- No

H4. Does your project (and in particular its data) give rise to an increased risk of attack (cyber- or otherwise) against the University? (E.g., from pressure groups.)

- No

H5. Is the data likely to contain material that is indecent, offensive, defamatory, threatening, discriminatory, or extremist?

- No

H6. Does your project give rise to a realistic risk of harm to the researchers?

- No

H7. Is there a realistic risk of any participant experiencing physical or psychological harm or discomfort?

- No

H8. Is there a realistic risk of any participant experiencing a detriment to their interests as a result of participation?

- No

H9. Is there a realistic risk of other types of negative externalities?

- No

Section 4. Conflicts of interest

C1. Is there any potential conflict of interest (e.g. between research funder and researchers or participants and researchers) that may potentially affect the research outcome or the dissemination of research findings?

- No

C2. Is there a direct hierarchical relationship between researchers and participants?

- No

Section 5. Your information.

This last section collects data about you and your project so that we can register that you completed the Ethics and Privacy Quick Scan, sent you (and your supervisor/course coordinator) a summary of what you filled out, and follow up where a fuller ethics review and/or privacy assessment is needed. For details of our legal basis for using personal data and the rights you have over your data please see the [University's privacy information](#). Please see the guidance on the [ICS Ethics and Privacy website](#) on what happens on submission.

Appendix: Quick Scan

Z0. Which is your main department?

- Information and Computing Science

Z1. Your full name:

Veronica Dell'Aera

Z2. Your email address:

v.dellaera@students.uu.nl

Z3. In what context will you conduct this research?

- As a student for my master thesis, supervised by:
Judith Masthoff

Z5. Master programme for which you are doing the thesis

- Human-Computer Interaction

Z6. Email of the course coordinator or supervisor (so that we can inform them that you filled this out and provide them with a summary):

j.f.m.masthoff@uu.nl

Z7. Email of the moderator (as provided by the coordinator of your thesis project):

graduation.hci@uu.nl

Z8. Title of the research project/study for which you filled out this Quick Scan:

The role of motives to enhance perceived emotional support in social media

Z9. Summary of what you intend to investigate and how you will investigate this (200 words max):

This thesis study aims to investigate how motives and the use of social media can help increase the perception of emotional support. The thesis first examines the relationship between the use of social media, motives, and the perception of emotional support, as outlined in existing literature. Then, focus groups will be conducted to better understand and investigate the elements that punctuate the relationship between social media use and perceptions of emotional support. Based on the results of the focus groups, a survey will be constructed with the intent of discovering any relationships between an individual's motives and how their perception of emotional support may increase due to social media use. At this point, the survey will be analyzed, and it will hopefully be possible to deduce what motive corresponds to certain functionality on social media to increase the perception of emotional support. Once this step is completed, the forthcoming algorithm will be tested and evaluated through expert interviews. The participant age group targeted is between 18 years old and 30 years old.

Z10. In case you encountered warnings in the survey, does supervisor already have ethical approval for a research line that fully covers your project?

- Not applicable

Scoring

- Privacy: 0
 - Ethics: 0
-

B. Appendix: Study 1

B.1 Focus Groups Consent Form and Information Sheet



Universiteit
Utrecht

Consent form for participation in the research project

The role of motives to enhance perceived emotional support in social media

Please complete the form below by ticking the relevant boxes and signing on the line below. A copy of the completed form will be given to you for your own record.

- I confirm that I am 18 years of age or over.
- I confirm that the research project "The role of motives to enhance perceived emotional support in social media" has been explained to me. I have had the opportunity to ask questions about the project and have had these answered satisfactorily. I had enough time to consider whether to participate.
- I consent to the material I contribute being used to generate insights for the research project "The role of motives to enhance perceived emotional support in social media".
- I consent to audio recordings being used in this study as explained in the information sheet. I understand that I can request to stop recordings at any time.
- I understand that if I give permission, the audio recordings will be held confidentially so that only the researchers involved have access to the recordings. The recordings will be password protected until transcription, after which they will be securely destroyed. In accordance with the General Data Protection Regulation (GDPR) I can have access to my recordings and can request them to be deleted at any time during this period.
- I understand that in addition to the recordings, other personal data will be collected as explained in the information sheet and that this data will be held confidentially so that only the researchers involved have access to this data. All data will be securely stored on a personal computer and the files will be password protected until transcription, when any personal data will be fully anonymized (within 2 months from the session). In accordance with the General Data Protection Regulation (GDPR) I can have access to my personal data and can request it to be deleted at any time during this period.
- I understand that my participation in this research is voluntary and that I may withdraw from the study at any time without providing a reason, and that if I withdraw any personal data already collected from me will be erased.
- I understand that my participation is not a requirement for my course, and that participating or not will not impact me.
- I consent to allow the fully anonymized data to be used in future publications and other scholarly means of disseminating the findings from the research project.
- I understand that the data acquired will be securely stored by researchers, but that appropriately anonymized data may in future be made available to others for research purposes. I understand that the University may publish appropriately anonymized data in appropriate data repositories for verification purposes and to make it accessible to researchers and other research users.

B.1 Focus Groups Consent Form and Information Sheet

- I agree to take part in the above research project on “The role of motives to enhance perceived emotional support in social media”.

Age: _____ Prefer not to answer

Gender: Male Female Non-binary / third gender Prefer not to answer Other: _____

Name of participant

Date

Signature

Name of researcher

Date

Signature

Figure B.1: Focus Group Consent Form



Research Participant Information Sheet

The role of motives to enhance perceived emotional support in social media

21.05.2024

1. Introduction

With this information sheet, you are invited to participate in the thesis research project titled "The role of motives to enhance perceived emotional support in social media ". Please review the relevant information provided herein. You are consenting to participate in the focus group study, namely the first study of this project, which will take place at Utrecht University in Science Park, Utrecht.

2. What is the background and purpose of this study?

The research project you are participating to aims at investigating how perceived emotional support can be enhanced in social media platforms and whether motives play a significant role in this relationship.

3. Who will carry out the study?

This study is carried out by Veronica Dell'Aera (v.dellaera@students.uu.nl) as part of my master thesis under supervision of Prof. dr. Ir. Judith Masthoff (j.f.m.masthoff@uu.nl) and Isabella Saccardi (i.saccardi@uu.nl).

4. How will the study be carried out?

In this study, you will participate in a focus group: you will provide your opinions on how emotional support can be enhanced through social media in a small group setting facilitated by a Veronica Dell'Aera and Isabella Saccardi. The focus group will take about forty-five minutes. Refreshments will be provided.

5. What will we do with your data?

If you consent to this, the focus group will be audio recorded. The recordings will be stored securely on a personal computer and the file will be password protected. The recording will be transcribed so that participants' opinions are captured into text. The recordings will be securely deleted after transcription (within 2 months from the session). In addition to the recording, personal data such as age and gender will be collected: these data and the entire session will be anonymized during the transcription so that you will not be identifiable. The transcript will become part of my thesis. We will store your opinions, as well as all collected data, anonymously. Your anonymized data will be used in future publications and other scholarly means of disseminating the findings from the research project. In accordance with the Utrecht University policy, anonymized research data are to be retained for a minimum of ten years.

6. What are your rights?

Participation is voluntary. We are only allowed to collect your data for our study if you consent to this. If you decide not to participate, you do not have to take any further action. You do not need to sign anything. Nor are you required to explain why you do not want to participate. If you decide to participate, you can always change your mind and stop participating at any time, including during the study. You will even be able to withdraw your consent after you have participated. However, if you choose to do so, we will not be required to undo the processing of your data that has taken place up until that time. The personal data we have obtained from you



up until the time when you withdraw your consent will be erased (where personal data is any data that can be linked to you, so this excludes any already anonymized data).

7. Approval of this study

This study has been allowed to proceed by the Research Institute of Information and Computing Sciences on the basis of an Ethics and Privacy Quick Scan. If you have a complaint about the way this study is carried out, please send an email to: ics-ethics@uu.nl. If you have any complaints or questions about the processing of personal data, please send an email to the Faculty of Sciences Privacy Officer: privacy-beta@uu.nl. The Privacy Officer will also be able to assist you in exercising the rights you have under the GDPR. For details of our legal basis for using personal data and the rights you have over your data please see the University's privacy information at www.uu.nl/en/organisation/privacy.

8. More information about this study?

If you have any questions or concerns about this research, please contact Veronica Dell'Aera at v.dellaera@students.uu.nl or my supervisor Isabella Saccardi at i.saccardi@uu.nl.

Figure B.2: Focus Group Information Sheet

B.2 Focus Group Interview Guideline

<p>Introduction</p>	<p>Moderator & Focus Group Introduction</p>	<p>Welcome, everyone, and thank you for participating in this focus group for my thesis project.</p> <p>I am Veronica, and I will be moderating the session. Isabella is here to help me with this task.</p> <p>I would like to ask you to please read the information sheet you have in front of you and sign the consent sheet next to it. Just to be clear, we are going to collect your data such as age and gender. Other personal data will not be transcribed to fully ensure anonymity. Feel free to ask us questions.</p> <p>Now I would like to ask if it is possible to record this session, as it will be useful for note-taking purposes.</p> <p>A bit of introduction first: why are you here? What is a focus group?</p> <p>A focus group is a group discussion so, as participants, you're invited to share your thoughts and opinions on a particular topic. The results of this focus group will guide my thesis research process and inform the crafting of a survey afterward.</p>
	<p>Guidelines</p>	<p>You're welcome to share your opinions, as there are no right or wrong answers, only different points of view.</p> <p>We're recording the session, so it would be great if one person spoke at a time.</p> <p>If you want to leave the discussion, you can do so at any time, it will have no impact on you.</p> <p>Finally, if you have any questions for me, please feel free to ask now or at any other time of the session.</p>
	<p>Topic Introduction</p>	<p>Today's focus group aims at exploring how emotional support is perceived in social media platforms, such as Facebook, Instagram, TikTok, and WhatsApp.</p> <p>I'll start by offering a few definitions to help us ease into the topic, starting more generally. Then we will dive deep into the topic with a discussion and have some exercises.</p> <p>Emotional support is all about showing someone you care about through both words and actions. It's about offering reassurance, understanding, and comfort to let them know they're not alone and that their feelings are valid and accepted.</p> <p><i>Show slide 2</i></p>

		<p>Perceived Emotional Support manifests when (some)one feels cared for, loved, valued, and connected within a network of mutual social obligations.</p> <p>Is the definition I provided clear for you? Is there something you don't understand or that is unclear to you?</p>
	Participant Introduction	<p>We're on a first name basis, so we could start by introducing ourselves. What are you currently studying? What year are you in?</p>
Transition Questions	Engagement Questions	<p>Thank you for your introduction.</p> <p><i>(Using slides with definition of emotional support)</i></p> <p>Let's take a moment to reflect individually on who you consider a source of support and why.</p> <p>After that I would like to ask you:</p> <ul style="list-style-type: none"> • What is some nice thing someone can tell a close friend to support them, in your opinion? <p>Now we are going to focus on another medium of emotional support: social media.</p> <ul style="list-style-type: none"> • <u>First of all</u>, what are the reasons you use social media?
	Reflection + Examples questions on emotional support	<p><i>(Using slides with definition of emotional support)</i></p> <p>In this part of the focus group, we will think of a scenario where a person may need support.</p> <ul style="list-style-type: none"> • We will ask you to come up with a short story and we will give you sticky notes to write it. • Once you're done with writing it, we will collect and shuffle the sticky notes to read these stories anonymously. • Finally, we will ask you to vote for the ones that are most relatable to you. <p>Now, please individually think about a scenario where an individual (we can call them Andrea) needs emotional support, considering the definition we just gave. It could be a positive or negative scenario.</p> <p>Of course, if you cannot think about anything, there is no issue, you can leave the sticky note blank.</p> <p>Please, let me know when you're done.</p>

		<p style="text-align: center;">- Pause max for 2 minutes -</p> <p><i>Collect and mix the sticky notes, enumerate the scenarios, reading out loud the scenarios.</i></p> <p><i>For each scenario:</i></p> <ul style="list-style-type: none"> • Which scenario do you like the most? You can raise your hand to show your vote. <p>The most voted one is <i>scenario number</i> _.</p> <p>-----</p> <p>On the sticky note in front of you, write down up to three different actions you would want to receive or observe if you were in Andrea's shoes in this scenario, given the fact that Andrea's is alone (at home) and has a cellphone with social media installed on it. In particular, Andrea has TikTok, Facebook, WhatsApp, and Instagram installed on their cellphone.</p> <p>If you can't think about any it's fine, but I would like to ask you why.</p> <p><i>Collect sticky notes, mix them, read them aloud, ask why.</i></p> <p><i>Start discussion on this:</i></p> <ul style="list-style-type: none"> • Were you surprised by the actions mentioned? Were there actions that you do not relate to? <ul style="list-style-type: none"> • Please, focus on the sensations and emotions that come when thinking about this situation: <ul style="list-style-type: none"> • What would you consider effective emotional support (action) if you were Andrea? What would matter the most in this situation? <ul style="list-style-type: none"> ○ When Andrea decides to get emotional support, what do you think they would look for first? ○ How effective do you think looking for emotional support on social media for Andrea is?
<p>Key Questions</p>	<p>Reflection and ranking the questions</p>	<p>Group discussion: <i>in the end</i>, which actions would be more effective to make Andrea feel emotionally supported? Why?</p> <p>Imagine you could ideate a way to get Andrea emotional support faster and more effectively within these platforms, what would that be? Describe freely or sketch if you want.</p> <p style="text-align: center;">-- Give some minute --</p>

Ending Questions	All things considered question and final questions	Is there anything you want to add?
	Thanking and goodbye	Thank you so much for your time!

Figure B.3: Focus Group Script

B.3 Focus Group Results

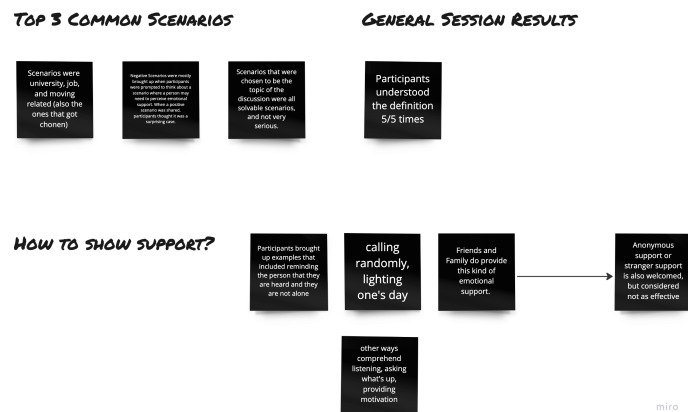


Figure B.4: Focus Group Results: Top 3 Common Scenarios, General Session Results, How to show support?

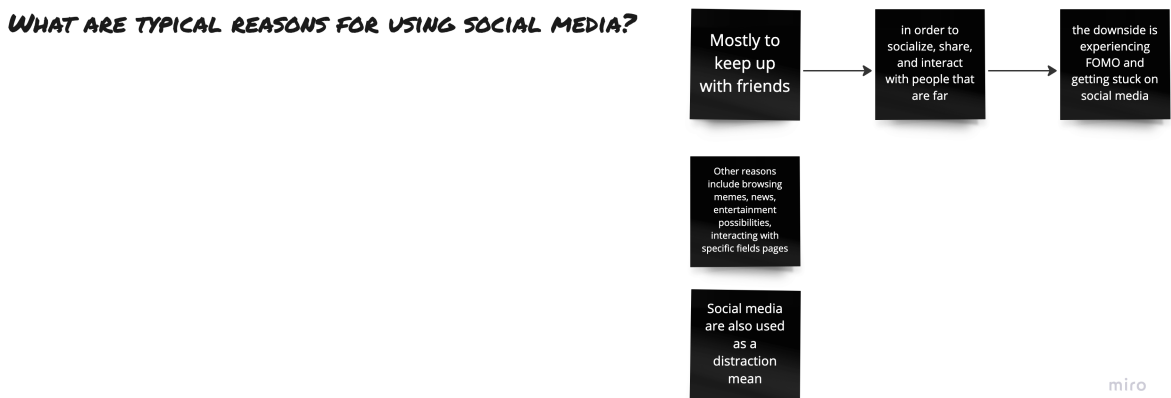


Figure B.5: Focus Group Results: What are typical reasons for using social media?

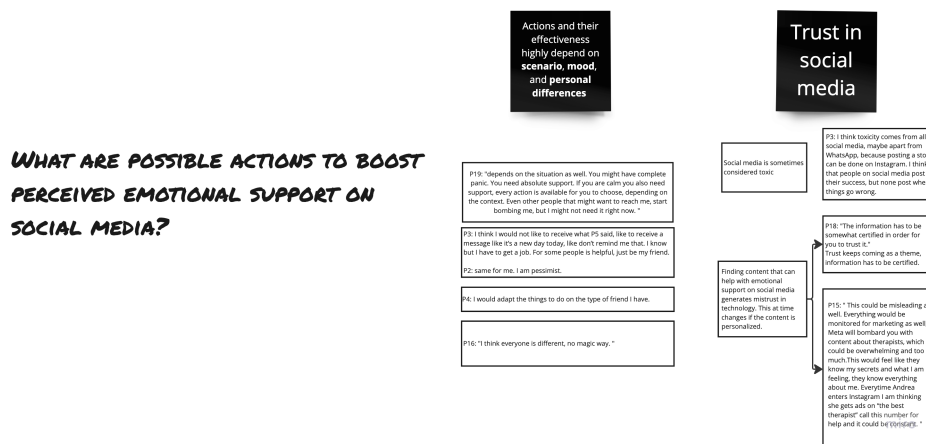


Figure B.7: Focus Group Results: What are possible actions to boost perceived emotional support on social media?

IMPORTANT ELEMENTS IN SOCIAL MEDIA ARE, NONETHELESS...

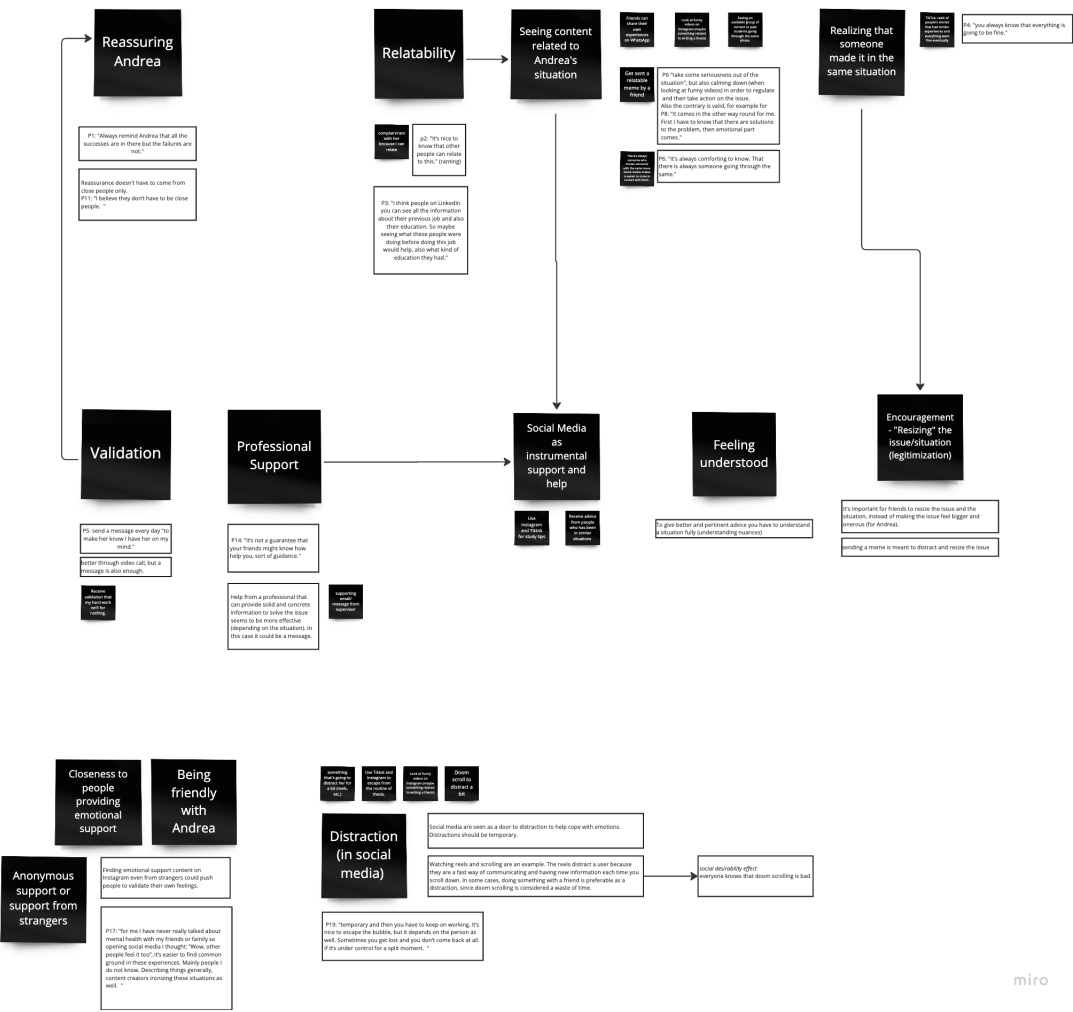


Figure B.8: Focus Group Results: Important elements for the perception of emotional support in social media

miro

C. Appendix: Study 2

C.1 Survey Consent Form



Consent form

Welcome to the online questionnaire for the study “**The role of motives to enhance perceived emotional support in social media**”.

1. Introduction and purpose of the study

This survey is part of a master thesis research conducted by Veronica Dell’Aera. The research project you are participating in aims to investigate how perceived emotional support can be enhanced in social media platforms and whether motives play a significant role in this relationship.

2. Who will carry out the study?

This study is carried out by Veronica Dell’Aera (v.dellaera@students.uu.nl) as part of my master thesis under supervision of Prof. dr. Ir. Judith Masthoff (j.f.m.masthoff@uu.nl) and Isabella Saccardi (i.saccardi@uu.nl).

3. How will the study be carried out?

In order to participate in the study, you have to be between 18 and 30 years old and you have to be familiar with platforms such as WhatsApp and Instagram. You will be asked to answer questions about your general behaviour and provide opinions on how emotional support perception can be enhanced through social

media. The survey will take approximately 10 minutes to complete.

4. What will we do with your data?

No personal data will be collected. We will store your opinions about how to perceive emotional support in social media and behaviours anonymously. Your anonymized data will be used in my thesis, in future publications, and other scholarly means of disseminating the findings from the research project. In accordance with the Utrecht University policy, anonymized research data are to be retained for a minimum of ten years.

5. What are the possible risks and benefits?

This study does not carry any foreseeable risks. The study inquiries about your opinions on how to perceive emotional support on social media and your behaviours, therefore it's an opportunity for self-reflection.

6. What are your rights?

Participation is voluntary. We are only allowed to collect your data for our study if you consent to this. If you decide not to participate, you do not have to take any further action. You do not need to sign anything. Nor are you required to explain why you do not want to participate. If you decide to participate, you can always change your mind and stop participating at any time, including during the study. You will even be able to withdraw your consent after you have participated by sending an email to v.dellaera@students.uu.nl. However, if you choose to do so, we will not be required to undo the processing of your data that has taken place up until that time.

7. Approval of this study

This study has been allowed to proceed by the Research Institute of

Information and Computing Sciences on the basis of an Ethics and Privacy Quick Scan. If you have a complaint about the way this study is carried out, please send an email to: ics-ethics@uu.nl. If you have any complaints or questions about the processing of personal data, please send an email to the Faculty of Sciences Privacy Officer: privacy-beta@uu.nl. The Privacy Officer will also be able to assist you in exercising the rights you have under the GDPR. For details of our legal basis for using personal data and the rights you have over your data please see the University's privacy information at www.uu.nl/en/organisation/privacy.

8. More information about this study?

If you have any questions or concerns about this research, please contact Veronica Dell'Aera at v.dellaera@students.uu.nl or my supervisor Isabella Saccardi at i.saccardi@uu.nl.

9. Do you consent to participate in the study?

By continuing to this form, you are agreeing to participate in the scientific research for the master's thesis conducted by Veronica Dell'Aera.

- Yes, I have read and understood the information provided above and I consent to my answers being used for the purposes of scientific research as described above. I confirm that I am between 18 and 30 years old and am familiar with platforms such as WhatsApp and Instagram.
- No, I have read and understood the information provided above and I do not consent to my answers being used for the purposes of scientific research as described above.

Figure C.1: Consent form at the beginning of the survey

C.2 Survey Script

First part UMS-3

In this section, you will be provided with 15 statements. Please indicate how much you agree or disagree with each statement. Please don't be concerned about maintaining consistency in your responses. Answer each statement as accurately and honestly as possible.

	Strongly Disagree	Disagree	Rather Disagree	Rather Agree	Agree	Strongly Agree
I like to have the final say	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to be an executive with power over others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have little interest in leading others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel confident when directing the activities of others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to control others rather than permit them to control me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am attracted to situations that allow me to test my abilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My goal is to do at least a little bit more than anyone else has done before	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to be in the company of friends as much as possible	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I spend a lot of time visiting friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Encounters with other people make me happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Often I would rather be alone than with a group of friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I go out of my way to meet people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure C.2: Survey UMS

Appendix: Study 2

	Strongly Disagree	Disagree	Rather Disagree	Rather Agree	Agree	Strongly Agree
I choose hobbies that I can share with other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like to make as many friends as I can	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a rush of energy when I get to know new people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Listed below are several goals that may vary in importance to you. Please rate how important each goal is in your life, from "not important to me" to "extremely important to me". There are no right or wrong answers – only your opinion matters.

	Not important to me	Of little importance to me	Of some importance to me	Important to me	Very important to me	Extremely important to me
The opportunity to exercise control over an organization or group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Be able to exert influence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To be in a leadership position in which others work for me or look to me for direction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunities to influence others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A position with prestige	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintaining high standards for the quality of my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personally producing work of high quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Projects that challenge me to the limits of my ability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Continuously improve myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure C.3: Survey UMS

	Not important to me	Of little importance to me	Of some importance to me	Important to me	Very important to me	Extremely important to me
Continuously engage in new, exciting, and challenging goals and responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personally doing things better than they have been done before	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunities to create new things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engage in a lot of activities with other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have a wide circle of friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunities to take on more difficult and challenging goals and responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Social Media Features for Em Supp

Perceived emotional support manifests when someone feels cared for, loved, valued, and connected within a network of mutual obligations.

Imagine a scenario where an individual, whom we'll call Alex, wants to feel emotionally supported based on the definition provided above. This could be a positive scenario, such as Alex being happy because of getting a promotion, or a negative one, like Alex feeling anxious about their thesis. Assuming their situation is manageable and not overly serious, please reorganize the following actions into two categories: those that you believe would help Alex perceive more emotional support ("useful") and those that you think would be

Figure C.4: Survey UMS and Scenario

least effective in making them perceive that support ("not useful"). Please be aware that in this scenario Alex has only access to WhatsApp and Instagram in their phone, so the functionalities you will see are related to these platforms.

	Useful	Not useful
Having a video call	<input type="radio"/>	<input type="radio"/>
Having a call	<input type="radio"/>	<input type="radio"/>
Texting with somebody	<input type="radio"/>	<input type="radio"/>
Post an Instagram story	<input type="radio"/>	<input type="radio"/>
Post a a video and/or picture on Instagram	<input type="radio"/>	<input type="radio"/>
Receive a post	<input type="radio"/>	<input type="radio"/>
Receive a reel	<input type="radio"/>	<input type="radio"/>
Receive a positive reaction on something Alex posted earlier	<input type="radio"/>	<input type="radio"/>
Join a live on instagram of an account Alex follows	<input type="radio"/>	<input type="radio"/>

Based on the functionalities you listed as useful, please select the most relevant reasons why you chose these features.

- Alex can vent to someone
- Alex feels that their feelings are validated
- Alex can get anonymous support
- Alex can ask for help
- Alex can get to know practical information
- Alex feels understood
- Alex feels that others can relate to their situation
- Alex feels encouraged
- Alex can be distracted

Figure C.5: Survey Scenario and Functionalities

You selected these functionalities as useful:

`{q://QID10/ChoiceGroup/SelectedChoicesForAnswer/1}`.

Below you find the reasons why you selected these functionalities as useful. Please rank them from the most important to the least important one, where the first one is the most important reason and the last one is the least important reason.

- » Alex can vent to someone
- » Alex feels that their feelings are validated
- » Alex can get anonymous support
- » Alex can ask for help
- » Alex can get to know practical information
- » Alex feels understood
- » Alex feels that others can relate to their situation
- » Alex feels encouraged
- » Alex can be distracted

Can you please explain the reason behind your choices?

Figure C.6: Survey Reasons for Emotional Support in Social Media

D. Appendix: Study 4

D.1 Cognitive Walkthrough Consent Form and Information Sheet



Universiteit
Utrecht

Consent form for participation in the research project

Exploring a prototype to enhance Perceived Emotional Support on Social Media

Please complete the form below by ticking the relevant boxes and signing on the line below. A copy of the completed form will be given to you for your own record.

- I confirm that I am 18 years of age or over.
- I confirm that the research project "Exploring a prototype to enhance Perceived Emotional Support on Social Media" has been explained to me. I have had the opportunity to ask questions about the project and have had these answered satisfactorily. I had enough time to consider whether to participate.
- I consent to the material I contribute being used to generate insights for the research project "Exploring a prototype to enhance Perceived Emotional Support on Social Media".
- I consent to audio recordings being used in this study as explained in the information sheet. I understand that I can request to stop recordings at any time.
- I understand that if I give permission, the audio recordings will be held confidentially so that only the researchers involved have access to the recordings. The recordings will be password protected until transcription, after which they will be securely destroyed. In accordance with the General Data Protection Regulation (GDPR) I can have access to my recordings and can request them to be deleted at any time during this period.
- I understand that my participation in this research is voluntary and that I may withdraw from the study at any time without providing a reason, and that if I withdraw any personal data already collected from me will be erased.
- I understand that my participation is not a requirement for my course, and that participating or not will not impact me.
- I consent to allow the fully anonymized data to be used in future publications and other scholarly means of disseminating the findings from the research project.
- I understand that the data acquired will be securely stored by researchers, but that appropriately anonymized data may in future be made available to others for research purposes. I understand that the University may publish appropriately anonymized data in appropriate data repositories for verification purposes and to make it accessible to researchers and other research users.

Appendix: Study 4

- I agree to take part in the above research project on "Exploring a prototype to enhance Perceived Emotional Support on Social Media".

_____ Name of participant	_____ Date	_____ Signature
_____ Name of researcher	_____ Date	_____ Signature

Figure D.1: Cognitive Walkthroughs Consent Form



Research Participant Information Sheet

Exploring a prototype to enhance Perceived Emotional Support on Social Media

17.10.2024

1. Introduction

We invite you to participate in the validation of a design intervention titled "Exploring a Prototype to Enhance Perceived Emotional Support on Social Media" as part of a master's thesis project. Please review the relevant information provided herein. You are consenting to participate in the focus group study, namely the first study of this project, which will take place at Utrecht University in Science Park, Utrecht.

2. What is the background and purpose of this study?

The research project you are participating in aims to validate a prototype designed to enhance the perceived emotional support in social media usage.

3. Who will carry out the study?

This study is carried out by Veronica Dell'Aera (v.dellaera@students.uu.nl) as part of my master thesis under supervision of Prof. dr. Ir. Judith Masthoff (j.f.m.masthoff@uu.nl) and Isabella Saccardi (i.saccardi@uu.nl).

4. How will the study be carried out?

In this study, you will participate in a cognitive walkthrough: you will perform four tasks on the prototype, provide your opinions on it, and complete a short survey on the usability of it. The cognitive walkthrough will be facilitated by a Veronica Dell'Aera. The cognitive walkthrough will take about thirty minutes.

5. What will we do with your data?

If you consent to this, the cognitive walkthrough will be audio recorded. The recordings will be stored securely on a personal computer and the file will be password protected. The recording will be transcribed so that participants' opinions are captured into text. The recordings will be securely deleted after transcription (within 2 months from the session). No personal data will be collected. The transcript will become part of my thesis.

We will store your opinions, as well as all collected data, anonymously. Your anonymized data will be used in future publications and other scholarly means of disseminating the findings from the research project. In accordance with the Utrecht University policy, anonymized research data are to be retained for a minimum of ten years.

6. What are your rights?

Participation is voluntary. We are only allowed to collect your data for our study if you consent to this. If you decide not to participate, you do not have to take any further action. You do not need to sign anything. Nor are you required to explain why you do not want to participate. If you decide to participate, you can always change your mind and stop participating at any time, including during the study. You will even be able to withdraw your consent after you have participated. However, if you choose to do so, we will not be required to undo the processing of your data that has taken place up until that time.



7. Approval of this study

This study has been allowed to proceed by the Research Institute of Information and Computing Sciences on the basis of an Ethics and Privacy Quick Scan. If you have a complaint about the way this study is carried out, please send an email to: ics-ethics@uu.nl. If you have any complaints or questions about the processing of personal data, please send an email to the Faculty of Sciences Privacy Officer: privacy-beta@uu.nl. The Privacy Officer will also be able to assist you in exercising the rights you have under the GDPR. For details of our legal basis for using personal data and the rights you have over your data please see the University's privacy information at www.uu.nl/en/organisation/privacy.

8. More information about this study?

If you have any questions or concerns about this research, please contact Veronica Dell'Aera at v.dellaera@students.uu.nl or my supervisor Isabella Saccardi at i.saccardi@uu.nl.

Figure D.2: Cognitive Walkthroughs Information Sheet

Cognitive Walkthrough Session – Task Sheet

Perceived Emotional Support Definition:

“Perceived emotional support manifests when someone feels cared for, loved, valued, and connected within a network of mutual obligations.”

Task 1:

Imagine a scenario where a person named Alex needs emotional support based on the definition provided earlier. In this case, they would like to express their thoughts, get help in a specific situation, and feel like their feelings are valid. They have access to Instagram and they decide to open the app. They are welcomed with this screen while using Instagram for the first time in the day.

Task 2:

It's another day, Alex this time, always in need of emotional support, would like to feel encouraged and see that they are not the only one experiencing this situation in their life. As before, they have access to Instagram and are welcomed with this screen.

Task 3:

Imagine it's yet another day, and Alex feels like expressing their thoughts and at the same time wanting to see experiences like theirs.

Task 4:

Imagine now Alex is having a good day and doesn't feel the need to perceive emotional support.

Figure D.3: Cognitive Walkthroughs Task Sheet provided for the participant during the session

D.2 Cognitive Walkthrough Script

<p>Introduction to Cognitive Walkthrough 1 min</p>	<p><i>Show information sheet and consent form before starting.</i></p> <p>Welcome and thank you for your time today!</p> <p>Today I am asking you for your help to validate the design intervention I have crafted in the scope of my thesis project last step.</p> <p>Before going ahead, I would like to ask you whether you're ok with me recording the session.</p>
<p>Thesis project description 2 minutes</p>	<p>During these 30 minutes, I am going to present you the prototype for a new feature idea that is meant to be integrated with Instagram.</p> <p>This is crafted with the ultimate goal to boost the perception of emotional support during social media usage, indeed the focus of my thesis.</p> <ul style="list-style-type: none"> • At the beginning of the session I will give you four tasks and I will ask you to perform these as you seem fit using a prototype of the design intervention. • After each task, I am going to ask you a few questions on the experience you just had interacting with the system. • In the end I am going to hand you a questionnaire to assess the system.
<p>Emotional Support Definition 2 minutes</p>	<p>To make sure we align on the topic, here is the definition of perceived emotional support:</p> <p>“Perceived emotional support manifests when someone feels cared for, loved, valued, and connected within a network of mutual obligations.”</p> <p>This topic heavily reflects on social media usage, as a medium could be Instagram, Facebook, WhatsApp, etc.</p> <p>Is the definition I provided clear for you?</p>
<p>Task 1: Get recommendation to call or text. 2 minutes</p>	<p>Imagine a scenario where a person named Alex needs emotional support based on the definition provided earlier. In this case, they would like to express their thoughts, get help in a specific situation, and feel like their feelings are valid. They have access to Instagram and they decide to open the app.</p>

	<p>They are welcomed with this screen while using Instagram for the first time in the day.</p> <p>Please, interact with the app as if you were Alex and you were in need of emotional support. How would you proceed?</p> <p>Feel free and please do, describe every step you perform and what you think of the experience meanwhile.</p> <p>If you have any questions, feel free to ask me.</p>
<p>Follow up on Task 1</p> <p>5 minutes</p>	<ul style="list-style-type: none"> • Was there any difficulty in completing the task? • How do you think Alex will feel after receiving the recommendations and following the suggestions? • How effective you think this solution is to implement in order to boost the perception of emotional support from 1 to 10?
<p>Task 2: Get recommendation to check reels sent by friends and notifications.</p> <p>2 minutes</p>	<p>Recall the scenario from before. It's another day, Alex this time, always in need of emotional support, would like to feel encouraged and see that they are not the only one experiencing this situation in their life. As before, they have access to Instagram and are welcomed with this screen.</p> <p>Please, interact with the app as if you were Alex and you were in need of emotional support. How would you proceed?</p> <p>Feel free and please do, describe every step you perform and what you think of the experience meanwhile.</p> <p>If you have any questions, feel free to ask me.</p>
<p>Follow up on Task 2</p> <p>5 minutes</p>	<ul style="list-style-type: none"> • Was there any difficulty in completing the task? • How do you think Alex will feel after receiving the recommendations and following the suggestions? • How effective you think this solution is to implement in order to boost the perception of emotional support from 1 to 10?
<p>Task 3: Mixed Recommendation</p> <p>2 minutes</p>	<p>Imagine it's yet another day, and Alex feels like expressing their thoughts and at the same time wanting to see experiences like theirs.</p> <p>Please, interact with the app as if you were Alex and you were in need of emotional support. How would you proceed?</p>

	<p>Feel free and please do, describe every step you perform and what you think of the experience meanwhile.</p>
<p>Follow up on Task 3 5 minutes</p>	<ul style="list-style-type: none"> • Was there any difficulty in completing the task? • How do you think Alex will feel after receiving the recommendations and following the suggestions? • How effective you think this solution is to implement in order to boost the perception of emotional support from 1 to 10?
<p>Task 4: Everything is fine 2 minutes</p>	<p>Imagine now Alex is having a good day and doesn't feel the need to perceive emotional support.</p> <p>Please, interact with the app as if you were Alex and you were in need of emotional support. How would you proceed?</p> <p>Feel free and please do, describe every step you perform and what you think of the experience meanwhile.</p>
<p>Follow up on Task 4 5 minutes</p>	<ul style="list-style-type: none"> • Was there any difficulty in completing the task? • How do you think Alex will feel after receiving the recommendations and following the suggestions? • How effective you think this solution is to implement in order to boost the perception of emotional support from 1 to 10?
<p>Accessing the feature</p>	<ul style="list-style-type: none"> • How do you think this new feature should be accessed? When and where when using Instagram?
<p>System Usability Scale 5 minutes</p>	<p>I will hand open a link to a survey now. Please, take your time and answer as honest as possible.</p>
<p>Conclusion 1 minute</p>	<p>Is there anything you would like to add? Any suggestion for improvement?</p> <p>Thank you so much for your time!</p>

Figure D.4: Cogninitive Walkthrough Script

Please indicate how much you agree or disagree with each statement.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I think that I would like to use this system frequently.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I found the system unnecessarily complex.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I thought the system was easy to use.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think that I would need the support of a technical person to be able to use this system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I found the various functions in this system were well integrated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I thought there was too much inconsistency in this system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would imagine that most people would learn to use this system very quickly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I found the system very cumbersome to use.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt very confident using the system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I needed to learn a lot of things before I could get going with this system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure D.5: Cognnitive Walkthrough SUS

D.3 Cognitive Walkthrough Results

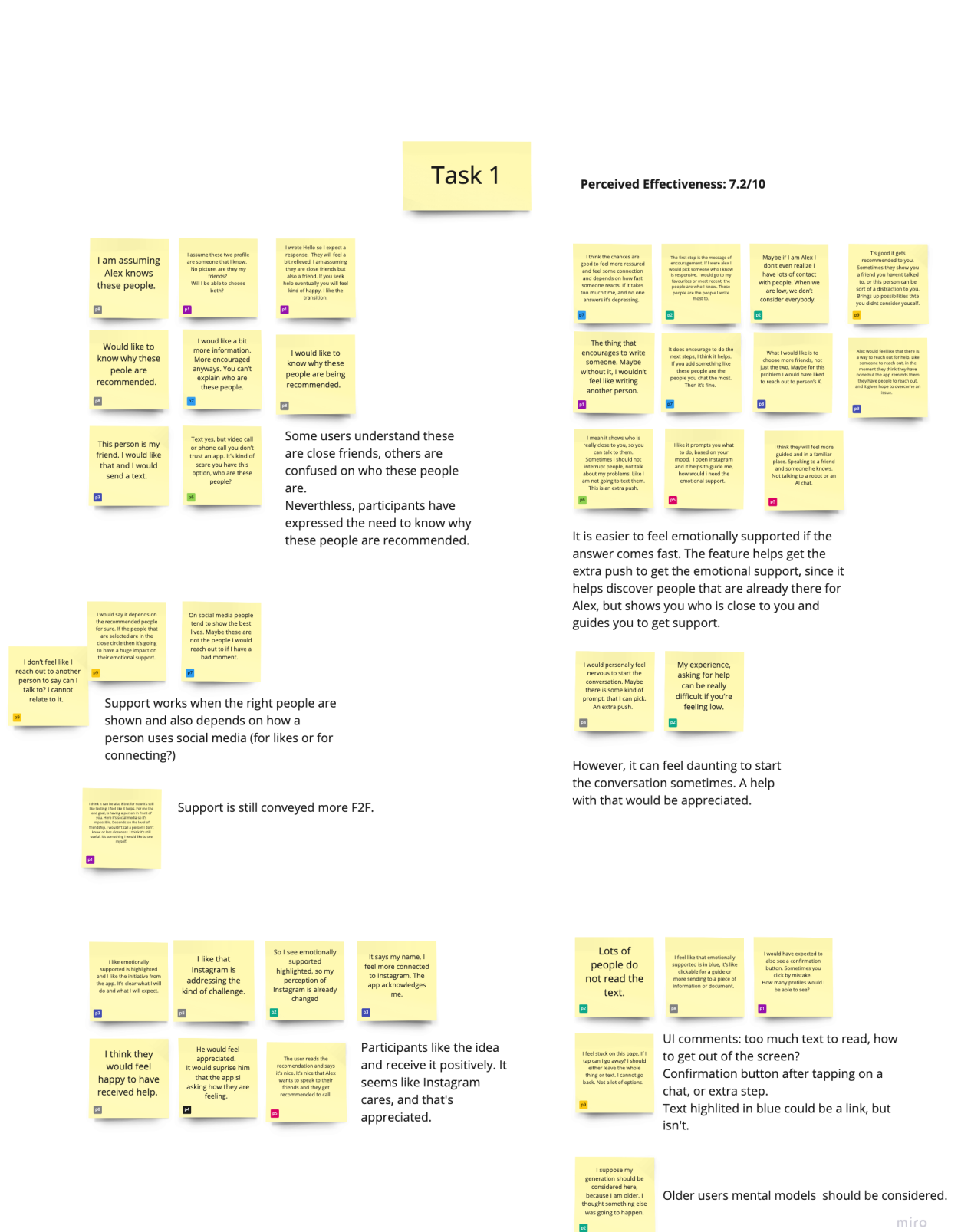


Figure D.6: Cognitive Walkthrough Task 1 Analysis

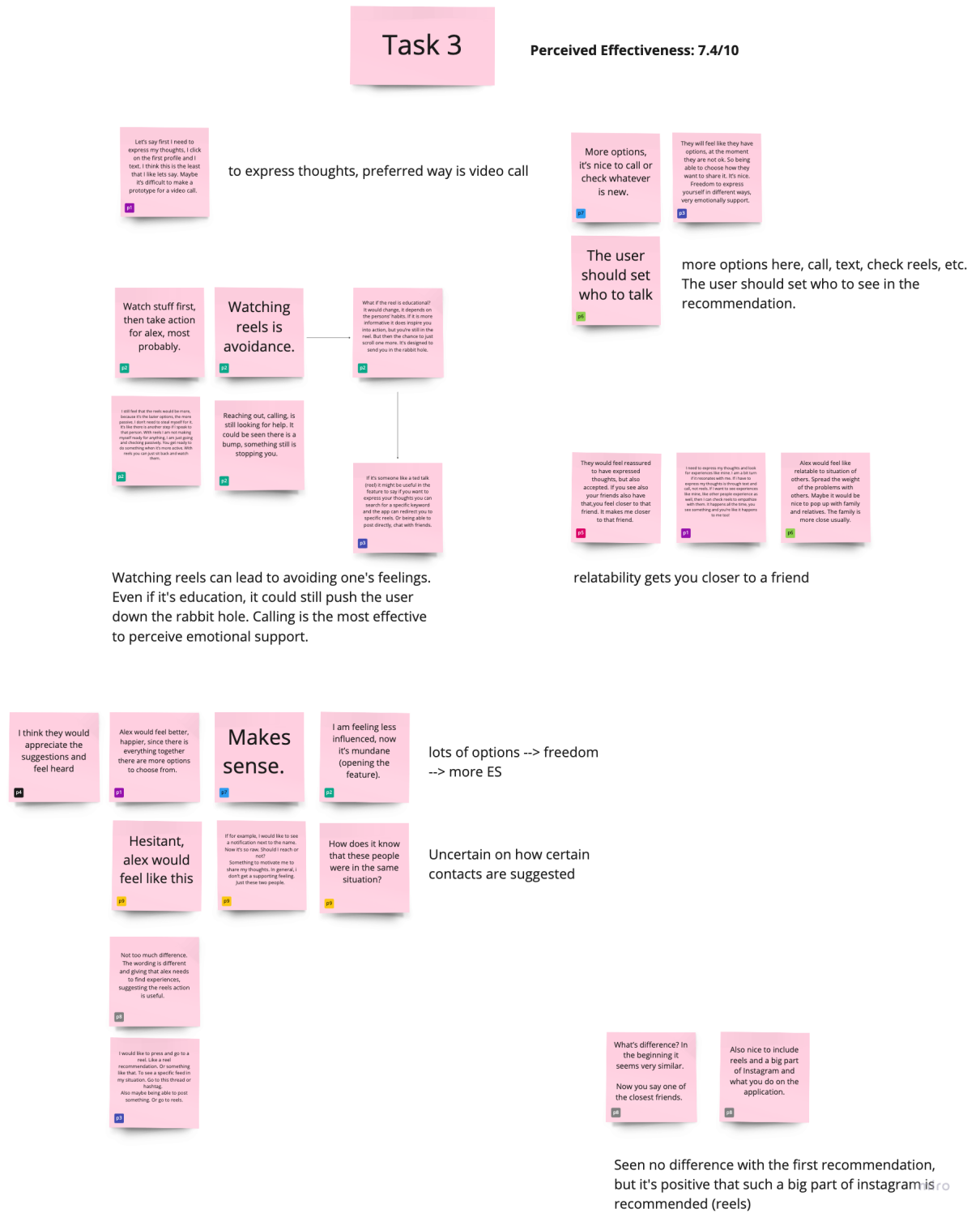
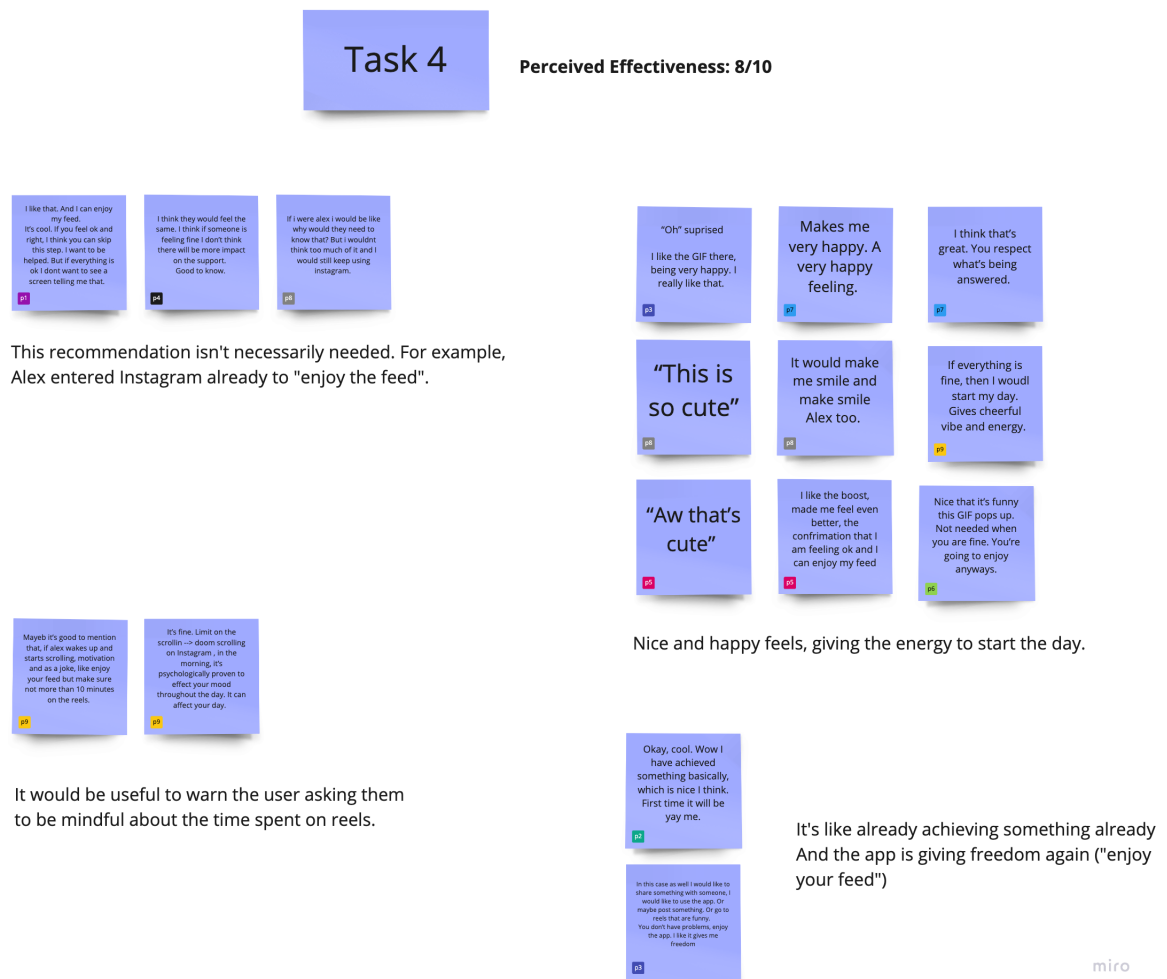
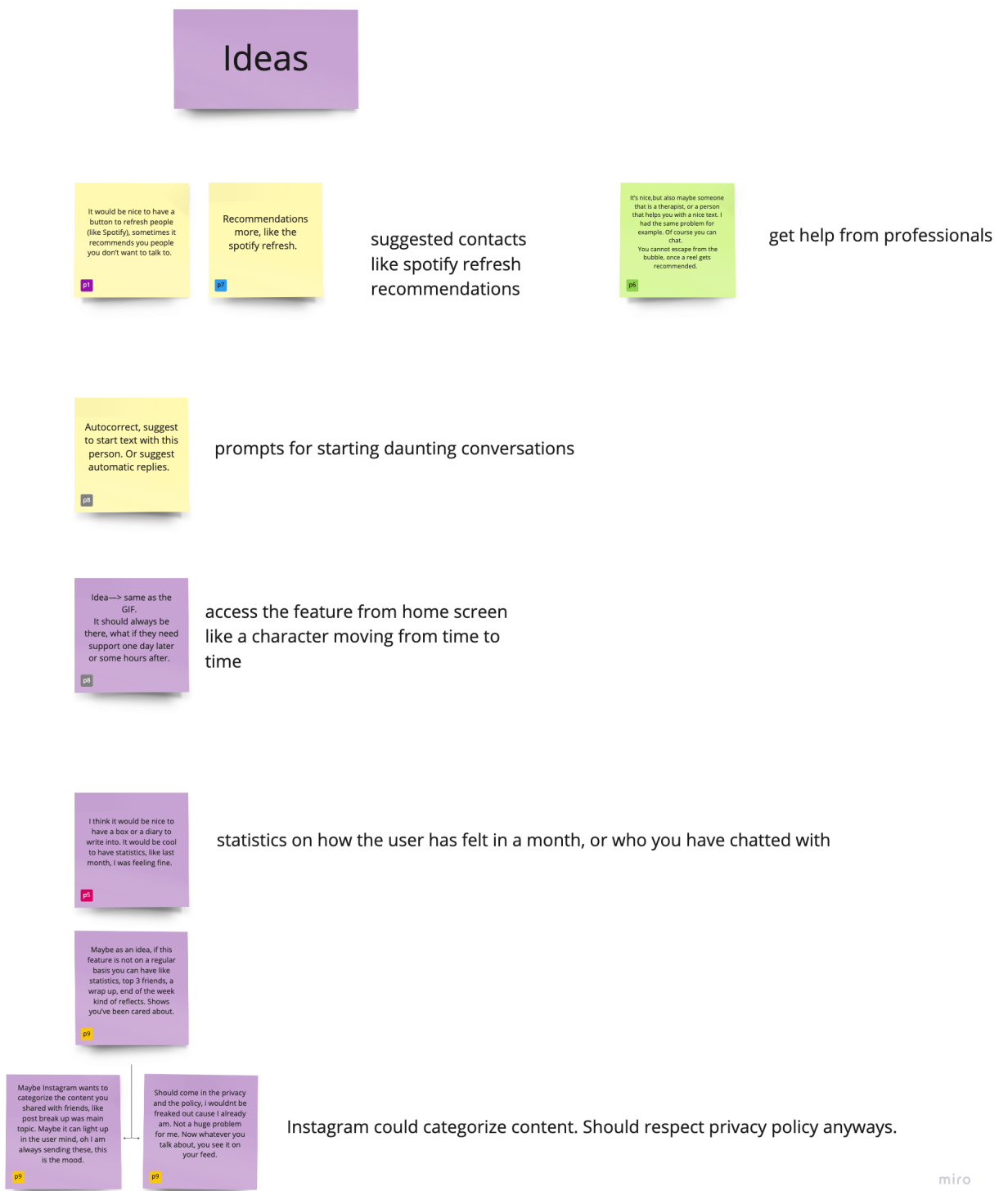


Figure D.8: Cognitive Walkthrough Task 3 Analysis



miro

Figure D.9: Cogninitive Walkthrough Task 4 Analysis



miro

Figure D.10: Cognitive Walkthrough Participants' Ideas Analysis



Figure D.11: Cognitive Walkthrough - How to access the new feature Analysis

Table D.1: Task 1 Results: Difficulty, Perceived Effectiveness, and Accuracy of Chosen Options for each Participant

Participant	Difficulty	Perceived Effectiveness	Accuracy of Chosen Options
P1	No	7.0	2/3
P2	No	6.5	2/3
P3	No	8.0	0/3
P4	No	6.0	1/3
P5	No	9.0	2/3
P6	No	6.5	0/3
P7	No	9.5	0/3
P8	No	6.0	3/3
P9	No	6.0	1/3

Table D.2: Task 2 Results: Difficulty, Perceived Effectiveness, and Accuracy of Chosen Options for each Participant

Participant	Difficulty	Perceived Effectiveness	Accuracy of Chosen Options
P1	No	7.0	2/3
P2	No	8.5	2/3
P3	No	8.0	0/3
P4	No	6.0	1/3
P5	No	9.0	2/3
P6	No	6.0	0/3
P7	No	3.5	0/3
P8	No	4.5	3/3
P9	No	8.0	1/3

Table D.3: Task 3 Results: Difficulty, Perceived Effectiveness, and Accuracy of Chosen Options for each Participant

Participant	No Difficulty	Perceived Effectiveness	Accuracy of Chosen Options
P1	Yes	7.0	3/3
P2	Yes	6.5	3/3
P3	Yes	9.5	3/3
P4	Yes	6.0	3/3
P5	Yes	10.0	3/3
P6	Yes	7.0	3/3
P7	Yes	9.5	3/3
P8	Yes	7.5	3/3
P9	Yes	4.0	3/3

Table D.4: Task 4 Results: Difficulty, Perceived Effectiveness, and Accuracy of Chosen Options for each Participant

Participant	No Difficulty	Perceived Effectiveness	Accuracy of Chosen Options
P1	Yes	5.0	3/3
P2	Yes	8.5	3/3
P3	Yes	10.0	3/3
P4	Yes	7.0	3/3
P5	Yes	9.0	3/3
P6	Yes	5.0	3/3
P7	Yes	10.0	3/3
P8	Yes	10.0	3/3
P9	Yes	8.0	3/3

Table D.5: SUS Scores for Participants

Participant	System Usability Score
P1	90
P2	90
P3	97.5
P4	77.5
P5	97.5
P6	75
P7	85
P8	92.5
P9	75