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Understanding the Impact of Sense of Privacy and Security on User Engagement, and the Mediating Role of Sense of Community on RED and Instagram

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Abstract

This study explores the dynamics of user engagement and community formation on two prominent platforms: RED, a Chinese social media platform, and Instagram, a global favorite. While both platforms offer similar functionalities, their cultural contexts, and regulatory environments shape users' experiences and perceptions differently. RED, often dubbed the Chinese version of Instagram, has garnered significant attention for its emphasis on community and authentic interaction. Drawing on Social Identity Theory and Privacy Calculus Theory, this research investigates the relationship between sense of privacy and security (SOPS), sense of community (SOC), and user engagement (UE) on RED and Instagram. 100 Chinese female users from each platform were recruited to assess their perceptions of the two platforms. The findings reveal intriguing disparities between the platforms. On RED, a positive correlation between SOPS and UE was observed. Conversely, on Instagram, a negative correlation suggests that sense of privacy and security correlate to decreased user engagement. Furthermore, mediation analysis demonstrates the critical role of SOC in translating sense of privacy and security into user engagement. While SOC fully and positively mediates the relationship between SOPS and UE on RED, it partially and negatively mediates this relationship on Instagram, indicating differences in attributes across platforms.

Overall, RED users demonstrate significantly higher levels of SOPS, UE, and social media use (SMU) compared to Instagram users, highlighting the platform's success among Chinese users. These findings contribute to a deeper understanding of user engagement and community dynamics, emphasizing the importance of fostering sense of community in social media contexts.

Keyword: online community; social media; privacy and security; user engagement

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Completing this thesis signifies the culmination of my master's journey at HEC Montréal, a path riddled with challenges akin to navigating a dense, fog-covered forest. It's been a year filled with uncertainty, much like catching a distant glimpse of light without knowing its distance. Breaking free from this self-imposed confinement felt daunting, overshadowed by doubt and fear. Yet, through crafting this thesis, I discovered it transcended academia—it became a profound spiritual journey of self-rescue from the abyss of depression and uncertainty. Having been through all this, I could not be more grateful for this experience in my life that challenged my past self and evolve into a better version of myself with the support from my supervisor, family, and friends, all of them left a remarkable memory in this journey and walk me through this path. Special thanks are given to Dr. Nepomuceno, his responsiveness and supervision served as a guiding light throughout this journey, for which I'm immensely grateful. And to my parents, whose unwavering support and encouragement provided a steadfast anchor during moments of doubt and despair. To my friends who gave me hands during data collection and bolstered my resolve to persevere, I extend heartfelt gratitude. Reflecting on this transformative journey, I stand as a testament to the growth and evolution over the past two years. Armed with newfound maturity, knowledge, and experience, I am prepared to face the complexities and challenges of the adult world. Like a sharp sword forged through adversity or the delicate fragrance of plum blossoms that blooms amidst the chill of winter, I emerge from this journey stronger and more resilient than ever before.

Chapter 1: Introduction

1.1 Research Background

Social media platforms such as Instagram, Facebook, and Twitter have become integral to modern communication and social interaction. RED, also called Little Red Book or Xiaohongshu (Zhong, 2022), was inspired by Instagram, users can share short videos, do online shopping, and connect with other users. RED is thus referred to as the Chinese version of Instagram, with over 150 million monthly users and a valuation of US$ 20 billion. Like Instagram, RED presents its content mainly through images and short video clips, and users are encouraged to actively interact with other users by making likes and comments and posting their content. The secret sauce to RED's success has been described by its unique model that emphasizes community and authenticity. RED stands out by nurturing a space where user-generated content reigns supreme, fostering a genuine connection among its users (Riethmueller, 2024). RED holds its unique proposition as "mark your life," serving as a decentralized user-generated content-sharing platform that forms a "life-sharing" community (Wang et al., 2023). A study on how community is formed and promoted on RED concluded that RED has promoted the connection and the development of online communities through its characteristics and encouragement of participation (Hu et al., 2022).

This study compares Chinese females using RED in China and Chinese females using Instagram in Western countries. Instagram is a control group due to its similarities with RED in certain features. Users of RED and Instagram are invited to complete a survey respectively, which aims to assess users' perception in terms of sense of privacy and security (SOPS), sense of community (SOC), user engagement (UE), and social media use (SMU). SMU is employed to complement UE to enhance the measurement of users' participation. Sense of privacy and security (SOPS) involves users' perceived protection and trust, safeguarding their information from cyber threats, fraud, and unauthorized exposure (Solove & Schwartz, 2011; Acquisti et al., 2015). User engagement is used as the primary metric representing user participation and popularity among participants who engaged in this study. Moreover, many studies have been deepened into the relationship between SOPS and UE, suggesting there is always a positive correlation existing;

when higher SOPS is observed, an increase is always accompanied by UE (Milne & Culnan, 2004; Mounia Lalmas et al., 2015). Therefore, this study aims to validate and compare this potential positive association on RED and Instagram.

Also, sense of community, refers to a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to being together (McMillan & Chavis, 1986). In the social media context, Zhang (2010) proposed a theoretical model merging the sense of community framework and IS models to assess social networking use, highlighting the significance of fostering sense of community to engage users effectively. Meanwhile, many factors can impact or are associated with online communities, particularly the sense of community that users perceive. Scholars have attempted to explore the mediating role that sense of community plays within specific groups, highlighting its positive influence on community member participation (Wang et al., 2015; Wang et al., 2023). Still, relatively few examine the mediating role of sense of community in the social media context. Therefore, this study also examines whether sense of community serves as a mediator on RED and Instagram in the relation between sense of privacy and security (SOPS) and user engagement (UE), and if the mediation effect varies between the two platforms.

Additionally, the study utilizes non-parametric tests to compare all the four variables between RED and Instagram users, leading to a deeper understanding of platform-specific dynamics and user behaviors. By comparing results gathered from users using RED and Instagram, this study expects to elucidate the relation among SOPS, SOC, and UE, highlight the importance of enhancing SOC that could foster genuine communication, satisfy users' social needs, and call for more action on placing measures on protecting users' security and privacy on social media. Ultimately, this research can inform efforts to create more inclusive, user-centered online environments that foster genuine connections, community participation, and positive user experiences.

This study explores the mediating role of sense of community (SOC) between sense of privacy and security (SOPS) and user engagement (UE) on two popular social media platforms in China and Western countries, RED and Instagram. By choosing RED and Instagram, the study aims to compare these platforms due to their similarities in features and user interactions but different focus: RED emphasizes building communities and SOC, while Instagram prioritizes personal

branding and individual connection. This comparison is unique as there are very few studies that have explored SOC's mediating role in the social media context. By addressing this gap, the research aims to provide insights into enhancing SOC and protecting user privacy and security, ultimately contributing to more inclusive, user-centered online environments.

1.2 Research Question

This study investigates how sense of privacy and security associate with user engagement on RED and Instagram and whether the sense of community mediates this relationship between sense of privacy and security and user engagement on RED and Instagram. Also, a comparison between RED and Instagram is conducted to investigate if RED performs better than Instagram within the scope of this study.

Therefore, this research aims to answer these research questions:

RQ1. How does sense of privacy and security associate with user engagement on RED and Instagram?

RQ2: Does sense of community serve as a mediator between sense of privacy and security and user engagement on RED and Instagram? Additionally, does this mediating effect vary between the two platforms?

RQ3. What is the performance of sense of privacy and security, sense of community, user engagement, and social media use when comparing RED and Instagram?

Chapter 2: Literature Review and Theoretical Framework

2.1 Introduction to the Literature Review and Theoretical Framework

This literature review and theoretical framework offer a comprehensive understanding of the concepts of sense of privacy and security (SOPS), user engagement (UE), sense of community (SOC), and social media use (SMU), and provide theoretical support for the rationality of research questions and hypotheses.

Sense of privacy and security (SOPS) underscores the importance of users' perception of protection and confidence in online activities. Users who possess a low level of SOPS are likely to engage less. Meanwhile, Privacy Calculus Theory provides a possible explanation for this, it elucidates how individuals weigh the benefits and risks of self-disclosure, affecting their participation in online communities. User engagement (UE) reflects users' interactions and behaviors on social media platforms. Previous scholars have validated the positive association between SOPS and UE; thus, the first hypothesis is presented to hypothesize this relationship exists on RED and Instagram.

Sense of community (SOC) is essential in fostering connections and interactions within traditional and digital communities. Social Identity Theory (SIT) further highlights how individuals' self-concepts are shaped by their membership in social groups, affecting their participation and interaction patterns, SIT thus can theoretically support why individuals with a strong sense of community (SOC) on platforms may be more inclined to engage actively. Also, previous studies demonstrate the positive mediating role of SOC between social support, community dynamics and outcomes such as psychological well-being and community engagement. However, not much previous research was conducted in the social media context. Therefore, it is a key part of this study to seek the mediating power that SOC possibly has between SOPS and UE on two different platforms. It thus naturally leads to the second hypothesis, SOC serves as a positive mediator between SOPS and UE on RED and Instagram, and SOC has stronger mediating power on RED than Instagram for RED's community-focus nature.

This chapter also compares RED and Instagram, highlighting differences in demographics, features, and community focus. These variations could be observed by comparing the performance of four variables across two platforms, addressing the final research question. Therefore, the hypothesis describes that RED excels over Instagram in all four variables in this study.

2.2 Sense of privacy and Security (SOPS) and User Engagement (UE)

2.2.1 Sense of Privacy and Security (SOPS)

The advent of social media has changed how people interact and integrated different digital affordances to expand personal networks, interact, and share information; apart from all the informational benefits, it also introduces a possible way of disclosing personal information without consent (Chen, 2018), that could harm users' perception about their online privacy. The concept of privacy was defined as an individual's ability to control the terms by which their personal information is acquired and used (Chellappa & Pavlou, 2002). Privacy is of paramount importance on social media platforms since the illegal disclosure and improper use of users' private information can cause undesirable or damaging consequences in people's lives (Zhang et al., 2010). Meanwhile, users are likely to provide personal information if they believe they have control over their information, the information requested is relevant, and it is likely to create valid inferences about their preferences (Chellappa & Pavlou, 2002). Furthermore, the concept of security encompasses the subjective certainty consumers have regarding the protection of their personal data from unauthorized access, storage, and manipulation during transit and storage, aligning with their expectations. Unauthorized disclosure of personal information, particularly identity, can potentially lead to various forms of malicious attacks in both real-world and cyberspace realms, including stalking, defamation, targeted spam, and phishing attempts (Hogben, 2007). Therefore, many social networking sites provide configurable security and privacy settings to empower clients to shield their personal information from undesirable access by outsiders or applications (Jain et al., 2021). However, users may have different beliefs regarding the security of their online activity, even if all security and privacy enforcement measures are in place (Chellappa & Pavlou, 2002).

Researchers in marketing have considered consumer perceptions of risk to security and privacy of their activity as being somewhat equivalent (Miyazaki & Fernandez, 2000). In other words, sense of privacy and security can be defined as the perceived level of protection and confidence users feel when engaging in activities over the internet, encompassing the assurance that their personal information is safe, their privacy is respected, and they are safeguarded against threats such as cyberattacks, fraud, and unauthorized access or disclosure of their data (Solove & Schwartz, 2011; Acquisti et al., 2015). Therefore, in this study, the scope of the sense of privacy and security is mainly regarding users' perception of their privacy and security on social media and will not be separately discussed.

2.2.2 Privacy Calculus Theory

Being aware of the potential risk of accessing social media, people make conscious decisions about their self-disclosure by weighing the benefits of disclosure against their privacy and security concerns associated with such disclosure from the Privacy Calculus Theory (PCT) (Culnan & Armstrong, 1999). The theory suggests that individuals with heightened privacy and security worries might be inclined to disclose less on social media. However, solely having concerns about privacy and security may not necessarily deter individuals from sharing personal information. This could be because they perceive the benefits of sharing to outweigh the risks or because they employ strategies to protect their privacy (Child et al., 2012; Root & McKay, 2014; Youn & Hall, 2008). In the online environment, users may not be able to accurately expect benefits due to uncertainty, which may lead to higher levels of perceived risks. As a result, the risk perceptions erode users' interactions with other users and make them hesitant to participate in information exchanges in an online community (Wang et al., 2017). As online users attempt to maximize positive consequences and minimize negative consequences according to the privacy calculus theory (Kordzadeh et al., 2016; Zhang et al., 2018), online community members with relatively lower sense of privacy and security are less likely to engage in online community due to lack of trust and are more likely to find more secure alternatives because they perceive that the anticipated risks (e.g., privacy violation and uncertainty) are considerably higher than the expected benefits (e.g., a psychological SOC) from the community (Wang et al., 2017).

A study revealed that online customers often measure the risk of online activity related to information privacy misuse. The result underscored the critical importance of trust in fostering successful online interactions, as the potential risks of personal information leaks could erode user confidence and deter their engagement with social networking sites (Milne & Culnan, 2004). A survey of opinions across major markets, including the United States and Germany, suggested that users maintained a low level of trust in social media, especially Facebook, over their privacy. The survey also indicated that certain users were reassessing their membership or the extent of their engagement with social media platforms because they doubted their personal information was properly stored and protected on Facebook (Ayaburi & Treku, 2020).

2.2.3 User Engagement (UE)

In some previous research, user engagement has been defined as the "user's response to an interaction that gains, maintains, and encourages their attention, mainly when they are intrinsically motivated, that builds from the dynamic nature of user' attention and interest during interaction with multimedia systems (Jacques, 1996). O'Brien et al. (2018) defined user engagement as the quality of an experience characterized by the user's cognitive, temporal, affective, and behavioral investment when interacting in a virtual environment. In another study, user engagement was regarded as the quality of the user experience, highlighting the positive aspects of interacting with an online application, in particular, the desire to use that application longer and repeatedly (Mounia Lalmas et al., 2015, p. 8). Di Gangi and Wasko (2016) took user engagement as a user's state of mind that warrants heightened involvement and results in a personally meaningful benefit (i.e., involvement to fulfill a need). Besides, user engagement can be analyzed from a psychological and behavioral perspective (Fang et al., 2017; Romero, 2017). To conclude, user engagement can be defined as a portion of user experience, a psychological state, and user behavior.

According to Di Gangi and Wasko (2016), user engagement can be divided into two components: 1) individual involvement and 2) personal meaning. Individual involvement refers to the perceived intensity of a user's role within a social media platform. It entails the user's belief in the significance of their role in fulfilling personal needs (Barki & Hartwick, 1994). Studies indicate that individual

involvement enhances arousal and motivation for participation (Munson & Mcquarrie, 1987; Zaichkowsky, 2020). Personal meaning, on the other hand, reflects the extent to which users perceive their needs and interests fulfilled through their experience on the platform. This fulfillment occurs when user interests align with the user experience (Battista & Almond, 1973).

Social media users engage and connect with their peers within a branded social media community by commenting on their posts, responding to their interactions, and providing reviews of their shopping experiences. Those behaviors are perceived by users as fulfilling their personal needs or as impactful due to the intensity of their roles on social media. Having better performance on user engagement often indicates a stronger relationship users have with social media. Therefore, it is pretty evident that high user engagement for brands and social media platforms can serve business goals because it brings more traffic, potential transactions, and brand awareness (Schau et al., 2009; Habibi et al., 2016).

In this study, user engagement is studied as a variable potentially correlated with sense of privacy and security, with sense of community possibly playing a mediating role.

2.2.4 Social Media Use (SMU)

In this study, user engagement is assessed via self-reported measures. To supplement user engagement evaluation and offer a thorough comprehension, this study incorporates social media use (SMU), aiming to assess the duration and frequency of participants' activity on RED or Instagram within a specific timeframe (Primack et al., 2017).

2.2.5 Relation between Sense of Privacy and Security (SOPS) and User Engagement (UE)

Users' sense of privacy and security is a foundational element influencing their level of engagement on social media platforms (Milne & Culnan, 2004). When users feel that their personal information is adequately protected and their online interactions are secure, they are more inclined to participate actively in various activities, such as posting content, interacting with others, and joining online communities (Di Gangi & Wasko, 2016). This positive association stems from the

psychological comfort and trust users experience in environments where their privacy and security concerns are addressed effectively (Ayaburi & Treku, 2020). Moreover, a heightened sense of privacy and security can enhance users' confidence in the platform, leading to increased exploration, content creation, and interaction with others (Mounia Lalmas et al., 2015). Conversely, when users perceive risks associated with privacy breaches or security vulnerabilities, it can inhibit their willingness to engage fully on social media platforms (Wang et al., 2017). Concerns about potential data breaches or unauthorized access may deter users from sharing personal information or participating in interactive features, limiting their overall engagement with the platform (Culnan & Armstrong, 1999).

Based on the above, here is the first hypothesis:

H1 Sense of privacy and security is positively associated with user engagement on RED (H1.a) and Instagram (H1.b).

2.3 Sense of Community (SOC)

2.3.1 Social Identity Theory

Tajfel and his colleagues introduced Social Identity Theory in 1978, which explores how people's self-concepts are based on their membership in social groups. Social identity describes a psychological status in which users are not separate individuals but collective members (Leaper, 2011). According to the theory, three psychological processes are central: social categorization, social comparison, and social identification. Social categorization refers to the inclination of individuals to view themselves and others through the lens of specific social groups, treating them more as interchangeable members of those groups rather than as distinct individuals. Social comparison is how people determine a particular group's relative value or social standing and its members. Social identification reflects that people generally do not perceive social situations as detached observers. Instead, their perception of self and interpersonal relationships often influences how they perceive other individuals and groups in their surroundings (Ellemers, 2019).

In the context of online communities, Zhou (2011) published a study highlighting that social identity significantly affected online community users' intention to participate. Moreover, a study suggested that online users ingeniously and strategically leverage the capabilities offered by platforms and technologies to shape and express a collective sense of self; this study also highlighted the significance of community development, the establishment of normative consensus, and emotional synchrony as interrelated dynamic processes that could lay a foundational basis for the construct of social identities on social media (Lüders et al., 2022). In a study regarding successful online community building, affective social identity was found to reflect a user's emotional involvement with a community, such as senses of attachment, belongingness, and membership. Affective social identity will cultivate member loyalty toward the online community (Lin, 2008).

To sum up this section, the relationship between social identity and sense of community is deeply intertwined, revolving around group membership, belonging, and emotional attachment. Ultimately, social identity and sense of community contribute to individuals' understanding of themselves and others within their social groups, shaping their behaviors, loyalties, and sense of security within the community.

2.3.2 The Concept of Sense of Community (SOC)

McMillan and Chavis published their findings on the sense of community (SOC) and gave their understanding of SOC in 1986, which is well-known and widely cited. The proposed definition comprises four key components: membership, influence, reinforcement, and shared emotional connection. Membership pertains to the sense of belonging or shared personal relatedness; influence involves making a difference within the group and recognizing the significance of the group to its members; reinforcement entails members' expectation that their needs will be met through group resources; shared emotional connection involves a commitment and belief in the common history, places, time spent together, experiences, and goals among members. (McMillan & Chavis, 1986). Moreover, having sense of community makes people feel more secure with others in the community (Chavis & Wandersman, 1990).

Traditional communities, however, were defined as being restricted for " the interaction that could take place between households that could travel the relatively short distance for 'door-to-door' interaction" (Wellman, 2001, p.228). In this era of advanced technology and mobility, sense of community is not limited to a geographical region (Francis et al., 2012). A similar motivation brought people to social media and thus formed social media communities, which are groups of people sharing common interests and experiences. Such communities offer users a feeling of belonging and support, which can be especially beneficial for individuals experiencing isolation or loneliness offline (Ilieva, 2022). The rise of social media enables individuals to reshape how they nurture existing relationships or forge new connections and engage with others within their community (Matisi, 2021).

Sense of community on social media can vary depending on the platform and individual experiences. However, it can provide a virtual space for people to connect, share information, and find support from others with similar interests or experiences (Laroche et al., 2012). It can foster sense of belonging and connection and provide opportunities for collaboration and engagement. Sense of community on social media can also positively or negatively affect individuals' mental well-being and self-esteem. The more sense of community users perceives on social media, the more likely they will experience positive effects such as emotional support, self-expression, and establishing relationships (Ulvi et al., 2022). Moreover, it can enhance social capital and create sense of belonging, contributing to overall well-being and satisfaction (Laroche et al., 2012).

2.3.3 The Mediating Role of Sense of Community in Member Perception and Community Participation in Recent Studies

Lardier published a study in 2020 examining how sense of community (SOC) mediates the relationship between participation in youth-based programs and various outcomes. These outcomes include school belonging, risk behaviors such as substance use and violent behavior, and psychological symptoms like depression (Lardier et al., 2019). The findings suggested that access to social participation in youth-based community programs was linked to lower instances of risk behaviors and depressive symptoms through SOC. Moreover, in 2015, Wang conducted a study aiming to identify positive factors enhancing the psychological well-being of military spouses. It

highlighted that community engagement could indirectly improve psychological well-being by fostering stronger sense of community within the military culture (Wang et al., 2015). Another investigated the relationship between disclosing mental illness and connecting similar others on RED in China, highlighting the role of sense of community as a mediator between disclosing mental illness and user participation on RED. The study also found that positive social encounters and algorithmic responsiveness foster sense of belonging, while a loosely knit network and peer-to-peer support contribute to community cohesion within the platform (Wang et al., 2023).

The cited studies shed light on the mediating role of sense of community (SOC) in communities, consistently showing its mediating role in community members' perception and proactive community participation. However, there is a noticeable gap in the literature concerning the exploration of SOC's mediating role between sense of privacy and security and user engagement on social media.

2.4 Comparative Analysis between RED and Instagram

There are additional similarities and differences between RED and Instagram that are worthy to dig to delve into potential reasons for variations in the focal variables, the primary focus here centers on the following three aspects:

2.4.1 User Demographic

On RED, Chinese female users make up most users, accounting for 90.41% of total users, and 83.31% of the active users are youths between 18 and 34 years old (Dai et al., 2023). On Instagram, an investigation shows that 61.1% of its users are 18-34 years old. 48.2% of users are female while 51.8% users are male (Aslam, 2023).

To compare these two platforms in demographics, RED appears to have a higher proportion of younger users, compared to Instagram, while Instagram shows a relatively more balanced distribution across different age groups. More notably, RED has a significantly higher percentage of female users than Instagram, where the gender distribution is relatively more balanced.

2.4.2 Platform Feature

RED's user interface is similar to Instagram's, containing images and videos in a grid. Users can add descriptions, emojis, and hashtags in each of these posts. Just like on Instagram, users are encouraged to actively interact with other users by making likes and comments and posting their content. Users can like, comment, and share posts. Finally, both platforms have shopping features (Zhong, 2022; Perik, 2022). Another feature worth noticing between these two platforms is that RED encourages users to post in long texts; long text pieces are desirable and encouraged. Such posts are called "notes," and they bring lengthy, in-depth self-expression (Perik, 2022), while Instagram, on the other hand, is famous for sharing impressive images.

2.4.3 Community Building Focus

The operation mode of the RED is characterized by interactive information, emotional connection, a supportive atmosphere, and the key opinions of leaders of the community, which raise consumers' awareness of the value of products and services and prompt consumers to have a perception of value (Lin & Shen, 2023). RED has promoted the connection between and the development of online communities through accurate real-time data transmission, vertical management of platforms, and encouragement of participation (Hu et al., 2022). On the other hand, Instagram operates in a different mode characterized by visual content sharing, personal branding, influencer marketing, and aspirational lifestyle portrayal (Liu & Suh, 2017).

To summarize the comparison between these two platforms, RED emphasizes fostering online communities through interactive discussions and shared interests. Instagram, however, focuses more on individual expression and personal branding, with its design prioritizing individual profiles over community forums.

H2. Sense of community positively mediates the relationship between sense of privacy and security and user engagement on RED (H2.a) and Instagram (H2.b), with a stronger mediating effect observed on RED compared to Instagram (H2.c).

Building on H1, it is hypothesized that sense of privacy and security (SOPS) correlates positively with user engagement (UE) on both RED and Instagram. Expanding on this, H2 proposes that sense of community (SOC) acts as a positive mediator between SOPS and UE. Moreover, considering RED's community focus, H2 hypothesizes a stronger mediating effect of SOC on RED. Consequently, H1 and H2 lead to H3, which posits that RED surpasses Instagram in SOPS, SOC, UE, and social media use (SMU).

Therefore, the third hypothesis is as follows:

H3. RED users demonstrate significantly higher levels of sense of privacy and security, sense of community, user engagement, and social media use compared to Instagram users.

To make it clear, here is a model visualizing hypotheses among focal variables:

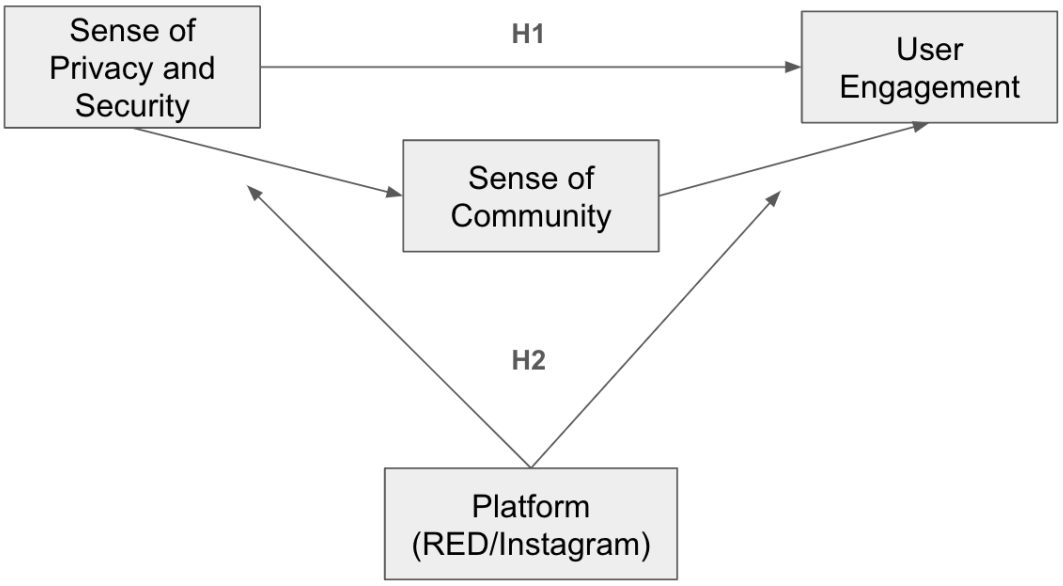

Figure 1. Hypotheses among Focal Variables

Chapter 3 Method

3.1 Research Design

This study focuses on investigating the associations among sense of privacy and security (SOPS) and user engagement (UE) and the possible mediating role that sense of community (SOC) plays between SOPS and UE on the two platforms. Moreover, this study also evaluates two platforms' performance within participants by comparing sense of privacy and security, sense of community, user engagement, and social media use.

The participants in this study consist of Chinese females using RED in China and Chinese females using Instagram in Western countries. Recruitment for the study involved targeted advertising on social media platforms including RED, WeChat, and Facebook. Additionally, advertisements were placed on various accounts, complemented by offline recruitment efforts at locations such as cinemas and metro stations. The eligibility criteria encompass Chinese females aged 18 and above who are active users of either RED or Instagram and currently reside in either China or Western countries.

All participants gave informed consent, with assurances of confidentiality and anonymity for their responses. They were subsequently asked to complete a questionnaire, beginning with a pre-questionnaire to confirm their eligibility, followed by a formal questionnaire specific to either RED or Instagram. Regardless of questionnaire completion, all participants received compensation upon meeting the eligibility criteria.

3.2 Measurements

For measuring sense of privacy and security (SOPS), this study utilizes adapted items from Salisbury et al. (2001), Wolfinbarger and Gilly (2003). The concept of sense of community is gauged using the scale developed by McMillan & Chavis (1986). In assessing user engagement (UE), the research incorporates scales modified from Di Gangi & Wasko (2016). They proposed that user engagement can be explored through two dimensions: individual involvement, as

outlined by Barki & Hartwick (1994), and personal meaning, detailed by Dominique Louis Debats (1998) and later Zaichkowsky (2020). To complement UE, social media use (SMU) is also included in this study to measure the duration and frequency of users' interaction on social media platforms (Primack et al., 2017). All scales range from 1 to 5, except for social media use, which has been adjusted to fit within a 1-5 scale. More details can be found in the Appendix 1.

3.3 Data Analysis

The survey was administered using Qualtrics, and the collected data was subsequently exported to Excel for initial cleaning to discard invalid responses. 112 responses from RED users and 147 responses from Instagram users were initially recorded on Qualtrics. Responses that were incomplete, completed within one minute, originated from repetitive IP addresses, or were illegible to meet demographic requirements were deemed invalid and excluded from further data analysis. After cleaning the dataset, 100 responses from RED users and 100 responses from Instagram users were deemed valid and thus proceeded to the next step.

The cleaned dataset was then analyzed using IBM SPSS Statistics version 29.0.2.0. The analytical approach began with conducting an internal consistency analysis to calculate Cronbach's Alpha for the four constructs under study. This step was followed by a correlation analysis to explore the correlation between sense of privacy and security (SOPS) and user engagement (UE). Subsequently, a mediation analysis was carried out to assess the mediating role of sense of community (SOC) and to quantify its mediation effect, specifically using the PROCESS macro in SPSS, a widely used tool for examining complex mediation models. This method allows for the assessment of direct and indirect effects within mediation models. Ultimately, a Mann-Whitney U test was employed to gain deeper insights into the comparative performance of all focal variables on RED and Instagram.

Chapter 4 Results

4.1 Descriptive Statistics

The descriptive statistics are presented in the following table:

Table 1. Descriptive Statistics

Platform	Age (Median)	Location (Sample size)
RED	29	China (100)
Instagram	25	Europe (38), Americas (60), Australia (2)

4.2 Internal Consistency Check

The Cronbach's Alpha for sense of privacy and security, sense of community, user engagement and social media use are 0.91, 0.91, 0.92, 0.89, respectively, suggesting all these variables have relatively high internal consistency.

4.3 Correlation Analysis on RED and Instagram

On RED, sense of privacy and security (SOPS) is positively associated with user engagement (UE), the correlation coefficient is 0.33, which is significant at the 0.05 level (2-tailed), therefore, "*H1.a Sense of privacy and security is positively associated with user engagement on RED*." is supported.

Conversely, Sense of privacy and security (SOPS) is negatively associated with user engagement (UE) on Instagram, the correlation coefficient is -0.34, which is significant at the 0.05 level (2-tailed), however, the direction of this correlation is negative, therefore, "*H1.b Sense of privacy and security is positively associated with user engagement on Instagram*." is rejected.

4.4 Mediation analysis on RED and Instagram

Table 2. Mediation Statistics on RED

Path	Coefficient (β)	Standard Error	t-value	p-value	95% CI Lower	95% CI Upper
SOPS->UE	.02	.04	.48	.63	-.06	.11
SOPS->SOC	.30	.08	3.55	< .001**	.13	.46
SOC->UE	1.12	.05	22.61	< .001**	1.02	1.21
Indirect effect of SOPS on UE through SOC	0.33	.09	-	< .001**	.16	.49

* P-value is significant at the 0.05 level.

** P-value is significant at the 0.001level.

The confidence intervals provided in the output are calculated with a confidence level of 95%.

The direct effect of sense of privacy and security (SOPS) on user engagement (UE) is not significant after considering the mediator sense of community (SOC) ($\beta = 0.02$, $p = 0.63$). There is a significant indirect effect that SOPS has on UE through SOC ($\beta = 0.33$, $p < 0.001$). This indicates that sense of community fully mediates the relationship between sense of privacy and security and user engagement. Thus, the influence of sense of privacy and security on user engagement entirely operates through the sense of community. Therefore, "*H2.a Sense of community positively mediates the relationship between sense of privacy and security and user engagement on RED*." is supported.

Table 3. Mediation Statistics on Instagram

Path	Coefficient (β)	Standard Error	t-value	p-value	95% CI Lower	95% CI Upper
SOPS->UE	-.11	.05	-2.20	.03*	-.22	-.01
SOPS->SOC	-.20	.08	-2.70	.01*	-.35	-.05
SOC->UE	.84	.07	12.64	< .001**	.71	0.97
Indirect effect of SOPS on UE through SOC	-.17	.06	-	< .001**	-.30	-.05

* P-value is significant at the 0.05 level.

** P-value is significant at the 0.001level.

The confidence intervals provided in the output are calculated with a confidence level of 95%.

The direct effect of sense of privacy and security (SOPS) on use engagement (UE) is significant ($\beta = -0.11$, $p = 0.03$). Meanwhile, the indirect effect of SOPS on UE through SOC is significant ($\beta = -0.17$, $p < 0.001$). This indicates that SOC partially mediates the relationship between SOPS and UE. These results suggest that while SOPS alone does not significantly predict UE, it does indirectly influence UE through its effect on SOC. Thus, SOC acts as a partial mediator in the relationship between SOPS and UE. However, it should be noted that this mediation effect is in a negative direction. Therefore, *H2.b Sense of community positively mediates the relationship between sense of privacy and security and user engagement on Instagram."* is rejected.

4.5 Compare Coefficient and Mediation between RED and Instagram

There are significant differences in the role of sense of community (SOC) as a mediator between RED and Instagram.

On RED, the direct effect of sense of privacy and security (SOPS) on user engagement (UE) is not significant ($\beta = 0.02$, $p = 0.63$), but the indirect effect through SOC is significant ($\beta = 0.33$, $p < 0.001$). This indicates that SOC fully mediates the relationship between SOPS and UE, and this direction is positive. Therefore, "*H2.a Sense of community positively mediates the relationship between sense of privacy and security and user engagement on RED*." is supported.

In contrast, on Instagram, the direct effect of SOPS on UE is significant and negative ($\beta = -0.11$, $p = 0.03$), while the indirect effect through SOC is also significant ($\beta = -0.17$, $p < 0.001$). This suggests that SOC partially mediates the relationship between SOPS and UE, but the mediation effect is negative. Therefore, "*H2.b Sense of community positively mediates the relationship between sense of privacy and security and user engagement on Instagram*." is rejected.

In summary, the role of SOC differs between the two platforms. On RED, SOC fully mediates the relationship between SOPS and UE positively, while on Instagram, SOC only partially mediates this relationship, and the effect is negative. Thus, *"H2.c Sense of community has a stronger mediating effect observed on RED compared to Instagram."* is supported.

4.6 Compare Performance on RED and Instagram

Table 4. Performance Comparison across All the Variables

Construct	RED Median	Instagram Median	p-value
SOPS	4.67	3.84	<0.001
SOC	4.14	3.00	<0.001
UE	4.15	3.00	<0.001
SMU	3.75	1.88	<0.001

* The significance level is 0.05.

Due to the data being limited to a scale of 1-5 and not meeting the assumption of normal distribution, Mann-Whitney U test was opted to compare the two social media platforms. The

results indicate that RED received significantly higher scores than Instagram across all the four variables. Therefore, "*H3 RED users demonstrate significantly higher levels of sense of privacy and security, sense of community, user engagement, and social media use compared to Instagram users.*" is supported.

Here is a table to summarize hypotheses:

Table 5. Summary of Hypotheses Testing Results

Hypothesis	Result
H1.a Sense of privacy and security is positively associated with user engagement on RED.	Supported
H1.b Sense of privacy and security is positively associated with user engagement on Instagram.	Rejected
H2.a Sense of community positively mediates the relationship between sense of privacy and security and user engagement on RED.	Supported
H2.b Sense of community positively mediates the relationship between sense of privacy and security and user engagement on Instagram.	Rejected
H2.c Sense of community has a stronger mediating effect observed on RED compared to Instagram.	Supported
H3 RED users demonstrate significantly higher levels of sense of privacy and security, sense of community, user engagement, and social media use compared to Instagram users.	Supported

Chapter 5 Discussion and Conclusion

5.1 Main Findings and Discussion

Firstly, the positive correlation observed on RED suggests that users feel more engaged when they perceive a higher level of privacy and security within the platform. This finding underscores the importance of trust and security in fostering user engagement within online communities, particularly in environments like RED, where user-generated content and community interaction are central. Conversely, the negative correlation between SOPS and UE on Instagram raises intriguing questions about the dynamics of user engagement on this platform. However, on Instagram, the negative association suggests that users may less engaged when they perceive a higher level of privacy and security. One possible reason for this disengagement is that Chinese users in Western countries might be more concerned about self-disclosure in social settings than Chinese users in China. In social media, self-disclosure is crucial for building personal connections and enhancing social interactions. However, Chinese users may become more reserved when live in the overall more privacy-aware social context, which might make users tend to seek more privacy even when proper privacy protection measures in place (Fianu et al., 2019). This heightened awareness could lead to reduced self-disclosure, diminishing their engagement with the platform (Zhang & Fu, 2020). The tension between wanting to connect and protect one's private information can lead to a kind of engagement paralysis, where users are present on the platform but interact less than they might in a perceived less secure but more liberally communicative environment.

Another main finding reveals that on RED, sense of community fully mediates the relationship between SOPS and UE, indicating that sense of community plays a crucial role in driving user engagement. This underscores the importance of fostering strong sense of community within online platforms to enhance user engagement levels. Users who feel sense of belonging and connection are more likely to actively participate and engage with the platform's content and features and other users (Zhao & Shi, 2022).

The comparison between RED and Instagram reveals a notable difference in the mediation effect of SOC. While SOC partially mediates the relationship between SOPS and UE on Instagram, it has a stronger and fully mediating effect on RED. This suggests that the impact of community on user engagement varies across different platforms. RED places a greater emphasis on community-driven interactions, leading to a more pronounced influence on user engagement. More importantly, the direction of influence in the mediation effect of the two platforms is opposite. On RED, the indirect effect of SOPS on UE through SOC is positive, indicating that stronger sense of privacy and security link to a more vibrant and engaged community, thereby driving user engagement. In contrast, on Instagram, the mediation effect is negative, suggesting a more complex relationship between privacy, community, and engagement. On Instagram, users may prioritize individual privacy over community interaction. A heightened sense of privacy and security could lead users to become more guarded in their interactions and less willing to engage with the community (Barrett-Maitland & Lynch, 2020), this may result in decreased participation in community activities, such as commenting on posts, interacting with other users' content, or joining discussions. Additionally, users might perceive a trade-off between privacy and community engagement. They may perceive that actively participating in the community involves sharing more personal information, which could compromise their privacy. Therefore, stronger sense of privacy and security could lead to a decrease in community engagement as users prioritize safeguarding their personal information over participating in community activities. The negative mediation effect may also reflect underlying perceptions of trust and credibility within the Instagram community. This distrust may dampen the positive influence of sense of community on user engagement, resulting in a negative mediation effect. The prevailing culture and norms within the Instagram community may also influence the negative mediation effect. Users may adhere to certain social norms or behaviors, prioritizing individual expression and personal branding over community interaction. This emphasis on self-presentation and curation may diminish the importance of community-driven engagement, resulting in a negative mediation effect.

Within the scope of this study, the research outcomes demonstrate that RED outperforms Instagram across all the variables measured. This suggests that RED's tailored approach to meeting the needs of its predominantly young female user base plays a pivotal role in its superiority over Instagram, notably in cultivating an active, involved, and secure virtual community. Moreover,

RED's ability to attract users who share similar values and backgrounds fosters genuine communication and has the potential to convert users into customers, particularly considering the significant purchasing power often associated with young females.

5.2 Theoretical Contribution

The study makes theoretical contributions to the understanding of user engagement and community dynamics in the realm of social media:

By emphasizing the role of community-building efforts in driving user engagement, the study expands existing conceptualizations of user engagement beyond individual-level interactions to encompass broader community dynamics. It proposes a holistic framework that integrates concepts from the Privacy Calculus Theory and Social Identity Theory to elucidate the interconnectedness of sense of privacy and security, community cohesion, and engagement behaviors.

This study underscores the importance of community-centric design principles in shaping user experiences on social media platforms. The findings highlight the need for platforms to prioritize community-building features and foster sense of belonging among users to enhance engagement and retention rates.

The identification of sense of community as a mediating factor between sense of privacy and security and user engagement provides a nuanced understanding of the underlying mechanisms driving user behavior in online communities. By elucidating the pivotal role of sense of community in translating privacy and security concerns into tangible engagement outcomes, the study offers valuable insights for platform designers and policymakers seeking to create more user-centric social media environments.

5.3 Limitations and Future Research

While the study offers valuable insights into the interplay between sense of privacy and security, community dynamics, and user engagement on social media platforms, it is not without its limitations:

The findings may be influenced by the specific context of RED and Instagram and may not be fully generalizable to other social media platforms. Future research could explore a broader range of platforms to validate the findings and uncover platform-specific nuances in community-building efforts and engagement patterns. The study relied on self-reported measures and data, which may be susceptible to response bias and temporal limitations. Longitudinal studies employing mixed-methods approaches could provide deeper insights into the dynamic nature of user engagement and community development over time. Additionally, the targeted demographic for this study consisted solely of Chinese females, which may introduce biases and constraints. Chinese females might feel more at ease using Chinese social media platforms like RED due to the reduced cultural and language barriers compared to Instagram.

With the rapid evolution of technology and shifting user preferences, future research should continue to monitor emerging trends in community-building efforts on social media platforms. This includes exploring the impact of emerging technologies, such as virtual reality and augmented reality, on community dynamics and engagement behaviors. Future research could also explore the efficacy of regulatory measures and platform policies and promoting community cohesion on social media platforms.

Appendix 1

HEC MONTRÉAL

INSTRUCTIONS INCLUDED WITH AN ANONYMOUS QUESTIONNAIRE

What is the impact of the sense of community on user engagement on RED compared to Instagram? The following pages contain an anonymous questionnaire, which we invite you to complete. This questionnaire was developed as part of a master thesis at HEC Montréal.

Since your first impressions best reflect your true opinions, we would ask that you please answer the questions included in this questionnaire without any hesitation. There is no time limit for completing the questionnaire, although we have estimated that it should take about 20 minutes.

The information collected will be anonymous and will remain strictly confidential. It will be used solely for the advancement of knowledge and the dissemination of the overall results in academic or professional forums.

The online data collection provider agrees to refrain from disclosing any personal information (or any other information concerning participants in this study) to any other users or to any third party, unless the respondent expressly agrees to such disclosure or unless such disclosure is required by law.

You are free to refuse to participate in this project and you may decide to stop answering the questions at any time. By completing this questionnaire, you will be considered as having given your consent to participate in our research project and to the potential use of data collected from this questionnaire in future research.

If you have any questions about this research, please contact the principal investigator Qianying Gao, at the telephone number or email address indicated below.

HEC Montréal's Research Ethics Board has determined that the data collection related to this study meets the ethics standards for research involving humans. If you have any questions related to ethics, please contact the REB secretariat at (514) 340-6051 or by email at cer@hec.ca.

Thank you for your valuable cooperation!

Qianying Gao
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Before you begin, please take note of the following:

This study aims to investigate the impact of sense of community on user engagement on RED (Xiaohongshu) and Instagram, shedding light on the significance of this sense of community in the realm of social media.

Participants will be required to respond to two sets of questions: a pre-questionnaireand the main questionnaire. We recommend dedicating approximately 10-15 minutes to answer the questions. After carefully reading the questions, please fill inyour responses with your most genuine feelings. This will contribute to the effectiveness of our data. Initially, you will respond to prerequisite questions to ensure you fall within our target audience. The inclusion criteria are females aged 18 and above, Chinese, and residing in China. And participants must be RED users.Questionnaire respondents who meet all the specified conditions will be consideredvalid participants and are encouraged to answer all subsequent questions.

All participants invited to partake in this study will receive compensation of $5in the form of an Amazon e-Gift card. Thank you once again for your time, andwe hope you find our questions engaging!

RED- EN

Start of Block: Screening Question

Q1 What is your gender?

- Female
- Male
- Prefer not to say

Q2 Do you use RED?

- Yes
- No

Q3 Do you currently live in China.

- Yes
- No

Q4 What is your age?

_____

End of Block: Screening Question

Start of Block: privacy concern

Q5 When I am using RED, RED makes me

	Strongly disagree	Somewhat disagree	Neither disagree nor agree	Somewhat agree	Strongly agree
feel my personal privacy is protected	○	○	○	○	○
feel safe in my interactions when using RED	○	○	○	○	○
feel that RED has adequate security features	○	○	○	○	○

End of Block: privacy concern

Start of Block: SOC

Q6 Please indicate your level of agreement or disagreement based on the statements on the left side.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1.I am proud to be a user of RED.	○	○	○	○	○
2.I enjoy being a user of RED.	○	○	○	○	○
3.I feel a strong sense of belonging to the RED community.	○	○	○	○	○
4.Users on RED influence my thoughts and activities.	○	○	○	○	○
5.I am able to influence the actions and feelings of other users on RED.	○	○	○	○	○
6.My opinions matter to other users on RED.	○	○	○	○	○
7.I care about what other users think of my actions on RED.	○	○	○	○	○
8.I feel my needs (such as social and recreational activities) are met on RED.	○	○	○	○	○
9.I can get help on RED if I need it.	○	○	○	○	○

10.Participation on RED is worth of my time.	○	○	○	○	○
11.People on RED look out for me.	○	○	○	○	○
12.I feel I am well understood by other users on RED.	○	○	○	○	○
13.I have the feeling of closeness on RED.	○	○	○	○	○
14.I get along with other users on RED.	○	○	○	○	○
15.I feel other users on RED are friendly to me.	○	○	○	○	○

End of Block: SOC

Start of Block: Social Media Use

Q7 How much time do you spend on RED daily?

- ○ 0-30 mins
- ○ 30-60 mins
- ○ 60-120 mins
- ○ > 120 mins

Q8 How often do you visit RED weekly?

- ○ < 9 times
- ○ 9-30 times
- ○ 31-57 times
- ○ >58 times

End of Block: Social Media Use

Start of Block: User Engagement

Q9 How do you describe your personal experience of using RED, using the adjectives below.

	1	2	3	4	5	
Unimportant	○	○	○	○	○	Important
Of no concern to me	○	○	○	○	○	Of concern to me
Irrelevant	○	○	○	○	○	Relevant
Boring	○	○	○	○	○	Interesting
Does not matter to me	○	○	○	○	○	Matter to me
Insignificant	○	○	○	○	○	Significant
Nonessential	○	○	○	○	○	Essential
Unexciting	○	○	○	○	○	Exciting

Q10 Please indicate your level of agreement or disagreement based on the statements on the left side.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My experience with RED is deeply fulfilling.	○	○	○	○	○
When I look to RED, I feel satisfaction of really having accomplished something.	○	○	○	○	○
I feel that I am really going to attain what I want from RED.	○	○	○	○	○
I get so excited by what I am doing on RED that I found new stores of energy I did not know that I had.	○	○	○	○	○
I have a real passion for using RED.	○	○	○	○	○

End of Block: User Engagement

HEC MONTRÉAL

INSTRUCTIONS INCLUDED WITH AN ANONYMOUS QUESTIONNAIRE

What is the impact of the sense of community on user engagement on RED compared to Instagram?

The following pages contain an anonymous questionnaire, which we invite you to complete. This questionnaire was developed as part of a master thesis at HEC Montréal.

Since your first impressions best reflect your true opinions, we would ask that you please answer the questions included in this questionnaire without any hesitation. There is no time limit for completing the questionnaire, although we have estimated that it should take about 20 minutes.

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Thank you for your valuable cooperation!

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All participants invited to partake in this study will receive compensation of $5 in the form of an Amazon e-Gift card. Thank you once again for your time, and we hope you find our questions engaging!

Ins - EN

Start of Block: Screening Question

Q1 What is your gender?

- Female
- Male
- Prefer not to say

Q2 Do you use Instagram?

- Yes
- No

Q3 Do you currently live in Western countries? (Europe, North America, Australia and New Zealand.

- Yes
- No

Q4 What is your age?

_____

End of Block: Screening Question

Start of Block: privacy concern

Q5 When I am using Instagram, Instagram makes me

	Strongly disagree	Somewhat disagree	Neither disagree nor agree	Somewhat agree	Strongly agree
feel my personal privacy is protected	○	○	○	○	○
feel safe in my interactions when using Instagram	○	○	○	○	○
feel that Instagram has adequate security features	○	○	○	○	○

End of Block: privacy concern

Start of Block: SOC

Q6 Please indicate your level of agreement or disagreement based on the statements on the left side.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1.I am proud to be a user of Instagram.	○	○	○	○	○
2.I enjoy being a user of Instagram.	○	○	○	○	○
3.I feel a strong sense of belonging to the Instagram community.	○	○	○	○	○
4.Users on Instagram influence my thoughts and activities.	○	○	○	○	○
5.I am able to influence the actions and feelings of other users on Instagram.	○	○	○	○	○
6.My opinions matter to other users on Instagram.	○	○	○	○	○
7.I care about what other users think of my actions on Instagram.	○	○	○	○	○
8.I feel my needs (such as social and recreational activities) are met on Instagram.	○	○	○	○	○
9.I can get help on Instagram if I need it.	○	○	○	○	○

10.Participation on Instagram is worth of my time.	○	○	○	○	○
11.People on Instagram look out for me.	○	○	○	○	○
12.I feel I am well understood by other users on Instagram.	○	○	○	○	○
13.I have the feeling of closeness on Instagram.	○	○	○	○	○
14.I get along with other users on Instagram.	○	○	○	○	○
15.I feel other users on Instagram are friendly to me.	○	○	○	○	○

End of Block: SOC

Start of Block: Social Media Use

Q7 How much time do you spend on Instagram daily?

- ○ 0-30 mins
- ○ 30-60 mins
- ○ 60-120 mins
- ○ > 120 mins

Q8 How often do you visit Instagram weekly?

- ○ < 9 times
- ○ 9-30 times
- ○ 31-57 times
- ○ >58 times

End of Block: Social Media Use

Start of Block: User Engagement

Q9 How do you describe your personal experience of using Instagram, using the adjectives below.

	1	2	3	4	5	
Unimportant	○	○	○	○	○	Important
Of no concern to me	○	○	○	○	○	Of concern to me
Irrelevant	○	○	○	○	○	Relevant
Boring	○	○	○	○	○	Interesting
Does not matter to me	○	○	○	○	○	Matter to me
Insignificant	○	○	○	○	○	Significant
Nonessential	○	○	○	○	○	Essential
Unexciting	○	○	○	○	○	Exciting

Page Break

Q10 Please indicate your level of agreement or disagreement based on the statements on theleft side.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My experience with Instagram is deeply fulfilling.	○	○	○	○	○
When I look to Instagram, I feel satisfaction of really having accomplished something.	○	○	○	○	○
I feel that I am really going to attain what I want from Instagram.	○	○	○	○	○
I get so excited by what I am doing on Instagram that I found new stores of energy I did not know that I had.	○	○	○	○	○
I have a real passion for using Instagram.	○	○	○	○	○

End of Block: User Engagement

Appendix 2

Cronbach's Alpha of All the Variables

SOPS

Case Processing Summary

		N	%
Cases	Valid	200	100.0
	Excluded[a]	0	.0
	Total	200	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.908	3

SOC

Case Processing Summary

		N	%
Cases	Valid	200	100.0
	Excluded[a]	0	.0
	Total	200	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.905	4

UE

Case Processing Summary

		N	%
Cases	Valid	200	100.0
	Excluded[a]	0	.0
	Total	200	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.921	2

SMU

Case Processing Summary

		N	%
Cases	Valid	200	100.0
	Excluded[a]	0	.0
	Total	200	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.885	2

Correlation Analysis

Correlations on RED

		SOPS	SMU	UE
SOPS	Pearson Correlation	1	.255*	.330**
	Sig. (2-tailed)		.010	<.001
	N	100	100	100
SMU	Pearson Correlation	.255*	1	.494**
	Sig. (2-tailed)	.010		<.001
	N	100	100	100
UE	Pearson Correlation	.330**	.494**	1
	Sig. (2-tailed)	<.001	<.001	
	N	100	100	100

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations on Instagram

		SOPS	SMU	UE
SOPS	Pearson Correlation	1	-.042	-.336**
	Sig. (2-tailed)		.682	<.001
	N	100	100	100
SMU	Pearson Correlation	-.042	1	.502**
	Sig. (2-tailed)	.682		<.001
	N	100	100	100
UE	Pearson Correlation	-.336**	.502**	1
	Sig. (2-tailed)	<.001	<.001	
	N	100	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

Mediation Analysis

RED

Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

****
Model : 4
Y : UE
X : SOPS
M : SOC

Sample
Size: 100

****
OUTCOME VARIABLE:
SOC

Model Summary

R	R-sq	MSE	F	df1	df2	p
.3377	.1141	.8691	12.6187	1.0000	98.0000	.0006

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.5157	.3463	7.2654	.0000	1.8286	3.2028
SOPS	.2958	.0833	3.5523	.0006	.1306	.4611

****
OUTCOME VARIABLE:
UE

Model Summary

R	R-sq	MSE	F	df1	df2	p
.9262	.8579	.2072	292.9016	2.0000	97.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-.5838	.2097	-2.7841	.0065	-1.0000	-.1676
SOPS	.0209	.0432	.4849	.6289	-.0648	.1067
SOC	1.1152	.0493	22.6128	.0000	1.0173	1.2131

********** TOTAL EFFECT MODEL **********
OUTCOME VARIABLE:
UE

Model Summary

R	R-sq	MSE	F	df1	df2	p
.3302	.1091	1.2859	11.9961	1.0000	98.0000	.0008

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.2218	.4212	5.2749	.0000	1.3859	3.0576
SOPS	.3508	.1013	3.4635	.0008	.1498	.5519

********** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **********

Total effect of X on Y

Effect	se	t	p	LLCI	ULCI
.3508	.1013	3.4635	.0008	.1498	.5519

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.0209	.0432	.4849	.6289	-.0648	.1067

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
SOC	.3299	.0857	.1550	.4911

********** ANALYSIS NOTES AND ERRORS **********

Level of confidence for all confidence intervals in output:
95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
5000

------ END MATRIX -----

Instagram

Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

****
Model : 4
Y : UE
X : SOPS
M : SOC

Sample
Size: 100

****
OUTCOME VARIABLE:
SOC

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2627	.0690	.4542	7.2655	1.0000	98.0000	.0083

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.7026	.2806	13.1953	.0000	3.1458	4.2595
SOPS	-.2040	.0757	-2.6955	.0083	-.3541	-.0538

****
OUTCOME VARIABLE:
UE

Model Summary

R	R-sq	MSE	F	df1	df2	p
.8154	.6648	.1968	96.2111	2.0000	97.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	.9310	.3078	3.0253	.0032	.3202	1.5418
SOPS	-.1134	.0516	-2.1974	.0304	-.2159	-.0110
SOC	.8403	.0665	12.6381	.0000	.7083	.9722

********** TOTAL EFFECT MODEL **********

OUTCOME VARIABLE:
UE

Model Summary

R	R-sq	MSE	F	df1	df2	p
.3361	.1130	.5154	12.4833	1.0000	98.0000	.0006

Model

	coeff	se	t	p	LLCI	ULCI
constant	4.0422	.2989	13.5227	.0000	3.4490	4.6354
SOPS	-.2848	.0806	-3.5332	.0006	-.4448	-.1248

********** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **********

Total effect of X on Y

Effect	se	t	p	LLCI	ULCI
-.2848	.0806	-3.5332	.0006	-.4448	-.1248

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
-.1134	.0516	-2.1974	.0304	-.2159	-.0110

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
SOC	-.1714	.0639	-.2982	-.0502

********** ANALYSIS NOTES AND ERRORS **********

Level of confidence for all confidence intervals in output:
95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
5000

------ END MATRIX -----

Mann-Whitney U Test

Compare SOPS on RED and Instagram

Hypothesis Test Summary

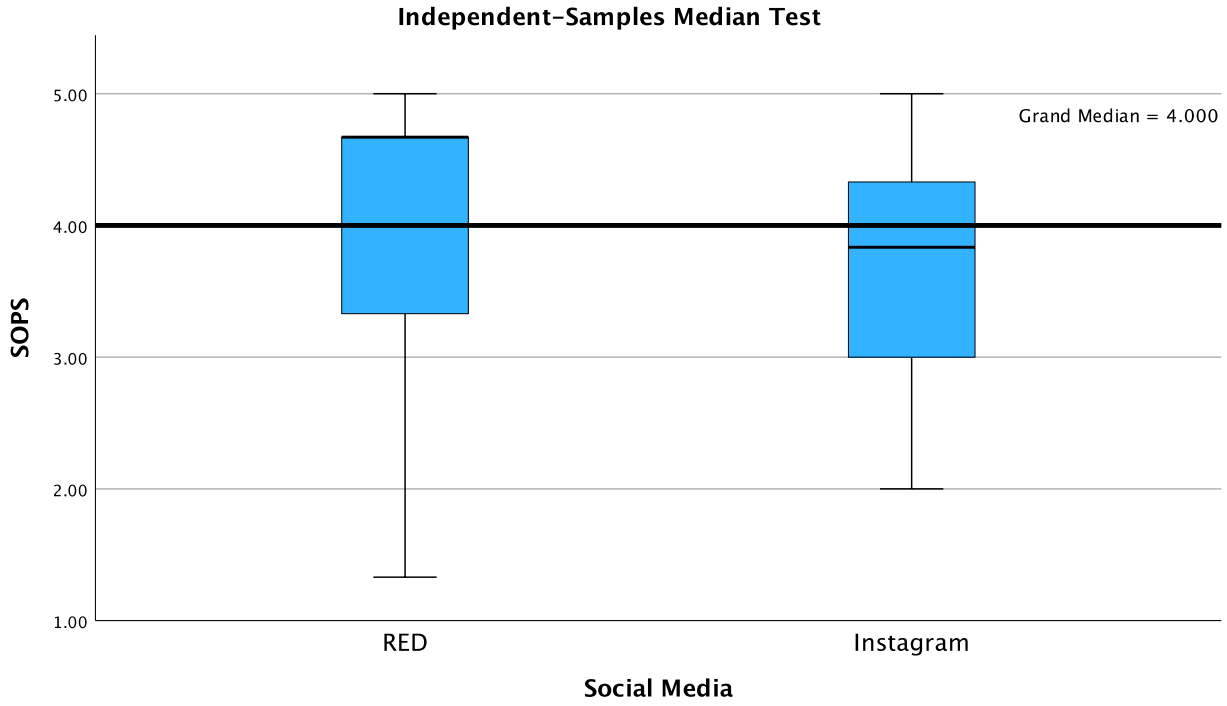
	Null Hypothesis	Test	Sig.[a,b]	Decision
1	The medians of SOPS are the same across categories of social media platforms.	Independent-Samples Median Test	<.001[c]	Reject the null hypothesis.

a. The significance level is .050.
b. Asymptotic significance is displayed.
c. Yates's Continuity Corrected Asymptotic Sig.

Independent-Samples Median Test Summary

Total N		200
Median		4.000
Test Statistic		38.735[a]
Degree Of Freedom		1
Asymptotic Sig.(2-sided test)		<.001
Yates's Continuity Correction	Chi-Square	36.995
	Degree Of Freedom	1
	Asymptotic Sig.(2-sided test)	<.001

a. Multiple comparisons are not performed because there are less than three test fields.


Independent-Samples Median Test
5.00
4.00
3.00
2.00
1.00
SOPS
Grand Median = 4.000
RED
Instagram
Social Media

Compare SOC on RED and Instagram

Hypothesis Test Summary

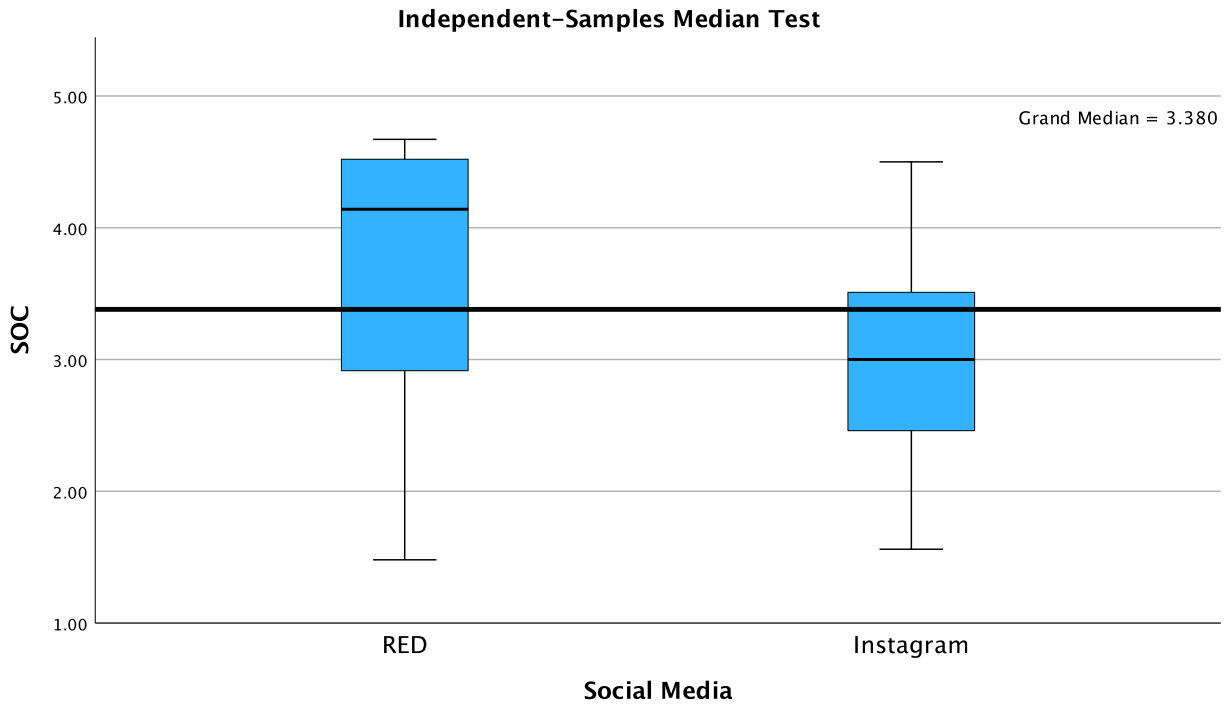
	Null Hypothesis	Test	Sig.[a,b]	Decision
1	The medians of SOC are the same across categories of social media platforms.	Independent-Samples Median Test	<.001[c]	Reject the null hypothesis.

a. The significance level is .050.
b. Asymptotic significance is displayed.
c. Yates's Continuity Corrected Asymptotic Sig.

Independent-Samples Median Test Summary

Total N		200
Median		3.380
Test Statistic		30.423[a]
Degree Of Freedom		1
Asymptotic Sig.(2-sided test)		<.001
Yates's Continuity Correction	Chi-Square	28.883
	Degree Of Freedom	1
	Asymptotic Sig.(2-sided test)	<.001

a. Multiple comparisons are not performed because there are less than three test fields.


Independent-Samples Median Test
Grand Median = 3.380
SOC
5.00
4.00
3.00
2.00
1.00
RED
Instagram
Social Media

Compare UE on RED and Instagram

Hypothesis Test Summary

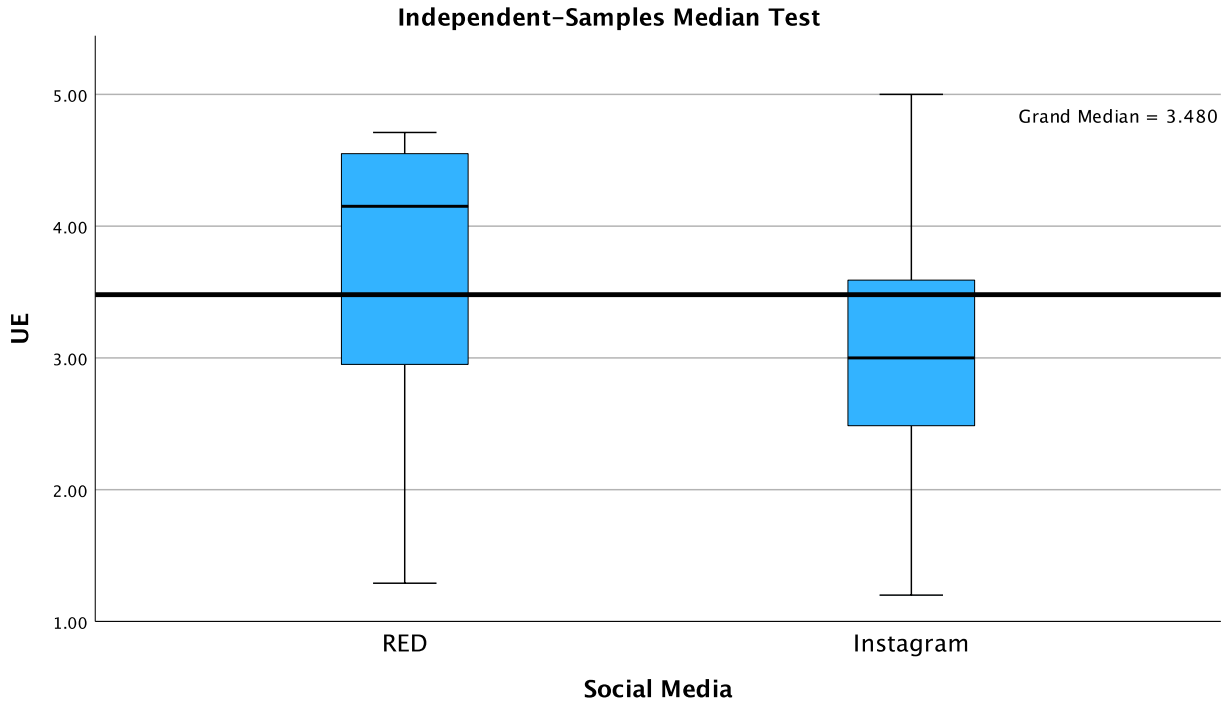
	Null Hypothesis	Test	Sig.[a,b]	Decision
1	The medians of UE are the same across categories of social media platforms.	Independent-Samples Median Test	<.001[c]	Reject the null hypothesis.

a. The significance level is .050.
b. Asymptotic significance is displayed.
c. Yates's Continuity Corrected Asymptotic Sig.

Independent-Samples Median Test Summary

Total N		200
Median		3.480
Test Statistic		32.000[a]
Degree Of Freedom		1
Asymptotic Sig.(2-sided test)		<.001
Yates's Continuity Correction	Chi-Square	30.420
	Degree Of Freedom	1
	Asymptotic Sig.(2-sided test)	<.001

a. Multiple comparisons are not performed because there are less than three test fields.


Independent-Samples Median Test
5.00
4.00
3.00
2.00
1.00
UE
Grand Median = 3.480
RED
Instagram
Social Media

Compare SMU on RED and Instagram

Hypothesis Test Summary

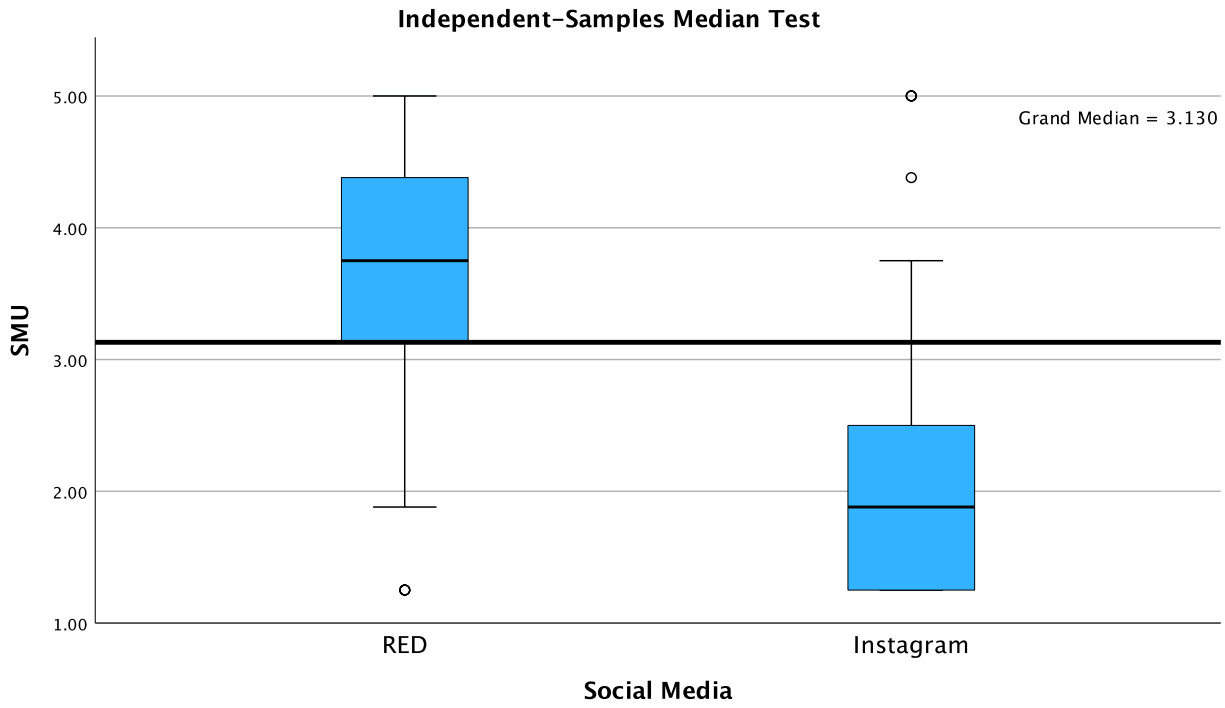
	Null Hypothesis	Test	Sig.[a,b]	Decision
1	The medians of SMU are the same across categories of social media platforms.	Independent-Samples Median Test	<.001[c]	Reject the null hypothesis.

a. The significance level is .050.
b. Asymptotic significance is displayed.
c. Yates's Continuity Corrected Asymptotic Sig.

Independent-Samples Median Test Summary

Total N		200
Median		3.130
Test Statistic		57.551[a]
Degree Of Freedom		1
Asymptotic Sig.(2-sided test)		<.001
Yates's Continuity Correction	Chi-Square	55.316
	Degree Of Freedom	1
	Asymptotic Sig.(2-sided test)	<.001

a. Multiple comparisons are not performed because there are less than three test fields.


Independent-Samples Median Test
Grand Median = 3.130
SMU
5.00
4.00
3.00
2.00
1.00
RED
Instagram
Social Media

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