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A dual-process model to explain self-disclosure on online social networking sites: Examining the moderating effect of enjoyment

Abstract

Purpose – Researchers continue to address the concept of self-disclosure because it is foundational for helping social networking sites (SNS) function and thrive. Nevertheless, our literature review indicates that uncertainty remains around the underlying mechanisms and factors involved in the self-disclosure process. The purpose of this research is to better understand the self-disclosure process from the lens of *dual-process theory* (DPT). We consider both the controlled factors (i.e., self-presentation and reciprocity) and an automatic factor (i.e., social influence to use an SNS) involved in self-disclosure and broaden our proposed model to include the interactive facets of enjoyment.

Design/methodology/approach – The proposed model was empirically validated by conducting a survey among users of WeChat Moments in China.

Findings – As hypothesized, this research confirms that enjoyment and automatic processing (i.e., social influence to use an SNS) are complementary in the SNS self-disclosure process, and enjoyment negatively moderates the positive relationship between controlled factor (i.e., self-presentation) and self-disclosure.

Originality/value – Theoretically, this study offers a new perspective in explaining the SNS self-disclosure by adopting DPT. Specifically, this study contributes to the extant SNS research by applying DPT to examine how the controlled factors and the automatic factor shape self-disclosure processes, and how enjoyment influences vary across these processes—enriching knowledge about SNS self-disclosure behaviors. Practically, we provide important design guidelines to practitioners concerning devising mechanisms to foster more automatic-enjoyable value-added functions to improve SNS users' participation and engagement.

Keywords: controlled processing, automatic processing, self-presentation, reciprocity, social influence to use an SNS, enjoyment, self-disclosure, dual-process theory (DPT)

1. Introduction

Online social networking sites (SNS), and their associated mobile apps, have become a dominant and pervasive artifact in the social lives of billions of people throughout the world, regardless of country, language, ethnicity, or culture. The number of SNS users reached more than 4.62 billion in January 2022 around the world (Edison Research, 2022). WeChat, one of the most popular SNS in China, has experienced substantial growth in the number of active users. Specifically, the average number of monthly WeChat active users reached 1.29 billion in the first quarter of 2022, an increase of 3.8% compared with 1.24 billion in the same period last year (Techweb, 2022). The number of active users on an SNS has many implications for society, individuals, and SNS platforms because the social interactions on SNS facilitate relationship bonding and foster information sharing. Given the popularity and prevalence of SNS, researchers continue to grapple with the basic concept of SNS self-disclosure—i.e., a subtype of user behavior within SNS—because encouraging self-disclosure is key to helping SNS function properly and thrive (Shi *et al.*, 2014; Chen and Sharma, 2013; Cheung *et al.*, 2015; Zhang *et al.*, 2019b). In addition, increased self-disclosure presents valuable opportunities for marketers, as SNS interactions can effectively support online brand building and stimulate consumer demand for a company's products and services (Miller *et al.*, 2009). Exploring the underlying factors that drive SNS self-disclosure is also valuable for gaining a deeper understanding of online communities, which have become an integral part of modern society (Posey *et al.*, 2010). Considerable research has been devoted to investigating antecedents and underlying mechanisms of SNS self-disclosure (Liu *et al.*, 2016; Zhang *et al.*, 2019a; Cheung *et al.*, 2015; Park *et al.*, 2011; Cheung *et al.*, 2011; Hollenbaugh and Ferris, 2015; Luo *et al.*, 2011).

Notably, SNS users are under the influences of both controlled and automatic mechanisms (Gwebu *et al.*, 2014). On the one hand, SNS users intentionally manage their impressions online and deliver intended/controlled information to others (Ellison *et al.*, 2006). This is a deliberately controlled SNS participation process. On the other hand, SNS are applications that promote social and spontaneous activities among users and thus often have unplanned and unexpected results (Cheung *et al.*, 2015; Ofir and

Hamed, 2018; Polites *et al.*, 2018). SNS users depend heavily on online key influencers or their peers or group members and the disclosure behaviors of these users may elicit more impulsive or automatic SNS self-disclosure decisions (Ostendorf *et al.*, 2022). For instance, according to iResearch's UserTracker monitoring data in 2020 (iResearch, 2020), when the COVID-19 pandemic occurred, people spontaneously tracked the hot spots and rushed to express their opinions and views about the pandemic on SNS. This SNS engagement can be attributed to the automatic/impulsive process. From a broader theoretical perspective, this phenomenon can be explained by the *dual-process theory* (DPT), which proposes that human thought and subsequent behavior are determined by two different cognitive processes: the controlled process and the automatic process, and the two processes simultaneously explain an individual's decisions and behaviors (Evans, 2008; Strack and Deutsch, 2004). To date, DPT has been widely used in the SNS literature (as shown in Appendix A).

In addition to oft-used planned and unplanned or automatic pathways, research indicates that IT users may react differently under different emotional states (Beaudry and Pinsonneault, 2010). Enjoyment, as a type of emotional influence factor, can be a double-edged sword and has dual effects in shaping users' system use behaviors (Chin *et al.*, 2003). That is, enjoyment may complement or decrease the relationship between use beliefs and technology use. Further, our literature review on the use of DPT in the context of SNS (see Appendix A) highlights the ambiguity surrounding the role of enjoyment in the dual processes of self-disclosure. Previous studies have emphasized the direct and positive influence of enjoyment on users' self-disclosure (Krasnova *et al.*, 2010; Cheung *et al.*, 2011). However, they have not adequately considered the intricate dynamics between enjoyment and the dual-system factors that drive SNS self-disclosure.

According to Ostendorf *et al.* (2022), self-disclosure potentially involves various cognitive and affective processes. It thus is worthwhile to explore whether the dual processes of self-disclosure are associated with the emotional factor of enjoyment, as this could provide valuable insights into the self-disclosure process. It is possible that the emotional factor has a stronger association with automatic self-disclosure than with controlled self-disclosure. In addition, enjoyment may potentially have both positive

and negative effects on the dual processes of SNS self-disclosure. Without considering the various links between enjoyment and the dual system of self-disclosure, SNS users and designers may make misguided decisions. For instance, it is plausible that decision makers might experience counterproductive results regarding self-disclosure, because the reinforcement of enjoyment might not be conducive to users' rational behavior—potentially resulting in a decrease in controlled self-disclosure. Uncertainty remains about the underlying mechanisms and patterns involved in the self-disclosure process (Berger *et al.*, 2014; Walsh *et al.*, 2020; Kende *et al.*, 2015). Our study aims to fill these gaps by examining the role of enjoyment in the dual processes of SNS users' self-disclosure behaviors. This sheds new light on the understanding of SNS self-disclosure. Specifically, our theoretical and empirical inquiry is guided by the following research question:

RQ. When and how enjoyment affects the controlled and automatic processes of SNS self-disclosure?

Our study yields several potentially meaningful contributions to the extant SNS research. Through model building and testing, we develop a contextualized nomological network drawing on the DPT, which distinguishes between the automatic and controlled mechanisms. This integrated self-disclosure model enriches extant literature on SNS self-disclosure behaviors by drawing attention to the dual-process mechanism influenced by enjoyment. Our study provides new directions for future research that involves testing the interplay between dual-process factors and emotional effects. In terms of practice, we provide important design guidelines to practitioners concerning devising mechanisms to improve SNS users' participation and engagement. For instance, SNS designers and developers could provide more automatic-enjoyable and value-added functions to the users to improve their SNS experiences.

The remainder of the paper is organized as follows. In the next section, we state how we theorize key constructs and relationships in DPT and present our research model. Then, we describe how we collected the data and analyzed the data. This is followed by the research findings. Finally, theoretical contributions and practical implications of the study are discussed, as are its limitations and directions for future research.

2. Theoretical Background

2.1. Self-disclosure

Following the prior definitions of self-disclosure, *self-disclosure* is defined as a message about oneself that an individual communicates with others (Wheeless, 1978). It is a multidimensional construct with well-accepted dimensions of amount, depth, intent, honesty, and valence (Collins and Miller, 1994; Forgas, 2011; Posey *et al.*, 2010; Wheeless, 1978). *Amount* is the degree of frequency and duration of an individual's disclosures; *depth* is the degree of intimacy in the communication; *intent* is the degree of an individual's control and awareness over his or her self-disclosure; *honesty* is the degree of accuracy; and *valence* is the degree of positivity of the information disclosed in communication (Posey *et al.*, 2010, p. 183). To date, considerable research has been devoted to the understanding of the self-disclosure process (e.g., why people disclose) (Liu *et al.*, 2016; Zhang *et al.*, 2019a; Cheung *et al.*, 2015; Park *et al.*, 2011; Cheung *et al.*, 2011; Hollenbaugh and Ferris, 2015; Luo *et al.*, 2011; Lowry *et al.*, 2011; Lei *et al.*, 2023). Generally, these studies are based on the social psychological perspective, drawing on theories such as social exchange theory, privacy calculus theory, and social penetration theory (Liu *et al.*, 2016; Zhang *et al.*, 2019a; Cheung *et al.*, 2015; Posey *et al.*, 2010). They also highlight motivational factors in the self-disclosure process by leveraging uses and gratifications theory and motivational theory (Park *et al.*, 2011; Cheung *et al.*, 2011; Hollenbaugh and Ferris, 2015; Luo *et al.*, 2011). These views consider self-disclosure as a rational choice resulting from a weighing of costs and benefits. However, recent research has shown that users may act irrationally, spontaneously, or in unplanned or automatic ways in self-disclosure (e.g., Zhang *et al.*, 2019a; Van Gool *et al.*, 2015; Liu *et al.*, 2019), and self-disclosure decisions could also be impulsive (Ostendorf *et al.*, 2022). Therefore, to better understand SNS self-disclosure, it is important to expand the common rational approach and incorporate the impulsive system. In our study, we thus selected all five dimensions of self-disclosure and adapted them for the SNS context to explain and study them using DPT to address the dual processes.

2.2. DPT and Self-disclosure

According to DPT, human behaviors are guided by two different and complementary cognitive processes (Evans, 2008; Hodgkinson and Clarke, 2007). One process captures the automatic process involving intuition. The other process centers on an effortful and controlled process that occurs optionally with motivations. Prior research has demonstrated DPT in managing moods (Forgas, 2000), social behavior (Strack and Deutsch, 2004), and moral judgment (Greene, 2007). In this paper, we leveraged a dual-process framework that integrates the automatic and controlled processes to develop our research model. The automatic process is characterized by its intuitive, spontaneous, and impulsive nature; whereas the controlled process operates at a slower pace and is considered cognitively controlled.

Within the information systems (IS) field, IS scholars have identified the value of the DPT (Bhattacharjee and Sanford, 2006; Angst and Agarwal, 2009; Lowry *et al.*, 2012). Generally, DPT has been regarded as a theoretical approach to explain SNS users' continued intentions and participation (as shown in Appendix A) (Turel and Qahri-Saremi, 2018; Gwebu *et al.*, 2014). For instance, Gwebu *et al.* (2014) integrated analytic-based mechanism, emotional-based mechanism, and habit or automaticity into a dual-process model to test users' continued SNS use intentions. Turel and Qahri-Saremi (2018) and Turel and Qahri-Saremi (2016) explained problematic use, impulsive use, and swearing on SNS by drawing on DPT. In addition, several recent studies have confirmed the importance of dual-system factors in boosting SNS engagement (Fang, 2019; Chen *et al.*, 2021; Li *et al.*, 2021). In summary, extant research indicates that the use of SNS can be performed automatically through habit or controllably, which can be explained by DPT (Bayer *et al.*, 2016). In our study, we have selected a broad range of pertinent cognitive and emotional factors for representing the dual processes and emotional mechanisms and designed an overarching dual-process model as a manifestation of the context-specific self-disclosure.

Within SNS research, various factors are shown to influence SNS self-disclosure, such as self-presentation, relationship building, relationship maintenance, trust in SNS platforms, trust in SNS users, and so on (Krasnova *et al.*, 2010). Among these determinants of self-disclosure, social influence is

suggested as a key external motivational factor (Cheung *et al.*, 2015). In a systems-use context, *social influence* is the degree to which an individual's beliefs, attitudes, or behaviors are influenced by others (Venkatesh *et al.*, 2003). This influence in our context naturally extends to one's online community (Posey *et al.*, 2010; Cheung *et al.*, 2015). When others increase their rate of disclosures, users who are susceptible to social influences are more likely to disclose their information to make them likable or similar to their peers (Venkatesh *et al.*, 2003; Posey *et al.*, 2010). Crucially, research has validated that social behaviors involve automatic and spontaneous processing (Bargh and Ferguson, 2000). Human beings have a fundamental need to belong and to be liked (Baumeister and Leary, 1995; Leary and Baumeister, 2000; Caporael *et al.*, 1989). They often automatically do what they see others doing (Dijksterhuis and Bargh, 2001). The behavior of online users is influenced by the actions of their peers (Xu *et al.*, 2017; Mattke *et al.*, 2020). In this sense, social influence could be employed as an automatic experience of SNS use in a process-oriented context. Thus, we chose it as the key automatic factor in our dual-process model of self-disclosure.

By contrast, prior research shows self-presentation and reciprocity as strong predictors of deliberate (i.e., controlled) self-disclosure (Chen *et al.*, 2016; Ellison *et al.*, 2006; Forgas, 2011; Leung *et al.*, 2020; Rui and Stefanone, 2013; Zhang *et al.*, 2019b). Specifically, *self-presentation* refers to people intentionally managing the impression they wish to convey to others, just like self-controlled impression management (Walther *et al.*, 2001; Krasnova *et al.*, 2010; Liu *et al.*, 2016; Ellison *et al.*, 2006). Importantly, self-presentation is a purposeful and controlled form of self-regulation (Khan *et al.*, 2020), which is a controlled process in SNS disclosure experiences. *Reciprocity* online is about people exchanging information or relationship interactions for mutual benefit, which infers a cost-benefit consideration (Posey *et al.*, 2010; Kankanhalli *et al.*, 2005; Wasko and Faraj, 2005). Posey *et al.* (2010) proposed that reciprocity is a form of quid pro quo communication that involves a cost and benefit consideration and assessment process, rather than being a habitual behavior. As a result, "(a)s long as the cost-benefit differential remains positive, relational engagement through disclosure is likely to progress" (Posey *et al.*, 2010, p. 184). These arguments

suggest that people assess and test the intrinsic value of self-disclosure with relational partners, indicating a self-controlled rational choice. In summary, the deliberate thinking processes, such as self-presentation and reciprocity, that factor in the interpersonal costs and benefits, are typically controlled processes in SNS disclosure experiences (Ellison *et al.*, 2007; Kankanhalli *et al.*, 2005; Ko and Kuo, 2009). In consideration of these arguments, we retain self-presentation and reciprocity in our dual-process model and contextualize them as controlled factors for individuals to disclose. Next, we explain why the emotional factor, enjoyment, may have moderating effects on the dual self-disclosure processes.

2.3. Integrating Enjoyment with DPT

Flow refers to an intrinsically motivated optimal state (Csikszentmihalyi, 1975; Csikszentmihalyi and Lefevre, 1989), which is characterized by being fully immersed in an activity, feeling energized and focused, and enjoying the process of the task at hand. *Enjoyment*, the source of flow states (Weber *et al.*, 2009), is defined as an intrinsic motivator that emphasizes the pleasant and enjoyable experiences associated with SNS use (e.g., why people disclose). For instance, Rosen and Sherman (2006) regarded SNS as a purely hedonic platform and argued that enjoyment is a more powerful predictor of participation than perceived usefulness. Hart *et al.* (2008) suggested that enjoyment is one of the main reasons that people opt to use SNS. Moreover, other research has inferred that enjoyment could be denoted as a type of emotional factor that positively influences online community participation and engagement (Lowry *et al.*, 2013; Gong *et al.*, 2019).

A review of prior use of DPT in the SNS literature suggests that the role of enjoyment in the dual processes of self-disclosure remains unclear (see Appendix A). First, previous DPT studies mainly focused on continued use and problematic use of SNS (e.g., Gwebu *et al.*, 2014; Turel and Qahri-Saremi, 2018; Turel and Qahri-Saremi, 2016; Polites *et al.*, 2018; Zhao *et al.*, 2013). Second, a key theme in the studies of SNS is that hedonic value (e.g., joy or enjoyment) is particularly important in explaining users' behavior (Krasnova *et al.*, 2010; Cheung *et al.*, 2011). However, previous studies have primarily focused on one aspect of enjoyment: the direct positive effects of enjoyment on users' SNS attitudes, intentions, and

behaviors. For instance, Gwebu *et al.* (2014) validated that enjoyment leads to continued SNS use intention by triggering users' loyalty. Lewis *et al.* (2014) identified enjoyment as an entertainment experience that results in positive media appraisal.

Enjoyment is a broad complex construct (Turel and Serenko, 2012). In particular, research indicates that intrinsically motivating enjoyment brings emotional rewards, attentional focus, and loss of self-controlling (Nakamura and Csikszentmihalyi, 2002; Sherry, 2004). Individuals' levels of automaticity, controllability, effortfulness, and emotion may manifest simultaneously across tasks or experiences (Eich *et al.*, 2000; Weber *et al.*, 2009; Gwebu *et al.*, 2014; Kihlstrom, 1987). Moreover, Chin *et al.* (2003, p. 210) showed the dual moderating role of enjoyment in the relationship between IT users' use beliefs and use intentions. They postulated that enjoyment may complement or decrease the relationship between use beliefs and technology use. This phenomenon could be explained by the cognitive consistency view, of which proposes that people attempt to attain a state of consonance (Festinger, 1962). Studies have shown that people tend to minimize their behavioral effort (e.g., Todd and Benbasat, 1991; Todd and Benbasat, 1993; Todd and Benbasat, 1994; Todd and Benbasat, 1992), and those who are content with the existing benefits of IT and do not feel the need to invest extra effort in performing adaptive behaviors (Beaudry and Pinsonneault, 2010). When individuals are in enjoyable states, instrumental factors such as cost-benefit considerations that require cognitive effort can negatively affect their future usage decision-making (Chin *et al.*, 2003). Consequently, users are more likely to rely on strategies that require less deliberate effort and cognitive work, such as socially induced unconscious thinking and mental processing. Extending these ideas to the context of SNS self-disclosure, we link enjoyment with the dual processes of SNS self-disclosure. We posit that the emotional state, enjoyment, plays a moderating role in the controlled-automatic SNS self-disclosure processes. Specifically, users who enjoy using an SNS tend to be less concerned with the complex planned behaviors, such as self-presentation and reciprocity; some unplanned usage beliefs, such as, social influence may facilitate their self-disclosure on SNS.

In summary, we have included enjoyment as a key moderator in the SNS self-disclosure context in our

study. Our proposed model helps to examine dual and opposite moderation effects of enjoyment in shaping users' self-disclosure and enriches the literature on self-disclosure.

3. Research Model and Hypothesis Development

Drawing on the theoretical foundation in the previous section, we propose a dual-process research model (see Figure 1) that describes the mechanisms linking both the controlled factors (i.e., self-presentation and reciprocity) and an automatic factor (i.e., social influence to use an SNS) to users' self-disclosure in the SNS context.

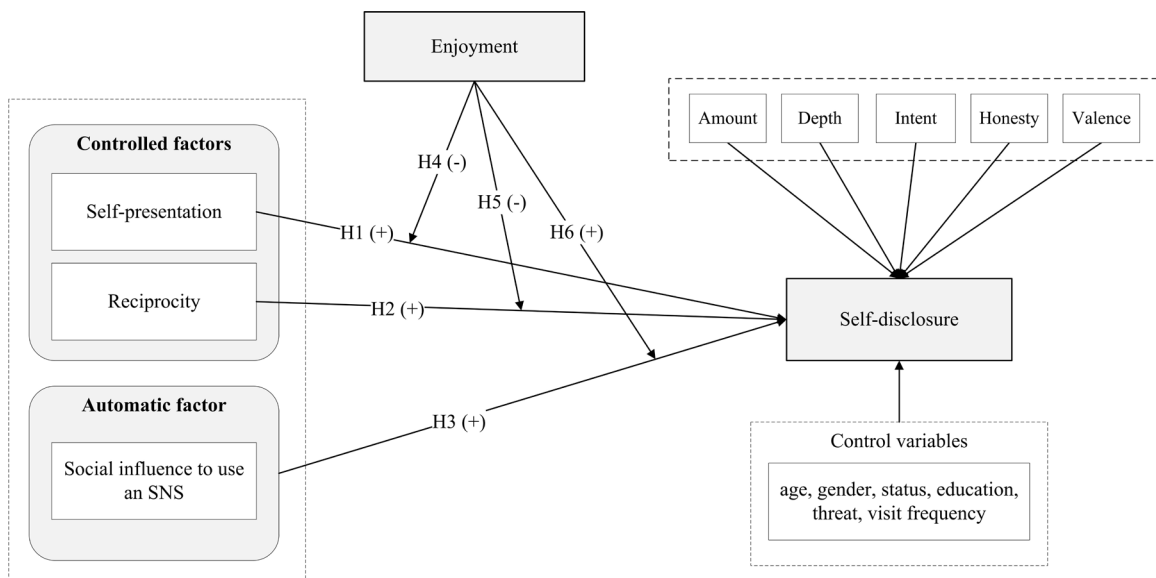


Figure 1. Proposed Research Model

Source: Authors' own creation

First, following previous studies (Posey *et al.*, 2010; Zhang *et al.*, 2019b), we posit that self-representation, reciprocity, and social influence to use an SNS are positively associated with self-disclosure. Moreover, we incorporate enjoyment in the research model as a moderator between the three antecedents and self-disclosure. Our focus is to examine how enjoyment influences the relationships between the controlled factors (i.e., self-representation and reciprocity), the automatic factor (i.e., social influence to use an SNS), and self-disclosure in the SNS context. The core construct self-disclosure is measured through five well-established dimensions (i.e., amount, depth, intent, honesty, valence). Further, following prior studies, the research model considers six control variables (i.e., age, gender, status, education, threat, and

visit frequency) that might influence user's SNS self-disclosure (Liu *et al.*, 2016; Posey *et al.*, 2010; Benlian *et al.*, 2012; Lowry *et al.*, 2016). Threat in this context refers to instances where SNS users have been victims of cyberstalking, which is defined as "the use of the internet, email, or other electronic communications devices to stalk another person" (US Department of Justice, 1999, p. 2).

3.1. Self-presentation, Reciprocity, and the Controlled Self-disclosure Processes

Boyd (2008) confirmed that self-presentation is the primary motivation that encourages most people to participate in online communities. SNS users intentionally disclose their achievements or experiences, share photos, and participate in groups to express their identities and formulate impressions. They are more likely to disclose desirable information to gain self-presentation benefits and obtain the value of using SNS (Krasnova *et al.*, 2010). Self-presentation is important in predicting SNS self-disclosure (Posey *et al.*, 2010; Zhang *et al.*, 2019b).

In addition, people usually interact by sharing daily events with SNS friends (Gibbs *et al.*, 2006). Research has suggested that by increasing the perceived worth of an interaction, people will likely disclose more personal information to maximize the benefit of the interaction (Kankanhalli *et al.*, 2005). Social interactions play a crucial role in the development and enhancement of people's relationships, leading to continued and expanded self-disclosure. Empirical evidence has shown that, as a planned strategy, reciprocity is positively related to SNS self-disclosure. In summary, self-presentation and reciprocity have been described in our dual-process model and contextualized as controlled factors for individuals to disclose. Therefore, we hypothesize:

H1. *Self-presentation* is positively associated with one's SNS *self-disclosure*.

H2. *Reciprocity* is positively associated with one's SNS *self-disclosure*.

3.2. Social Influence and the Automatic Self-disclosure Process

Research has found that individual behavior is affected by social influence through a powerful social compliance mechanism. Social influence theory and related theories explain that the compliance mechanism of social pressure causes individuals to anchor to comply with the behaviors of others, and this

is an automatic deindividuation process (Venkatesh *et al.*, 2003; Fishbein and Ajzen, 1975; Warshaw, 1980; Venkatesh and Morris, 2000; Lowry *et al.*, 2016). When others reveal information on SNS, users who are easily influenced are more likely to engage in similar information-sharing activities. They do so automatically to look similar and likable to their peers (Sánchez *et al.*, 2014). Branley and Covey (2018) conceived that if people perceive prototypical or important people to be like themselves, they are more willing to engage in social media sharing behaviors (e.g., risky sharing behaviors) reactively and unreflectively. These findings suggest that willingness to self-disclose based on social influence in SNS could be denoted as spontaneous, nonintentional, and automatic. It has been found that social influence to use SNS is positively related to SNS self-disclosure (Posey *et al.*, 2010). Thus, we chose social influence to use an SNS as the key automatic factor in our dual-process model of self-disclosure, and we hypothesize:

H3. *Social influence to use an SNS* is positively associated with one's SNS self-disclosure.

3.3. Moderating Role of Enjoyment in the Controlled Self-disclosure Process

In our study, we aim to investigate how enjoyment influences the relationships between self-presentation, reciprocity, and SNS self-disclosure. The literature has shown that SNS users participate in SNS for cost-benefit and hedonic reasons (Chesney *et al.*, 2009; Verhagen *et al.*, 2011). The increased enjoyment, which brings emotional rewards and attentional focus, allows behaviors on social media to be performed with less mental work, and users are absorbed and immersed in this “ideal happiness” or “optimal experiences” condition (Vorderer *et al.*, 2004; Sherry, 2004; Weber *et al.*, 2009). More complex planned behaviors, such as self-presentation and reciprocity, require more cognitive work to perform. Consumers who enjoy using products as hedonic tools tend to be less concerned with cost-benefit factors (Lee and Murphy, 2008).

In the context of SNS, self-presentation and reciprocity relate less to self-disclosure when enjoyment is high, because users who use SNS for hedonic purposes are absorbed and immersed in an “ideal happiness” or “optimal experiences” condition (Weber *et al.*, 2009)—thus, they are not concerned with the planned utilitarian beliefs, such as self-presentation and reciprocity (i.e., impression management and social interaction). That is, when the level of enjoyment is higher in SNS use, the influence of self-presentation

and reciprocity on self-disclosure will be weakened. Conversely, self-presentation and reciprocity relate more to self-disclosure when enjoyment is low, because when users have unsatisfied or less pleasant experiences on the platform, they may turn to planned purposes, such as self-presentation and reciprocity, which will subsequently increase self-disclosure. Therefore, we hypothesize:

H4. *Enjoyment* negatively moderates the positive relationship between *self-presentation* and *self-disclosure*, such that this relationship decreases in strength as enjoyment increases.

H5. *Enjoyment* negatively moderates the positive relationship between *reciprocity* and *self-disclosure*, such that this relationship decreases in strength as enjoyment increases.

3.4. Moderating Role of Enjoyment in the Automatic Self-Disclosure Process

In our study, we intend to examine how enjoyment affects the relationships between the automatic factor, social influence to use an SNS, and SNS self-disclosure. As described, the greater enjoyment users perceive, the more satisfied users are with their current experiences. The flow state of enjoyment allows other behaviors, such as automatic self-disclosure behaviors, to be performed since these behaviors are routinized with less mental work and attentional resources (Eich *et al.*, 2000; Weber *et al.*, 2009; Kihlstrom, 1987; Kihlstrom, 1990).

Following this logic, emotional enjoyment and social influence to use an SNS can be complementary across SNS self-disclosure. That is, social influence to use SNS relates more to self-disclosure when enjoyment is high. Users who enjoy using SNS with peers are more willing to disclose and they do not want to quit or switch to another SNS to distance themselves from their peer group. Conversely, when users have lower levels of enjoyment, they will suffer from a negative emotional state (Weber *et al.*, 2009; Vorderer *et al.*, 2004). In this case, their motivations for using IT would be lower (Venkatesh, 2000; Davis *et al.*, 1992). Users may take more actions to recover from themselves, and the external social influence becomes less important to them. In other words, users with lower levels of enjoyment are less sensitive to social influence, which in turn decreases self-disclosure. In summary, we hypothesize:

H6. *Enjoyment* positively moderates the positive relationship between *social influence to use an SNS* and *self-disclosure*, such that this relationship increases in strength as enjoyment increases.

4. Methodology

We used an anonymous and self-reported online survey design with WeChat Moments users in China to empirically test the proposed research model. WeChat Moments users were selected because WeChat is one of the most popular SNSs worldwide but is much less studied than competitors such as Facebook and WhatsApp. By the end of 2020, there were over 780 million Moments users and at least 120 million posts each day (IT Home, 2021). Moments is an SNS feature in WeChat that is like the Facebook timeline, which allows users to share status updates, photos, and videos only with trusted contacts (e.g., friends, colleagues, family, and other acquaintances) with mutual agreements of content sharing. Hence, user engagement levels on WeChat Moments are high due to this more intimate information-sharing environment.

For the data collection, the survey questionnaire links were sent out to WeChat Moments users by the authors through WeChat in China in October 2019. We recruited participants through a public announcement on WeChat and offered a monetary reward of 10RMB (equivalent to 1.45 US dollars) to those who completed the survey. The reward was distributed through either Alipay or WeChat Pay. Our pre-test indicated that it would take approximately 20 minutes to complete the questionnaire. Thus, participants were compensated at a rate of 30 RMB per hour (approximately 4.35 US dollars) for their time. The online survey was available for a period of two weeks and participants were only allowed to fill out the survey once. At the beginning of the survey, screening questions were used to determine the eligibility of participants. Participants were asked to indicate their prior experience with WeChat Moments (e.g., “Have you ever used WeChat Moments?”). We then removed respondents who did not pass the screening questions. Next, respondents were asked to answer demographic and background questions (e.g., age, gender, education, employment status, Moments visit frequency, and threat). Finally, they were asked to answer the items that measure the key variables investigated in this study. We received a total of 350 attempted responses and 58 responses were removed due to ineligibility for participation or incomplete submissions. The final sample consisted of 292 valid responses for data analysis. Moreover, we followed classic procedures for preventing common method bias a priori, including randomizing the display of

questions and using question items adapted from well-established scales.

4.1. Profile of Respondents

Table I summarizes the respondents' demographics. Of the 292 participants, 169 participants (57.90%) were between 21 and 25 years old. The participants included 129 males (44.20%), and 163 females (55.80%). Most of them had a bachelor's degree, master's degree, or Ph.D. as their educational background.

Table I. Demographic Characteristics of Respondents (n = 292)

Variables	Frequency (percent)	
Age (enter age):		
Under 20	32	11.00%
21–25	169	57.90%
26–40	85	29.10%
Over 40	6	2.00%
Gender:		
Male	129	44.20%
Female	163	55.80%
Employment status:		
Student	226	77.40%
Employed part-time	9	3.10%
Employed full-time	54	18.50%
Not employed	3	1.00%
Education level:		
Less than high school or secondary school	5	1.70%
High school or secondary school	14	4.80%
Some university, but have not completed a degree	13	4.45%
Associate degree	9	3.10%
Bachelor's degree	87	29.80%
Master's degree	125	42.80%
Doctorate/Ph.D.	39	13.35%
Threat: Have you ever been a victim of cyberstalking?		
Yes	233	79.80%
No	59	20.20%
Visit frequency: I visit Moments regularly.		
1 = strongly disagree	7	2.40%
2 = disagree	15	5.14%
3 = slightly disagree	16	5.50%
4 = neutral	40	13.70%
5 = slightly agree	69	23.60%
6 = agree	97	33.22%
7 = strongly agree	48	16.44%

Source: Authors' own creation

The majority (226) of the participants (77.40%) were students. On average, 145 of the participants (49.66%) visited SNSs frequently and very frequently (Mean = 5.16; SD = 1.474). The sample consisted of 233 respondents (79.80%) who were victims of cyberstalking. In China, the heaviest users of SNS tend to

be younger adults and students (CNNIC, 2021). Thus, whereas we employed convenience sampling, it can be assumed to be reasonably representative of many WeChat Moments users in China.

4.2. Measures

All the constructs were adopted from previous theoretical and empirical literature (as detailed in Appendix B). All the measurement items were measured on seven-point Likert-type scales ranging from “strongly disagree” to “strongly agree” and with appropriate modifications in the wording to fit our context of Moments study. Specifically, measurement items for self-presentation were adapted from Krasnova *et al.* (2010) and Walther *et al.* (2001). This scale consists of two original items (Walther *et al.*, 2001). Following Krasnova *et al.* (2010)’s recommendations, we added one item and used a three-item scale to measure users’ self-presentation on SNS. Items for reciprocity were adapted from Kankanhalli *et al.* (2005) and Wasko and Faraj (2005) to our context. Social influence to use an SNS was from Venkatesh *et al.* (2003). The measures for enjoyment were partially based on Nambisan and Baron (2007) and extracted from Krasnova *et al.* (2010). Following Posey *et al.* (2010), we added item three and item five to examine how users would react to social influence in SNS. The measure of self-disclosure was based on items developed by Wheelless and Grotz (1976) and Wheelless (1978). The self-reported self-disclosure consists of 32 Likert-type statements originally (Wheelless and Grotz, 1976) and 21 of them were consolidated for SNS context (Posey *et al.*, 2010). Altogether, all the latent constructs were modeled as reflective constructs except for the construct self-disclosure. Self-disclosure was a formative construct composed of five subconstructs: amount, depth, intent, honesty, and valence.

Given that our study was conducted in the Chinese SNS context, and the original measures of the constructs were in English, we translated the survey instruments from English into Chinese (Brislin, 1993). Specifically, to ensure cross-cultural equivalence, the questionnaire was first translated from the original English into Chinese by four bilingual researchers, and it was then translated back into English by another bilingualist, following established procedures (Lowry *et al.*, 2011). Some modifications were made after comparing the two versions. Before sending out the survey links, the questionnaires were distributed to

several researchers and SNS users for their review. Some revisions were made according to their feedback. Finally, the survey links were sent out to the WeChat Moments respondents.

5. Analyses and Results

The research model was analyzed by SmartPLS 2.0 M3 using partial least square (PLS) structural equation modeling (SEM), which has been established as a highly appropriate path modeling method for both formative and reflective constructs (Ringle *et al.*, 2005; Lowry and Gaskin, 2014; Hair Jr *et al.*, 2018; Gudergan *et al.*, 2008). First, we ran a confirmatory factor analysis to examine the validity of the measures in the structural model. Second, following common practice, we constructed a factor score to consolidate the reflective items of each subconstruct of self-disclosure. Accordingly, the number of items of self-disclosure was reduced to five (e.g., self-disclosure was modeled as a formative construct composed of five reflective subconstructs). Third, we tested the hypothesized structural model upon the second procedure.

5.1. Results of Assessing the Measurement Model

We followed Petter *et al.* (2007) to partially test the reliability of self-disclosure by assessing for multicollinearity. All the variance inflation factors of amount, depth, intent, honesty, and valence directed at self-disclosure were below 3.0 (see Table II). The data analysis results indicated our model did not have a multicollinearity problem (Petter *et al.*, 2007).

Table II. Formative Indicator Weights and VIF

First-order construct	Tolerance	VIF
Amount	0.635	1.575
Depth	0.784	1.275
Intent	0.611	1.636
Honesty	0.621	1.610
Valence	0.610	1.640

Note: VIF = variance inflation factor.

Source: Authors' own creation

To address the potential concern for common method bias, we performed three tests. First, we conducted the Harman single-factor test and loaded all variables into an exploratory factor analysis to determine whether a single factor explained most of the variance among the variables (Podsakoff and Organ, 1986). The results revealed that the first factor accounted for only 37.18% of the total variance, which is

below the threshold of 50%. Second, we followed Lowry and Gaskin (2014) and Pavlou *et al.* (2007) to examine the correlation matrix of the constructs (Table III) to check if any of the correlations reached 0.9, which could indicate the existence of a common method bias. Given that none of the correlations were above 0.9, we concluded that common method bias is unlikely to be a significant issue with our data. Third, we followed suggestions by Liang *et al.* (2007) to include a common method factor, which includes all the principal constructs' indicators. Variances of each indicator by its principal construct and the method factor had been estimated. The results (as shown in Appendix C) indicated that the average substantively explained variance of the indicators was 0.766 and was much larger than the average method-based variance of 0.002. In addition, the substantive factor loadings of each indicator were statistically significant and larger than the method factor loadings. As such, we conclude that common method bias was not a concern for this study.

Table III. Cronbach's α , CR, AVE, and Construct Correlations

	Cronbach's α	CR	AVE	1	2	3	4	5	6	7	8	9
1. PRE	0.931	0.956	0.879	0.938								
2. REC	0.813	0.889	0.728	0.660	0.853							
3. SOI	0.916	0.937	0.750	0.646	0.678	0.866						
4. ENJ	0.911	0.944	0.849	0.606	0.692	0.694	0.921					
5. AMO	0.801	0.825	0.559	0.265	0.310	0.374	0.389	0.748				
6. DEP	0.840	0.892	0.673	0.220	0.284	0.237	0.281	0.454	0.820			
7. INT	0.926	0.953	0.871	0.627	0.608	0.643	0.547	0.258	0.184	.0933		
8. HON	0.911	0.937	0.789	0.307	0.376	0.393	0.335	0.454	0.205	0.476	0.888	
9. VAL	0.828	0.898	0.745	0.567	0.555	0.547	0.507	0.287	0.238	0.577	0.464	0.863

Note: The diagonal elements (in bold) are the square roots of the average variance extracted (AVE) values; AMO = self-disclosure (amount); CR = composite reliability; DEP = self-disclosure (depth); ENJ = enjoyment; HON = self-disclosure (honesty); INT = self-disclosure (intent); PRE = self-presentation; REC = reciprocity; SOI = social influence to use an SNS; SNS = social networking sites; VAL = self-disclosure (valence).

Source: Authors' own creation

Next, we assessed the convergent and discriminant validity of the reflective constructs through confirmatory factor analysis (Cenfetelli and Bassellier, 2009; Gefen *et al.*, 2011). All loadings were above 0.5, except for the fifth item of self-disclosure (amount), the fifth item of self-disclosure (honesty), and the second item of self-disclosure (valence). After these poor loadings were excluded, the reduced items set yielded acceptable levels of convergent validity. As Table III shows, the square root of the average variance

extracted (AVE) was greater than its correlation with other variables, and all the AVE values were above 0.5, which showed satisfactory discriminant validity (Chin *et al.*, 2003; Lowry *et al.*, 2008; Lowry *et al.*, 2009). All composite reliabilities (CRs) and the Cronbach's α of the constructs exceed 0.7, which demonstrated high levels of reliability of the scales (Straub, 1989). In summary, we provide a descriptive statistics table (see Table IV) to illustrate the general characteristics of the constructs and factor loadings of the measurement items.

Table IV. Means, Standard Deviations, and Factor Loadings of Measurement Items

Variables	Mean	Standard Deviation	Items	Factor loading
Self-presentation	4.994	1.175	PRE1	0.937
			PRE2	0.943
			PRE3	0.932
Reciprocity	5.098	1.137	REC1	0.875
			REC2	0.883
			REC3	0.799
Social influence to use an SNS	5.000	1.124	SOI1	0.806
			SOI2	0.922
			SOI3	0.894
			SOI4	0.913
			SOI5	0.788
Enjoyment	4.984	1.175	ENJ1	0.899
			ENJ2	0.941
			ENJ3	0.924
Amount	3.707	1.264	AMO1	0.936
			AMO2	0.922
			AMO3	0.506
			AMO4	0.504
Depth	3.307	1.160	DEP1	0.852
			DEP2	0.788
			DEP3	0.766
			DEP4	0.870
Intent	5.124	1.116	INT1	0.927
			INT2	0.944
			INT3	0.929
Honesty	4.249	1.301	HON1	0.867
			HON2	0.893
			HON3	0.911
			HON4	0.881
Valence	4.651	1.113	VAL1	0.831
			VAL3	0.899
			VAL4	0.858

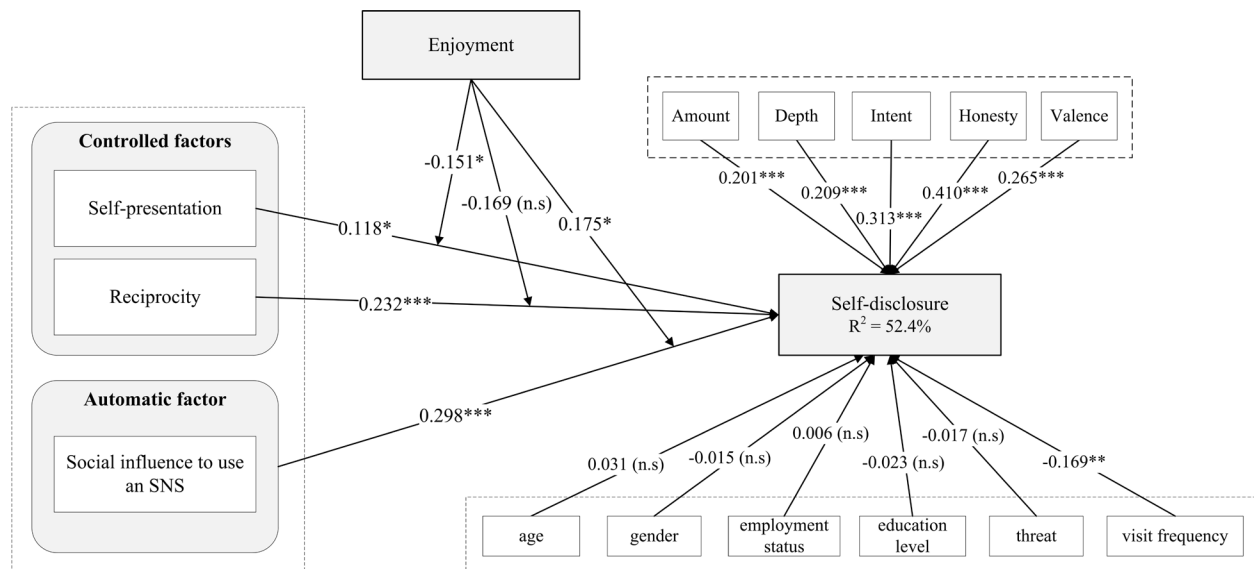
Note: AMO = self-disclosure (amount); DEP = self-disclosure (depth); ENJ = enjoyment; HON = self-disclosure (honesty); INT = self-disclosure (intent); PRE = self-presentation; REC = reciprocity; SOI = social influence to use an SNS; SNS = social networking sites; VAL = self-disclosure (valence).

Source: Authors' own creation

5.2. Results of the Analysis of the Structural Model

To test hypotheses in the proposed model, a standard bootstrap resampling procedure was performed in SmartPLS 2.0 M3 (Ringle et al., 2005). The results showed that self-presentation ($\beta = 0.118, p < 0.05$), reciprocity ($\beta = 0.232, p < 0.001$), and social influence to use an SNS ($\beta = 0.298, p < 0.001$) were key significant predictors of self-disclosure. Hence, H1, H2, and H3 were supported. Age, gender, status, education, and threat had no influence on self-disclosure. Notably, visit frequency on Moments was significantly negatively related to self-disclosure ($\beta = -0.169, p < 0.01$). Enjoyment had negative moderating effects on the controlled self-disclosure process ($\beta = -0.151, p < 0.01$; $\beta = -0.169, p > 0.05$), and enjoyment positively moderated the relationship between social influence to use an SNS and self-disclosure ($\beta = 0.175, p < 0.05$). Therefore, H4 and H6 were supported, and H5 was not supported.

As summarized in Figure 2, all the hypotheses (H1, H2, H3, H4, and H6) were significant at the 0.05



Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; SNS = social networking sites.

Figure 2. Results of Path-Model Analysis

Source: Authors' own creation

level, 0.01 level, or 0.001 level, except H5 which was not significant. The controlled factors (self-presentation and reciprocity), automatic factor (social influence to use an SNS), and enjoyment together explained 52.4% of the variance in self-disclosure. We used AMOS 24 to assess the overall fit of the model.

Per leading CB-SEM standards (Hu and Bentler, 1999), the common indices of the AMOS-generated SEM indicated an overall good model fit: CFI = 0.951, $\chi^2/df = 2.355$, and RMSEA = 0.064. The path coefficients (β) and significance (t -values) are detailed in Table V.

Table V. Summary of Path Coefficients and Significant Levels

Tested path	Path coefficient (β)	t -value (df =292)	Hypothesis supported?
Hypotheses			
H1. Self-presentation → Self-disclosure	0.118	2.118*	Yes
H2. Reciprocity → Self-disclosure	0.232	3.448***	Yes
H3. Social influence to use an SNS → Self-disclosure	0.298	4.644***	Yes
H4. Self-presentation * Enjoyment → Self-disclosure	-0.151	2.083*	Yes
H5. Reciprocity * Enjoyment → Self-disclosure	-0.169	1.888	Not supported
H6. Social influence to use an SNS * Enjoyment → Self-disclosure	0.175	2.228*	Yes
Control variables			
Age → Self-disclosure	0.031	0.910	
Gender → Self-disclosure	-0.015	0.533	
Employment status → Self-disclosure	0.006	0.200	
Education level → Self-disclosure	-0.023	0.757	
Threat → Self-disclosure	-0.017	0.695	
Visit frequency → Self-disclosure	-0.169	2.717**	

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; SNS = social networking sites.

Source: Authors' own creation

5.3. Results of the Moderating Effect of Enjoyment

This study aims to examine the research question of when and how enjoyment (i.e., a hedonic experience) affects controlled and automatic self-disclosure processes. The results, as shown in Figures 3 and 4—confirmed our proposed negative moderating effect of enjoyment in the controlled self-disclosure, and the positive moderating effect of enjoyment in the automatic self-disclosure process. Figure 3 indicates that enjoyment negatively moderates the relationship between self-presentation and self-disclosure, such that these relationships weaken in strength as enjoyment increases. As hypothesized, when enjoyment is high, users are absorbed and immersed in the hedonic experience condition (Weber *et al.*, 2009), and thus are less concerned with the complex self-disclosure behaviors that increase mental work, such as intentionally presenting themselves through self-disclosure. By contrast, when enjoyment is low, the path coefficient

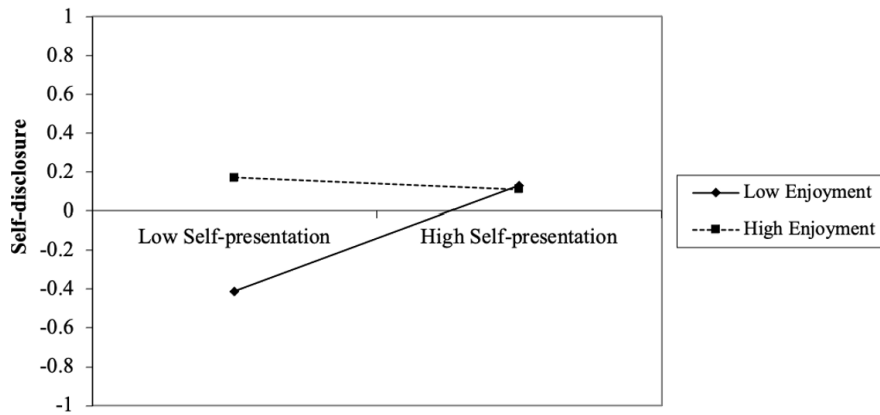


Figure 3 The moderating effect of enjoyment on the relationship between self-presentation and self-disclosure (standardized data result)

Source: Authors' own creation

from self-presentation to self-disclosure is significantly stronger. Therefore, H4 is supported. This is consistent with previous studies, such as the work of Lee and Murphy (2008), which postulate that when users have unsatisfied or less pleasant experiences with the mobile service use, they may turn to utilitarian planned purposes. Similarly, in the context of SNS, when users have less pleasant experiences, they may turn to utilitarian planned behaviors, such as self-presentation, subsequently increasing self-disclosure.

Figure 4 shows that enjoyment positively moderates the relationship between social influence to use

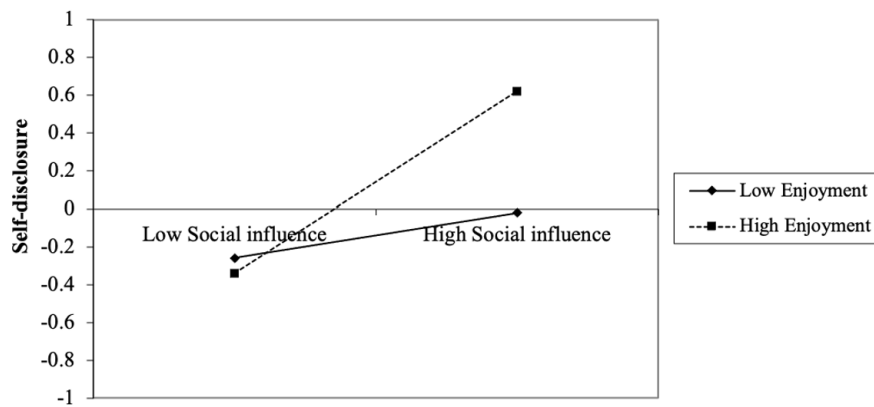


Figure 4 The moderating effect of enjoyment on the relationship between social influence to use an SNS and self-disclosure (standardized data result)

Source: Authors' own creation

an SNS and self-disclosure, such that the relationship strengthens as enjoyment increases. As hypothesized, when SNS use is more enjoyable, enjoyment and automaticity (i.e., social influence to use an SNS) can be

complementary across SNS self-disclosure. Conversely, when users have lower levels of enjoyment, the path coefficient from social influence to use SNS to self-disclosure is significantly weaker. Therefore, H6 was supported. This is in line with previous studies that when users suffer from a negative emotional state (Weber *et al.*, 2009; Vorderer *et al.*, 2004), their motivations for using IT would be lower (Venkatesh, 2000; Davis *et al.*, 1992). Users may take more actions to recover from themselves, and the external social influence becomes less important to them. In other words, users who experience lower levels of enjoyment are less sensitive to social influence and thus are less likely to increase their self-disclosure compared to users with higher levels of enjoyment.

Notably, enjoyment had no interaction effect on the relationship between reciprocity and self-disclosure. One possible explanation for this outcome is that reciprocity entails one's relationships and interactions with others and may be influenced by peer contact and communication. Relationships can be divided into strong ties and weak ties (Granovetter, 1983). The research context of our study was WeChat Moments, on which social interactions are relatively private and users have better control over their strong-tie reciprocity. Posts on Moments are available to friends but the comments below the posts are only available to friends who are mutual friends of the users. These artifacts cause users to be more in control of their reciprocity than self-presentation. Thus, emotional enjoyment is likely less sufficient and irrelevant to influence their controlled reciprocal self-disclosure. As the relationship between reciprocity and enjoyment becomes more complicated, future research could further analyze this phenomenon under different relational scenarios and in other research contexts. Another interesting finding is that frequent use of Moments is negatively associated with self-disclosure. We speculate that this may be because these individuals spend a lot of time lurking on SNS rather than investing time and effort in generating SNS content (Nonnecke *et al.*, 2006; Ortiz *et al.*, 2018).

In summary, the findings provide answers to the research questions that initially motivated our research. Most of the proposed hypotheses are supported by the data analysis (except for H5, which is not supported). This study may provide empirical support for the theoretical model built on the dual-process

perspective that examines the formation of self-disclosure in the SNS context.

6. Theoretical contribution and practical implications

First, this study leverages DPT to develop a contextualized conceptual model by integrating the controlled, automatic, and emotional mechanisms in the self-disclosure model, which expands the current SNS research discourse. Previous studies addressed the direct effects of enjoyment on self-disclosure (Posey *et al.*, 2010; Cheung *et al.*, 2015) and the interplay between dual-process factors and emotional factor (i.e., enjoyment) is to be further explored to enrich the understanding of mechanisms inducing self-disclosure behaviors. The result of our study reveals that enjoyment strengthens the relationship between the automatic factor (i.e., social influence to use SNS) and self-disclosure while weakening the relationship between the controlled factor (i.e., self-presentation) and self-disclosure. It shows a nuanced role of enjoyment as a moderator in self-disclosure in that it works differently in controlled and automatic processes, which may provide new directions for future SNS research.

Second, this study potentially yields several implications for practice, should the results continue to hold in similar settings. Drawing on DPT, this study presents two alternative modes of self-disclosure and demonstrates that social influence to use an SNS has a greater influence on SNS users' content generating. We thus suggest SNS websites pay more attention to the design of the social aspects of an SNS website. For instance, websites could provide a variety of compatible and user-friendly features to improve users' social experiences. Some recommendation interfaces related to users' favorite celebrities or teams could be enhanced to improve the social functioning of the SNS system. Some gamification features (e.g., leaderboards, status badges, points, and awards) could also be designed to help with the social aspect of an SNS (Lowry *et al.*, 2020; Na and Han, 2023). For example, the leaderboards could be designed to encourage individuals to form a team to compete, thereby increasing their awareness of social interaction. The presence of positive social interactions on the SNS is a crucial factor for user retention and the overall success of the platform. Users who experience positive social interactions are more likely to continue using the system, thereby contributing to its ultimate success. Increased self-disclosure also provides substantial

benefits for businesses that rely on gathering information about their target customers. By encouraging users to engage in self-disclosure, businesses can effectively build their online community to acquire new customers.

Finally, the results show that enjoyment and social influence to use an SNS could work together to promote self-disclosure. Users who have social interactions and hedonic experiences on the SNS are likely to be immersed in the platform, which is especially important for SNS development. Thus, designers could introduce additional services like “play and chat with me” to gamify the social interaction to make the SNS more fun and pleasant to influence SNS users’ participation and engagement. Conversely, enjoyment negatively moderates self-presentation’s influence on self-disclosure. If this continues to hold, then it appears that designers need to carefully balance SNS design by shifting their focus from utilitarian value solely to both hedonic and utilitarian values. They may not promote excessive enjoyable experiences, because such users are less likely to engage in SNS self-disclosure that requires cognitive effort. Some enjoyment-facilitating features of an SNS may also prohibit content generation and have adverse outcomes. One design possibility, which requires additional research to verify, is that it might be fruitful to design SNS such that once a user has generated sufficient content and disclosure, only then can they experience more joy-oriented features. In the end, enjoyment had no interaction effect on the relationship between reciprocity and self-disclosure. It is important to acknowledge that this finding is specific to the context of WeChat Moments, and thus future research could explore whether there are other contexts in which enjoyment may moderate the relationship between reciprocity and self-disclosure. In terms of practice, designers should fully consider different aspects of DPT and focus on various utility mechanisms of enjoyment to design better SNS products.

7. Limitations and future research directions

This study has several limitations that raise several interesting future research opportunities. First, our findings are limited to the cross-sectional survey data. To further understand and test the dual-process nature of our model, both controlled experimentation and longitudinal field studies would be helpful.

Second, future research could be extended to larger areas and other SNS platforms (e.g., Facebook, Twitter, Sina Weibo, and TikTok) with a larger sample to extend the generalizability. A cross-cultural study could also be valuable to confirm whether the controlled and automatic self-disclosure processes can be supported in different cultural backgrounds.

Third, we focused on three core constructs (self-presentation, reciprocity, and social influence to use an SNS) to represent the core ideas of the DPT (i.e., controlled and automatic processes), but other controlled and automatic factors are likely to influence self-disclosure, especially if the context shifts. Future research could consider investigating some other predictors, such as perceived affinity and cognitive absorption, to further contextualize the various SNS self-disclosure processes.

Our final limitation is related to the measurement method for having not captured subjects' actual behaviors. Thus, future research could leverage a data-mining approach to track users' use records and create some specific applications to code users' actual self-disclosure over time.

8. Conclusion

Theoretically, this study provides a new perspective to explain the self-disclosure process by adopting DPT. As hypothesized, this research confirms that enjoyment and social influence to use an SNS are complementary in the SNS self-disclosure process, and enjoyment negatively moderates the positive relationship between self-presentation and self-disclosure. Should our results continue to hold in other settings, SNS platforms should place more design focus on the social and hedonic aspects of SNS user interactions to enhance their experience and increase their self-disclosure. In summary, we believe it is crucial for SNS researchers and users to shift their paradigms from primarily focusing on controlled processes of self-disclosure (e.g., cost-benefit) to a broader consideration of the dual processes and emotional enjoyment involved.

Appendix A. Literature Review of DPT Used in SNS Research

Source	Method	Context	Underlying theorie(s) used	Constructs in the dual-process model
Fang (2019)	Survey	Purchase decisions on social media websites	Heuristic-systematic model, media system dependency theory, tangibility theory, and help-seeking logics	Two kinds of help-seeking logic (independence and autonomy), satisfaction, perceived diagnosis, and decision performance
Gwebu <i>et al.</i> (2014)	Survey	Continuance usage intention of multifunctional friend networking services	Dual-process theories of decision making	Analysis-based mechanisms, emotion-based mechanisms, habit/automaticity, continuous intentions, and comprehensiveness intention
Larose (2010)	Meta-analysis	Media habits	Dual-process theory, uses and gratifications theory, theory of planned behavior, and social cognitive theory	Immediate outcome expectations, Long-run average outcome expectations, conscious intentions, self-regulation, habit strength, contextual cues, and media consumption behavior
Lewis <i>et al.</i> (2014)	Experiment	Media enjoyment and appreciation	Dual-process theory	Slow/fast response times and presence/absence of conflict with self-reported experiences of appreciation/enjoyment
Li <i>et al.</i> (2021)	Text mining	Micro-blogger's interaction behavior	Elaboration likelihood model	Content features (topical relevance, information richness) of post, source features (credibility, social ties, and activeness) of micro-blogger, and users' interaction behaviors
Liu <i>et al.</i> (2012)	Text mining	Information retweeting in microblogging	Heuristic-systematic model	Source trustworthiness, source expertise, source attractiveness, the number of multimedia, source expertise, user trustworthiness, content objectivity, and information retweeting
Liu <i>et al.</i> (2019)	Survey	Role conflict on self-disclosure in social network sites	Boundary regulation and dual-process theories	Role conflict, privacy risk, perceived control, self-disclosure behavior, and high-effort versus low-effort processing
Ofir and Hamed (2018)	Survey	Impulsive use and swearing on social networking sites	Dual-system theory	Cognitive-emotional preoccupation, cognitive-behavioral control, impulsive use, and swearing behaviors

Source	Method	Context	Underlying theorie(s) used	Constructs in the dual-process model
Ostendorf <i>et al.</i> (2020)	Experiment	Individual social media decision making and problematic social-networks-use	Dual-process theory	Decision making tendency, problematic social-networks-use, self-disclosure-profile, and self-disclosure-posts
Polites <i>et al.</i> (2018)	Survey	Dark side of social networking sites use	Dual-system theory	Normative beliefs, usage behaviors, habits, self-identity, and self-regulation
Shi <i>et al.</i> (2018)	Data mining	Social networking sites users' information dissemination behavior	Elaboration likelihood model	Information receiver-related factor, relationships-related factors, source-related factors, social tie strength, value homophily, and individual dissemination behavior
Sicilia <i>et al.</i> (2020)	Experiment	Social media friends	Elaboration likelihood model	Unintentional influence similarity, tie strength, source usefulness, information usefulness, purchase intention, and social media engagement
Turel and Qahri-Saremi (2016)	Survey	Problematic use of social networking sites	Dual-system theory	Cognitive-emotional preoccupation, cognitive-behavioral control, problematic use of the SNS, and academic performance
Wang <i>et al.</i> (2019)	Survey	Privacy decision making in Chinese social media	Elaboration likelihood model	Self-disclosure intention, rational calculations of privacy issues, perceived rewards, information about privacy harms, information asymmetry between users and operators, flow experience, and privacy disclosure of friends

Source: Authors' own creation

Appendix B. Measurement Scales

All scales were measured as 7-point Likert-type scales anchored on “strongly disagree, moderately disagree, slightly disagree, neither disagree nor agree, slightly agree, moderately agree, strongly agree.” Questions were framed in the context of WeChat Moments users in China.

Construct	Subconstruct	Items	Items in Chinese
Self-presentation (Walther <i>et al.</i> , 2001; Krasnova <i>et al.</i> , 2010)	N/A	<ul style="list-style-type: none"> • PRE1: I try to make a good impression on others on Moments. • PRE2: I try to present myself in a favorable way on Moments. • PRE3: Moments helps me to present my best sides to others. 	<ol style="list-style-type: none"> 1.我试着在^b朋友圈给别人留下好印象。 2.我试着在朋友圈上以一种有利的方式展示自己。 3.朋友圈帮助我向别人展示我最好的一面。
Reciprocity (Kankanhalli <i>et al.</i> , 2005; Wasko and Faraj, 2005)	N/A	<ul style="list-style-type: none"> • REC1. When others disclose personal information on Moments, I believe that they expect me to do the same. • REC2. Other users on Moments trust me to return the favor of sharing personal information. • REC3. I know that other users on Moments would disclose information about themselves, so it is only fair to do the same. 	<ol style="list-style-type: none"> 1.当其他人在朋友圈上表露个人信息的时候，我相信他们希望我也会这么做。 2.朋友圈上的其他人相信我会回报他们分享个人信息的好意。 3.我知道朋友圈上的其他用户会表露关于自己的信息，所以和他们一样表露信息才是公平的对等的。
Social influence to use an SNS, adapted to SNS context from Venkatesh (2003)	N/A	<ul style="list-style-type: none"> • SOC1. People who influence my behavior think I should use Moments. • SOC2. People who are important to me think I should use Moments. • SOC3. I use Moments because of the proportion of my friends that use it. • SOC4. People I am associated with who use Moments gain important benefits from using it. • SOC5. Having a personal profile on Moments is considered a status symbol. 	<ol style="list-style-type: none"> 1. 那些影响我行为的人认为我应该使用朋友圈。 2. 那些对我来说重要的人认为我应该使用朋友圈。 3. 我使用朋友圈因为我大部分的朋友在使用它。 4. 和我有关联的人从使用朋友圈中获得了很大的好处。 5. 在朋友圈上有个人主页，是一种身份的象征。

Construct	Subconstruct	Items	Items in Chinese
Enjoyment, adapted from Nambisan and Baron (2007) and Krasnova <i>et al.</i> (2010)	N/A	<ul style="list-style-type: none"> • ENJ1. When I am bored, I often use Moments. • ENJ2. I find Moments entertaining. • ENJ3. I spend enjoyable and relaxing time on Moments. 	<ol style="list-style-type: none"> 1.当我无聊的时候，我经常使用朋友圈。 2.我觉得朋友圈很有趣。 3.我在朋友圈度过了愉快和放松的时光。
Self-disclosure, adapted to online context from Wheelless and Grotz (1976) and Wheelless (1978)	Amount	<ul style="list-style-type: none"> • *AMO1. I do not often talk about myself on Moments. • AMO2. I usually talk about myself for fairly long periods at a time on Moments. • *AMO3. My conversation online lasts the least time when I am discussing myself on Moments. • AMO4. I often talk about myself on Moments. • ^aAMO5. I often discuss my feelings about myself on Moments. 	<p>在朋友圈上，</p> <ol style="list-style-type: none"> 1. 我不怎么经常谈论自己。 2.我经常愿意花相当长的时间谈论我自己。 3.当我谈论自己时，对话的持续时间很短。 4.我经常聊自己。 5.我经常谈论/发表自己的感受。
	Depth	<ul style="list-style-type: none"> • DEP1. I intimately disclose who I really am, openly and fully in my conversation on Moments. • DEP2. I often disclose intimate, personal things about myself without hesitation on Moments. • DEP3. I feel that I sometimes do not control my self-disclosure of personal or intimate things I tell about myself on Moments. • DEP4. Once I get started, I intimately and fully reveal myself in my self-disclosures on Moments. 	<p>在朋友圈上，</p> <ol style="list-style-type: none"> 1.聊天中，我公开、全面地透露了自己的真实身份。 2.我经常毫不犹豫地表露自己的个人隐私信息。 3.我感到有时我不能控制自己谈论自己个人或隐私信息的行为。 4.一旦开始表露信息，我就会完全地展示自己的个人隐私信息。

Construct	Subconstruct	Items	Items in Chinese
	Intent	<ul style="list-style-type: none"> • INT1. When I express my personal feelings on Moments, I am always aware of what I am doing and saying. • INT2. When I reveal my feelings about myself on Moments, I consciously intend to do so. • INT3. When I am self-disclosing on SNSs, I am consciously aware of what I am revealing. 	<p>在朋友圈上，</p> <ol style="list-style-type: none"> 1. 当我表达我的个人感受时，我能意识到我在做什么说什么。 2. 当我表露关于自己的感受时，我有意识地打算这样做。 3. 当我表露自我时，我会清楚地意识到自己在说什么。
	Honesty	<ul style="list-style-type: none"> • HON1. I always feel completely sincere when I reveal my own feelings and experiences on Moments. • HON2. My online self-disclosures are completely accurate reflections of who I really am on Moments. • *HON3. I am not always honest in my self-disclosures on Moments. • HON4. My statements online about my own feelings, emotions, and experiences are always accurate self-perceptions on Moments. • ^aHON5. I am always honest in my self-disclosures on Moments. 	<p>在朋友圈上，</p> <ol style="list-style-type: none"> 1. 表露自己的感受和经历时，我是完全真诚的。 2. 自我表露的内容准确地反应了我是怎样的。 3. 我的自我表露并不总是诚实的。 4. 我认为自己关于自己感觉、情绪和经历的表露都是准确的自我感知。 5. 我的自我表露总是诚实的。
	Valence	<ul style="list-style-type: none"> • VAL1. I usually disclose positive things about myself on Moments. • ^aVAL2. I normally reveal “bad” feelings I have about myself on Moments. • VAL3. I normally express my “good” feelings about myself on Moments. • VAL4. On the whole, my disclosures about myself on Moments are more positive than negative. 	<p>在朋友圈上，</p> <ol style="list-style-type: none"> 1. 我经常表露的关于自己的事情都是正面的。 2. 我经常会上表露自己“消极”或“负面”的感受。 3. 我一般都表露关于自己“积极”或“正面”的感受。 4. 我对自己的事情的表露是偏积极的。

* = reverse-coded item, ^a = items that demonstrated poor loadings, ^b □ □ □ = □ □ □ □ □ .

Source: Authors' own creation

Appendix C. Common Method Bias Analysis

Construct	Item	Substantive Factor Loading (R1)	R1 ²	Method Factor Loading (R2)	R2 ²
Self-presentation (PRE)	PRE1	0.9313	0.867	0.0075	0.000
	PRE2	0.9354	0.875	0.0108	0.000
	PRE3	0.9457	0.894	-0.0185	0.000
Reciprocity (REC)	REC1	0.7776	0.605	0.1088	0.012
	REC2	0.8401	0.706	0.0515	0.003
	REC3	0.9520	0.906	-0.1740	0.030
Social influence to use an SNS (SOI)	SOI1	0.9350	0.874	-0.1449	0.021
	SOI2	0.8514	0.725	0.0828	0.007
	SOI3	0.8446	0.713	0.0582	0.003
	SOI4	0.9462	0.895	-0.0406	0.002
	SOI5	0.7561	0.572	0.0321	0.001
Enjoyment (ENJ)	ENJ1	0.9416	0.887	-0.0557	0.003
	ENJ2	0.9073	0.823	0.0468	0.002
	ENJ3	0.9168	0.841	0.0065	0.000
Amount (AMO)	AMO1	0.7161	0.513	0.5374	0.3047
	AMO2	0.7099	0.504	0.4886	0.2591
	AMO3	0.8930	0.797	-0.0445	-0.344
	AMO4	0.8735	0.763	-0.0193	-0.302
Depth (DEP)	DEP1	0.7485	0.560	0.1593	0.025
	DEP2	0.8363	0.699	-0.0804	0.006
	DEP3	0.7730	0.598	0.0282	0.001
	DEP4	0.9280	0.861	-0.1019	0.010
Intent (INT)	INT1	0.9435	0.890	-0.0202	0.000
	INT2	0.9389	0.882	0.0067	0.000
	INT3	0.9180	0.843	0.0134	0.000
Honesty (HON)	HON1	0.8388	0.704	0.0357	0.001
	HON2	0.9491	0.901	-0.0750	0.006
	HON3	0.8571	0.735	0.0729	0.005
	HON4	0.9086	0.826	-0.0352	0.001
Valence (VAL)	VAL1	0.8586	0.737	-0.0406	0.002
	VAL3	0.8416	0.708	0.0757	0.006
	VAL4	0.8918	0.795	-0.0403	0.002
Average		0.872	0.766	0.029	0.002

Source: Authors' own creation

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Appendix A. Literature Review of DPT Used in SNS Research

Source	Method	Context	Underlying theorie(s) used	Constructs in the dual-process model
Fang (2019)	Survey	Purchase decisions on social media websites	Heuristic-systematic model, media system dependency theory, and tangibility theory, and help-seeking logics	Two kinds of help-seeking logic (independence and autonomy), satisfaction, perceived diagnosis, and decision performance.
Gwebu <i>et al.</i> (2014)	Survey	Continuance usage intention of multifunctional friend networking services	Dual-process theories of decision making	Analysis-based mechanisms, emotion-based mechanisms, habit/automaticity, continuous intentions, and comprehensiveness intention.
Larose (2010)	Meta-analysis	Media habits	Dual-process theory, uses and gratifications theory, theory of planned behavior, social cognitive theory	Immediate outcome expectations, Long-run average outcome expectations, conscious intentions, self-regulation, habit strength, contextual cues, media consumption behavior
Lewis <i>et al.</i> (2014)	Experiment	Media enjoyment and appreciation	Dual-process theory	Slow/fast response times, presence/absence of conflict with self-reported experiences of appreciation/enjoyment
Li <i>et al.</i> (2021)	Text mining	Micro-blogger's interaction behavior	Elaboration likelihood model	Content features (topical relevance, information richness) of post, source features (credibility, social ties, and activeness) of micro-blogger, users' interaction behaviors.
Liu <i>et al.</i> (2012)	Text mining	Information retweeting in microblogging	Heuristic-systematic model	Source trustworthiness, source expertise, source attractiveness, the number of multimedia, source expertise, user trustworthiness, content objectivity, and information retweeting.
Liu <i>et al.</i> (2019)	Survey	Role conflict on self-disclosure in social network sites	Boundary regulation and dual-process theories	Role conflict, privacy risk, perceived control, self-disclosure behavior, high-effort versus low-effort processing.
Ofir and Hamed (2017)	Survey	Impulsive use and swearing on social networking sites	Dual-system theory	Cognitive-emotional preoccupation, cognitive-behavioral control, impulsive use, and swearing behaviors.

Source	Method	Context	Underlying theorie(s) used	Constructs in the dual-process model
Ostendorf <i>et al.</i> (2020)	Experiment	Individual social media decision making and problematic social-networks-use	Dual-process theory	Decision making tendency, problematic social-networks-use, self-disclosure-profile, self-disclosure-posts.
Polites <i>et al.</i> (2018)	Survey	Dark side of social networking sites use	Dual-system theory	Normative beliefs, usage behaviors, habits, self-identity, self-regulation.
Shi <i>et al.</i> (2018)	Data mining	Social networking sites users' information dissemination behavior	Elaboration likelihood model	Information receiver-related factor, relationships-related factors, source-related factors, social tie strength, value homophily, individual dissemination behavior.
Sicilia <i>et al.</i> (2020)	Experiment	Social media friends	Elaboration likelihood model	Unintentional influence similarity, tie strength, source usefulness, information usefulness, purchase intention, social media engagement.
Turel and Qahri-Saremi (2016)	Survey	Problematic use of social networking sites	Dual-system theory	Cognitive-emotional preoccupation, cognitive-behavioral control, problematic use of the SNS, and academic performance.
Wang <i>et al.</i> (2019)	Survey	Privacy decision making in Chinese social media	Elaboration likelihood model	Self-disclosure intention, rational calculations of privacy issues, perceived rewards, information about privacy harms, information asymmetry between users and operators, flow experience, and privacy disclosure of friends.

Appendix B. Measurement Scales

All scales were measured as 7-point Likert-type scales anchored on “strongly disagree, moderately disagree, slightly disagree, neither disagree nor agree, slightly agree, moderately agree, strongly agree.” Questions were framed in the context of China Moment users.

Construct	Subconstruct	Items	Items in Chinese
Self-presentation (Walther <i>et al.</i> , 2001; Krasnova <i>et al.</i> , 2010)	N/A	PRE1: I try to make a good impression on others on Moments. PRE2: I try to present myself in a favorable way on Moments. PRE3: Moments helps me to present my best sides to others.	1.我试着在 ^b 朋友圈给别人留下好印象。 2.我试着在朋友圈上以一种有利的方式展示自己。 3.朋友圈帮助我向别人展示我最好的一面。
Reciprocity (Kankanhalli <i>et al.</i> , 2005; Wasko and Faraj, 2005)	N/A	REC1. When others disclose personal information on Moments, I believe that they expect me to do the same. REC2. Other users on Moments trust me to return the favor of sharing personal information. REC3. I know that other users on Moments would disclose information about themselves, so it is only fair to do the same.	1.当其他人在朋友圈上表露个人信息的时候,我相信他们希望我也会这么做。 2.朋友圈上的其他人相信我会分享自己的个人信息以有利于他们。 3.我知道朋友圈上的其他用户会表露关于自己的信息,所以和他们一样表露信息才是公平的对等的。
Social influence to use an SNS, adapted to SNS context from Venkatesh (2003)	N/A	SOC1. People who influence my behavior think I should use Moments. SOC2. People who are important to me think I should use Moments. SOC3. I use Moments because of the proportion of my friends that use it. SOC4. People I am associated with who use Moments gain important benefits from using it. SOC5. Having a personal profile on Moments is considered a status symbol.	1.那些影响我行为的人认为我应该使用朋友圈。 2.那些对我来说重要的人认为我应该使用朋友圈。 3.我使用朋友圈因为我大部分的朋友在使用它。 4.和我有关联的人从使用朋友圈中获得了很大的好处。 5.在朋友圈上有个人主页,是一种身份的象征。
Enjoyment, adapted from Nambisan and Baron (2007) and (Krasnova <i>et al.</i> , 2010)	N/A	ENJ1. When I am bored, I often use Moments. ENJ2. I find Moments entertaining. ENJ3. I spend enjoyable and relaxing time on Moments.	1.当我无聊的时候,我经常使用朋友圈。 2.我觉得朋友圈很有趣。 3.我在朋友圈度过了愉快和放松的时光。

Construct	Subconstruct	Items	Items in Chinese
Self-disclosure, adapted to online context from Wheelless and Grotz (1976) and Wheelless (1978)	Amount	*AMT1. I do not often talk about myself on Moments. AMT2. I usually talk about myself for fairly long periods at a time on Moments. *AMT3. My conversation online lasts the least time when I am discussing myself on Moments. AMT4. I often talk about myself on Moments. ^a AMT5. I often discuss my feelings about myself on Moments.	在朋友圈上， 1. 我不怎么经常谈论自己。 2. 我有时愿意花相当长的时间谈论我自己。 3. 当我谈论自己时，对话的持续时间很短。 4. 我经常聊自己。 5. 我经常谈论/发表自己的感受。
	Depth	DEP1. I intimately disclose who I really am, openly and fully in my conversation on Moments. DEP2. I often disclose intimate, personal things about myself without hesitation on Moments. DEP3. I feel that I sometimes do not control my self-disclosure of personal or intimate things I tell about myself on Moments. DEP4. Once I get started, I intimately and fully reveal myself in my self-disclosures on Moments.	在朋友圈上， 1. 聊天中，我公开、全面地透露了自己的真实身份。 2. 我经常毫不犹豫地表露自己的个人隐私信息。 3. 我感到有时我不能控制自己谈论自己个人或隐私信息的行为。 4. 一旦开始表露信息，我就会完全地展示自己的个人隐私信息。
	Honesty	HON1. I always feel completely sincere when I reveal my own feelings and experiences on Moments. HON2. My online self-disclosures are completely accurate reflections of who I really am on Moments. *HON3. I am not always honest in my self-disclosures on Moments. HON4. My statements online about my own feelings, emotions, and experiences are always accurate self-perceptions on Moments. ^a HON5. I am always honest in my self-disclosures on Moments.	在朋友圈上， 1. 表露自己的感受和经历时，我是完全真诚的。 2. 自我表露的内容准确地反应了我是怎样的。 3. 我的自我表露并不总是诚实的。 4. 我认为自己关于自己感觉、情绪和经历的表露都是准确的自我感知。 5. 我的自我表露总是诚实的。

Construct	Subconstruct	Items	Items in Chinese
	Intent	INT1. When I express my personal feelings on Moments, I am always aware of what I am doing and saying. INT2. When I reveal my feelings about myself on Moments, I consciously intend to do so. INT3. When I am self-disclosing on SNSs, I am consciously aware of what I am revealing.	在朋友圈上， 1. 当我表达我的个人感受时，我能意识到我在做什么说什么。 2. 当我表露关于自己的感受时，我能够意识到我想做什么。 3. 当我表露自我时，我会清楚地意识到自己在说什么。
	Valence	VAL1. I usually disclose positive things about myself on Moments. * ^a VAL2. I normally reveal “bad” feelings I have about myself on Moments. VAL3. I normally express my “good” feelings about myself on Moments. VAL4. On the whole, my disclosures about myself on Moments are more positive than negative.	在朋友圈上， 1. 我经常表露的关于自己的事情都是正面的。 2. 我经常会上表露自己“消极”或“负面”的感受。 3. 我一般都表露关于自己“积极”或“正面”的感受。 4. 我对自己事情的表露是偏积极的。

* = reverse-coded item, ^a = items that demonstrated poor loadings, ^b □ □ □ = □ □ □ □ □ .

Appendix C. Common Method Bias Analysis

Construct	Item	Substantive Factor Loading (R1)	R1 ²	Method Factor Loading (R2)	R2 ²
Self-presentation (PRE)	PRE1	0.9313	0.867	0.0075	0.000
	PRE2	0.9354	0.875	0.0108	0.000
	PRE3	0.9457	0.894	-0.0185	0.000
Reciprocity (REC)	REC1	0.7776	0.605	0.1088	0.012
	REC2	0.8401	0.706	0.0515	0.003
	REC3	0.9520	0.906	-0.1740	0.030
Social influence to use an SNS (SOI)	SOI1	0.9350	0.874	-0.1449	0.021
	SOI2	0.8514	0.725	0.0828	0.007
	SOI3	0.8446	0.713	0.0582	0.003
	SOI4	0.9462	0.895	-0.0406	0.002
	SOI5	0.7561	0.572	0.0321	0.001
Enjoyment (ENJ)	ENJ1	0.9416	0.887	-0.0557	0.003
	ENJ2	0.9073	0.823	0.0468	0.002
	ENJ3	0.9168	0.841	0.0065	0.000
Amount (AMO)	AMO1	0.7161	0.513	0.5374	0.3047
	AMO2	0.7099	0.504	0.4886	0.2591
	AMO3	0.8930	0.797	-0.0445	-0.344
	AMO4	0.8735	0.763	-0.0193	-0.302
Depth (DEP)	DEP1	0.7485	0.560	0.1593	0.025
	DEP2	0.8363	0.699	-0.0804	0.006
	DEP3	0.7730	0.598	0.0282	0.001
	DEP4	0.9280	0.861	-0.1019	0.010
Intent (INT)	INT1	0.9435	0.890	-0.0202	0.000
	INT2	0.9389	0.882	0.0067	0.000
	INT3	0.9180	0.843	0.0134	0.000
Honesty (HON)	HON1	0.8388	0.704	0.0357	0.001
	HON2	0.9491	0.901	-0.0750	0.006
	HON3	0.8571	0.735	0.0729	0.005
	HON4	0.9086	0.826	-0.0352	0.001
Valence (VAL)	VAL1	0.8586	0.737	-0.0406	0.002
	VAL3	0.8416	0.708	0.0757	0.006
	VAL4	0.8918	0.795	-0.0403	0.002
Average		0.872	0.766	0.029	0.002

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