



THE IMPACT OF WECHAT USAGE ON INFORMATION SHARING AMONG CHINESE SECONDARY STUDENTS

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Abstract

This research investigates the impact of WeChat usage on information sharing behavior among secondary students in China, with a specific focus on analyzing the direct and indirect effects of information communication and self-disclosure on information sharing. Furthermore, it compares these impacts to the role of perceived pleasure during information exchange. The study employs quantitative data analysis based on collected sample responses. Preliminary findings indicate that both information communication and self-disclosure have a direct influence on information sharing, which is slightly stronger than their indirect influence through perceived pleasure. Surprisingly, the results suggest that perceived pleasure does not significantly determine how information communication and self-disclosure affect information sharing. Additionally, the influence of self-disclosure on information sharing surpasses that of data obtained through sample collection responses.

These findings enhance our understanding of how Chinese secondary students utilize and engage with digital communication platforms such as WeChat, providing implications for educators and policymakers aiming to promote effective behaviors related to information sharing. Future studies may explore additional mediating factors' roles and examine broader academic outcomes resulting from the use of digital communication platforms.

Keyword: Stimulation-Organism-Response Model, WeChat, Information Communication, Self-Disclosure, Perceived Pleasure, Information Sharing

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Introduction

In recent years, the proliferation of social media platforms has revolutionized the way individuals communicate and share information (Özkent, 2022). WeChat, developed by Tencent, has emerged as one of China's most dominant social media platforms, with a staggering number of active users (PR Newswire, 2024). Its immense popularity among Chinese secondary students is undeniable given its versatile capabilities and seamless user experience (CNNIC, 2018). As such, it is important to investigate how WeChat usage affects information sharing among Chinese secondary students and understand the potential implications for their academic and social development.

WeChat offers a wide range of features, including instant messaging, voice and video calls, group chats, and multimedia content sharing. These features create new opportunities for students to engage in knowledge sharing beyond traditional temporal and spatial boundaries (Zhu et al., 2024). As a result, the platform has reshaped the concept of communication, allowing students to exchange information, seek help, collaborate on projects, and participate in project discussions in real time.

This study aims to delve into several aspects of the impact of WeChat on information sharing among Chinese secondary school students. First, we will examine the motivation behind their usage of WeChat for communication purposes. It is crucial to understand whether students use WeChat primarily for information exchange benefits, or if it is more of a social and recreational platform with incidental learning.

Second, the study will assess the impact of WeChat on information acquisition and retention. Does the availability of information on WeChat enhance the information processing outcomes of students and promote a deeper understanding of the subject matter? Additionally, this study will explore the role of peer interaction and collaboration facilitated by WeChat, as students can easily form interest groups, share resources, and engage in collaborative activities.

In addition, this study seeks to contribute to the existing literature on technology-mediated information sharing by shedding light on the specific impact of WeChat among Chinese secondary school students. The findings of this study will have implications for education stakeholders, including educators, parents and policymakers, in developing strategies to leverage the benefits of WeChat for knowledge sharing while mitigating any potential negative consequences.

In conclusion, the widespread adoption of WeChat among Chinese secondary students presents a unique opportunity to explore its impact on information sharing. By uncovering the motivations, benefits, challenges and limitations associated with WeChat usage in an educational context, this study aims to provide valuable insights into the role of social media platforms in shaping student learning experiences and facilitating collaborative knowledge sharing.

Literature Review

Stimulation Organism Response Model (SOR Model)

The Stimulation-Organism-Response model is a theoretical framework used to explain how organisms, including humans, respond to external stimuli. It focuses on the relationship between the environment (stimulation), the individual (organism), and the resulting behaviors or responses (Mehrabian & Russell, 1974). In short, this model suggests that organisms process and interpret stimuli, leading to a response that can be behavioral, cognitive, or emotional.

Here is a breakdown of the three components of the SOR model:

Stimulation: Stimulation refers to external cues or environmental factors that affect an organism. It can be anything that triggers a response, such as sensory inputs, social interactions, or technological stimuli such as digital platforms. In the context of this study, the form of WeChat stimuli is identified as follows.

- "Information Communication" According to a survey by China Internet Network Information Center (2023), the main intentions of people using social applications are to interact with friends (97.1%), sharing knowledge (96.8%), follow content of interest (78.0%), learn about hot online news (72.4%), and obtaining knowledge and help (47.1%). Communication is required to achieve the above goals, and the smooth, fast, time- and space-spanning and low-cost features of WeChat have considerably boosted the development of information communication among Chinese secondary school students. Through WeChat, those students can get the information they want at any time, share what they think is valuable, maintain relationships with offline and online friends, and gain rich emotional experiences. It can be said that information communication is a critical aspect of interpersonal communication among Chinese secondary school students on WeChat, and it directly affects the participation and quality of online communication. Research shows that the more effective information communication

among those Chinese secondary students in WeChat, the higher the participation and quality of their mobile network interactions (Koskinen, 2003; Westlund, 2015; Fortunati & Manganelli, 2011; Hu & Liu, 2022)

- "Self-Disclosure "It mainly refers to secondary students actively exposing personal information when conducting interpersonal interactions on mobile social networks. Self-disclosure is a concept proposed by Jourard and Lasakow (1958), who defined it as the process in which an individual informs a target person of information about himself, while Chen and Sharma (2015) also pointed out that this information is mainly personal identity, personality, experience, future plans, interests, hobbies and lifestyle, etc. Several studies have pointed out that self-disclosure, both online and offline, has both positive and negative effects on people's lives, studies, and work. Positive impacts include increasing trust, thereby improving interpersonal relationships, promoting communication, and promoting mental health (Schneider et al., 2011). Negative effects include creating a personal privacy crisis. (Zhang & Ye, 2010) and cyberbullying (Bryce & Klang, 2009), etc. Secondary students in China are under a lot of pressure, according to an announcement by the China Youth & Children's Research Center. Intercourse, learning, relationships with parents and school can all be sources of stress. They need to be able to talk and reveal to others anytime, in reality and online. In comparison, more and more secondary school students tend to express their emotions and behavior or self-disclosure online, especially on mobile social networking platforms such as WeChat. This is because secondary students' self-disclosure on WeChat is a kind of "back-to-face" communication method maintaining exactly the right distance (Popat & Tarrant, 2023), is less restricted by realistic impression management, and is easier to reveal true feelings. It is an efficient and authentic self-disclosure (Chen, 2016; Zeng & Zhu, 2021). As a result, self-disclosure has become an essential part of interpersonal communication among secondary school students on mobile social networking platforms (Nguyen & Ho, 2022).

Organism: The organism represents the individual or group of individuals who are undergoing the stimulation, encompassing their inherent characteristics, subjective perceptions, intrinsic motivations, and cognitive processes (Bitner, 1992). So, the organism represents the internal processes and structures of the secondary students, occupying the space between the stimulus and the final behavioral response in this research. When stimulation refers to mental processes that are influenced by information communication,



self-disclosure and network dependence, as an organism, the secondary students assimilate external information into conscious statements that develop into integrated mental representations. In an alternate dimension, the structure of this organism is shaped by perception, mental activities, emotions, cognition, and thinking, thereby reflecting the cognitive abilities and emotional state of secondary students (Bagozzi, 1986). Based on the points discussed above, perceived pleasure is selected to present secondary student's cognition level, classification, sentiment level and physical level (Bitner, 1992).

- "Perceived Pleasure" It is the level to which the process of utilizing the online information resources is viewed as enjoyable is not solely tied to any expected performance results. The enjoyment extends beyond these performance outcomes. A wealth of research has examined the WeChat usage habits of Chinese secondary school students. Cao et al. 's (2023) exploration engaged over 1000 students in a survey and found that WeChat is a pervasive tool for social networking, instant messaging and information dissemination. Their findings also indicate that the average daily usage of WeChat was 3 hours per student. Parallely, Tong and Tsung's (2018) examination of almost 500 secondary students detected four key activities students engage in on the platform: engaging in conversations with friends, participating in virtual communities, exchanging articles and news, and amusing themselves with mini games. The results showed that 80 percent of the respondents used WeChat to maintain connections and share personal experiences. The enjoyment derived from WeChat usage has caught the attention of numerous scholars. Leung and Wong's (2013) exploration of the connection between WeChat activity and the pleasure experienced by Chinese secondary school students unearthed a positive correlation between the two in 2013. Additionally, in 2017, Tian and Xu conducted qualitative research performances, while Chen et al. carried out a similar study in 2021, both involving comprehensive interviews with students to gain insights into the gratification derived from platform usage (Chen et al., 2021; Tian & Xu, 2017). The findings of these studies revealed three primary sources of pleasure: social interaction and connectivity, multimedia entertainment, and the convenience of accessing diverse services. Moreover, a longitudinal study conducted by Hou et al. in 2017 unveiled the temporal dynamics of students' perceived pleasure derived from WeChat usage (Hou et al., 2017). Initially, the novelty and social connectivity features contributed to their enjoyment. However, over time, their satisfaction escalated due to the

personalized content and add-ons offered by the platform. In conclusion, Chinese secondary students exhibit regular utilization of WeChat for purposes such as social networking, knowledge exchange, and instant messaging. Their gratification stems from various elements including social interaction, multimedia entertainment, and convenience.

Response: The response is the behavioral, cognitive, or emotional reaction exhibited by the organism in response to the stimulation. It can include actions, attitudes, beliefs, or changes in knowledge or behavior. For example, in the context of WeChat usage, the response could involve increased information sharing, improved collaboration, or changes in communication patterns among Chinese secondary students.

- "Information Sharing" According to a series of studies (Chen, 2003; Batten & Savage, 2006), information sharing is defined as the fundamental behavioral performance of coordinating and integrating processes or activities. This process encompasses decisions regarding "what to share," "how to share," and "when to share," thereby reducing information costs, enhancing information content, mitigating information overload, and improving information feedback (Oh & Han, 2018). For Chinese middle school students' utilization of WeChat, effective information sharing can assist them in efficiently gaining competitive advantages and ensuring the availability of relevant information (Barua & Ravindran, 1996; Chow, 2011). Furthermore, whether these students can fulfill their online informational needs also relies on WeChat's effectiveness in transferring engaging content to other pertinent user terminal platforms (Rodrigues et al., 2022). Additionally, an effective flow of interactive information is a crucial factor influencing students' engagement in sharing information (Lee et al., 2004). Chen in 2016 also emphasized that the convenience and real-time performance of WeChat are driving factors for its widespread use among these students. Chen et al. (2021) conducted an extensive study on WeChat's behavior related to sharing frequency and motivation by considering factors such as context, relationship dynamics, and type of shared information. Zhou (2022) explored social influence aspects with an emphasis on how WeChat usage shapes peer relationships and facilitates social learning. As highlighted by Stevic et al. (2022), despite increasing privacy concerns, students continue to willingly disclose personal data on WeChat due to perceived benefits derived from trust in the platform.

Theoretical Model

The SOR model helps researchers understand the dynamic interplay between individuals, their environment, and their responses to stimuli (Mehrabian & Russell, 1974). By applying this model, the proposed theoretical model is designed to gain insights into how WeChat usage influences information-sharing behaviors and among Chinese secondary students. As shown in Figure 1 which has been notated to identify the 5 research hypotheses associated with the hypothesized causal relationships among the variables.

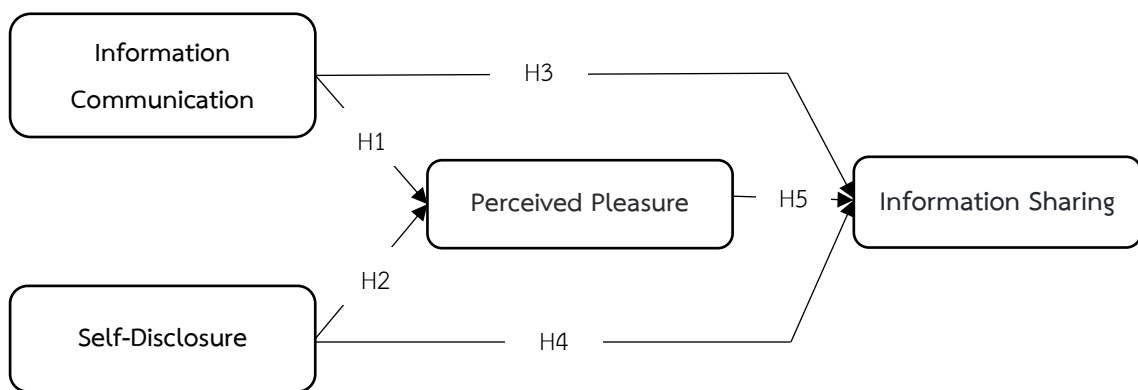


Figure 1: Theoretical Model

In Figure 1, there are four variables including 2 exogenous independent variables (Information Communication and Self-Disclosure) for which no causes are proposed and two endogenous variables (Perceived Pleasure and Information sharing), which have at least one variable as proposed cause and the endogenous variable Information Sharing is the dependent variable.

The literature review section discusses five research hypotheses associated with the direct effects, as presented in Table 1

Table 1: Research Hypotheses for Direct Effects

No.	Research Hypothesis
1.	Information communication has a significant positive direct effect on perceived pleasure.
2.	Self-disclosure has a significant positive direct effect on perceived pleasure.
3.	Information communication has a significant positive direct effect on information sharing.
4.	Self-disclosure has a significant positive direct effect on information sharing.
5.	Perceived pleasure has a significant positive direct effect on information sharing.

Note: Throughout H1 – H5, significance refers to statistical significance at 0.05 or less.

Data Preparation and Descriptive Analyses

The latent variables in the theoretical model were assessed using a 5-point Likert scale, which is considered an interval scale for analysis purposes due to its definition and the measuring instruments utilized. The findings obtained from SPSS and SEM analyses are presented in this section through an online data collection platform.

The data from a total of 456 questionnaires, comprising 249 responses from male participants and 207 responses from female participants, were entered into an SPSS spreadsheet. To ensure the accuracy of the data, a random sample of 10 percent (46) was selected for examination. No discrepancies were identified, and all questionnaires contained complete values without any outliers in the latent variables.

The Results for Construct Validity and Equivalence Reliability

The construct validity of the latent variables was assessed through principal component factor analysis, adhering to the criteria that indicators should exhibit a minimum factor loading of 0.4 and an associated eigenvalue of at least 1 when loading onto their respective latent variable (Straub et al., 2004). Equivalence reliability of indicator sets was evaluated using Cronbach alpha coefficients. Detailed results demonstrating satisfactory construct validity and equivalence reliability can be found in Table 2.

Table 2: Model variables: validity, reliability and descriptive statistics

Variable and Indicator		Validity/Reliability			Descriptive Statistics			
		Factor Loading	Eigen Variable	Cronbach Alpha	Mean	Standard Deviation	Skewness	Kurtosis
Self-Disclosure	SD1	.820	46.41%	0.944	2.59	1.003	.435	-.208
	SD2	.782			2.65	.976	.303	-.262
	SD3	.805			2.70	.960	.193	-.376
	SD4	.828			2.51	1.005	.453	-.208
	SD5	.807			2.59	.997	.339	-.231
	SD6	.831			2.48	.961	.572	.042
Information Communication	IC1	.804	11.66%	0.926	2.87	.954	.189	-.315
	IC2	.802			2.94	.900	.094	-.257
	IC3	.813			2.99	.915	-.039	-.096
	IC4	.820			2.98	.931	.032	-.396
	IC5	.805			2.88	.901	.208	-.366
	IC6	.794			2.94	.850	.131	-.116

**Table 2:** Model variables: validity, reliability and descriptive statistics (Cont.)

Variable and Indicator		Validity/Reliability			Descriptive Statistics			
		Factor Loading	Eigen Variable	Cronbach Alpha	Mean	Standard Deviation	Skewness	Kurtosis
Information Sharing	IS1	.815	10.99%	0.92	2.60	1.027	.405	-.260
	IS2	.796			2.63	.977	.571	.049
	IS3	.848			2.57	.985	.619	.097
	IS4	.823			2.66	.979	.530	.062
	IS5	.842			2.80	.864	.839	.490
Perceived Pleasure	PP1	.830	7.58%	0.913	2.48	1.003	.572	-.120
	PP2	.803			2.58	.911	.499	.101
	PP3	.822			2.57	.985	.400	-.132
	PP4	.826			2.73	.870	.321	.107

Note for Factor Analysis: Extraction Method: Principal Component Analysis. Rotation Method: Equamax with Kaiser Normalization. Rotation converged in 6 iterations. Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.948. Bartlett's Test of Sphericity Approx. Chi-Square = 7677.954, df = 210, Significance = 0.00. Components with eigenvalues less than 1 are not shown. Percentage of total variance explained = 76.65%.

According to Table 2, the skewness and kurtosis values for each indicator fall within the acceptable range of 3 and 7, respectively, as required for maximum likelihood estimation in structural equation modeling (SEM) analyses (Kline, 2016). To perform descriptive analyses, the latent variables were transformed into single interval scale measures by calculating a weighted mean using the indicators' values with their corresponding standard deviations as weights. These single scale measures are exclusively utilized in subsequent descriptive analyses. In contrast, the individual indicator values were employed in the SEM analyses.

One sample T-test showed the mean values of the model variables were significantly greater than the neutral value of 3 except for Information Communication where the mean was not significantly. And, the mean of the other variables was significantly. Also, independent T-test presented that there were no significant differences between the mean values of variables for males and females.

Correlations among variables are shown in Table 3 where bold type indicates statistical significance at a level of 0.05 or less.

Table 3: Correlations Analysis

	Gender	Education	Information Communication	Self- disclosure	Perceived Pleasure	Information Sharing
Gender	1					
Education	.042	1				
Information Communication	.042	-.026	1			
Self-disclosure	-.019	-.058	.523**	1		
Perceived Pleasure	.046	.046	.401**	.556**	1	
Information Sharing	-.003	.019	.421**	.445**	.456**	1

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

According to Table 3, all coefficients associated with causal effects in the theoretical model exhibit statistically significant and positive values. However, it is noteworthy that neither gender nor educational background demonstrates any direct positive impact on the variables within the theoretical model.

Model Analyses and Development

The outcomes of the structural equation modeling (SEM) analysis conducted using Amos software to examine direct effects in the theoretical model are presented in Figure 2. Statistical significance at a level of .05 or lower is indicated by symbols* and NS, representing significance and lack of significance, respectively. Initially, unstandardized effects are reported, followed by standardized effects in parentheses along with an interpretation of their magnitude based on Cohen's (1988) guidelines: ≤ 0.1 denotes a small effect (S); between 0.1 and 0.5 signifies a medium effect (M); and ≥ 0.5 represents a large effect (L). These symbols are consistently employed across all results obtained from model analyses.

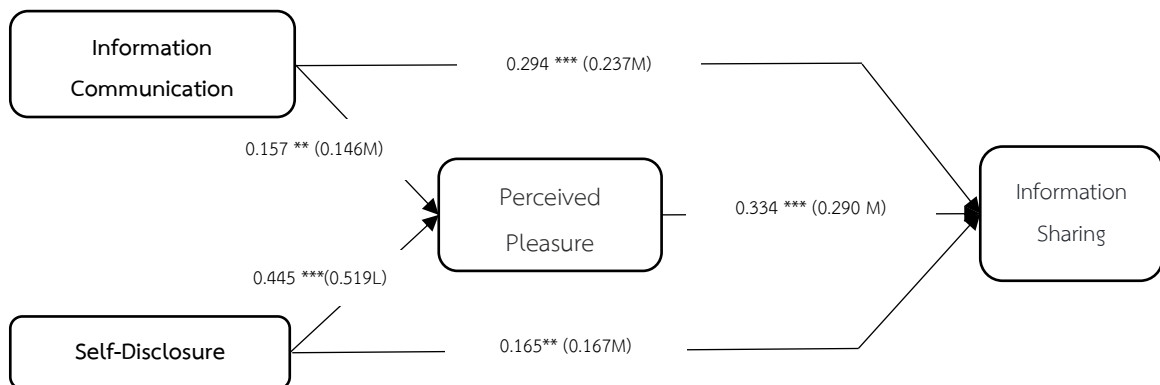


Figure 2: Direct Effects in the Theoretical Model

Table 4 shows a range of fit statistics for the theoretical model as recommended by Kline (2016).

Table 4: Fit Statistics for Theoretical Model

Theoretical Model	N	Normed Chi-square (NC = χ^2/df)	RMR	GFI	AGFI	NFI	IFI	CFI	RMSEA
	456	219.884/183= 1.202	0.022	0.957	0.946	0.972	0.995	0.995	0.021
		R ² : Perceived Pleasure (0.375), Information Sharing (0.330)							

According to Table 4, all goodness-of-fit indices were in the acceptable threshold and desirable ranges, exceeded the acceptable level of 0.9; however, it is worth noting that the model significantly accounts for a substantial proportion of variance in the endogenous variables. Nevertheless, it does not fully meet all necessary requirements (Kline, 2016).

Table 5 shows the direct/indirect effects, the totals of effects in the final theoretical model.

Direct Effects:	
1.	The direct impact of Information Communication on Perceived Pleasure is 0.146.
2.	The direct impact of Self-Disclosure on Perceived Pleasure is 0.519.
3.	The direct impact of Information Communication on Information Sharing is 0.237.
4.	The direct impact of Self-Disclosure on Information Sharing is 0.167.
5.	The direct impact of Perceived Pleasure on Information Sharing is 0.29.
Indirect Effects:	
1.	The observed coefficient for the relationship between Information Communication and Information Sharing, mediated by Perceived Pleasure, is estimated to be 0.042.
2.	The observed coefficient for the relationship between Self-Disclosure and Information Sharing, mediated by Perceived Pleasure, is estimated to be 0.150.
Total Effects:	
1.	The total impact of Information Communication on Information Sharing is 0.279.
2.	The total impact of Self-Disclosure on Information Sharing is 0.317.

Based on the findings presented in Table 5, it can be inferred that the direct influence of information communication and self-disclosure on information sharing is slightly greater compared to the indirect impact through perceived pleasure. Consequently, it can be deduced that perceived pleasure does not play a primary role in determining how information communication and self-disclosure affect information sharing. Furthermore, the

overall effect of self-disclosure on information sharing surpasses that of data obtained from sample collection responses.

Practical Implications of the Findings

From total effects in Table 5 it is possible to develop a hierarchical set of practical actions that increase consumer satisfaction. These are described in Table 6 with actions 1, 2 in decreasing order of their influence on information sharing.

Table 6: Practical actions to increase Information Sharing

The Actions to Increase Information Sharing	Stimulation Behaviors	Comment
1. The following actions could increase Chinese secondary students' information sharing behavior on WeChat; 1. Active social circle; 2. Interactive engagement; 3. Knowledge dissemination; 4. Appropriate expression of emotions; 5. Expand social connections; 6. Frequent utilization of memes, stickers and custom emojis functions; 7. Use small programs & third-party tools	Self-disclosure	The effective utilization of WeChat functions, the maintenance of a robust network environment, and the practice of moderate self-disclosure with friends can facilitate information sharing, foster deeper understanding, and enhance interpersonal connections. However, during the process of sharing, it is crucial to prioritize personal privacy protection and ensure network security.
2. The following actions could increase Chinese secondary students' information sharing behavior on WeChat; 1. Create Group Chat; 2. Use Moment; 3. Implement file sharing; 4. Start an online reading club; 5. Use multimedia resources; 6. Promote respectful communication norms; 7. Regularly update your status and share timely information; 8. Encourage others to share	Information Communication	

The comments in Table 6 shed light on additional direct influences of Perceived Pleasure on the information sharing behavior of Chinese secondary students on WeChat, which, as a mediator in the theoretical model, does not primarily determine how information communication and self-disclosure impact information sharing.

Conclusion

The present study aimed to gain insights into the influence of WeChat on information sharing among Chinese secondary students by examining patterns of information communication and self-disclosure. Through rigorous data analysis, significant findings emerged regarding the pivotal role played by WeChat in shaping students' communication habits and fostering a culture of self-disclosure.



Our findings suggest that WeChat has emerged as an indispensable platform for Chinese secondary students to facilitate communication, idea sharing, and self-disclosure in order to enhance interpersonal relationships. This multifunctional platform enables seamless interaction among students, facilitating the exchange of educational resources and fostering engagement within like-minded groups or communities. Consequently, students exhibit an augmented willingness to share personal experiences and thoughts, thereby positively contributing to the cultivation of open and trusting peer relationships. Several factors contribute to the evident increase in self-disclosure and information sharing among students utilizing WeChat. The platform's informal and user-friendly interface, coupled with its customizable options, empower users to express themselves more openly and confidently. Furthermore, privacy settings and self-selected contact lists enable students to manage the extent and accessibility of their disclosed information, fostering an environment of trust and control that encourages further self-disclosure and information sharing. Additionally, features like Moments and group chats facilitate diverse forms of communication and self-expression by allowing users to share various types of content such as text, images, and videos. This seamless sharing experience promotes openness among students, encouraging active participation in discussions while expressing their emotions, opinions, and experiences without fear of judgment or negative reactions from peers.

However, the study also raises concerns regarding potential adverse consequences associated with extensive WeChat usage among secondary students. Areas such as addiction, excessive reliance on the platform for social interaction, and the possibility of cyberbullying necessitate further exploration and targeted intervention strategies in future research. Moreover, our findings indicate that WeChat plays a significant role in facilitating information sharing and self-disclosure among Chinese secondary students. While promoting communication and interpersonal relationship development, it is crucial for educators and parents to exercise vigilance and provide guidance to address potential negative impacts effectively while ensuring a healthy balance between online and offline interactions. Future studies should investigate the long-term implications of WeChat usage on students' academic performance, offline social skills, and psychological well-being.

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