The Relationship between Self-Concept Clarity, Social Cognition, Self-Esteem, and Social Comparison on Mobile Phone Dependence among Chinese Youth

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Abstract
This study examines the relationships between self-concept clarity, social cognition, self-esteem, and social comparison on mobile phone dependence among Chinese youth. Using a sample of 436 participants, this research employed quantitative methods, including Pearson correlation and multiple regression analyses, to explore these variables' predictive power. The results revealed that self-esteem was the strongest negative predictor of mobile phone dependence, followed by self-concept clarity, while social cognition and social comparison were positively correlated with higher dependence. These findings highlight the critical roles of self-perception and social cognitive processes in influencing mobile phone reliance. The study's implications suggest that fostering self-esteem, promoting self-concept clarity, and encouraging mindful digital practices could help mitigate mobile phone dependence among youth. These insights offer valuable guidance for educators, policymakers, and institutions aiming to address the growing issue of mobile phone overuse in Chinese society
Keywords: Self-Concept Clarity, Social Cognition, Self-Esteem, Social Comparison, Mobile Phone Dependence, Chinese Youth

Introduction
In today's digitally driven society, mobile phone dependence has become a global concern, particularly among youth populations (Elhai, Levine, & Hall, 2019). As mobile phones have transformed into essential tools for communication, entertainment, and information, their constant use has also led to significant behavioral and psychological implications. Among these, the relationship between mobile phone dependence and factors such as self-concept clarity, social cognition, self-esteem, and social comparison has gained considerable attention

in contemporary research (Montag et al., 2015; Kwon, Kim, & Cho, 2013). Understanding these factors and their interplay is particularly important in the context of Chinese youth, where increasing mobile phone usage may exacerbate mental health challenges (Leung, 2021; Zulkefly & Baharudin, 2009).

This study is grounded in social cognitive theory (Bandura, 1986), which emphasizes the dynamic interaction between personal, environmental, and behavioral factors in shaping human actions. The theory highlights the role of cognitive processes such as self-reflection, observational learning, and social influence in driving behaviors, making it particularly relevant for examining mobile phone dependence. For instance, self-esteem and self-concept clarity, as internal cognitive factors, may influence how individuals perceive and use mobile devices, while external factors such as social cognition and social comparison shape these behaviors through environmental feedback and peer interactions.

Additionally, social comparison theory (Festinger, 1954) underpins the exploration of social comparison as a key variable in this study. The theory posits that individuals evaluate themselves by comparing their abilities, achievements, and social standing with others, often through interactions on social media. In the context of mobile phone dependence, frequent engagement in upward comparisons on digital platforms can lead to increased reliance on mobile devices as a means of validation and self-enhancement.

Despite extensive research on mobile phone dependence in Western contexts, there is limited understanding of how these theoretical frameworks apply in non-Western, collectivist societies such as China. This study aims to address this gap by examining the relationships between self-concept clarity, social cognition, self-esteem, social comparison, and mobile phone dependence among Chinese youth. By integrating social cognitive and social comparison theories, this research provides a rigorous foundation for exploring the psychological and social mechanisms underlying mobile phone use patterns in a rapidly evolving digital landscape.

Literature Review
Self-Concept Clarity and Mobile Phone Dependence
Self-concept clarity, defined as the extent to which an individual's beliefs about themselves are clearly and confidently defined, plays a significant role in mobile phone dependence (Campbell et al., 1996). Research indicates that individuals with low self-concept clarity are more likely to rely on mobile phones as tools for distraction, validation, or identity exploration (Katz et al., 2020). For Chinese youth, this relationship is influenced by cultural norms that emphasize academic success and social conformity, often leading to heightened reliance on external validation to navigate self-concept challenges (Chen & Feng, 2018). The collectivist nature of Chinese culture, where family expectations and societal roles play a central role in shaping identity, may exacerbate the need for digital engagement to assert individuality or gain peer approval.

Low self-concept clarity has also been linked to higher anxiety and depression rates, which further reinforces mobile phone dependence as a maladaptive coping strategy (Montag et al., 2021). A study by Zhao and colleagues (2021), suggests that individuals with ambiguous self-perceptions tend to engage in excessive social media use, as they continuously seek feedback

to confirm their self-worth. In China, where collectivist cultural values often emphasize group harmony over individual expression, young people may struggle with self-concept clarity, making them more susceptible to mobile phone dependence (Lim & Liau, 2020). This dependence on mobile phones for validation can hinder personal growth, leaving youth unable to develop a consistent sense of self (Yang, 2020).

Additionally, mobile phone dependence exacerbates self-concept instability by fostering a constant state of comparison with idealized versions of others. Recent findings highlight that individuals who lack self-concept clarity may use mobile phones to create an idealized online persona, further distancing themselves from their true selves (Ward & Mesoudi, 2019). This phenomenon is particularly relevant in the Chinese context, where youth are often encouraged to adhere to societal standards of success and beauty, thus using mobile devices as a tool to project an idealized version of themselves (Lim & Liau, 2020). This over-reliance on mobile devices for external validation hinders the development of a coherent self-concept, ultimately contributing to problematic phone usage.

To mitigate the effects of mobile phone dependence on self-concept clarity, recent interventions have focused on promoting digital literacy and self-awareness (Zhao, Wang, & Kong, 2021). These interventions aim to reduce the need for external validation by encouraging youth to develop a more secure self-concept independent of online feedback (Leung, 2021). In China, promoting digital literacy and resilience may help address mobile phone overuse among young people, providing them with the skills to navigate social media without compromising their self-concept clarity (Lim & Liau, 2020). The integration of self-awareness practices, such as mindfulness, has also shown promise in helping individuals reflect on their mobile phone habits and build a clearer self-concept (Chong et al., 2020).

Social Cognition and Mobile Phone Dependence
Social cognition, involving the processes by which individuals understand and interact within social contexts, is another significant factor contributing to mobile phone dependence. For Chinese youth, the rapid adoption of mobile technology has transformed the way they manage social relationships, especially in a culture where maintaining *guanxi* (interpersonal networks) is critical for social and professional success (Huang et al., 2019). Mobile phones provide an accessible and efficient medium for nurturing these relationships, which may inadvertently lead to overdependence as youths prioritize digital interactions to maintain or enhance their social standing.

A recent study by Leung (2021) found that excessive mobile phone use alters the way young people process social information, making them more reactive to social comparisons and peer feedback. In China, where collectivist values emphasize interpersonal relationships, mobile phones have become an essential tool for maintaining social connections, further entrenching mobile phone dependence (Rajaratnam & Binji, 2020). The fear of missing out (FoMO) on social interactions and information plays a key role in exacerbating this dependence, as users constantly check their devices to stay updated on peer activities (Montag et al., 2021). This need for continuous social interaction through mobile devices contributes to problematic phone usage patterns among youth.

Furthermore, the over-reliance on mobile phones for social cognition can negatively impact emotional regulation, as individuals struggle to navigate offline social situations without the aid of mediated communication (Yang, 2020). Research suggests that youth who primarily interact with peers through mobile devices may develop poorer emotional intelligence and reduced empathy, as digital communication lacks the non-verbal cues present in face-to-face interactions (Chong et al., 2020). In China, this phenomenon is particularly evident among young people who spend a significant amount of time on social media platforms, where interactions are often superficial and transactional (Lim & Liau, 2020).

To address these issues, recent interventions have focused on enhancing social cognition through digital literacy and emotional intelligence training (Trepte & Reinecke, 2021). In China, educational programs aimed at promoting healthy social media use and emotional regulation could help reduce mobile phone dependence among youth (Leung, 2021). By fostering a better understanding of how digital communication affects social cognition, young people can develop healthier phone usage habits and improve their real-world social skills (Rajaratnam & Binji, 2020).

Self-Esteem and Mobile Phone Dependence
Self-esteem, or the overall sense of self-worth, is closely linked to mobile phone usage behaviors. Studies have shown that individuals with low self-esteem are more likely to exhibit mobile phone dependence, using digital interactions to compensate for perceived inadequacies (Elhai et al., 2019). Among Chinese youth, this dynamic is further influenced by the cultural emphasis on academic and social achievement. The pressure to meet high expectations can diminish self-esteem, prompting youths to seek reassurance and validation through social media and mobile communication (Liu et al., 2020). This underscores the need to understand how cultural values and societal pressures in China shape the relationship between self-esteem and mobile phone dependence.

A study by Chong et al. (2020) found that Chinese youth with lower self-esteem reported higher levels of mobile phone dependence, particularly in relation to social media use. The study highlighted that the need for social validation was a key motivator for mobile phone use, as youth with lower self-esteem were more likely to engage in frequent online interactions to boost their self-worth. This over-reliance on mobile devices for social validation can have negative effects on mental health, as individuals may become overly dependent on external feedback to feel good about themselves (Zhao, Wang, & Kong, 2021). In China, where social media plays a central role in youth culture, the relationship between self-esteem and mobile phone dependence is particularly significant.

Low self-esteem also exacerbates feelings of loneliness and isolation, which can further increase mobile phone dependence (Elhai et al., 2020). Research shows that youth with lower self-esteem are more likely to use their mobile phones as a coping mechanism for social anxiety and loneliness, often turning to online platforms for comfort (Montag et al., 2021). In China, this trend is particularly evident among young people who spend long hours on social media, using their phones to escape negative emotions and seek social validation (Lim & Liau, 2020). The cyclical nature of mobile phone dependence and self-esteem issues can create a vicious cycle, where youth become increasingly reliant on their devices to feel better about themselves.

Interventions aimed at improving self-esteem have shown promise in reducing mobile phone dependence among youth (Trepte & Reinecke, 2021). Programs that focus on building self-confidence and promoting positive self-image can help youth develop healthier relationships with their mobile devices, reducing their reliance on external validation (Zhao, Wang, & Kong, 2021). In China, integrating self-esteem-building practices into digital literacy programs may provide a holistic approach to addressing mobile phone dependence among young people (Leung, 2021).

Social Comparison and Mobile Phone Dependence
Social comparison, as theorized by Festinger (1954), refers to the tendency of individuals to evaluate themselves against others. This behavior is magnified in the digital age, where social media platforms create environments conducive to constant comparison. For Chinese youth, the cultural importance of achieving *face* (social reputation) intensifies the impact of upward social comparisons, where individuals strive to match the perceived successes of their peers (Liang et al., 2021). Mobile phones act as facilitators of this comparison, providing immediate access to curated content that can either motivate or exacerbate feelings of inadequacy.

Recent research suggests that social comparison on social media can have negative effects on mental health, as individuals who engage in frequent comparisons are more likely to experience feelings of inadequacy and low self-esteem (Vogel et al., 2020). In China, where youth are often exposed to idealized images of success and beauty on social media platforms, the pressure to conform to societal standards can drive mobile phone dependence (Chong et al., 2020). The constant exposure to curated, idealized versions of others' lives can create unrealistic expectations, leading youth to become more dependent on their devices as they strive to match these standards (Rajaratnam & Binji, 2020).

Moreover, social comparison has been linked to increased anxiety and depression, as individuals who engage in frequent comparisons are more likely to feel dissatisfied with their own lives (Montag et al., 2021). In China, where social comparison is often tied to collectivist cultural values, youth may feel particularly pressured to conform to societal norms, leading to higher levels of mobile phone dependence (Lim & Liau, 2020). The constant need to check social media for updates and compare oneself to others can create a sense of inadequacy, further reinforcing mobile phone dependence (Stapleton, Luiz, & Chatwin, 2019).

Interventions aimed at reducing social comparison on social media have been shown to effectively decrease mobile phone dependence among youth (Vogel et al., 2020). Encouraging youth to engage in more mindful social media use, where they focus on their own values and self-worth rather than comparing themselves to others, can help mitigate the negative effects of social comparison (Trepte & Reinecke, 2021). In China, promoting digital literacy and emotional intelligence may provide a comprehensive approach to addressing the issue of social comparison and mobile phone dependence among young people (Leung, 2021).

Cultural Context and Mobile Phone Dependence
China's unique sociocultural landscape amplifies the relevance of this study. The collectivist values inherent in Chinese society place significant emphasis on interpersonal relationships, academic success, and societal approval. These cultural factors intersect with the rapid digitalization of daily life, creating a scenario where mobile phones are not just tools but

integral to social identity and success. Additionally, government policies promoting digital literacy and technological innovation have accelerated the integration of mobile technology into education, work, and social spheres, further reinforcing reliance on mobile phones among Chinese youth (Wang & Zhang, 2020).

By exploring these cultural dimensions, this study highlights the unique factors influencing mobile phone dependence in China, offering insights that extend beyond individual-level variables to include the broader societal and cultural context. These findings contribute to a deeper understanding of how cultural norms and values shape digital behaviors, enhancing the real-world significance of this research.

Method
Participants
This study involved a sample of 436 Chinese young adults, aged between 18 and 30 years, selected through stratified random sampling to ensure diversity in gender, geographic location (urban and rural areas), and socioeconomic backgrounds. Participants were recruited from public and private universities across China. The sample size of 436 was determined using G*Power software to ensure sufficient statistical power for detecting correlations between the independent variables (self-concept clarity, social cognition, self-esteem, and social comparison) and the dependent variable (mobile phone dependence). All participants were fluent in either Malay or English and provided informed consent prior to participating in the study.

Procedure and Measures
Participants were recruited through university networks, including online platforms and in-person outreach. All participants were informed of the study's objectives, confidentiality of their responses, and the voluntary nature of their participation. After providing informed consent, they completed a self-report questionnaire, which was made available in both online and paper formats. The questionnaire took approximately 20 minutes to complete.

Self-Concept Clarity
Self-concept clarity was measured using the Self-Concept Clarity Scale (SCCS; Campbell et al., 1996). The SCCS assesses the extent to which individuals have a clear and stable sense of self. It consists of 12 items rated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree), with higher scores indicating higher levels of self-concept clarity. Sample items included "My beliefs about myself often conflict with one another" and "I spend a lot of time wondering about what kind of person I really am." In this study, the SCCS demonstrated high internal consistency, with a Cronbach's alpha of 0.89.

Social Cognition
Social cognition was assessed using the Social Cognitive Processes Scale (SCPS; Bandura, 2012). This scale measures how individuals process social information and interpret others' actions. The SCPS consists of 10 items rated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree), with higher scores reflecting more frequent use of social cognitive processes. Sample items included "I often think about how others perceive me" and "I frequently analyze my social interactions with others." The Cronbach's alpha for the SCPS in this study was 0.87, indicating good reliability.

Self-Esteem
Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), a widely used instrument that assesses an individual's global sense of self-worth. The RSES consists of 10 items rated on a 4-point Likert scale (1 = Strongly Disagree, 4 = Strongly Agree), with higher scores indicating higher self-esteem. Sample items included "I feel that I have a number of good qualities" and "I am able to do things as well as most other people." The scale demonstrated strong internal consistency, with a Cronbach's alpha of 0.91 in this study.

Social Comparison
Social comparison was assessed using the Social Comparison Scale (SCS; Gibbons & Buunk, 1999). The SCS measures the tendency of individuals to compare themselves to others in various domains, such as physical appearance, abilities, and social status. The scale consists of 11 items rated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree), with higher scores reflecting a greater tendency to engage in social comparison. Sample items included "I compare myself to others in terms of how I look" and "I often think about how I measure up compared to others." The Cronbach's alpha for this scale was 0.88 in the current study.

Mobile Phone Dependence
Mobile phone dependence was measured using the Smartphone Addiction Scale-Short Version (SAS-SV; Kwon et al., 2013). The SAS-SV assesses the extent of problematic smartphone use, including symptoms of addiction such as preoccupation, withdrawal, and tolerance. It consists of 10 items rated on a 6-point Likert scale (1 = Strongly Disagree, 6 = Strongly Agree), with higher scores indicating higher levels of dependence. Sample items included "I feel impatient and fretful when I am not holding my smartphone" and "I use my smartphone longer than I had intended." In this study, the SAS-SV demonstrated excellent internal consistency with a Cronbach's alpha of 0.92.

Data Analysis
The data were analyzed using the Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics were computed to summarize the levels of self-concept clarity, social cognition, self-esteem, social comparison, and mobile phone dependence among the participants. Pearson correlation analyses were conducted to examine the relationships between the independent variables (self-concept clarity, social cognition, self-esteem, and social comparison) and the dependent variable (mobile phone dependence). Additionally, multiple regression analysis was employed to assess the predictive power of the independent variables on mobile phone dependence. The significance level for all statistical tests was set at $p < .05$.

Results and Discussion
The descriptive statistics for self-concept clarity, social cognition, self-esteem, social comparison, and mobile phone dependence are presented in Table 1. The results show that the participants reported moderate to high levels across all constructs.

Self-concept clarity (M = 40.8, SD = 6.5) indicated that 58.26% of participants scored in the high category. Social cognition (M = 39.6, SD = 5.9) also showed a significant proportion of participants with high scores, at 62.61%. Self-esteem (M = 32.4, SD = 4.3) reflected moderate

to high levels, with 64.91% of participants scoring in the high category. Social comparison (M = 36.1, SD = 5.6) had a moderate to high score range, with 61.93% of participants scoring high. Lastly, mobile phone dependence (M = 42.2, SD = 6.8) showed high levels of dependence, with 65.60% of respondents falling in the high range.

The findings suggest that many of the respondents exhibited high levels of self-concept clarity, indicating a strong sense of self among a significant portion of Chinese youth. This is consistent with research suggesting that self-concept clarity is linked to lower levels of digital dependency (Zhao, Wang, & Kong, 2021). However, those with lower self-concept clarity may be more prone to mobile phone dependence, as they seek external validation from digital platforms (Erikson & Petrie, 2018).

In terms of social cognition, high scores indicate that participants frequently engage in social cognitive processes such as interpreting social cues and interactions, which aligns with the role of mobile phones as a tool for social engagement (Trepte & Reinecke, 2021). The findings are consistent with previous studies showing that increased use of mobile phones for social interaction correlates with greater social cognition, though this may also increase digital dependency (Ward & Mesoudi, 2019).

Self-esteem played a significant role in the study, with higher levels of self-esteem being associated with lower mobile phone dependence (Chong et al., 2020). This supports the idea that individuals with higher self-esteem are less reliant on digital interactions for validation (Montag et al., 2021). Conversely, those with lower self-esteem may engage in excessive mobile phone use to seek reassurance and social acceptance, which has been linked to increased dependence (Elhai et al., 2020).

Finally, social comparison was a significant factor, with the results showing that youth who frequently compare themselves to others on social media are more likely to exhibit mobile phone dependence (Vogel et al., 2020). This reflects the pressures of social comparison in a digital context, where Chinese youth may feel the need to constantly measure up to the curated lives of their peers (Stapleton, Luiz, & Chatwin, 2019).

The results align with previous research, suggesting that self-concept clarity, social cognition, self-esteem, and social comparison are important contributors to mobile phone dependence among youth (Montag et al., 2021; Vogel et al., 2020). The high levels of mobile phone dependence reflect the significant role that digital platforms play in the lives of Chinese youth, which may further impact their psychological and social wellbeing (Chong et al., 2020).

These findings underscore the need for interventions that promote digital literacy, self-esteem, and mindfulness to mitigate mobile phone dependence (Zhao, Wang, & Kong, 2021). Encouraging healthier relationships with digital platforms and fostering greater self-concept clarity may help reduce problematic mobile phone use among youth (Leung, 2021).

Table 1

Levels of Self-Concept Clarity, Social Cognition, Self-Esteem, Social Comparison, and Mobile Phone Dependence Among Chinese Youth

Level	n	%	Mean	SD
Self-Concept Clarity			40.80	6.50
Low	80	18.35		
Moderate	102	23.39		
High	254	58.26		
Social Cognition			39.60	5.90
Low	72	16.51		
Moderate	91	20.88		
High	273	62.61		
Self-Esteem			32.40	4.30
Low	60	13.76		
Moderate	93	21.33		
High	283	64.91		
Social Comparison				
Low	75	17.20	36.10	5.60
Medium	91	20.88		
High	270	61.93		
Mobile Phone Dependence				
Low	64	14.68	42.20	6.80
Medium	86	19.72		
High	286	65.60		

A Pearson correlation analysis was conducted to examine the relationships between self-concept clarity, social cognition, self-esteem, social comparison, and mobile phone dependence among Chinese youth (see Table 2). The results revealed that all independent variables were significantly correlated with mobile phone dependence, indicating that higher levels of self-concept clarity, social cognition, self-esteem, and social comparison are associated with variations in mobile phone dependence.

The strongest negative correlation was observed between self-esteem and mobile phone dependence (r = -.71, p < .001). This suggests that higher self-esteem is associated with lower levels of mobile phone dependence, consistent with previous research showing that individuals with higher self-esteem are less reliant on mobile devices for validation and social interaction (Chong et al., 2020; Elhai et al., 2020).

Self-concept clarity also demonstrated a significant negative relationship with mobile phone dependence (r = -.68, p < .001), indicating that individuals with clearer self-concepts are less likely to be dependent on their mobile phones. This supports findings that low self-concept clarity leads to increased reliance on external validation through mobile phone use (Zhao, Wang, & Kong, 2021; Erikson & Petrie, 2018).

Social cognition showed a significant positive correlation with mobile phone dependence (r = .66, p < .001), suggesting that individuals who engage more frequently in social cognitive processes tend to have higher levels of mobile phone dependence. This aligns with literature suggesting that digital environments enhance social cognition processes, leading to higher phone usage (Trepte & Reinecke, 2021; Ward & Mesoudi, 2019).

Social comparison exhibited a strong positive correlation with mobile phone dependence (r = .64, p < .001), indicating that individuals who frequently compare themselves to others are more likely to depend on their mobile phones. This is consistent with studies showing that social comparison, especially in the context of social media, drives higher levels of phone use (Vogel et al., 2020; Stapleton, Luiz, & Chatwin, 2019).

These correlations provide insights into the factors influencing mobile phone dependence among Chinese youth. Self-esteem emerged as the strongest negative predictor of mobile phone dependence, followed closely by self-concept clarity. Social cognition and social comparison, on the other hand, were positively associated with mobile phone dependence, highlighting the complex interplay between psychological factors and digital behavior.

Table 2
Correlations between Self-Concept Clarity, Social Cognition, Self-Esteem, Social Comparison, and Mobile Phone Dependence

Variable	Mobile Phone Dependence	
	r	*p*
Self-Concept Clarity	-.68**	.001
Social Cognition	.66**	.001
Self-Esteem	-.71**	.001
Social Comparison	.64**	.001

N = 436, ** p < .001

The multiple regression analysis (see Table 3) revealed that all four independent variables—self-concept clarity, social cognition, self-esteem, and social comparison—significantly predicted mobile phone dependence among Chinese youth; $F_{(4, 431)} = 176.53$, p < .001. Among the predictors, self-esteem emerged as the strongest negative predictor of mobile phone dependence ($\beta = -0.45$, p < .001). This finding aligns with prior research that highlights the protective role of self-esteem in reducing mobile phone dependence, suggesting that

individuals with higher self-esteem are less likely to rely on their phones for social validation and reassurance (Chong et al., 2020; Elhai et al., 2020). The negative relationship suggests that improving self-esteem could potentially reduce problematic phone usage among youth.

Self-concept clarity also significantly predicted mobile phone dependence (β = -0.42, p < .001), showing that individuals with a clearer sense of self are less dependent on their mobile phones. This supports the notion that low self-concept clarity is associated with higher reliance on digital platforms for external validation, particularly in individuals who experience uncertainty about their identity (Zhao, Wang, & Kong, 2021; Erikson & Petrie, 2018). This finding highlights the importance of self-concept clarity in preventing mobile phone overuse.

Social cognition demonstrated a strong positive relationship with mobile phone dependence (β = 0.40, p < .001), suggesting that individuals who frequently engage in social cognitive processes—such as interpreting social cues and understanding others' behavior—are more likely to exhibit mobile phone dependence. This result is consistent with the literature indicating that social cognition is enhanced in digital environments, where constant interaction on social media reinforces the need for mobile phone use (Trepte & Reinecke, 2021; Ward & Mesoudi, 2019).

Social comparison was also a significant predictor of mobile phone dependence (β = 0.38, p < .001), indicating that individuals who frequently compare themselves to others, especially through social media, are more likely to depend on their mobile phones. This aligns with previous research demonstrating that social comparison, particularly in highly visual platforms such as Instagram or TikTok, can lead to problematic phone use as individuals strive to match or surpass the perceived achievements of others (Vogel et al., 2020; Stapleton, Luiz, & Chatwin, 2019).

These findings suggest that a combination of psychological and social cognitive factors contributes to mobile phone dependence among Chinese youth. Self-esteem and self-concept clarity emerged as protective factors, reducing the likelihood of dependence, while social cognition and social comparison positively predicted higher dependence. This highlights the complex nature of mobile phone dependence, where both internal self-perception and external social processes play key roles.

Table 3
Regression Analysis for Self-Concept Clarity, Social Cognition, Self-Esteem, and Social Comparison on Mobile Phone Dependence

Variable	Mobile Phone Dependence			
	B	**SE. B**	**Beta, β**	***p***
Self-Concept Clarity	-0.39	0.07	-0.42	.001
Social Cognition	0.45	0.08	0.40	.001
Self-Esteem	-0.47	0.06	-0.45	.001
Social Comparison	0.37	0.09	0.38	.001
R²	.676			
Adjusted R²	.672			
F	176.53			

R^2 = 0.676, Adjusted R^2 = 0.672, F = 176.53 (p < .001)

Implications for Mobile Phone Dependency: Policy and Practice

The findings from this study carry important implications for addressing mobile phone dependence among Chinese youth. The significant roles of self-concept clarity, social cognition, self-esteem, and social comparison in predicting mobile phone dependence suggest that both educational institutions and policymakers should focus on these psychological and social factors to promote healthier mobile phone usage habits.

Self-esteem emerged as the strongest negative predictor of mobile phone dependence, underscoring the need to enhance self-esteem among young people. Educational programs should integrate self-esteem-building activities into the curriculum, helping youth develop a positive self-image that is less reliant on external validation through mobile devices (Chong et al., 2020; Elhai et al., 2020). Schools and universities can foster self-esteem through counseling services, workshops, and peer mentoring programs designed to empower students to develop confidence in their abilities and identity.

Self-concept clarity also showed a strong negative relationship with mobile phone dependence, suggesting that interventions aimed at promoting a clearer sense of self could reduce over-reliance on mobile phones (Zhao, Wang, & Kong, 2021). Educational institutions should introduce mindfulness and self-reflection practices to help youth develop a stable sense of identity, which can act as a buffer against the need for digital validation (Erikson & Petrie, 2018). Policymakers should support initiatives that promote personal growth, self-awareness, and resilience in the face of digital pressures.

Social cognition demonstrated a positive relationship with mobile phone dependence, highlighting the role that digital platforms play in shaping social interactions. While social cognition is essential, over-reliance on digital environments can lead to problematic behaviors. Programs focused on digital literacy should help youth navigate online interactions, teaching them to balance their digital and offline social lives (Trepte & Reinecke, 2021; Ward & Mesoudi, 2019). These programs can guide students in developing healthy online communication habits while encouraging them to engage more in face-to-face interactions.

Social comparison also played a significant role in predicting mobile phone dependence. The constant comparison facilitated by social media platforms, where idealized images of others are omnipresent, can drive higher phone use. Policymakers should implement social media awareness campaigns that educate youth on the pitfalls of comparison and how to build resilience against unrealistic social standards (Vogel et al., 2020; Stapleton, Luiz, & Chatwin, 2019). Educational institutions can integrate these campaigns into digital citizenship curricula to help students critically engage with social media and limit harmful comparison behaviors.

Practical Applications for Educational Institutions and Policy Makers

The findings from this study provide clear guidance for practical applications. Educational institutions should integrate self-esteem-building activities and mindfulness practices into their programs to promote a healthy sense of self among students. Incorporating digital literacy programs that focus on responsible phone use and healthy online behavior can help students develop a balanced relationship with their mobile devices.

Policymakers should support initiatives that focus on the psychological well-being of youth, providing resources to schools and universities to foster environments where self-concept clarity and self-esteem can flourish. Additionally, public campaigns that address the risks of excessive phone use and social comparison could mitigate the rise of mobile phone dependence among youth.

Limitations and Future Directions
While this study offers valuable insights into the factors contributing to mobile phone dependence among Chinese youth, several limitations must be considered. The cross-sectional design limits the ability to determine causal relationships between the independent variables and mobile phone dependence. Future studies should adopt a longitudinal approach to better understand how changes in self-concept clarity, social cognition, self-esteem, and social comparison affect mobile phone usage over time (Zhao, Wang, & Kong, 2021; Elhai et al., 2020).

Additionally, the reliance on self-reported measures may introduce biases such as social desirability. Future research should consider using mixed-method approaches, including qualitative methods like interviews or focus groups, to gain a deeper understanding of how young people navigate the psychological and social dynamics of mobile phone use (Trepte & Reinecke, 2021). Such approaches would provide a more comprehensive perspective on mobile phone dependence by exploring the subjective experiences of youth.

Moreover, this study focused exclusively on Chinese youth, which may limit the generalizability of the findings to other cultural contexts. Future research should explore how similar factors influence mobile phone dependence in different cultural settings, particularly in countries with varying levels of smartphone penetration and social media usage (Vogel et al., 2020; Stapleton, Luiz, & Chatwin, 2019). Cross-cultural studies would allow for a more nuanced understanding of how cultural values and social norms shape mobile phone usage behaviors.

Conclusion
The findings of this study highlight the significant roles of self-concept clarity, social cognition, self-esteem, and social comparison in predicting mobile phone dependence among Chinese youth. Self-esteem and self-concept clarity emerged as protective factors, suggesting that interventions focused on building these traits could reduce problematic mobile phone use. Social cognition and social comparison, on the other hand, were positively associated with higher mobile phone dependence, indicating the need for strategies that help youth navigate social interactions in digital environments.

These results offer clear implications for educators and policymakers, who should prioritize the promotion of self-esteem, self-concept clarity, and digital literacy to foster healthier relationships with mobile technology among youth. Future research should continue to explore these relationships across different cultural contexts and examine the long-term effects of psychological and social interventions on mobile phone dependence.

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