The Relationship between Social Capital and Social Media Addiction: The Role of Privacy Self-Efficacy

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Abstract

The rise of social media raises important ethical issues regarding social media user behaviors. This study seeks to investigate the determinants of social media addiction by focusing on social capital and privacy self-efficacy. We argue that social capital has a mixed association with social media addiction by highlighting the difference between social capital bonding and social capital bridging. Notably, social media users differ in their usage purposes; as some build more bridges, others focus on bonding. Moreover, we posit that the relationship between social capital and social media addiction is moderated by social media user privacy self-efficacy. We collected the data using a survey approach and the data was analyzed using covariance-based structural equation modeling. The findings support our hypotheses. First, we found that social media users with high bridging experience lesser social media addiction. Those with high bonding have more social media addiction. Second, social media users' privacy self-efficacy moderates the relationship between social capital and social media addiction. This occurs by reinforcing the negative association between social capital bridging and social media addiction and the positive association between social capital bonding and social media addiction. Our findings provide important theoretical contributions and implications for practice.

Keywords: social media, addiction, self-efficacy, privacy, social capital, bridging, bonding.

1 Introduction

Social media addiction is a psychological state of maladaptive dependence and compulsive use (Turel, Serenko, & Giles, 2011). Studies show that 39% of social media users reported being addicted in 2019 (Statista, 2019). Social media users spend on average 142 minutes in 2021 (Armstrong, 2021). Implications of social media addiction are significant. Research suggests low work performance (Xanidis & Brignell, 2016), low life satisfaction (Błachnio, Przepiorka, & Pantic, 2016), and high stress (Thomée, Eklöf, Gustafsson, Nilsson, & Hagberg, 2007) to be some of the adverse outcomes. There is much confusion as to what constitutes social media addiction. At times social media addiction is considered in clinical terms and at other times in non-clinical terms. In this paper, drawing on Andreassen, and Pallesen (2014) work, we consider social media addiction from a non-clinical perspective. We define it as overly concerned and strongly motivated to devote vast amounts of time and energy to use social media, thus impairing other social and job-related activities. Such behaviors are significant ethical concerns. We investigate the relationships between social capital bridging and bonding, and social media addiction. We also investigate the moderating role of privacy self-efficacy, which is the expression of one's own ability to manage their privacy. The main research question, therefore, is how social capital bridging and bonding are associated with social media addiction. Following Williams (2006), *bridging* and *bonding* are considered as part of social capital. "Social capital" is generally understood to be personal relationships and the benefits that come with them, such as emotional support, with some individuals interacting and forming a network (Williams, 2006). Utilizing Putnam's (2000) conceptualization of social capital, we divide social capital into two concepts, known as "bridging" and "bonding." These concepts enable different types of social capital to result when different norms and networks are in place (Putnam, 2000), which means that different forms of social capital may influence social media addiction and we must distinguish between these forms.

For this study, we utilized covariance-based structural equation modeling (CBSEM). For robustness checks, we conducted an ordinary least squares (OLS) regression to test the hypotheses. This study is important as it demonstrates bridging and bonding have a differing association with social media addiction. Further, we show that high bonding users experience more social media addiction, while those with high bridging have lesser social media addiction. We also show the moderating effect of privacy self-efficacy on the relationships between social capital bridging and bonding and social media addiction. For bridging, privacy self-efficacy serves to increase the negative association with social media addiction, while it increases the positive association between social media addiction and bonding relationships. This advances academic literature as neither bonding nor bridging has been explored in the context of social media addiction previously.

The remainder of this paper is organized as follows. First, we review the extant literature for social media addiction and develop a theoretical model. We then present findings from our empirical research. Next, we evaluate the implications and discuss the significance of the findings. Finally, we present our conclusions and future research directions.

2 Informing Literature and Theoretical Framing

In the following sections, we discuss the theoretical framing that contextualizes this study, drawing from the supporting academic literature. We then posit our hypothesis drawn from the literature to explain how privacy self-efficacy moderates the relationship between social capital and social media addiction.

2.1 Social Media Addiction

While technology is generally considered to have a positive impact, we are increasingly witnessing the negative side effects. These have usually been referred to as the "dark side" of technology (Turel, Serenko, & Giles, 2011). Addiction to social media is one such consequence of the negative effects of technology. As previous studies have found that the overuse of technology can have significant negative impacts on users (Błachnio et al., 2016; Thomée et al., 2007; Xanidis & Brignell, 2016), it is important to increase understanding about addiction. We provide the meaning of addiction for this study in the context of technology and social media. Using the definition put forward by Turel et al. (2011), we define technology addiction as a psychological state of maladaptive dependency on the use of technology to such a degree that the following typical behavioral addiction symptoms can exist: salience, withdrawal, conflict, tolerance, and mood modification. These behaviors present an obsessive pattern that takes place at the expense of other important activities (Turel et al., 2011). Given that social media is a type of technology and has been shown to form addiction in users (Hou, Xiong, Jiang, Song, & Wang, 2019; Turel, Brevers, & Bechara, 2018), this definition is appropriate to frame the concept of addiction for this study. As social media platforms become all-pervasive in our daily lives, a strong potential for social media addiction exists. Specifically, the irrational and excessive use of social media and the extent to which it interferes with other aspects of daily 'real-world' life (Hou et al., 2019). Therefore, we believe that to curb social media addiction, which culminates in unhealthy overuse of technology; we must understand the antecedents and how they can be moderated to reduce addiction to social media.

2.2 Social Capital

"Social capital" is generally understood to be personal relationships and the benefits that come with them, with some individuals interacting and forming a network, termed a "social network" (Williams, 2006). The benefits of social capital include positive outcomes, such as emotional support or the ability to mobilize others. However, while the academic literature has continued to debate whether social capital is a cause or an effect, numerous applications of social capital exist, including work that applies it within the context of privacy (Williams, 2006). For this research, we utilize Putnam's (2000) conceptualization of social capital that divides it into two related, but not equivalent forms known as "bridging" and "bonding." The concepts of bridging and bonding enable different types of social capital to result when different norms and networks are in place (Putnam, 2000). Therefore, different forms of social capital may influence social media addiction and we must distinguish between these forms.

2.2.1 Bridging

As a form of social capital, bridging is considered an inclusive concept (Putnam, 2000; Williams, 2006). Bridging occurs when individuals from different backgrounds make connections between social networks and while they are only shallow relationships, they are incredibly expansive (Patulny and Svendsen, 2007). As such, social capital bridging can be considered as "outward-looking and encompassing people across diverse social cleavages" (Putnam, 2000, p. 22). Bridging associations are often argued to be more likely to generate positive externalities than bonding associations. For example, Putnam (2000) makes an important distinction between "getting by" and "getting ahead." Social capital bonding requires trust and reciprocity in closed networks and helps the process of getting by in life on a daily basis. Conversely, getting ahead is facilitated through cross-cutting ties that take the form of bridging social capital (Coffe and Gayes, 2007). Therefore, bridging serves to broaden social horizons or world views, as well as open up new opportunities for information. However, as a negative, little in the way of emotional support is provided. Within the context of social media, bridging provides users the ability to connect to an unlimited number of new social networks, providing them with an unparalleled breadth of new information and experiences.

2.2.2 Bonding

In contrast to bridging, bonding is an exclusive concept, occurring when strongly tied individuals provide emotional or substantive support for each other (Coffe and Gayes, 2007; Patulny and Svendsen, 2007; Putnam, 2000). This is to say, there is a distinction between bridging and bonding with regard to the idea of openness versus exclusivity, which links to a conversation regarding positive and negative effects of social capital (Coffe and Gayes, 2007; Patulny and Svendsen, 2007). Positive social capital derived from social control is typically found in "enforceable trust," which generates positive outcomes fairly equally for all members of a group. Negative social capital also involves enforceable rules, yet generates negative outcomes for the group or positive outcomes for only some members at the expense of others (Patulny and Svendsen, 2007). Given the more tightly structured and exclusive nature of bonding social capital, it is likely that more negative aspects will be associated with such capital, such as social media addiction. Therefore, individuals who possess bonding social capital have little background diversity yet maintain stronger personal connections. These personal connections provide for continued reciprocity, demonstrating strong emotional and substantive support. However, a major drawback of bonding social capital is insularity and out-group antagonism, leading to feelings of mistrust and dislike for those outside the "bonded" group.

2.3 Privacy Self-Efficacy

The concept of privacy self-efficacy has only recently begun to be explored in the academic literature (Chen, 2018; Chen & Chen, 2015), however, it is impactful as a concept as it exists as the expression of one's own ability to manage their privacy. This is important as work by Xu et al. (2012) originally postulated that the nature of control in the context of information privacy differs by approaches according to different context-specific user concerns, thus resulting in different effects. Xu et al. (2012) found that such effects are exhibited in a mediated manner by one's perceived control over personal information. Later work by Chen and Chen (2015) confirmed this and explored self-efficacy in the context of privacy. This resulted in the development of the privacy self-efficacy construct, a privacy-specific construct that encompasses both self-efficacy and privacy control (Chen & Chen, 2015).

Ultimately Chen and Chen (2015) demonstrated that privacy self-efficacy promotes self-withdrawal behaviors through users removing identifiable information and changing privacy settings. Then, Chen (2018) confirmed the positive influence of privacy self-efficacy on privacy behavior. Further, Chen (2018) explored how social capital moderates the positive impact of privacy self-efficacy on privacy behavior. However, privacy self-efficacy has yet to be explored in relation to social capital when looking at social media addiction. This is an important distinction as social capital can be explored from a cause or effect perspective, and the significance of the relationship between social capital and privacy self-efficacy to understand social media addiction is, as yet, unknown.

3 Hypotheses Development

3.1 Relationship between Social Capital and Social Media Addiction

We argue that social capital bridging increases the self-control of social media users, creating a negative association with social media addiction. Social capital bridging occurs as individuals form ties with the broader community (Leonard, 2004). The focus of bridging is to get ahead (Putnam, 2000). Individuals, by creating bridges, participate in and control information flows (Burt, 2004). Bridging values non-redundant sources of information, limiting cohesive and structurally equivalent connections (Dubos, 2017). As a result, individuals, through bridging, are not constrained by obligations and norms.

Moreover, bridging entails control over the connections to ensure information benefits. Notably, bridging is not about building close connections but rather increasing access to new information (Dubos, 2017). Individuals strategize their connections to generate several benefits. For example, bridging may enable individuals to generate good ideas (Burt, 2004).

Furthermore, bridging, by limiting cohesion, creates an environment wherein individuals focus on their activities (Dubos, 2017). As individuals seek to get ahead, bridges provide opportunities to grow in their activities. Bridging does not distract social media users' attention from their (online or offline) activities, limiting social media addiction. Prior research suggests that individuals who engage in meaningful activities experience less online social network addiction (Xu, Turel, & Yuan, 2012). Hence, bridging facilitates self-control as individuals try to get ahead in their activities. Social media does not become a substitute for the offline world when users focus on bridging. Rather, social media becomes an effective tool to get ahead in offline or online activities. Thus, we hypothesize that:

H1: Bridging social capital is negatively associated with social media addiction.

Also, we argue that social capital bonding dampens social media users' self-control, leading to social media addiction. Social capital bonding characterizes closely connected communities wherein individuals trust each other, are obligated to support each other, and are dependent on exchange with their community. Notably, social capital bonding occurs as community members form close relationships characterized by trust and solidarity (Leonard, 2004). This trust and solidarity prevail in closely connected networks because network closure facilitates the enactment of sanctions that can influence community members' behaviors (Dubos, 2017). The threats of sanctions create norms and obligations among community members (M. Granovetter, 1985). As social capital bonding enables social media users to form close connections, we suggest that sanctions' threats lead to dependence and attachment to social media as social media users feel obligated to their online connections. For example, social media users might feel the obligation to reciprocate the support received as failing to meet norms and expectations might create sanctions such as being excluded by others, and not receiving future support. The threat of sanctions likely reduces social media users’ self-control over social media usage, leading to social media addiction. For example, prior studies found that receiving online social support leads to internet addiction (Wang & Wang, 2013; Yeh, Ko, Wu, & Cheng, 2008). Hence, we hypothesize that:

H2: Bonding social capital is positively associated with social media addiction.

3.2 Moderating Effects of Privacy Self-Efficacy

We argue that privacy self-efficacy reinforces the negative association between social capital bridging and social media addiction by increasing further self-control of social media users. Bridging connects individuals through weak ties wherein there is less expectation of reciprocity (Granovetter, 1973). Individuals with high privacy self-efficacy do not share their private information unless they trust the recipients (Chen & Chen, 2015). For example, privacy self-efficacy drives behaviors (e.g., delete posts) to reduce profile visibility. These preemptive behaviors limit individuals’ attachment to their connections. As a result, social media users' ability with high privacy self-efficacy to self-control their social media use might increase when engaging in bridging. Hence, we hypothesize that:

H3: Privacy self-efficacy negatively moderates the relationship between social capital bridging and social media addiction.

Also, we argue that privacy self-efficacy reinforces social media bonding's positive association with social media addiction by decreasing further self-control of social media users. Strong bonds of trust and solidarity between individuals facilitate sharing private information (Bansal, Zahedi, & Gefen, 2016). As more private information is shared among individuals, the threat of sanctions increases as such information can be disclosed to unauthorized individuals. The sanctions are more problematic for individuals with high privacy self-efficacy because they might reflect their inability to protect their personal information (Chen & Chen, 2015). Individuals with high privacy self-efficacy are likely to manifest stronger attachment to the community to protect their private information. Individuals with low privacy self-efficacy might not associate attachment to the community with the protection of their private information. As a result, social media users' ability with high privacy self-efficacy to self-control their social media use might decrease when engaging in bonding. Hence, we hypothesize that:

H4: Privacy self-efficacy positively moderates the relationship between social capital bonding and social media addiction.

4 Methodology and Data Analysis

4.1 Data Collection and Validation

The data for this study was collected from Amazon Mechanical Turk in December 2020. Amazon Mechanical Turk is a crowdsourcing platform that is commonly used in Information Systems research for online surveys (Steelman, Hammer, & Limayem, 2014). We created an online survey to examine factors that influence the addiction behavior of social media users in the United States. The measurement scale and the survey items appear in the appendix. Figure 1 illustrates the conceptual model of the study. Table 1 presents the demographics of the sample.

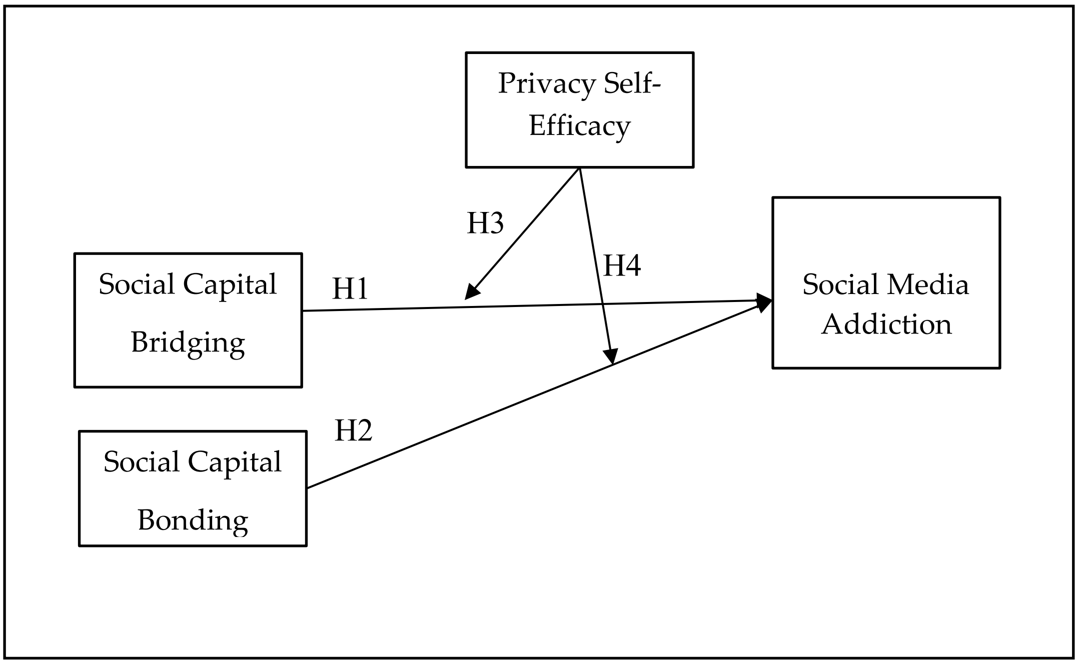

Figure 1. Conceptual Model

A total of 414 responses were collected and validated by checking for common method variance (CMV). We used the marker variable (MV) technique (Lindell & Whitney, 2001). We added one marker variable by including the following question: "what is the capital of France?." The marker variable is theoretically unrelated to the study. The correlation between the marker variable and the dependent variable is .07 (See Table 4). After adjusting for that correlation, all correlations remained significant. Hence, CMV is not an issue of concern in our research. We analyzed the data using Stata/SE 16.1.

Demographics	Category	Frequency	Percentage
Gender	Male	260	0.63
	Female	152	0.37
	Other	2	0
Age	18-23	16	0.04
	24-29	83	0.2
	30-35	131	0.32
	36 or Above	184	0.44
Education	Less than high school	1	0
	High school diploma	83	0.2
	College degree	101	0.24
	Undergraduate degree	132	0.32
	Graduate degree	95	0.23
	Other	2	0
Employment	Full-time employed	307	0.74
	Part-time employed	27	0.07
	Self-employed	42	0.1
	Student	6	0.01
	Retired	7	0.02
	Unemployed	17	0.04
	Stay-at-home parent	8	0.02
Social Media Use (Number of Hours)	0-2	125	0.3
	2-4	160	0.39
	4-6	92	0.22
	6-8	23	0.06
	8+	14	0.03

Table 1. Sample Demographics (n = 414)

4.2 Measures

The proposed model consists of five constructs. We tested the model by adapting validated items found in prior literature. We measured all the constructs using a reflective measurement model since the items are interchangeable (i.e., dropping an item does not alter the conceptual domain of the construct (Jarvis et al. 2003)), sharing one theme. Specifically, we measured social media addiction by adapting an instrument taken from Turel et al. (2011). Moreover, we assessed social capital bonding and social capital bridging by following Williams (2006). Furthermore, we measured privacy self-efficacy based on an instrument used by Chen (2018). Finally, we assessed social media romance by adapting instruments from Patwardhan, and Balasubramanian (2011). The social media romance measurement model includes items about arousal and pleasure. We excluded dominance due to a high correlation with social media addiction. Social media romance is used as a control variable. All the measures use a seven-point Likert scale going from (1) “strongly disagree” to (7) “strongly agree”. Appendix 1 presents the survey items.

4.3 Reliability and Construct Validity

Table 2 presents the results of a principal component analysis with orthogonal varimax rotation that we conducted to validate the measurement model. We obtain consistent results after using a direct oblimin rotation (Morris and Venkatesh 2010). The results support the internal consistency and discriminant validity of the scales. We dropped four items of social capital bonding (SCBond2, SCBond3, SCBond6, and SCBond9) and four items of social media addiction (SMA2, SMA5, SMA7, and SMA10) because of low factor loading (loading < 0.5).

	Rotated Component Matrix Component				
	1	2	3	4	5
SMR1			0.7236		
SMR2			0.7645		
SMR3			0.7070		
SMR4			0.5661		
SMR5			0.6727		
SMR6			0.6561		
SMR7			0.7253		
SMR8			0.7177		
PSE1					0.5697
PSE2					0.8305
PSE3					0.8631
PSE4					0.8739
PSE5					0.8716
SCBond1				0.7575	
SCBond4				0.7295	
SCBond5				0.7372	
SCBond7				0.7824	
SCBond8				0.7287	
SCBond10				0.7364	
SCBR1	0.7523				
SCBR2	0.7307				
SCBR3	0.7151				
SCBR4	0.8067				
SCBR5	0.7627				
SCBR6	0.7745				
SCBR7	0.7352				
SCBR8	0.6279				
SCBR9	0.6748				
SCBR10	0.6571				
SMA1		0.7877			
SMA3		0.8791			
SMA4		0.8490			
SMA6		0.7069			
SMA8		0.8269			
SMA9		0.8642			

Extraction Method: Principal Component Analysis
Rotation Method: Orthogonal Varimax (Kaiser off)
Loadings above .5 are displayed
Social media addiction (SMA), privacy-self efficacy (PSE), social media romance (SMR), social capital bridging (SCBR), social media bonding (SCBond)

Table 2. Factor Analysis

Moreover, we assessed the reliability of the constructs using Cronbach’s alpha and composite reliability. The results presented in Table 3 indicate that the measurement of each construct is reliable since Cronbach's alpha and the composite reliability score of all the constructs are above the minimum recommended threshold .7 (Hair, Black, Babin, & Anderson, 2010).

Construct	Cronbach's alpha	Composite Reliability (CR)
SMA	0.95	0.95
SCBR	0.93	0.95
SCBond	0.9	0.94
PSE	0.9	0.91
SMR	0.94	0.94

Table 3. Reliability Test of the Constructs

Finally, we checked the convergent and discriminant validity of the constructs. In Table 2, we observe that the factor loadings of items are greater than 0.5. Additionally, the average variance extracted (AVE) scores of all the constructs are above the minimum recommended threshold of 0.5 (Fornell & Larcker, 1981). Thus, we conclude that the constructs have convergent validity. Table 4 presents the correlations between the constructs. The diagonal axis contains the square root of the AVE scores. We observe that the correlation scores are below the maximum threshold of 0.8 (Hair et al., 2010), mitigating the multicollinearity issue. Also, the square roots of the AVE scores are greater than the correlations scores of the same row and column, indicating that the constructs have discriminant validity. Hence, we can proceed with further analysis as we demonstrated that the measures of the constructs are reliable and valid.

	SMA	SCBR	SCBond	PSE	SMR
SMA	**0.87**				
SCBR	0.41*	**0.8**			
SCBond	0.62*	0.59*	**0.84**		
PSE	0.22*	0.47*	0.37*	**0.82**	
SMR	0.65*	0.68*	0.66*	0.43*	**0.82**
Marker	0.07	.03	.05	.03	.04

Diagonal elements are the square root of the average variance extracted (AVE)
*p < .05
n = 414

Table 4. Constructs Correlation Matrix

4.4 Results

In Figure 2, we displayed the path coefficients (β value) of the structural model. The path coefficients are obtained using covariance-based SEM (CBSEM). For robustness checks, we conducted an ordinary least squares (OLS) regression to test the hypotheses. The results of CBSEM and OLS are presented in Table 5. We find support for all the hypotheses. Specifically, our findings indicate that social capital bridging is negatively associated with social media addiction (H1). Moreover, the results show that social capital bonding is positively associated with social media addiction (H2). Finally, we find that privacy self-efficacy reinforces the negative association between social capital bridging and social media addiction (H3) and the positive association between social capital bonding and social media addiction (H4). The moderation effects were calculated by assessing the effects of two interaction terms: social capital bridging and privacy self-efficacy, and social capital bonding privacy self-efficacy on social media addiction. The variance inflation factors (VIF) are lower than 5, indicating that there is no multicollinearity (See Table 6).

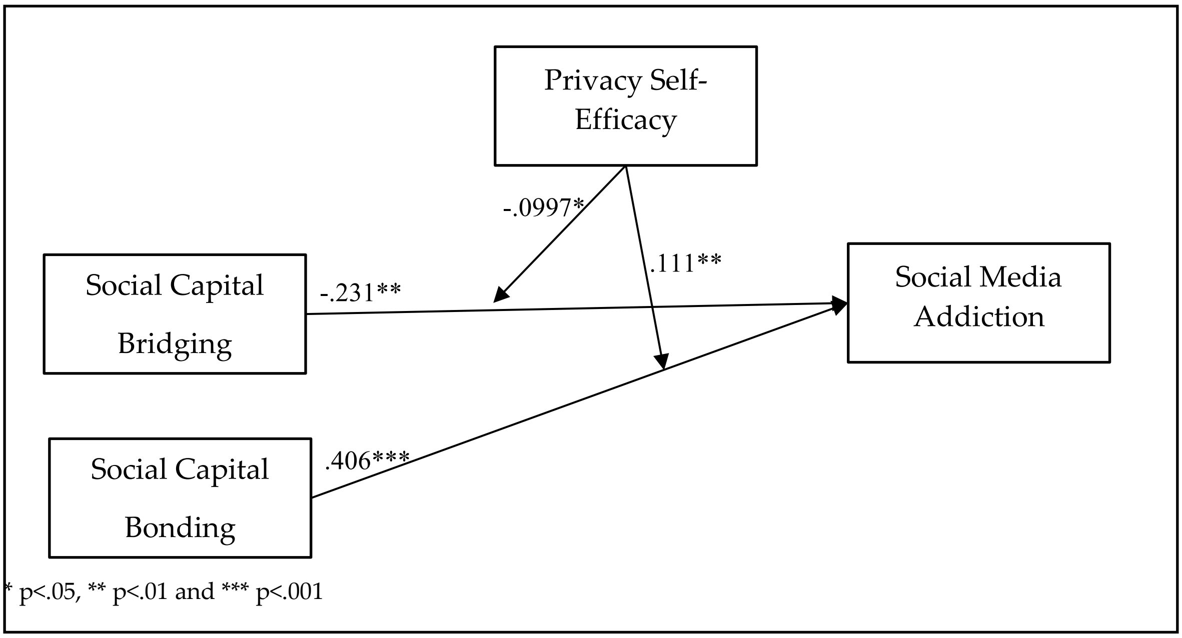

Figure 2. Path Coefficients

	CBSEM		OLS (Robust Standard Errors)	
SMR	.558***	.562***	.553***	.559***
	(.0592)	(.059)	(.0647)	(.0658)
SCBR	**-.231****	-.21**	**-.238****	-.229**
	(.0766)	(.0792)	**(.0842)**	(.0871)
SCBond	**.406*****	.423***	**.408*****	.426***
	(.0566)	(.056)	**(.0605)**	(.0614)
PSE		-.113+		-.0945
		(.0687)		(.0752)
SCBR*PSE		**-.0997***		**-.105***
		(.0497)		**(.0535)**
SCBond*PSE		**.111****		**.117***
		(.041)		**(.0479)**
Constant	.968**	1.08***	.498*	.504*
	(.324)	(.32)	(.208)	(.208)
var(e.SMA)	1.51***	1.46***		
	(.105)	(.102)		
R^2			0.531***	0.544***
N	414	414	414	414

Controls: Age, Gender, Employment
** p<.05, ** p<.01 and *** p<.001*

Table 5. Results

Variable	VIF	1/VIF
SMR	2.43	0.41
SCBR	2.27	0.44
SCBond	2.08	0.48
PSE	1.62	0.62
SCBR*PSE	1.77	0.56
SCBond*PSE	1.84	0.54
Mean VIF	2.34	0.43

Table 6. Variance Inflation Factors

5 Discussion and Implications

Our research makes two crucial theoretical contributions. First, *bridging* and *bonding* have a differing association with social media addiction. We found that high bonding users experience more social media addiction, while those with high bridging have lesser social media addiction. Second, privacy self-efficacy plays a reinforcing role, increasing social media addiction for users with high bonding while decreasing further social media addiction for users with high bridging. In the paragraphs below, we discuss each of the implications.

5.1 Role of Bonding and Bridging on Social Media Addiction

It is interesting to note that bridging and bonding are associated with social media addiction differently. In situations where an individual has high bonding with others, addiction chances are higher. A plausible reason is that bonding satisfies individual needs for emotional support thus increasing the tendency to be dependent on social media. Past research has also found the search for emotional support results in higher chances of addiction as people become more reliant on technologies (Malloch and Hether, 2019). For example, Andreassen et al. (2016) found that single individuals and females have a higher dependency on social media most likely due to their tendency to seek greater amounts of emotional support through technology. However, Santini et al. (2015) have argued, providing emotional support through social networks, physical and online, effectively prevents adverse mental health outcomes, thus reducing the chances of addiction. In an online setting, however, all interactions are not the same. Shensa et al. (2016), for instance, found "most time per day on social media sites had significantly lower odds of reporting higher levels of perceived emotional support" (p. 546). Yet, in a 2020 study, Shensa and her colleagues report that social media can be a source of emotional support (Shensa et al., 2020). The more individuals identify with social media, for example as a source of emotional support, the more dependent they become on technology itself (Carter and Grover, 2015). One reason for conflicting evidence is perhaps related to who the social media interactions are with. Casual interactions with acquaintances may not provide emotional support. And this may be the reason for contradictory evidence from Shensa's research. In that sense, our study's findings make a useful theoretical contribution where we find that bonding with close family and friends results in emotional support, which makes individuals likely to get addicted to social media.

5.2 Moderating role of privacy self-efficacy on social media addiction

As noted earlier, bonding occurs when individuals engage with friends and family for some type of emotional support. Our research has found that increased privacy self-efficacy reinforces the association between bonding and social media addiction. This means that the higher the privacy self-efficacy, the greater the addiction for users with high bonding. Given the extant literature, our finding makes an important theoretical contribution. In the literature, the bonding and bridging types of social capital have not been separated. Casale, Rugai, and Fioravanti (2018), for instance, collectively consider bonding and bridging as metacognitions about social media use. Other research has also studied metacognitions collectively while exploring the problematic use of social media networks (Akbari, 2017; Spada & Marino, 2017). As Putnam (2000) argues, bridging social capital is different as such associations are not for emotional support. These types of social capital are simply connections that lack depth. Therefore, it makes intuitive sense that once privacy self-efficacy increases, social media addiction decreases for high bridging users. This is also an important theoretical contribution of our research. While not specifically discussing the role of privacy, infidelity has been found to increase social media addiction (Abbasi, 2019).

5.3 Limitations and future research directions

Although our study makes several contributions, our findings should be interpreted in light of several limitations. First, we are unable to make causal inferences because of the cross-sectional nature of our dataset. Future studies may collect longitudinal data, or conduct qualitative analyses to examine the impact of social capital on social media addiction. Second, there are different conceptualizations of social capital. Bonding and bridging are one way to conceptualize different types of social capital. Future research may consider other conceptualizations (e.g., Nahapiet & Ghoshal, 1998). Finally, our study focuses on a direct link between social capital and social media addiction. However, based on our argumentation, social media users' self-control may mediate the effect of social capital on social media addiction. Future work may test this mediation and other possible mediations to increase the understanding of the impact of social capital on social media addiction.

6 Conclusion

In this paper, we sought to investigate the relationship between social capital and social media addiction. We also tested the moderating role of privacy self-efficacy on the relationship between social capital and social media addiction. Findings from our research significantly contribute to the body of literature beyond what the extant literature has noted. While much-published research has hypothesized social capital's role in social media addiction, there is limited research on the more granular aspects of social capital. Our research has, in particular, explored the role of bridging and bonding in addiction. The paper concludes that if individuals are made aware and educated about their online privacy concerns, bridging's negative association with social media addiction and bonding's positive association with social media addiction are strengthened. Individuals can suitably manage bridging and bonding relationships to limit social media addiction.

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Appendix 1: Measurement Scales

Constructs	Scale Items	Source
Privacy Self-efficacy	PSE1: I feel confident dealing with the ways that social media collect and use my personal information	(Chen, 2018) – adopted and modified
	PSE2: I feel confident learning skills to protect my privacy on social media	
	PSE3: I feel confident blocking spam or unwanted content on social media	
	PSE4: I feel confident adjusting privacy settings on social media	

	PSE5: I feel confident managing personal profiles on social media	
Social Capital Bonding	SCBond1: There are several people on social media I trust to help solve my problems.	(Williams, 2006) – adopted and modified
	SCBond2: There is someone on social media I can turn to for advice about making very important decisions.	
	SCBond3: There is no one on social media that I feel comfortable talking to about intimate personal problems. (reversed)	
	SCBond4: When I feel lonely, there are several people on social media I can talk to.	
	SCBond5: If I needed an emergency loan of $500, I know someone on social media I can turn to.	
	SCBond6: The people I interact with on social media would put their reputation on the line for me.	
	SCBond7: The people I interact with on social media would be good job references for me.	
	SCBond8: The people I interact with on social media would share their last dollar with me.	
	SCBond9: I do not know people on social media well enough to get them to do anything important. (reversed)	
	SCBond10: The people I interact with on social media would help me fight an injustice.	
Social Capital Bridging	SCBR1: Interacting with people on social media makes me interested in things that happen outside of my town.	(Williams, 2006) – adopted and modified
	SCBR2: Interacting with people on social media makes me want to try new things.	
	SCBR3: Interacting with people on social media makes me interested in what people unlike me are thinking.	
	SCBR4: Talking with people on social media makes me curious about other places in the world.	
	SCBR5: Interacting with people on social media makes me feel like part of a larger community.	
	SCBR6: Interacting with people on social media makes me feel connected to the bigger picture.	
	SCBR7: Interacting with people on social media reminds me that everyone in the world is connected.	
	SCBR8: I am willing to spend time to support general on social media community activities.	
	SCBR9: Interacting with people on social media gives me new people to talk to.	
	SCBR10: On social media, I come in contact with new people all the time.	
Social Media Addiction	SMA1: Much of my time is occupied by thoughts about social media	(Turel, et al., 2011) – adopted and modified
	SMA2: My thoughts about social media interfere with my social, school, work or role functioning	
	SMA3: My thoughts about social media cause me anxiety and/or distress	
	SMA4: I often try to turn my attention away from thoughts about social media	
	SMA5: I have much control over my thoughts about social media (reversed)	
	SMA6: I spend much of my time using social media	
	SMA7: My use of social media interferes with my social, school, work or role functioning	

	SMA8: I become anxious and/or distressed when I am prevented from using social media	
	SMA9: I often try to resist my social media usage compulsion	
	SMA10: I have much control over my use of social media (reversed)	
Social Media Romance	SMR1: I love social media	(Patwardhan & Balasubramanian, 2011) – adopted and modified
	SMR2: Using Social media gives me great pleasure	
	SMR3: I am really happy that social media is available	
	SMR4: Social media rarely disappoints me	
	SMR5: I desire social media	
	SMR6: I am attracted to social media	
	SMR7: I want social media	
	SMR8: I look forward to using social media	

Dropped items are in italic

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