

# The Contribution of SNS to Social Capital in Times of Restricted Physical Contact

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**Abstract:** Social capital is the collection of social assets and resources that provide value to an individual and on which they can rely in times of need. Social networking sites (SNS) have contributed significantly to the development of social capital. A common classification of social capital is into bridging, bonding and maintained social capital. Often social capital is built and maintained in the online and offline environments together but each environment can foster social capital separately. With the constraints on physical contact and interactivity brought about by Covid-19-related restrictions, the assumption is that there would be greater reliance on SNS to develop and maintain social capital. This research examined whether, in an environment of ongoing restricted physical social contact, the use of SNS contributes positively to the establishment and development of social capital; and whether the use of different SNS exert different influences on the establishment and development of social capital. SNS use was assessed in terms of frequency and intensity of use; and social capital was assessed in terms of bridging, bonding and maintained social capital. Three SNS (Facebook, Instagram and WhatsApp) were studied. A cross-sectional survey of 282 New Zealand residents was used to gather the data, and regression analyses were conducted to analyse the data. Findings indicated that frequency and intensity of use were key contributors to social capital, contributing mostly towards bridging social capital and the least towards bonding social capital. Additionally, intense and frequent use of Instagram contributed most towards bridging and maintained social capital, whereas intense and frequent use of WhatsApp contributed most towards bonding social capital. The research contributes to the theoretical understanding of the role of SNS, particularly with regard to the building and maintenance of social capital but also against a background of restricted physical social contact. It is furthermore of benefit to managers who have - and can - embraced the use of SNS to build and maintain team cultures, especially in terms of Covid-19-related contact restrictions.

**Keywords:** Social capital, bridging social capital, bonding social capital, maintained social capital, social networking sites, Facebook, Instagram, WhatsApp

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## 1. Introduction

Social capital is a well-researched phenomenon which describes the resources, values and meanings individuals accumulate via social relationships (Coleman, 1988). Individuals use of SNS to establish, build and maintain their interpersonal relationships and by extension, their social capital (Ellison et al., 2007). SNS facilitate the maintenance of connections with strong relationships, such as close friends and relatives - classed as bonding social capital (Williams, 2019); and with weaker relationships, such as acquaintances - classed as bridging social capital (Chen and Li, 2017). Further, SNS enable individuals to stay connected with a social relationship once physically disconnecting from it offline - maintained social capital (Ellison et al., 2007). Increased frequency and intensity of SNS use are positively associated with different forms of social capital (Phua et al., 2017).

The positive association found between the use of SNS and social capital was established under conditions where individuals had access to their online and offline face-to-face social relationships simultaneously. In 2020, the COVID-19 pandemic gave rise to a new social environment consisting of physical distancing and stay-at-home laws to avoid the spread of the virus.

This raised the question of whether the positive association between SNS use and social capital holds up in an environment which relies mainly on online interactions. This research attempts to address that question. The purpose is to investigate the effect of frequency and intensity of SNS use on social capital in an environment where physical face-to-face interactions are limited or restricted. Additionally, this research aims to determine if the relationship between SNS use and social capital is dependent on the SNS an individual uses. Thus, the two research questions are:

**RQ1:** Does intensity and frequency of SNS use have a positive effect on an individual's social capital in environments of limited face-to-face contact?

**RQ2:** Do different SNS have different impacts on the relationship between intensity and frequency of SNS use and social capital?

## **2. Literature review and hypotheses development**

SNS are internet-based platforms that allow individuals to present themselves, articulate their social networks, and establish or maintain social relationships and connections (Ellison et al., 2007), through features such as uploading content, liking, commenting, messages, and items shared on newsfeeds (Burke et al., 2010). SNS can be described as a supplement to establish and maintain offline relationships (Wellman et al., 2001).

Due to the different nature, features and functions of SNS platforms, the social benefits and outcomes obtained from using them will vary (Tiwari et al., 2019). Consequently, SNS have differential implications for social capital depending on how intensely or frequently users engage with them (Phua et al., 2017).

Coleman (1988) defines social capital as the resources, values and meanings gained via social relationships. Such resources include “emotional support”, “exposure to diverse ideas”, and “access to non-redundant information” (Ellison et al., 2011, p873). A positive relationship has been found between SNS use and an individual’s ability to establish, build and maintain their interpersonal relationships and by extension, social capital (Ellison et al., 2007). An individual’s frequency of SNS use (Kim and Kim, 2017) and intensity of use are positively associated with their social capital (Phua et al., 2017).

Putnam (2000) identified two forms of social capital: bonding and bridging. Bonding social capital consists of strong interpersonal ties and relationships between individuals with similar backgrounds and interests. There is a high density of ties between members and these individuals engage in regular interaction (Williams, 2006). The benefits of bonding social capital relationships are greater levels of trust, practical and emotional support, and access to rare resources (Chen and Li, 2017). Bridging social capital describes the benefits derived from casual acquaintances and relations, such that these are weak ties that can provide access to novel perspectives and new information (Putnam, 2000). Ellison et al., (2007) introduced a third form of social capital, maintained social capital, as “the ability to maintain valuable connections as one’s progress through life changes” (p1148). This form applies especially when strong bonding social capital is transformed through the physical disconnection of the participants in a social relationship, and how much individuals believe they can rely on former relationships and ties (Aharony, 2015).

Ellison et al. (2007) found a strong positive association between intensity of SNS use and all three types of social capital, with bridging social capital manifesting the strongest relationship (Ellison et al., 2007). Similarly, Phua et al., (2017) indicated that more intense usage of SNS led to individuals exhibiting increased bridging and bonding social capital. Ellison et al., (2007) also concluded that intensity of SNS use predicted higher levels of maintained social capital. Furthermore, the more frequently individuals use SNS, the more bridging and bonding social capital they accumulate (Liu et al., 2013). Frequency of SNS use can also lead to increased maintained social capital (Ellison et al., 2007).

However, these associations were manifested in times when individuals had access to their offline and online relationships simultaneously. This present study argues that this association will continue in environments of limited physical face-to-face contact because SNS are one of few tools individuals can use to gain social capital benefits from interpersonal relationships when physical face-to-face contact is limited.

**H1: Intensity of SNS use will have a positive effect on (a) bonding social capital, (b) bridging social capital, and (c) maintained social capital in environments of limited face-to-face contact.**

**H2: Frequency of SNS use will have a positive effect on (a) bonding social capital, (b) bridging social capital, and (c) maintained social capital in environments of limited face-to-face contact.**

In the 1<sup>st</sup> quarter of 2020 when the first social restrictions were implemented in New Zealand (which is where this research was conducted), Instagram, Facebook and WhatsApp were the three most commonly used SNS by New Zealanders (Statista, 2021).

Facebook is a social networking platform which permits users to create visible profiles with features that facilitate interactions via “friends list, the wall, pokes, statuses, events, photos, video, messages, chat, groups and likes” (Nadkarnia and Hofmann, 2012, p2). A strong positive association has been found between Facebook usage and intensity of use across all three forms of social capital with bridging social capital indicating the strongest relationship (Ellison et al., 2007). Phua et al., (2017) found Facebook users showed moderate to high

levels of bonding social capital and Ellison et al. (2007) concluded that Facebook intensity of use predicted higher levels of maintained social capital because users used it to stay in contact with individuals they had moved away from.

Instagram is a photo and video capturing and sharing app which allows users to capture and share content with others through its features (Hu et al, 2014). As with Facebook, those that create an Instagram account have their own personal profile in which others can become 'followers', and every account has a newsfeed of those who they 'follow'. Phua et al., (2017) found that Instagram users obtained higher levels of bridging social capital compared to Facebook users. This was probably due to Instagram users being more likely to follow and interact with others they did not know personally thus heightening the maintenance of weak ties (Jin and Phua, 2014). Similarly, Shane-Simpson et al., (2018) reported bridging social capital was more accessible on a public platform such as Instagram. Conversely, Phua et al., (2017) reported lower levels of bonding social capital in Instagram users.

WhatsApp Messenger is a communication application that allows users to send instant messages, photos, video, voice messages and make voice calls over an internet connection. WhatsApp is a closed platform as communication and interactions take place between users who they usually choose and know personally offline (Aharony, 2015). Aharony (2015) found that time spent on WhatsApp did not correlate with bridging social capital. These findings are consistent with those of Bano et al. (2019) who did, however, reveal a positive relationship with their maintained social capital. WhatsApp is well-suited for developing social capital at the individual level since it strengthens long-term connections in various social relationships and is supported by a significant positive association between bonding social capital and WhatsApp usage (Bano et al, 2019).

Given that different SNS address different needs and provide different benefits to users, we argue, firstly, that users of SNS that facilitate a larger social network whereby users communicate with larger audiences with whom users do not necessarily have close offline interactions, will probably rely increasingly on weak ties and thus bridging social capital (Jin and Phua, 2014; Shane-Simpson et al., 2018). Secondly, the nature of SNS that allow individuals to reach many connections online rather than one individual, explains why some SNS may not derive high levels of bonding social capital (Phua et al, 2017). Contrastingly, those SNS which are more private in nature with communication between selected users only are likely to result in higher levels of bonding social capital (Aharony, 2015). Lastly, use of SNS that allow individuals to connect and stay in contact with established relationships that had become physically distant, will likely result in increased levels of maintained social capital (Ellison et al., 2007).

**H3: There will be a difference between the effect of frequency and intensity of use on (a) bonding social capital, (b) bridging social capital, and (c) maintained social capital depending on the platform used, in environments of limited face-to-face contact.**

### **3. Research methodology**

This study adopted a positivist research philosophy with a deductive approach.

A quantitative cross-sectional survey design was employed (Hair et al. 2019) and an online questionnaire was created on Qualtrics. At the start of the questionnaire participants were instructed to select only one of three SNS (Facebook, Instagram or WhatsApp) that they had used most regularly during periods of COVID-19 lockdown. Participants were then directed to the relevant SNS survey.

A link to the Qualtrics survey was posted on the lead author's personal Facebook page with a recruitment message regarding the survey purpose, anonymity and confidentiality. Snowball sampling was additionally used. Screening questions were administered at the start of the survey. These questions ensured the participants were over the age of 18, individuals who had been residing in New Zealand since the beginning of 2020, and had used at least one of the three SNS being studied.

Measures for each factor were based on existing valid and reliable measures. Ellison et al's (2007) Intensity of Facebook Use scale, Bonding Social Capital Scale, Bridging Social Capital Scale, and maintained social capital measure, plus Rosen et al's (2013) frequency of use measure were all drawn upon and adapted where necessary. The items were all rated on a five-point Likert scale.

## 4. Results

### 4.1 Descriptive statistics

The survey yielded 305 responses - 23 incomplete surveys were removed, resulting in a final response number of 282 participants ( $N=282$ ). The sample consisted of 60 males (21.3%), 214 females (75.9%), and 7 individuals (2.5%) who identified as other. The age bracket of 18-24 accounted for 29.4% of participants, with the vast majority (75.9%) falling between 18-64. Amongst the participants, 70.2% were New Zealand European, the rest were Asian, Māori, and Pacific islanders. The most frequently used SNS was Facebook ( $n=143$ ), followed by Instagram ( $n=94$ ), and lastly WhatsApp ( $n=45$ ).

Internal reliability of the scales measuring each construct was assessed. Cronbach's alpha of each was over 0.7, one item having been removed from each of the intensity of use and frequency of use scales. Standard linear regression was performed to test the hypotheses. Assumptions of normality, linearity and homoscedasticity of residuals requirements were tested and proved correct (Hair et al, 2019).

### 4.2 Hypotheses testing

To test H1 and H2 (see Table 1), results showed that, in combination, SNS intensity (H1a) and SNS frequency (H2a) of use accounted for 10% of the variance in bonding social capital ( $R^2 = .100$ ., adjusted  $R^2 = .094$ ,  $F(2, 179) = 15.582$ ,  $p < .001$ ), and that each significantly predicted bonding social capital ( $\beta = 0.14$ ,  $p = .041$ ;  $\beta = 0.22$ ,  $p = .002$ ), thus supporting H1a and H2a.

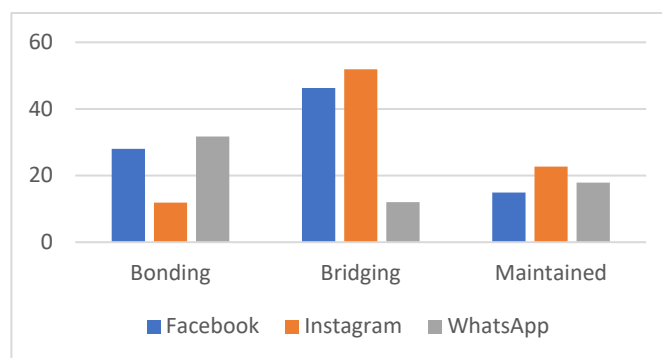
In combination, SNS intensity (H1b) and SNS frequency (H2b) of use accounted for 36% of the variance in bridging social capital ( $R^2 = .360$ , adjusted  $R^2 = .356$ ,  $F(2, 179) = 78.501$ ,  $p < .001$ ). Each of them significantly predicted bridging social capital ( $\beta = 0.44$ ,  $p < .001$ ;  $\beta = 0.23$ ,  $p < .001$ ), thereby supporting H1b and H2b.

Results also showed that, in combination, SNS intensity (H1c) and SNS frequency (H2c) of use accounted for 20.0% of the variance in maintained social capital, ( $R^2 = .200$ ., adjusted  $R^2 = .194$ .,  $F(2, 179) = 34.874$ ,  $p < .001$ ), and that each significantly predicted maintained social capital ( $\beta = 0.17$ ,  $p = .007$ ;  $\beta = 0.33$ ,  $p < .001$ ), thus supporting H1c and H2c.

**Table 1:** Comparison of intensity and frequency of use on social capital

Type of Social Capital	Comparative effect between intensity and frequency of use
Bonding	Frequency exerted a stronger influence
Bridging	Intensity exerted a stronger influence
Maintained	Frequency exerted a stronger influence

To test H3a, that there would be a difference between the effect of SNS intensity and SNS frequency of use on bonding social capital relative to the SNS used, results showed that, in combination, Facebook intensity and frequency of use accounted for a non-significant 28.0% of the variance in bonding social capital, ( $R^2 = .280$ , adjusted  $R^2 = .014$ ,  $F(2, 140) = 1.980$ ,  $p = .142$ ). In combination Instagram intensity and frequency of use accounted for 11.9% of the variance in bonding social capital, ( $R^2 = .119$ , adjusted  $R^2 = .099$ ,  $F(2, 90) = 6.067$ ,  $p < .05$ ). Further, in combination WhatsApp intensity and frequency of use accounted for 31.7% of the variance in bonding social capital, ( $R^2 = .11$ , adjusted  $R^2 = .284$ ,  $F(2, 42) = 9.735$ ,  $p < .001$ ). (See Figure 1.)



**Figure 1:** Combined impact of intensity and frequency of use per SNS

To test H3b, that there would be a difference between the effect of SNS intensity and SNS frequency of use on bridging social capital relative to the SNS used, results showed that, in combination, Facebook intensity and frequency of use accounted for 46.3% of the variance in bridging social capital, ( $R^2 = .463$ , adjusted  $R^2 = .455$ ,  $F(2, 140) = 60.352$ ,  $p < .001$ ). In combination Instagram intensity and frequency of use accounted for 51.9% of the variance in bridging social capital, ( $R^2 = .519$ , adjusted  $R^2 = .508$ ,  $F(2, 90) = 48.588$ ,  $p < .001$ ). In combination WhatsApp intensity and frequency of use accounted for 12% of the variance in bridging social capital, ( $R^2 = .123$ , adjusted  $R^2 = .082$ ,  $F(2, 42) = 2.954$ ,  $p < .001$ ).

To test H3c, that there would be a difference between the effect of SNS intensity and SNS frequency of use on maintained social capital relative to the SNS used, results showed that, in combination, Facebook intensity and frequency of use accounted for 14.9% of the variance in maintained social capital ( $R^2 = .149$ , adjusted  $R^2 = .137$ ,  $F(2, 140) = 12.242$ ,  $p < .001$ ). In combination, Instagram intensity and frequency of use accounted for 22.7% of the variance in maintained social capital, ( $R^2 = .227$ , adjusted  $R^2 = .209$ ,  $F(2, 90) = 13.181$ ,  $p < .001$ ). In combination, WhatsApp intensity and frequency of use accounted for 17.9% of the variance in maintained social capital, ( $R^2 = .179$ , adjusted  $R^2 = .140$ ,  $F(2, 42) = 4.581$ ,  $p < .05$ ).

## **5. Discussion**

The first objective of this study was to determine whether SNS intensity and frequency of use contributed positively to different types of social capital in environments of limited physical face-to-face. The findings revealed significant associations between intensity and frequency of SNS use, and bonding, bridging, and maintained social capital. These findings align with previous studies which indicate that intense and frequent use of SNS is significantly related to bonding, bridging and maintained social capital when SNS is used simultaneously to support ones' offline relationships (Phua et al., 2017).

In combination, SNS intensity and frequency of use predicted bridging social capital more strongly than bonding or maintained social capital, accounting for 36% of the variance in bridging social capital. The majority of prior research strongly suggests that intensity and/or frequency of SNS use positively contribute to individuals' bridging social capital (Kim and Kim, 2017; Chen and Lee, 2017, Phua et al., 2017). This may be because SNS are one of the few tools in limited face-to-face environments that allow for individuals to access an extensive range of social networks.

In combination, SNS intensity and frequency of use predicted bonding social capital least out of all three social capitals. Whilst there is still a positive relationship, SNS intensity and frequency of use accounted for only 10% of the variance in bonding social capital. This current result supports Ellison et al., (2007), Burke et al., (2011), and Ahn (2012), and suggests that the situation may not influence the association between SNS use and bonding social capital. Rather, these findings indicate that even when individuals rely on SNS for social communication during physical face-to-face restrictions, this is not particularly to nurture bonding relationships.

In combination, SNS intensity and frequency of use predicted maintained social capital more than that of bonding social capital but less than that of bridging social capital. Whilst this result is consistent with the findings of Ellison et al., (2007), it is contrary to the results of Liu et al., (2013). This latter finding may be attributable to the difference in situations. The limited face-to-face contact of the present study may warrant individuals relying more on SNS to maintain their interpersonal social relationships with those they cannot contact physically.

The difference between the impact of the intensity and frequency of SNS use on the three types of social capital indicated that, in predicting both bonding and maintained social capital, frequency of SNS use accounted for more variance than intensity of SNS use. However, in predicting bridging social capital, intensity of SNS use accounted for more than twice the variance of frequency of SNS use. Bonding and maintained social capital are typically associated with already established offline social relationships or connections (Putman, 2000; Ellison et al., 2007). Bridging social capital is associated with weaker ties, and larger networks of acquaintances whereby individuals may personally get to know one another (Putman, 2000). The results of this study indicate that in situations of limited face-to-face contact, more frequent SNS use, is more useful for building or maintaining social capital in already established relationships (bonding and maintained social capital).

The second objective of this study was to investigate whether the SNS used would influence the effects of the intensity and frequency of SNS use on the different types of social capital.

WhatsApp appeared to be the most effective platform for creating bonding social capital. Instagram was the least effective. This indicates that the different SNS influence the extent to which the frequency and intensity of use contribute to bonding social capital. These results are consistent with several previous studies (Aharony, 2016; Phua et al., 2017) indicating that Instagram users are more likely to interact with users they do not know in real life. Conversely, WhatsApp, being a closed platform, means users are more likely to communicate with those already established social relationships that can offer emotional comfort, guidance and trust (Bano et al., 2019). In environments of limited face-to-face contact, individuals still need to reap the benefits of their bonding relationships that they are unable to achieve face-to-face. By intensely and frequently using closed, more private SNS such as WhatsApp, individuals can leverage off the SNS to contribute to their bonding social capital. Findings regarding Facebook intensity and frequency of use were non-significant so this study cannot draw conclusions on Facebook usage and bonding social capital.

Instagram was the most effective SNS in creating bridging social capital. Facebook was the second-most effective, and WhatsApp the least. This finding is consistent with Phua et al., (2017) and Paige et al., (2017) who found that Instagram predicted higher levels of bridging social capital relative to other SNS. Instagram being the strongest contributor to bridging social capital may be because individuals use open platforms to 'follow' other users who they do not have real-life social relationships with. Thus, Instagram users' extensive network of weak relationships contributes to stronger bridging social capital compared to more closed SNS platforms, such as WhatsApp, where individuals normally have or add 'contacts' of people they already know offline.

In facilitating the formation of maintained social capital, Instagram also appeared to be the most effective with WhatsApp being second-most effective and Facebook the least. The literature is scarce regarding the formation of social capital across a range of different SNS. The findings of this study indicate that individuals may find Instagram an easier platform to maintain their previously inhabited social relationships.

## **6. Implications, limitations and future research**

First, this present research contributes to the literature by indicating that even in environments of limited face-to-face contact, SNS use can be leveraged for beneficial social capital outcomes. Specifically, intense and frequent SNS use in environments of limited face-to-face contact contributes the most to bridging social capital, followed by maintained social capital, and contributes the least to bonding social capital.

Second, this study makes theoretical contributions to extant literature on social capital development and maintenance among SNS users by investigating how bonding, bridging and maintained social capital differs across intense and frequent users of the three most frequently used SNS in New Zealand: Facebook, Instagram, and WhatsApp. Notably, WhatsApp usage contributes the most to bonding social capital, and Instagram usage contributes the most to bridging and maintained social capital.

The positive association between SNS use and social capital proposes practical implications for organization managers in how to assist employees to build and maintain social capital in environments of limited or restricted face-to-face contact. Managers could leverage the positive association between SNS use and social capital in order to contribute to the social well-being of employees.

This research warrants mentions of its limitations which offers suggestions for future research. First, this study implemented an online self-reported. As a result of using self-reported instead of direct measures, participants may have misreported information. Future studies could record respondents actual SNS usage, in order to improve measurement validity and generalizability of the findings.

Second, this study only examined users use of three SNS: Facebook, Instagram and WhatsApp. Due to different types of SNS being characterized by different features and tools, the findings on these three SNS cannot be generalized to other SNS. Future research could investigate other SNS such as Twitter, Snapchat and LinkedIn.

Third, due to this study being grounded in a New Zealand context these findings cannot be generalized to other countries. Future studies should investigate the SNS and social capital relationship in other countries.

Fourth, the sample was skewed in terms of gender composition, in particular. Future research should ensure a better balanced sample in order to examine the influence of gender.

## 7. Conclusion

This study aimed to investigate the effect of frequent and intense SNS use on social capital in an environment where physical face-to-face interactions are limited or restricted. The results indicate that, in environments of limited face-to-face contact, intensity and frequency of SNS use are key contributors of social capital, contributing the most towards bridging social capital and least towards bonding social capital. Additionally, in environments of limited face-to-face contact, intense and frequent use of Instagram contributes the most towards bridging and maintained social capital, whereas intense and frequency use of WhatsApp contributes the most towards bonding social capital. In conclusion this research indicates that even when face-to-face interactions are limited or restricted, SNS is still a sufficient form of communication in an online form to help individuals contribute to their social capital with their different inter-personal relationships.

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