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Facebook Uses, Boundary Spanning Activities, and Social Capital

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Abstract

The goal of this paper is to examine whether the use of Facebook in the workplace impacts on employees' boundary spanning activities (BSA) and social capital. Two types of social capital are examined: bonding and bridging. The sample consisted of 399 full-time white-collar workers in Taiwan. A snowball sampling technique was used to recruit participants to complete an online survey. The results indicated that employees who are allowed to use Facebook in the workplace did not have a higher level of overall BSA than the non-user group. In terms of the associations between Facebook use and social capital, the Facebook user group did not have a higher level of bonding social capital than the non-user group, but they did have a higher level of bridging social capital than the non-user group. In terms of the associations between BSA and social capital, the correlation results indicated positive significant relations between BSA and bonding social capital, and between BSA and bridging social capital.

Keywords: facebook use, boundary spanning, social capital, workplace

1. Introduction

It is widely acknowledged that boundary spanning activities (BSA), which involve organizational members' communication with external environments, are crucial for modern organizations to perform effectively (ex. Baker, 2007; Grover, Jeong, Kettinger, & Lee, 1993; Jemison, 1984; Harter & Krone, 2001; Williams, 2002). Organizational members performing BSA have been found to be gatekeepers and/or representatives, who play an important part in the neck of information flow and enhance an organization's public image and legitimacy through their advocacy of the organization (Adam, 1976; Aldrich & Herker, 1977). Yet, despite the important role that BSA play in linking the organization to its environment, few studies have considered organizational members' technology use in the process of performing BSA. Rogers (1988) suggested that technological innovation and adoption would reconstruct (restructure) and/or destroy (destruct) the present organizational information processing system. When new technology such as social media can liberate people from temporal and geographical boundaries easily, like in the present era, does a technology like Facebook increase organizational members' BSA by connecting them to people across boundaries more easily?

Individual's use of Facebook, a type of social networking site (SNS), which publicly displays users' social networks online, has been demonstrated to increase social capital mostly in the student population (Ellison, Steinfield, & Lampe, 2007, 2011a; Steinfield, Ellison, & Lampe, 2008; Valenzuela, Park, & Kee, 2009) and a little in the general population (Brandtzæg, 2012; de Zúñiga, Jung, & Valenzuela, 2012). The popular argument for the positive correlations found between these two is that the technological affordability of SNS has made it easy to connect people and build relations across boundaries of geography and discipline (Ellison, Lampe, Steinfield, & Vitak, 2011b). Thus, it seems that individuals engage in BSA to maintain and acquire relations. However, few studies have examined whether individuals' use of SNS could actually enable them to connect people and build relations across boundaries, and whether these BSA could bring in social capital.

Thus, the objective of this study is to examine the associations among organizational members' use of SNS, BSA, and social capital in the workplace, utilizing a sample of office workers in Taiwan. Two types of social capital will be explored: bonding and bridging. Bonding social capital refers to those frequent and strong connections such as friends and families in one's social network; while bridging social capital refers to those infrequent and weak connections such as acquaintances in one's social network (Putnam, 2000). The most prevalent SNS in Taiwan among office workers, Facebook (Lin, 2014), will be used for the present study. The study will address the questions regarding the associations among organizational members' use of SNS, BSA, and social capital by comparing two groups of organizational members: one group consists of office workers who are allowed to use Facebook by company policy in the workplace,

and the other group consists of office workers who are not allowed to use Facebook by company policy in the workplace.

2. Literature Review

2.1 Facebook Use and BSA

Organizations must internally adapt themselves to the environment, as the amount of information processing increases at the organizational boundaries (Galbraith, 1974). As a result, formal structure and assigned functional roles are created to deal with the external environment. BSA are performed by individuals, "who operate at the periphery or boundary of an organization, performing organizational relevant tasks, relating the organization with elements outside it" (Leifer & Delbecq, 1978, p.40-41). These so-called boundary spanners are responsible for making communication contacts with external information sources and supplying their colleagues with information to cope with the outside environment. Thus, they filter and facilitate information flow at an organization's boundary, and cope with environmental constraints to maintain an organization's autonomy (Adam, 1976; Aldrich & Herker, 1977). Boundary spanners "represent an organization to its environments, and the environment to the organization" (Eisenberg, Farace, Monge, Bettinghaus, Kurchner-Hawkins, Miller & Rothman, 1985, p. 240).

More specifically, Adams (1980) has suggested that BSA consist of five types of activities: transact the acquisition of organizational inputs and the disposal of outputs, filter inputs and outputs, search for and collect information, represent the organization to its external environments, and protect the organization and buffer it from external threats and pressure. Based on Adam's (1980) work and other relevant literature, Jemison (1984) suggested that BSA consist of three major categories: information acquisition and control, physical input control, and domain determination and interface. Information acquisition refers to how individuals acquire information needed from outside sources and how to control the disposition of the information. Physical input control is about the delivery of the acquired physical inputs (such as raw materials, supplies, personnel) to the organization. Domain determination and interface pertain to the customers' ability to individually decide on how to pursue and how to meet with customers to create a favorable organizational image. Later, scholars have suggested that these various types of BSA could be regrouped into two broad categories: information processing and external representation (Friedman & Podolny, 1992; Zoch, 1993). That is, BSA could be performed by two distinct structural roles: "a gatekeeper, who is a conduit for inflows to the group of which the boundary spanner is a member, and a representative who is a transmitter of outflows from the group of which the boundary spanner is a member" (Friedman & Podolny, 1992, p. 32).

The majority of the literature in the area of BSA has focused on the behavioral and psychological consequences resulting from boundary spanning positions. Individuals performing BSA could either be influential in decision-making or suffer from role stress due to the boundary spanning positions they are in (Johnson & Chang, 2000). Few studies have examined the uses for new technology in the process of performing BSA. For those studies that explored the related topic, most of them examined the use of instant messaging (IM) in the workplace. For example, Cho, Trier, and Kim (2005) investigated whether IM could enhance employees' BSA by comparing them across boundaries within a department, across departments, and across organizations. The results showed that IM was mostly used to communicate with employees in the same department, indicating that IM does not promote BSA across organizations or across departments. This pattern of association between IM use and BSA was also found in another study conducted by Quan-Haase, Cothrel, and Wellman (2005). They found that employees prefer to use emails and IMs than Face-to-Face and telephone to communicate among one another within a working group or within an organization. This phenomenon where employees used computer-mediated communication to communicate among one another within a geographically proximate working group was labeled "local virtualities" (Quan-Haase et al., 2005). However, this local virtualities phenomenon was not observed in Chang and Ian's study (2014). Their study showed that the primary work-related contacts, in addition to friends and families (34.7%) via IM by office workers are across organizations (26.4%), followed by colleagues within the same department (22.3%), and colleagues across different departments (16.5%). That is, IM use has some effect on enhancing BSA.

Thus, drawing from the literature, the associations between IM use and BSA are uncertain, and the associations between Facebook use and BSA are unknown. It is likely that Facebook use cannot promote BSA because of the local virtualities phenomenon. Office workers use the technological affordability of IM to provide them with sufficient opportunities to obtain job-related information and feedback so that a dense network of cooperation can be achieved within a geographically proximate working group (Quan-Haase et al., 2005). Or as suggested by Cho et al. (2005), IM-enabled connections are a relatively close personal social network; only individuals who are close to each other will be included. Thus, Facebook does not facilitate BSA in the formation of working partnerships.

Alternately, Facebook use can facilitate BSA because of the technological affordability of Facebook. Facebook can enable office workers to maintain a larger set of lightweight work contacts, make ephemeral connections persistent, and

lower the cost of maintaining weak work contacts (ex. Ellison et al., 2011b). These social networking characteristics afforded by Facebook are essential to the core concept of BSA. As suggested in BSA literature, boundary spanners are communication stars. Stars tend to make greater use of personal friends outside the organization as sources of information (Allen & Cohen, 1969). Individuals engaging in BSA are supposed to be strongly connected to the source of outside information and are able to disseminate the information to their internal colleagues (Tushman & Scanlan, 1981a, 1981b; Katz & Tushman, 1981). Thus, Facebook can facilitate BSA in forming working partnerships.

The prior discussion leads to the following research question.

RQ 1: Does the Facebook users' group have a higher level of BSA than the non-Facebook users' group?

2.2 Facebook Use and Social Capital

Social capital is "an investment in social relationships through which resources of other actors can be accessed and borrowed" (Lin, 2001, p.24). Originated from the core assumptions of capitalism, social capital refers to the resources embedded in individuals' social networks that can be invested with expected return by individuals for action (Lin, 1999, 2001). That is, individuals interact and network with others in order to obtain benefits (Putnam, 2000). The way individuals interact and network with others can be categorized into two major types according to the strength of the connections: strong and weak (Granovetter, 1973). Strongly-connected social networks, which feature a greater amount of time, more emotional intensity, higher intimacy and mutual reciprocity, such as close friends and families, produce bonding social capital (Putnam, 2000). In contrast, weakly-connected social networks, which feature lower amounts of time, less emotional intensity, lower intimacy and less mutual reciprocity, such as acquaintances, produce bridging social capital (Putnam, 2000). Whereas bonding social provides individuals with more substantive social support, bridging social capital provides individuals with a wider range of information and diverse perspectives (Vitak & Ellison, 2013).

As mentioned earlier, past research has demonstrated a positive association between SNS' uses and social capital. It has suggested that SNS' unique features can facilitate both bonding and bridging social capital outcomes (e.g., Ellison et al., 2011b). Since SNS provide users with a large social network which consists of both close friends and causal acquaintances, they can serve as resources for substantive social needs from close friends and as access to new information or perspectives from "friends of friends" (Steinfield, Ellison, & Lampe, 2008). Even more, because of the technical affordability of SNS, the connections between individuals can be reengaged at any time with very little effort when an online environment is available, if the need or request arises (Ellison et al., 2011b).

Despite the empirical demonstration of the associations between SNS' uses and social capital, as mentioned earlier, most of these studies are conducted using a sample of students and a few utilizing the general public. When the use of SNS has generated worldwide concern over their potential effects on the workplace (e.g., Leftheriotis & Giannakos, 2014; Rooksby, Baxter, Cliff et al., 2009), will office workers who are allowed to use Facebook in their working hours demonstrate different patterns of associations between SNS' uses and social capital than office workers who are not allowed to use Facebook in their working hours? Drawing from the previous literature, the uses for SNS are positively associated with two types of social capital. Thus, accordingly, the following set of hypotheses is proposed:

Hypothesis 2.1: The Facebook users' group has a higher level of bonding social capital than the non-Facebook users' group.

Hypothesis 2.2: The Facebook users' group has a higher level of bridging social capital than the non-Facebook users' group.

2.3 BSA and Social Capital

It is expected that boundary spanners demonstrate relational and interpersonal competencies (Williams, 2002). To explore the associations between BSA and social capital, the present study will go back to the basic question, "why does social capital work?" based on Lin's (2001) four arguments: information, influence, social credentials, and recognition. The first explanation as to why individuals benefit from the access and use of the embedded resources in their social networks is how the flow of information is facilitated. According to Lin (2001), when the flow of information is facilitated, useful information about opportunities and choices which are otherwise not available get uncovered. Individuals and organizations can scrutinize and use this information appropriately and gain their rewards. If we examine BSA from the perspective of information flow, it appears that the information flow is facilitated by individuals' participation in BSA, in that the major component of BSA is the filtering and facilitating of the information flow at an organization's boundary (Adam, 1976; Aldrich & Herker, 1977). It is expected that by filtering and facilitating information flow, both individuals and organizations benefit by allocating appropriate resources (Adams, 1980). Thus, from the perspective of information flow, BSA are positively associated with social capital.

Second, social capital works because individuals have the chance to get to know people of great influence through their

social connections. These influential people may have key resources and power to determine individuals' advancement in their careers (e.g., hiring or promotion). From the perspective of influence, although individuals' BSA may not directly link to someone that plays the decisive role regarding their advancements on the career ladder, it has been demonstrated in the BSA literature that individuals that work with supervisors who engage in more BSA have a better chance for advancement than individuals that work with supervisors who have less BSA (Katz, Tushman, & Allen, 1995). The observation between BSA and the exercise of influence of power implies the positive associations between external contacts and internal influence; which could be traced back in Allen's (1977) semi work in the area of managing the flow of technology. Allen's study demonstrated that engineers with more external contacts outside the lab are more likely to become the valuable information sources for their colleagues than those with less external contacts. Later studies also confirmed the associations between external contacts and internal influence with engineers (Tushman & Scanlan, 1981a, 1981b; Katz & Tushman, 1981), with general office workers (Allen 1989; Manev & Stevenson, 2001; Zoch, 1993), and with college professors (Chang, 2005). That is to say, individuals with more BSA demonstrate their social credentials in that they have more accessibility to valuable resources through their social networks and social relations than those who have less BSA; which is also the third explanation suggested by Lin (2001) regarding why social capital works. Thus, from the preceding discussion in terms of influence and social credentials, BSA are positively associated with social capital.

Finally, the last explanation raised by Lin (2001) on why social capital works is that social relations are expected to reinforce identity and recognition. Lin (2001) suggested that the recognition of one's worthiness to certain resources is "essential for the maintenance of mental health and the entitlement to resources" (p. 20). This public acknowledgement of one's worthiness demonstrated in the BSA is that individuals or organizations with BSA performed better than their counterparts in the same business circle. The BSA literature showed that either supervisors (Dollinger, 1984; Gelekanycz & Hambrick, 1997) or organizations/teams (Ancona & Caldwell, 1992; Jemison, 1984; Noble & Jones, 2006) with more BSA have better job performance than those supervisors or organizations/teams with less BSA. Thus, from the perspective of recognition, BSA are positively associated with social capital.

The prior discussion leads to to the following set of hypotheses:

Hypothesis 3.1: The higher the level of BSA, the higher the level of bonding social capital.

Hypothesis 3.2: The higher the level of BSA, the higher the level of bridging social capital.

3. Method

3.1 Sample and Procedure

The sample consisted of 399 full-time white-collar workers in Taiwan. A snowball sampling technique was used to recruit participants to complete an online survey by sending emails to personal contacts and to graduate students who had taken or were taking organizational communication classes taught by the author of the study. To qualify for the study, participants needed to be Facebook users who were employed full-time, and who spent at least 50% of their work time in an office. This way of collecting data via snowball sampling has been employed by other scholars who have also studied media use in organizations (Fonner & Roloff, 2012; Stephens and Davis, 2009; Timmerman, 2002).

Some relevant demographic characteristics of the respondents are reported in Table 1. In terms of age distribution overall, the user group was younger than the non-user group ($X2 = 28.27$, $p < .05$). Although both groups had more than 40% of their participants aged between 25-30, more than one third of the user group was aged between 20-25 (34.1%); while one third of the non-user group was aged over 31 (31%). In terms of gender distribution, the user group consisted of more women (55.2%) than men (43.1%), while the non-user group consisted of more men (45.1%) than women (53.5%) ($X2 = 3.93$, $p < .05$). In addition, the two groups differed in the way that they connect to Facebook ($X2 = 24.40$, $p < .05$). Although more than 45% of participants in both groups relied on desktop computer networks, more than one quarter of participants in the user group relied on smartphone networks (27.1%); while less than 10% of participants in the non-user group accessed Facebook via smartphone usage (9.7%). The two groups did not differ in the major interacting partners when using Facebook ($X2 = 2.68$, $p > .05$) and professions ($X2 = 3.92$, $p > .05$). Over 70% of participants in both groups interacted mainly with friends and families via Facebook use. In terms of professions, most participants in the present study were professionals (44.3% for the Facebook user groups, 39.9% for the non-user group), followed by technicians and associate professionals (26.7% for the Facebook user groups, 30.5% for the non-user group).

Table 1. Demographics

		FB-user N = 255 Frequency (%)	Non-user N = 144 Frequency (%)
Gender	Female	141(55.2%)	65(45.1%)
	Male	110(43.1%)	77(53.5%)
	Missing	4(1.7%)	2(1.4%)
Occupations	Legislators, senior officials, & managers	11(4.3%)	7(4.9%)
	Professionals	113(44.3%)	57(39.9%)
	Technicians & associate professionals	68(26.7%)	44(30.5%)
	Clerical support workers	58(22.7%)	28(19.3%)
	Military	3(1.2%)	5(3.4%)
	Missing	2(0.8%)	3（2.0%）
Age	20-25	87(34.1%)	36(25.0%)
	26-30	126(49.4%)	64(44.4%)
	31-35	27(10.6%)	10(6.9%)
	36-40	6(2.4%)	16(11.1%)
	41-45	3(1.2%)	5(3.5%)
	46-50	3(1.2%)	4(2.8%)
	50~	3(1.2%)	9(6.2%)
How to connect to FB	Desktop computers	119(46.7%)	71(49.3%)
	Notebook computers	66(25.9%)	56(38.9%)
	Tablet computers	0	3(2.1%)
	Smartphones	69(27.1%)	14(9.7%)
	Other	1(0.4%)	0
Major interacting partners using FB	Colleagues within same department	7(2.7%)	4(2.8%)
	Colleagues within same company	3(1.2%)	1(0.7%)
	Work-related contacts outside company	4(1.6%)	3(2.1%)
	Good friends and family members	203(79.6%)	106(73.6%)
	Ordinary friends	38(14.9%)	30(20.8%)

3.2 Measures

3.2.1 Facebook Use

The Facebook intensity scale (Ellison et al., 2007) was used to assess employees' Facebook use. The scale includes 5 Likert-type items and two open-ended questions regarding the number of Facebook friends and the length of time spent on Facebook per day. In general, the Facebook group had an overall higher score regarding Facebook intensity scale (mean = 3.93 vs mean = 3.48), and more Facebook friends (318.69 vs 236.33) than the non-user group. In terms of time spent on Facebook per day, 50% of the Facebook user group spent between 30 minutes and 2 hours; while 50% of the non-user group spent between 20 to 60 minutes. Table 2 displays alpha coefficients, the actual questions' wording, and descriptive results.

Table 2. Facebook intensity

Scale items	FB-user N = 255 Mean(SD*)	Non-user N = 144 Mean(SD)
Facebook is part of my everyday activity	3.93(.98)	3.48(1.05)
I am proud to tell people I'm on Facebook	3.21(1.04)	2.83(1.00)
I feel out of touch when I haven't logged onto Facebook for a while	2.94(1.13)	2.67(1.03)
I feel I am part of the Facebook community	3.09(.95)	2.92(.95)
I would be sorry if Facebook shut down	2.60(1.20)	2.41((.99)
Total Facebook friends	318.69(264.79)	236.33(185.26)
Time per day on Facebook	Frequency(%)	Frequency(%)
within 10 minutes	10(3.9%)	18(12.5%)
10-20 minutes	30(11.8%)	18(12.5%)
20-30 minutes	33(12.9%)	32(22.2%)
30-60 minutes	78(30.6%)	39(27.1%)
1-2 hours	52(20.4%)	22(15.3%)
2-3 hours	26(10.2%)	10(6.9%)
3-5 hours	16(6.3%)	3(2.1%)
5 hours~	10(3.9%)	2(1.4%)

*SD stands for standard deviation

3.2.2 BSA

The BSA were measured based on items developed by Jemison (1984). Jemison (1984) assessed BSA from 3

dimensions: domain determination and interface, information acquisition and control, and physical input control. Among the 3 dimensions, the first one belongs to the representation category, while the second and third ones belong to the information processing category discussed in the literature review section. The original items were modified to suit the purpose of the present study. The revised version consists of 9 items, with three items measuring each dimension, respectively. In general, both the Facebook users and non-users' groups demonstrated less than average BSA, with the users' group having higher scores than the non-users' group in two out of the three dimensions (2.82 vs 2.70, 2.69 vs 2.65, and 2.57 vs 2.59, respectively). Table 3 displays alpha coefficients, the actual questions' wording, and descriptive results.

Table 3. Boundary spanning activities

Scale items	User N = 255 Mean(SD)	Non-user N = 144 Mean(SD)
Domain determination & interface	2.81(1.02)	2.70(.94)
Provide information on formal or informal basis to groups outside your organization that is intended to create a favorable image of your organization.	3.14(1.19)	2.81(1.09)
Make speeches to outside groups.	2.53(1.17)	2.54(1.02)
Meet with customers and convince them to use your organization's products.	2.78(1.27)	2.75(1.17)
Information acquisition & control	2.69(1.05)	2.65(.87)
Prepare formal or informal reports for others in your organization about information that you've acquired about external factors that could influence your organization.	2.60(1.16)	2.64(.98)
Acquire information formally or informally from specific individuals or groups outside your own organization other than your own.	2.78(1.18)	2.65(.99)
Decide what portions of information acquired form sources outside your organization to transmit to others in your organization that will make use of it.	2.69(1.11)	2.65(.98)
Physical input control	2.57(.97)	2.59(.89)
Decide on the kinds of physical inputs to acquire from outside the organization (e.g., raw materials personnel, fund, supplies, etc.)	2.40(1.11))	2.50(1.04)
Decide when to acquire certain physical inputs (e.g., raw materials personnel, fund, supplies, etc.)	2.47(1.10)	2.51(.96)
Acquire the physical resources needed for the organization's functioning (e.g., procure raw materials and supplies, negotiate a bank credit line, hire personnel).	2.84(1.04)	2.75(.96)
Total BSAs	2.69(.90)	2.65(.77)

3.2.3 Social Capital

Most of the items on both bonding and bridging social capital are based on the existing scale developed by Williams (2006). Items were selected and worded to reflect the context of the study. Eight items were used to measure bonding social capital and six items were used to measure bridging capital. The results showed that both the Facebook users and non-users have more than average social capital, with the users' group having higher scores than the non-users' group in both bonding (3.67 vs 3.60) and bridging (3.40 vs 3.23) social capital. Table 4 displays alpha coefficients, the actual questions' wording, and descriptive results.

All question items concerning Facebook intensity, BSA, and social capital used five-point Likert-type items; 1 indicated total disagreement and 5 indicated total agreement.

4. Results

The t-test results indicated that the Facebook users' group had higher levels of Facebook intensity ($t = 3.44$, $p < .01$), had more Facebook friends ($t = 3.30$, $p < .01$), and spent more time per day on Facebook ($t = 4.19$, $p < .001$) than the non-users' group. However, the t-test results indicated that the Facebook users' group did not have a higher level of overall BSA than the non-users' group ($t = .52$, $p > .05$). No significance was found in each individual dimension either ($t = 1.09$, $p > .05$ for domain determination and interface; $t = .44$, $p > .05$ for information acquisition and control, and $t = .20$, $p > .05$ for physical input control). Thus, for research question 1, in terms of the association between Facebook use and BSA, the Facebook users' group did have a significantly higher level of BSA than the non-Facebook users' group (Table 4).

Table 4. Statistics for social capital

Scale items	FB-user N = 255 Mean(SD)	Non-user N = 144 Mean(SD)
Bonding capital (α=.86, α= .87) *	3.67(.56)	3.60(.56)
I have several friends to help solve my problems.	3.75(.75)	3.58(.68)
There is someone I can turn to for advice about making very important decisions.	3.85(.69)	3.79(.62)
There is someone I feel comfortable talking to about intimate personal problems.	3.84(.80)	3.81(.70)
When I feel lonely, I can always find someone to talk to.	3.75(.82)	3.77(.68)
If I need an emergency loan of NT30.000, I know someone I can turn to.	2.91(1.03)	2.81(1.04)
I have friends that would share their last dollar with me.	3.45(.89)	3.43(.88)
I have friends that I know well enough to get them to do anything important.	3.70(.84)	3.55(.88)
I have friends that would help me fight an injustice.	3.91 (.78)	3.81(.78)
Bridging capital (α=.81, α= .82) *	3.40(.68)	3.23(.67)
I have a lot of fiends that are unlike me that makes me want to try new things.	3.81(.77)	3.65(.77)
I have a lot of fiends that are unlike me that makes me interested in what are on their minds.	3.87(.72)	3.67(.80)
I have friends coming from all over the world so that I feel I can connect to the whole world.	3.25(1.02)	3.01(.93)
I am willing to spend time to participate in social gathering that I am not familiar with.	3.20(.92)	3.06(.91)
I can always find new friend to talk to.	3.07(.97)	2.95(.92)
I can make new friends all the time.	3.21(.97)	3.03(.91)

* The first α value stands for FB users, the second for non-users

In terms of the associations between Facebook use in the workplace and social capital, the t-test results indicated that the Facebook users' group did not have a higher level of bonding social capital than the non-users' group ($t = 1.32$, $p > .05$); but they did have a higher level of bridging social capital than the non-users' group ($t = 2.44$, $p < .05$). Thus, hypothesis 2.1 was rejected, but hypothesis 2.2 was supported (Table 5).

Table 5. Differences between the FB user group and non-user group

Scales	Groups	Mean	SD	t-tests results
FB Intensity	FB user	3.16	.83	t = 3.44 p < .01
	Non-user	2.86	.83	
Time per day on FB	FB user	4.27	1.64	t = 4.19, p < .001
	Non-user	3.56	1.59	
Total FB friends	FB user	318.69	264.79	t = 3.30, p < .01
	Non-user	236.33	185.26	
Bonding social capital	FB user	3.67	.56	t = 1.32, p > .05
	Non-user	3.60	.56	
Bridging social capital	FB user	3.40	.68	t = 2.44, p < .05
	Non-user	3.23	.67	
Total BSAs	FB user	2.69	.90	t = 0.52, p > .05
	Non-user	2.65	.77	
Domain determination & interface	FB user	2.81	1.02	t = 1.09, p > .05
	Non-user	2.70	.94	
Information acquisition & control	FB user	2.69	1.05	t = 0.44, p > .05
	Non-user	2.65	.87	
Physical input control	FB user	2.57	.97	t = 0.20, p > .05
	Non-user	2.59	.89	

In terms of the associations between BSA and social capital, the results indicated positive significant relations between BSA and bonding social capital ($r = .14$, $p < .05$), and between BSA and bridging social capital ($r = .29$, $p < .05$). This stands true for the relations between all 3 individual dimensions of BSA, and both types of social capital. Thus, hypotheses 3.1 and 3.2 were supported.

5. Discussion

The goal of the present study was to examine the associations among Facebook use, BSA, and social capital in the workplace, utilizing office workers in Taiwan. The results indicated that office workers' Facebook use is not related to their BSA, yet their BSA are positively associated with both bonding and bridging social capital. In terms of the associations between Facebook use and social capital, consistent with previous observations reported in the student as well as in the general population, the results revealed that office workers' Facebook use is positively associated with bridging social capital. However, this positive association was not observed with office workers' Facebook use and bonding social capital. Although the Facebook users' group did have a higher bonding social capital (mean = 3.67) than the non-users' group (mean = 3.60), as expected; the two groups did not differ significantly in terms of their assessment of bonding social capital ($t = 1.32$, $p > .05$).

The overall findings will be discussed with implications for future studies in three areas: Facebook use and BSA,

Facebook use and social capital, and BSA and social capital.

5.1 Facebook Use and BSA

The present study did not find any positive associations between office workers' Facebook use and BSA. The plausible explanation might be what Cho et al. (2005) suggested in their IM studies, that IM-enabled connection is personal. It is likely that Facebook-enabled networks are primarily socially oriented as well. When the design of Facebook provides users with easy access to chat with their friends and share photos, comments, and status updates as long as one is connected, individuals resort to Facebook to satisfy their social needs. The socially-oriented uses of Facebook can be supported by other statistics reported by the present study. That is, more than 90% of participants in both groups use Facebook to interact with their ordinary friends, good friends and families (Table 1). Consequently, BSA that consist of task-oriented behaviors, be it the domain/interface interaction, or the information/physical input processing, are not related to office workers' Facebook usage.

Following this line of thinking, it is plausible that the local virtualities phenomenon associated with IM use in the workplace might not be the case with Facebook use. When office workers only use Facebook for social purposes, the practical implication for management is that its use has to be regulated appropriately. The results reported in the present study did reinforce management's concern about how SNS in the workplace can cause problems such as SNS addiction, time wasting, and lower employee productivity (Dimicco, Millen, Geyer, Dugan, Brownholtz & Muller, 2008; Rooksby et al., 2009; Skeels & Grudin, 2009). However, it is not realistic to prohibit the use of Facebook entirely in the workplace because office workers can still connect to any social media with their own technological devices such as tablet computers or smartphones. Although the present study observed that the Facebook users' group and the non-users' group differed in the way that they connected to Facebook ($X2 = 24.40$, $p < .05$), nearly 50% of participants in both groups relied on desktop computer networks to connect to Facebook. Yet, with the increasing usage of tablet computers and smartphones worldwide (Statista, 2014), office workers can connect to any type of social media as they wish. Facing these realities, it is best that management creates the local virtualities phenomenon with the use of Facebook in the workplace so that a culture of mutual cooperation through obtaining job-related information and feedback via Facebook can be established. When a dense network of cooperation culture is created and maintained via Facebook use, social utilization of Facebook might not be a major issue in the workplace.

The other general concern regarding technology use and BSA in the workplace is that office workers' BSA might vary depending on different types of technology use. Chang and Ian's (2014) study showed that 34.7% of office workers' major interacting partners via IM are friends and family members, followed by 26.4% with work-related contacts across organizations. Yet, the present study reported that office workers' work-related contacts across organizations via Facebook are only around 2%. Extant literature provides little information concerning the associations between different types of social media and BSA, indicating a research direction for future studies.

5.2 Facebook Use and Social Capital

The present study did find positive associations between Facebook use and bridging social capital as expected in the literature, yet no significant positive associations were observed between Facebook use and bonding social capital in the workplace. That is, office workers who are allowed to use Facebook in the workplace featured with stronger Facebook intensity, more Facebook friends, and spent more time on Facebook having more bridging social capital than those who are not allowed to use Facebook in the workplace; who featured with weaker Facebook intensity, less Facebook friends, and spent less time on Facebook. Yet, the same thing cannot be said with bonding social capital. One plausible explanation provided by past literature is that individuals use multiple communication methods to maintain strong connections among good friends and family members (Ellison et al., 2011b). Close friends are more likely to use phone, text, or meet to maintain their relationships than weak connections, suggesting that individuals do not have to rely on Facebook alone to maintain their strong connections. This so-called "media multiplexity effect" (Haythornthwaite, 2005) provides an explanation as to why the Facebook users' group did not differ significantly from the non-users' group in terms of the assessment of bonding social capital.

In addition, past research has found stronger associations between SNS use and bridging social capital than the associations between SNS use and bonding social capital (Ellison et al., 2011b; Steinfield et al., 2008). It has been argued that SNS are more likely to provide users with opportunities to interact with individuals from a diverse set of networks which is outside of their strongly-connected social networks. As a result, Facebook use could provide more opportunities for bridging social capital.

The present study confirmed previous observations that associations between SNS use and bridging social capital are stronger than those between use and bonding social capital utilizing a non-student population in a different cultural context. More studies in this direction with varied populations and different cultural contexts could be conducted so that a comprehensive understanding of the interplay between SNS use and both types of social capital could be understood.

The other interesting question worth investigating in the future is will the bridging social capital resulting from Facebook use bring a negative effect on the workplace? Will the aforementioned problems such as SNS addiction, time wasting, and lower employee productivity be associated with this bridging social capital outcome? It is plausible that those widespread weak connections from the diverse set of networks constantly updating their status, posting comments, and sharing photos using Facebook, will subsequently increase the opportunities for interruptions in office worker' work flow. From the perspective of social capital, individuals would consider tending to these calls generated from bridging connections as investment so that resources from these people could be accessed or borrowed if needs or desires arose in the future. However, from the management's perspective, what are the effects on the workplace resulting from SNS use and bridging social capital? Future studies could explore answers in this direction.

5.3 BSA and Social Capital

The present study demonstrated that office workers' BSA, in all three dimensions, are positively related to both types of social capital, with or without Facebook use. As long as office workers engage in BSA, be it interface and domain representation or information processing, or both, their assessment of both bonding and bridging social capital are higher than those office workers who engage in less BSA. As the definition of social capital suggests, embedded resources need to be invested and mobilized though one's social network (Lin, 2001), either the investment or mobilization involves BSA which require time and effort. Thus, from the perspectives of information, influence, social credentials, and recognition mentioned in Lin's (2001) discussion of why social capital works, BSA and social capital are conceptually linked closely with each other. Furthermore, the present paper has confirmed the positive linkage between BSA and social capital empirically as well. However, this is the first empirical study that addresses the associations between BSA and social capital. It relies on more future studies exploring this direction so that the associations between BSA and social capital can be understood comprehensively.

Despite the positive consequences such as information, influence, social credentials and recognition resulting from BSA, a major part of BSA literature has shown that individuals engaging in BSA are more likely to experience more role stress, including role conflict and role ambiguity than their counterparts who engage in less BSA (Bettencourt & Brown, 2003; Keller, Szilagyi, & Holland, 1976; Lysonski & Johnson, 1983; Lysonski, Singer, & Wileman, 1989; Okamoto & Teo, 2012; Zoch, 1993). It is argued that boundary spanners often involve facing incompatible role expectations from multiple sources within and outside of the organization that they are a member of. Consequently, they tended to be in conflict-ridden positions, and often times lacked the information needed to perform their role effectively because of the incompatibility perceived among role expectations and job demands from multiple sources (Goolsby, 1992; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). Considering these negative consequences resulting from BSA, what are the negative consequences resulting from individuals' investment and mobilization of social capital, since BSA and social capital are closely linked conceptually as well as empirically?

Since the benefits of social capital can only be attained from being connected to people through one's social network (Putnam, 2000), individuals need to maintain existing bonded connections as well as acquire new bridging connections in their networks. Thus, individuals work hard in the embedded resources in social relations through investment in time and effort with expected return (Lin, 2001). In the process of maintaining and acquiring relations in one's embedded networks, individuals more likely need to endure the accompanying interactions initiated by those in one's networks, which interrupt one's flow of work. That is, with or without SNS use, individuals engaging in BSA are more likely to experience interruption in the process to pursue bonding as well as bridging social capital than those who engage in less BSA. It seems that one of the investments in social relations needed in order to acquire social capital is to experience interruptions, a point hardly mentioned by previous social capital literature.

In fact, a "paradox of embeddedness" on an organizational level has been proposed to suggest that too much embeddedness in organizations between and among other business organizations can derail their economic performance (Uzzi, 1997). This "paradox of embeddedness" might exist on an individual level as well. That is, individuals will experience both positive as well as negative consequences resulting from being too-embedded in their networks in the process of maintaining and acquiring social capital. If individuals experience more interruption in the process of pursing social capital, then what are the associations between interruptions and role stress resulting from BSA, which are demonstrated, respectively, to be associated with negative job outcomes (Au & Fukuda, 2002; Lysonski & Johnson, 1983; Lysonski, et al., 1989; Singh, Goolsby, & Rhoads, 1994)? Thus, the interplays between negative consequences resulting from BSA and from individuals' pursuit of social capital, respectively, warrant further examination.

5.4 Conclusions

The present study is the first empirical study investigating Facebook use, BSA, and social capital in the workplace. The results suggest that while Facebook users have stronger associations with bridging social capital than with bonding social capital, which are consistent with previous literature results, Facebook use is not related to BSA. Since office

workers mainly use Facebook for social purposes, it is best that management creates a culture of mutual cooperation regarding work-related information utilizing Facebook in the workplace. In addition, the present study observed that office workers' BSA are positively related to both bonding and bridging social capital with or without Facebook use, suggesting that BSA and social capital are closely linked conceptually as well as empirically. Past research has focused on the negative consequences resulting from BSA, therefore it is important to examine the negative consequences of being connected to people through one's social network to gain social capital. Lastly, although the present study uses a combination of convenience and snowball methods to sample the respondents as suggested in the previous literature, the generalizability of the findings beyond this population in the cultural contexts relies on additional research in the future.

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