

## Social Capital and Chinese International Students' Use of Social Network Site in the UK

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### Abstract

Social capital refers to the resources embedded in people's social networks. Since the Internet has launched, the usage of online Social Network Sites (SNSs) has been associated with user's social capital. Most previous literature was Facebook-based, and only few research paid attention to other types of SNSs, and their influence of users' social capital. This study investigates how two major used SNSs among Chinese international students in the UK affect their bridging and bonding social capital respectively. In this study, fifty Chinese international students studied at the University of York were recruited and asked to finish computer-based questionnaires for measuring the bridging and bonding social capital and the intensity of SNSs use. The results indicated that both SNSs usages were positively associated with Chinese students' bridging and bonding social capital. Specifically, the Facebook usage was more associated with the bridging social capital, and the WeChat usage was more associated with the bonding social capital. In conclusion, Chinese international students could obtain different types of social capitals via different types of SNSs respectively.

**Keywords:** Social capital; Social network sites; Facebook; WeChat; Chinese International students

### Introduction

The increasing global competition has promoted the rapid internationalization of higher education. Since the British Government has launched the long-term worldwide educational campaign in 1999, there has been a great influx of international students attend British universities, which led to the intercultural interaction issue. Previous literature points that the intensity of Social Network Sites (SNSs) usage is positively associated with international students' psychological well-being, including their social capital. However, most of the literature is Facebook-based, and there has been a lack of research investigating how the different SNSs affect international students to build and maintain their social capital.

Social capital stands for the actual and virtual resources that meet people's interests and needs [1]. Such resources can be obtained from people's social networks [2,3]. Coleman [4] has categorized three types of resources to construct the social capital:

1. Obligations, expectations and trustworthiness;
2. Information channels and
3. Norms and effective sanctions.

For example, people could gain social capital by working in a group. In order to gain the mutual benefits, people are able to heighten their tolerance level when they face internal conflicts. After experiencing a rough and tumble time at the beginning of the group process, group members started to work cooperatively and in coordination, following norms. They could exchange information such as gossip might add group cohesion and trusting. Hence, social capital can be regarded as an elastic capital that brings many positive outcomes.

Since the Internet has been launched, the SNSs have become popular in the world [5,6]. Through the SNS platforms, people are able to manage their social relationships via the SNS platforms within and beyond their social and geographic proximity [5,7,8]. The global popularity of the SNSs mirrors people's inherent common desire to relate to others without considering the social, cultural and

geographical borders [9]. From a uses-and-gratifications perspective, people can satisfy their psychological needs and require gratification via the communication function of the SNSs [10].

Due to the globalization, a substantial number of international students choose to study abroad. According to the Higher Education Statistics Agency report of the UK (2016/2017), the amount of Chinese international students has far exceeded any other non-EU nationality and reached about one third of the amount of non-EU student in the UK in 2016/17. Specifically, the number of Chinese international students has increased from 83,730 to 95,090 from 2012/13 to 2016/17, which shows a rise of 14% from 2012/13 to 2016/17. Although those students will acquire the high-level of education, they have to deal with different transitional issues, such as academic challenge, social isolation and cultural adjustment. Literature indicated that non-western international students have more transitional difficulties than Western international students when studying in western countries. For instance, when non-western students studying in western countries, they have to face three major hindrances, including the large language barrier, unfamiliar teaching style, and perceived discrimination [11,12]. These hindrances might negatively influence those young sojourners' psychological well-being, as they might feel lonely, anxious, insecure and unhappy [13]. Neri and Ville suggested that the renewal of social capital is important for international students to mitigate the negative effects of their transitional issues and achieve success in their study [14].

Most SNS-focusing researches are Facebook-based, and they generally suggest the intensity of SNSs usage could affect their users to

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build their social networks and obtain their social capital [7,15]. Only a few recent studies focus on the effects of other SNSs, and even fewer researches focus the dual SNSs effects in different psychological scales, such as users' site preference, their personality and behaviour patterns [9,16-19].

In the present study, we investigated the association between the intensity of two major SNSs used by international students, taking Chinese students in UK as a sample, and how they develop their bridging and bonding social capital.

### Social capital

The concept of social capital was proposed by Punam in 2000, and he categorized two types of social capital: bridging social capital and bonding social capital. This categorization is an extension based on Granovetter's weak tie and strong tie concepts.

In 1973, Granovetter defined two types of social relationships in people's lives: the weak ties and strong ties. The weak ties refer to the loose connection with others who with non-frequent contact, fragile bonds and limited shared interests. Through the weak ties, people can obtain useful information, new perspectives and instrumental support [20]. Hence, weak ties have been regarded as bridges between different network nodes. Based on the weak tie conception, Putnam [21] proposed that the bridging social capital refers to the capacity to access resources via "weak ties" in social networks, such as acquaintances, co-workers and strangers.

Granovetter defined the strong ties as interpersonal relationships with frequent contact and deep, positive feelings [20]. Wellman [22] further summarized three characteristics of a strong tie: 1) people would like to invest their money or energy and expect an intimate companionship with the strong tie partner; 2) people look forward to as much interaction as possible with the strong tie partner; 3) people in a strong tie relationship support their tie partner's needs. Based on the strong tie conception, Putman [21] proposed that resources, such as reciprocity, solidarity and emotional support, formed the bonding social capital, and it can be accumulated in their strong ties, such as family members and close friends.

### Social network sites use: Facebook and WeChat

Generally, SNSs share common functions that allow their users to express themselves, post and share their social information, as well as build and maintain connections with others [15]. People are able to maintain their online and offline social networks and build new connections with other users via SNSs platforms [16,23,24]. Since the SNSs have been launched, millions of users have integrated those SNSs into their daily practices [6].

Facebook, launched by Mark Zuckerberg in 2004, has become one of the most popular SNSs among college students in the world [25]. Facebook has been favored by researchers studying SNSs and its effect to people's physical and psychological well-beings due to its heavy usage and typical functions [6]. Researchers have linked the Facebook functions with specific social implications. First of all, Facebook users are able to build online associations with others. On Facebook, nodes of user's social networks are referred as "friends". Facebook users are able to find friends because Facebook allows users to search regarding user's personal characteristics, as well as their previous life events, studies and work experience. The second typical function of Facebook is the "visibility". Once two users gave the authority to each other as friends on Facebook, Facebook allows them to share profiles

and information with each other. The third function of Facebook is to provide social feedback to other's shared activities. Persistence and accessibility are also Facebook's typical functions. All posted or shared social activities can be saved by users' Facebook friends even if the user delete the original information, other copies can still exist [24]. In 2011, Facebook operates mobile platforms to enlarge their capability of easily accessible content.

Although Facebook has been regarded as the most popular world-leading social network site, there are some local SNSs play as the great competitors in specific areas, such as Myspace in the USA, Cyworld in Korea, Mixi in Japan and WeChat in the mainland China [9,19,26].

In the mainland China, Facebook has been blocked due to some political reasons. Without the Facebook, many local Chinese SNSs have been launched. WeChat, as the most popular SNS inspired by Facebook, has been very popular due to the absence of Facebook [27,28]. Sharing the common functions of SNSs, WeChat is designed and launched originally as a phone-based social media platform for online communication. Like Facebook, WeChat users are also allowed to be "friends" with other users, post and share interesting social activities and articles in their "friend circle" and give "like" to the shared information. In addition, as WeChat mainly target the Chinese people, it has some unique features specially designed for the Chinese cultural milieu. For example, WeChat does not allow strangers to view users' shared information and re-share friends' posters, such as photos or activities [28].

### Social capital and social network sites use

Online social networking has played a quite important role in managing people's social capital [15,29]. For example, Ellison et al. [15] examined how the intensity of Facebook use influenced individuals' bridging, bonding and maintained social capital among 286 undergraduate students. In their study, Ellison et al. introduced a third type of social capital, the maintained social capital. It refers to resources generated in the relationship with previous acquaintances from inhabited community. Their findings indicated that Facebook usage was positively associated with the three types of social capital, and it most strongly related to bridging social capital. Lin et al. [17] recruited 195 international students in the US to study how their social networks with home country friends and new American friends affect their culture adjustment. Researchers measured the relationships among the usage of Facebook, extroversion, horizontal collectivism and those students' social capitals. They reported that the usage pattern of Facebook, extroversion and horizontal collectivism were all positively associated with international students' online bridging social capital respectively.

Only several recent studies focused on how the dual SNSs affect international students' social capital [26,30]. For instance, Park et al. [31] found that compared to the home-country social media, the Facebook and US major social media have a greater influence to international students' psychological well-being. Li and Chen [17] reported both Facebook and Renren were contributed to managing Chinese students' bridging social capital in the US. Yuan and Fussell [26] recruited both Chinese and Korean international students in the US and investigate how the home and host country major SNSs affect their bridging and bonding social capitals. They found that the desire of participants to build bridging social capital were associated with both SNSs usages, and participants preferred to manage their bonding social capital use the home SNS instead of the host SNS [26].

## Research questions and hypotheses

Previous cross-cultural research studying the dual-SNSs effect indicates people to use the SNSs have been associated with people's social and cultural milieu [9,32]. However, there are several gaps in the existing literature. First, little research focusing the dual SNSs effect has been conducted outside the US, which limits the applicability of the findings [15]. Second, previous research involving Chinese students mainly measure the intensity use of Renren to compare with the intensity of Facebook [30]. However, there're more than one popular SNSs in China, and Wechat has beat the Renren and become the most popular SNS in mainland China [28]. Hence, in this study, we are going to investigate how the intensity of Facebook and WeChat usage affect Chinese international students' bridging and bonding social capital.

In the current study, we propose the following hypotheses:

**Hypothesis 1:** The intensity of Facebook usage by Chinese international students in the UK is positively associated with the bridging social capital.

**Hypothesis 2:** The intensity of WeChat usage by Chinese international students in the UK is positively associated with the bridging social capital.

**Hypothesis 3:** The intensity of Facebook usage by Chinese international students in the UK is positively associated with the bonding social capital.

**Hypothesis 4:** The intensity of WeChat usage by Chinese international students in the UK is positively associated with the bonding social capital.

## Research Methodology

### Participants

Participants were Chinese international students who currently studying at the University of York in the UK start from the April of 2015. Qualified participants should have either a Facebook or WeChat account, or both. All fifty students (12 males, 38 females) (Table 1) were recruited through email, or online messages sent from the researcher's own Facebook and WeChat accounts. Before starting the experiment, all participants were confirmed to have both Facebook and WeChat accounts.

### Apparatus

The intensity of SNSs use, and the bridging and bonding social

capitals were measured by a series of computer-based questionnaires. The whole experiment was built via Psychopy (version 1.81.02), a Python-based software which allows multiple stimulus presentations and data collection [15].

### Measures

The items of the SNSs intensity scale items were adapted from Ellison et al.'s validated measures [15]. To fit the context of the current experiment, there were some modified in this study.

In the current experiment, a series of statements related to the intensity of Facebook and WeChat usages were measured via computer-based questionnaires. These statements included both self-report assessments and Likert-scale attitudinal questions. The assessments regarding the frequency or duration of their Facebook or WeChat use were measured in minutes of a normal day through a 5-point Likert scale (i.e., 1=0-30, 2=30-60, 3=60-90, 4=90-120, 5>120). Participants' choices were expected to reflect how much they actively engaged in those two SNSs activities daily. The two relating scale items were "how many minutes they spent using Facebook (or WeChat) each day?" and "how many total Facebook (or WeChat) friends they had?" The intensity-measuring scale further contained a series of attitudinal statements that were designed to measure how much the participant emotionally relied on their Facebook or WeChat interactions, and how those two SNSs affected their daily social life. Participants were asked to rate the extent of disagreement or agreement using a 5-point Likert scale (i.e., 1=mostly disagree, 2=disagree, 3=neutral, 4=agree, 5=mostly agree). The measured statements for both Facebook and WeChat intensity use scales are presented in Table 2.

The bridging and bonding social capital measured scales were also adapted from Ellison et al.'s [15] experiment in 2007. Ellison et al. [15] has introduced three types of social capital, including the bridging, bonding and maintaining social capital. However, their concept of the maintained social capital was not comprehensive. Lambert pointed out that Ellison et al.'s [15] paper only touched on "weak ties" and did not mention how important the strong ties are for a person who has moved to another place. Hence, only the well-accepted bridging and bonding social capital scales were used in the current study, which included 11 items specifically amended to the University of York context.

**Dependent variables:** Both the bridging social capital scale (Cronbach's  $\alpha=0.79$ ,  $SD=3.05$ ), and the bonding social capital scale

Variables	Mean or % (N)	SD
<b>Gender</b>		
Male	24% (12)	
Female	76% (38)	
<b>Educational level</b>		
Undergraduate students	46% (23)	
Graduate students	54% (27)	
Length of stay in the UK	15.36 months	11.08
<b>Field of study</b>		
Science	80% (40)	
Art	20% (10)	
Facebook friends	2.001	0.76
Facebook usage on a typical day (min)	1.541	0.97
WeChat friends	4.001	0.97
WeChat usage on a typical day (min)	3.701	0.95

Note: 1 using a 5-point scale to measure minutes spent and number of friends: 1=0-30, 2=30-60, 3=60-90, 4=90-120, 5>120

Table 1: Descriptive statistics for the sample.

(Cronbach's  $\alpha=0.74$ ,  $SD=2.40$ ) (Table 2) were measured as the dependent variables in this experiment. All measured items were amended to fit the content of the current study, and they generally focused students' campus life, because their major social networks were inside the university [15]. Mean scores of all measured items in both social capital scales were computed as the bridging and bonding social capital scores [9].

**Independent variables:** In the current study, the intensity of Facebook usage (Cronbach's  $\alpha=0.86$ ,  $SD=5.48$ ) and the intensity of WeChat usage (Cronbach's  $\alpha=0.75$ ,  $SD=3.52$ ) (Table 3) were measured based on a 5-point scale as independent variables. The Facebook and WeChat intensity scores were taken from the mean of all measured items in each scale [7].

**Demographic variables:** The current study had four controlled demographic variables, which included the gender, educational level (undergraduate or postgraduate), length of stay in the UK, and field of study (science or art).

### Experimental Procedure

On arrival, the participant was seated in front of a laptop in a quiet room. Before taking the questionnaires, the participant was given an introduction sheet to read. After the participant agreed to take the experiment, he/she was asked to sign the informed consent form and then fill out an information sheet, which contained information about

participant's demographic information, such as the gender, educational level, length of stay in the UK and field of study.

After filling out all paperwork, the participant was instructed to finish three computer-based questionnaires via the Psychopy programme. The first two questionnaires measured the intensity of Facebook and WeChat usages, and the other questionnaire measured participant's bridging and bonding social capital statuses. The whole task would last about 30 min, and participants could take a little break after they finished each questionnaire. Before the participant left, he/she would be given a debriefing sheet that explained the purpose of the experiment and some snacks as a reward for taking part.

Two multiple regression analyses were taken to investigate how the intensity of Facebook and WeChat usages affect the two types of social capitals.

### Results

In each regression, four demographic factors, including gender, educational level, field of study and length of study in the UK, were recorded. Prior to conducting the regression, some preliminary analyses were taken to ensure there was no violation of the assumptions of linear model.

According to the correlation data, participants' bridging social capital was significantly correlated with their bonding social capital,

Individual items of social capital measurement scale	M	SD
Bridging social capital scale (Cronbach's $\alpha=0.79$ )	3.51	0.51
I am willing to spend time to support general activities at this university.	3.78	0.79
I am interested in what goes on at this university.	3.82	0.75
Interacting with people at this university makes me want to try new things.	3.56	0.64
At this university I come into contact with new people all the time.	3.16	0.84
I feel part of this university community.	2.94	0.55
Interacting with people at this university reminds me that everyone in the world is connected.	3.82	0.77
Bonding social capital scale (Cronbach's $\alpha=0.74$ )	4.01	0.48
There are several people at this university I can turn to for advice about making important decisions.	4.14	0.64
There are several people I feel comfortable talking to at this university about intimate personal problems.	3.94	0.79
If I need an emergency loan of £100, I know several people at this university I can turn to.	4.12	0.59
There are several people at this university I trust to solve my problems.	3.76	0.66
I do not know people at this university well enough to get them to do anything important.	4.62	0.64

**Table 2:** Descriptive statistics for social capital measurement scale.

Variables	M	SD
Intensity of Facebook use (Cronbach's $\alpha=0.86$ )	2.56	0.48
On a typical day, about how much time do you spend on Facebook (min)?1	1.54	0.97
How many t Facebook friends do you have?1	2.00	0.76
Facebook is part of my everyday activity.	2.26	1.23
I am proud to tell people I am on Facebook.	3.84	1.08
I feel out of touch when I have not logged onto Facebook for a day.	2.14	1.28
I feel I am part of the Facebook community.	2.08	0.99
I would be sorry if Facebook shuts down.	4.06	1.02
Intensity of WeChat use (Cronbach's $\alpha=0.75$ )	4.27	0.50
On a typical day, about how much time do you spend on WeChat (in minutes)?1	3.70	0.95
How many WeChat friends do you have?1	4.00	0.97
WeChat is part of my everyday activity.	4.60	0.67
I am proud to tell people I am on WeChat.	3.68	0.98
I feel out of touch when I have not logged onto WeChat for a day.	4.66	0.59
I feel I am part of the WeChat community.	4.52	0.71
I would be sorry if WeChat shuts down.	4.70	0.58

Note. 1using a 5-point scale to measure min: 1=0-30, 2=30-60, 3=60-90, 4=90-120, 5>120.

**Table 3:** Descriptive statistics for the intensity of Facebook and WeChat use measurement scales.



the length of stay in the UK and the intensity of Facebook use. However, their bonding social capital was significantly correlated with the intensity of Facebook and WeChat use. In addition, there was no significant correlation between the intensity of Facebook use and WeChat use (Table 4).

**The intensity of Facebook and WeChat use and the bridging social capital**

The first regression model was to test H1 and H2 regarding the intensity of the two SNSs uses and participants' bridging social capital. The first model contained all four demographic variables was statistically significant, F (4, 45)=2.86, p<0.05. This model also accounted for 20% of the variance in the bridging social capital (Table 5). After adding the intensity of Facebook use in the Model 2, the variance explained by this model was increased to 61%, F (5, 44)=13.51, p<0.01. It indicated that introducing the intensity of Facebook use explained the additional 41% variance in the bridging social capital, after controlling the demographic variables, (R2 change=0.41, F (1, 44)=44.95, p<0.01). While if adding the WeChat use instead of Facebook use in the Model 3, the model only accounted 28% variation in the bridging social capital, F (5, 44)=3.38,

p<0.05). It showed that the intensity of WeChat use could explain an additional 8% variance in Chinese international students' bridging social capital (R2 change=0.08, F (1, 43)=40.00, p<0.01). In the final model 4, all measured variables could explain 63% of the variance of participants' bridging social capital.

According to the data analysis, the most important predictor of Chinese international students' bridging social capital was the intensity of Facebook use, which explained 40% of the variance in the participants' bridging social capital. The intensity of Facebook uses also had a significant positive association with Chinese international students' bridging social capital, after controlling all demographic variables (β=0.67, p<0.01). The intensity of WeChat use could explain 33% of the whole variance in the bridging social capital. It also had a significant and positive association with the bridging social capital, after controlling all demographic variables (β=0.29, p<0.05). Furthermore, the model 4 showed that the intensity of WeChat use was not significantly related to Chinese international students' bridging social capital after controlling the intensity of Facebook use and demographic variables together (β=0.15, p>0.05). While after controlling the intensity of WeChat use and demographic variables together, the intensity of Facebook use

Variables	BSC1	BSC2	Gender	LSUK	EL	FS	IFB	IWC
Bridging social capital (BSC1)	1	--	--	--	--	--	--	--
Bonding social capital (BSC2)	0.56**	1	--	--	--	--	--	--
Gender	0.09	0.08	1	--	--	--	--	--
Length of stay in the UK (LSUK)	-0.41**	0.03	-0.29*	1	--	--	--	--
Educational level (EL)	0.20	-0.03	0.14	-0.62**	1	--	--	--
Field of study (FS)	-0.13	-0.22	-0.05	-0.11	0.26	1	--	--
Intensity of Facebook use (IFB)	0.71**	0.50**	0.01	-0.19	-0.05	-0.09	1	--
Intensity of WeChat use (IWC)	0.22	0.60**	0.09	0.10	0.12	-0.07	0.12	1

Note: Statistical significance: \*p<0.05, \*\*p<0.01,

**Table 4:** Correlations among demographic variables, intensity of Facebook and WeChat use, bridging social capital and bonding social capital.

Variables	R	R2	R2 change	B	SE	B
<b>Model 1</b>						
Gender	0.45	0.20*		-0.05	0.16	-0.04
Length of stay in the UK				-0.02	0.01	-0.47*
Educational level				-0.4	0.18	-0.03
Field of study				-0.22	0.17	-0.17
<b>Model 2</b>						
Gender	0.78	0.61**	0.40**	-0.01	0.12	0.01
Length of stay in the UK				-0.01	0.01	-0.22
Educational level				0.14	0.13	0.13
Field of study				-0.17	0.12	-0.13
Intensity of Facebook use				0.43	0.06	0.67**
<b>Model 3</b>						
Gender	0.53	0.28	-0.33**	-0.10	0.16	-0.08
Length of stay in the UK				-0.03	0.01	-0.56**
Educational level				-0.14	0.18	-0.14
Field of study				-0.18	0.17	-0.14
Intensity of WeChat use				0.29	0.14	0.29*
<b>Model 4</b>						
Gender	0.79	0.63	0.35	-0.03	0.12	-0.02
Length of stay in the UK				-0.01	0.01	-0.29*
Educational level				0.07	0.13	0.07
Field of study				-0.15	0.12	-0.12
Intensity of Facebook use				0.41	0.07	0.63**
Intensity of WeChat use				0.15	0.10	0.15

Note: Statistical significance: \*p<0.05, \*\*p<0.01.

**Table 5:** Regression models of the bridging social capital

was still significantly and positively related to Chinese international students' bridging social capital ( $\beta=0.63, p<0.01$ ).

Therefore, our data showed that both the intensity of Facebook and WeChat uses were significantly and positively predicted the bridging social capital, regardless all demographic variables. Furthermore, the intensity of Facebook usage was stronger associated with the Chinese international students' bridging social capital than the intensity of WeChat usage. These results support hypotheses 1 and 2.

### The intensity of Facebook and WeChat use and the bonding social capital

Hypotheses 3 and 4 predicted both Facebook and WeChat usage would be positively associated with Chinese international students' bonding social capital. The model 1 contained all demographic variables was not significant,  $F(4, 45)=0.70, p>0.05$ . This model only accounted for 6% of variance in bonding social capital (Table 6). After adding the intensity of Facebook use, the whole model became significant, and the total model variance was increased to 33%,  $F(5, 44)=4.23, p<0.01$ . It demonstrated that taking the intensity of Facebook use into account could explain an additional 27% variance in bonding social capital, after controlling the demographic variables ( $R^2$  change=0.27;  $F(1, 44)=17.40, p<0.01$ ). While if adding the WeChat use instead of Facebook use into the whole model, it accounted 41% variation in the bonding social capital  $F(5, 44)=6.07, p<0.01$ . The intensity of WeChat use itself could explain additional 35% variance in bonding social capital after controlling the demographic variables. ( $R^2$  change=35,  $F(1, 43)=15.95, p<0.01$ ). At the last stage, after adding all variables into the model as a whole, it could explain 57% of the variance of Chinese international students' bonding social capital.

According to the data analysis, the most important predictor of Chinese international students' bonding social capital was the intensity

of WeChat use, which uniquely explained 35% of the variance in the bonding social capital. The intensity of WeChat uses also had a significant positive association with Chinese international students' bonding social capital, after controlling all demographic variables ( $\beta=0.62, p<0.01$ ). The intensity of Facebook use could explain 27% of the whole variance in Chinese international students' bonding social capital. It also had a significant and positive association with the bonding social capital, after controlling all demographic variables ( $\beta=0.54, p<0.01$ ). In addition, the model 4 showed that the intensity of WeChat use was significantly related to Chinese international students' bonding social capital after controlling the intensity of Facebook use and demographic variables together ( $\beta=0.53, p<0.01$ ). Moreover, after controlling the intensity of WeChat use and demographic variables together, the intensity of Facebook use was also significantly and positively related to Chinese international students' bonding social capital ( $\beta=0.43, p<0.01$ ).

Therefore, our results indicated that both the intensity of Facebook use and WeChat use were significantly associated with Chinese international students' bonding social capital without considering the influences of the demographic variables. Additionally, the intensity of WeChat usage was stronger associated with the Chinese international students' bonding social capital than the intensity of Facebook usage. These results supported hypothesis 3 and 4.

### Discussion

This study examined how specific social network via the corresponding SNSs use (Facebook/WeChat) affects social capital development (bridging vs. bonding). The findings contribute to the understanding of 1) how international people organize their social network online; 2) how different SNS use help international people to manage their social connections with different social groups

### Findings

The UK, like many other western countries, has been acknowledged for its great academic achievements (need references). Such a good reputation in education attracts an increasing number of international students (Higher Education Statistic Agency, 2016/17). The increased level of globalization requires individuals have the ability to interact with people from different cultures. Once people arrived to a new land, they have to manage their social connection balance between their home and host social networks [33]. With the increasing popularity of SNSs, people are able to use different SNSs to mediate their existing social networks and build new social connections with new friends in an easy and cheap way [15]. Most previous research were Facebook-based, and they reported the SNSs use and it affects to people's social capital development [15]. Only a few scholars have paid attention to investigate how indigenous SNSs use or dual SNSs use affects international people's social capital [9,16,18,19,34]. The current study focused on how the Chinese international students mediate their home and host country social connections via corresponding SNSs (Facebook and WeChat) and how the use of the dual SNSs affect their social capital development (bridging and bonding). All four hypotheses we proposed were tested in the experiment and three of them were confirmed. The findings of this study would extend the literature on SNSs use and social capital.

Consistent with previous findings, our results showed that both the intensity of Facebook and WeChat SNSs use, especially the Facebook use, were positively associated with Chinese international students' bridging social capital. It indicated that Chinese international students

Variables	R	R2	R2 change	B	SE	$\beta$
<b>Model 1</b>						
Gender	0.24	0.06		0.09	0.17	0.08
Length of stay in the UK				0.01	0.01	0.06
Educational level				0.06	0.18	0.06
Field of study				-0.27	0.18	-0.23
<b>Model 2</b>						
Gender	0.57	0.33**	0.27**	0.13	0.15	0.12
Length of stay in the UK				0.01	0.01	0.26
Educational level				0.19	0.16	0.20
Field of study				-0.23	0.15	-0.19
Intensity of Facebook use				0.33	0.08	0.54**
<b>Model 3</b>						
Gender	0.64	0.41**	0.08**	0.01	0.14	0.01
Length of stay in the UK				-0.01	0.01	-0.15
Educational level				-0.15	0.15	-0.16
Field of study				-0.19	0.14	-0.16
Intensity of WeChat use				0.59	0.12	0.62**
<b>Model 4</b>						
Gender	0.75	0.57**	0.16**	0.05	0.12	0.04
Length of stay in the UK				0.01	0.01	0.04
Educational level				-0.01	0.13	-0.02
Field of study				-0.17	0.13	-0.14
Intensity of Facebook use				0.26	0.07	0.43**
Intensity of WeChat use				0.51	0.10	0.53**

Note: Statistical significance: \* $p<0.05$ , \*\* $p<0.01$ .

**Table 6:** Regression models of the bonding social capital.

could develop weak ties and gain diverse information and resources via both Facebook and WeChat. This finding was predictable due to the roles of both SNSs. Specifically, as the major SNS in the UK, Facebook, could provide more opportunities for international students to build connections with non-Chinese contacts. While WeChat allows Chinese international students to easily find and communicate with other Chinese neighbours and students.

Our results also showed that the intensity of both Facebook and WeChat uses were significantly related to Chinese international students' bonding social capital. This finding supported some previous findings that SNSs were vital to help its users to maintain their strong ties with others [15,35]. The findings indicated that both Facebook and WeChat contributed to develop students' bonding social capital due to their unique function settings. As Facebook was most popular SNS in the world, it allows students to maintain their relationships in most countries [6]. As WeChat was targeted Chinese people, it allowed Chinese international students to easily maintain their relationships with their Chinese friends and families.

In addition, the results also demonstrated that our control variables also significantly influenced students' bridging social capital, especially the "length of stay in the UK" factor. This factor was negatively correlated with bridging social capital. This finding was inconsistent with Ellison et al.'s [15] findings, but in line with some other studies. For example, Rienties et al. [36,37] reported that Confucian Asian students could separate themselves from host nationals over time. Researchers explained that although Confucian Asians and UK students mix well at first, their social interactions declined with time passed [36,37]. One possible explanation is that Chinese international students attempted to gain useful information and resources via built connections with locals. However, it might be hard for Asian international students maintain a sustainable relationship with UK students because there are not many similarities between two cultures [36,37].

### Suggestions for future research

There are several suggestions that further studies might need to take into account. First of all, to gain a more generalizable results, researchers need to recruit more Chinese international students to acquire a more convince results. Besides, the manipulation of SNS use could be improved in future experiments. As Facebook has been blocked since 2009 in the mainland China, those Chinese international students who just arrived will be the unique sample to study the process for them to mediate their social connections with home and host contacts. Secondly, the demographic variables might have salient effects on peoples' SNSs usage pattern. It has been discussed that younger users are more frequent users of SNSs and have more online connections than older users [38]. In line with this assumption, a few studies reported that undergraduates use their SNSs more frequently and have more SNS friends than postgraduates [39]. Another explanatory factor of SNSs use is the gender. According to previous literature, there are more female users on SNSs, they spend more time on SNSs, and have more SNS friends than male users [40-42]. Moreover, male users have been found using SNS to build connections with new contacts while female users use SNSs to maintain their existing social networks [43,44]. Hence, further studies could specifically focus on how different demographic factor affects the relationship between SNSs use and different types of social capital.

Thirdly, the future studies could distinguish the measurement scale of social capital between online and offline conditions. The existing literature has shown that the online and offline components may work differently when people develop their social capital [45,46]. For instance,

Haythornthwaite [45] suggested that online connections were useful to build and maintain people's weak tie networks, and Mandelli [46] indicated the virtual communication played an important role when people developed their bonding social capital. William [47] suggested a four-way measurement should be considered when researchers were going to study social capital, including the online and offline bridging social capital, as well as the online and offline bonding social capital. Specifically, in William study, he used the items, such as, "Interacting with people online/ offline makes me want to try new things" in the bridging social capital scale and "There is someone online/offline I can turn to for advice about making very important decisions" in the bonding social capital scale. Further research could use this four-way measurement scale and provide a comprehensive conclusion about the relationships between different SNSs use and different social capital.

Fourthly, our SNS intensity scale just broadly measures the usage of SNSs, but the SNSs are continuing updates and they have developed more applications and functions besides online communication [15,42]. For future research, they could investigate how the different functions of SNSs affect international students develop their different social capitals. Ji et al. [48] have categorized five general functions of SNSs, including identity, expert search, connection, communications and contents sharing [48]. They conducted an online questionnaire including a series of surveys regarding individuals' motivations for SNSs use, culture difference, and social capital in among 489 respondents from China, Korea and United States of America. According to their findings, Chinese and Korean users develop their bridging and bonding social capital relied on the expert search and connection functions, while American users mainly develop their bonding social capital via the communication function [48]. However, Ji et al.'s [48] study was conducted in these three nations respectively, and their participants were locals in each country. International students might show a different usage pattern in using the home and host SNSs in terms of different functions, which might affect how they form and maintain their different types of social capital.

### Conclusion

The SNSs provide an easy and cheap way for international students to develop their social capital, adapt to the local environment and make progress during the study. However, there has been a lack of research in the existing literature on how international students manage their different types of social capitals via host country and home country major SNSs. The current study makes a contribution by investigating the Facebook and WeChat use affect the bridging and bonding capitals of Chinese students in the UK. The findings indicated that international students could extend their social networks and learn useful information in the new environment via putting more time and energy into the host country's SNSs, and both host country and home country SNSs could facilitate international students to develop close relationships with others.

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