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Relationship Between Online and Offline Social Capital: Evidence from a Social Network Site in China

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Abstract: This study explores the impact of Social Network Sites (SNSs) usage on the formation of online bridging and bonding social capital, and the relationship between online and offline social capital. It is hypothesized that use of SNSs forms online social capital and online and offline social capital are positively correlated. A Chinese SNS, Renren, is studied specifically. Social capital scales and personality measures were adapted from existing literature to develop a questionnaire and a survey of 183 students was conducted in a university in China. Regression analyses suggest a strong positive relation between use of SNSs and online bridging social capital. Online social capital is demonstrated to be positively correlated with offline social capital. User extraversion is shown to predict certain use behaviors but its interaction effect with SNSs usage is not significant. Discussions about the theoretical and practical implications of the findings are provided.

Keywords: social network sites, social capital, usage behavior

1. INTRODUCTION

As a typical Internet application, Social Network Sites (SNSs) are defined as web-based services that allow individuals to construct a public or semi-public profile, share connections with others, and view their connections within the system [5]. Individuals use SNSs not only to maintain relations in reality by getting connected online, but also to discover new links based on common interests. Researchers investigated various aspects of SNSs ranging from individual usage behaviors to their impacts on society.

Grown from the basic idea to link people together, SNSs are integrating more and more functions and services. A recent review on previous studies [26] summarizes four functions of SNSs: personal profile-related functions, relationship development functions, functions that allow participants to interact through messages and comments, and functions to share information and contents. These functions facilitate the establishment and maintenance of online relationships.

There are two questions that have attracted the attention of many scholars in this area. The first one asks about the impacts of SNSs usage, or in a broader sense, Internet usage, on individuals' sociability. Does the use of SNSs actually increase or decrease the connections between people? SNSs are of course designed to create new channels for users to get connected and enhance existing relationship. But it may turn out to be that people spend too much time on the virtual community and estrange friends in reality. Many researchers have investigated this issue based on the social capital theory [11][12][16][17][19][23][24].

The second question looks deep into individual's behaviors online and concerns about what kind of persons benefit most from using Internet or certain applications [1][2][3][9][16][17]. The question is complicated because people's identity online could be very different from offline. Socially competent individuals may make the most

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of their social skills to earn more attention online, while socially inhibited individuals may also find it beneficial to relocate their identities on an anonymous virtual community to take advantage of its vast resources.

This paper aims to explore these two questions in the context of a SNS in China, by borrowing models and methodologies from recent foreign studies. It starts with a review of literature and introduces key concepts used to construct the model. Then three research hypotheses are proposed and the research method is described. Data analyses and results are provided after that, followed by detailed discussion of the results and their implications. A conclusion is presented at the end.

2. LITERATURE REVIEW

2.1 Social capital

Stemmed from sociology, social capital is now a term used in diverse contexts. Pierre Bourdieu first defined the concept as “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition”^[4]. Coleman defined the term by its characteristics, arguing that “it’s a variety of different entities with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors within the structure”^[10]. Social capital can be regarded as both the network that generates positive outcomes and the outcomes themselves, while the measurement of social capital accounts for simply the outcomes of network^[25].

Social capital can be categorized according to the strength of networks “ties” as well as difference in contexts in which it is formed. First, a very helpful theoretical framework is Putnam’s definitions of “bridging” and “bonding” social capital. Bridging social capital occurs when individuals from different backgrounds make connections across social networks. Bonding social capital occurs when strongly tied individuals, such as family and close friends, provide emotional and substantive support for one another^[21]^[25]. This particular taxonomy focuses on the strength of “ties”. Second, when studying the impact of Internet on social capital, it is suggested to distinguish online social capital, which is formed through the activities online, from offline social capital, which is formed offline^[25].

There is yet another influential delimitation of social capital put forward by Nahapiet & Ghoshal^[20] in their exploration of intellectual capital and organizational advantage. They considered social capital in three clusters: the structural, the relational, and the cognitive dimensions. In this paper, we do not adopt this classification mainly because that it is established in the context of organizations, which differs from the context of Internet.

Social capital is called a “capital” because, just like financial capitals, investments in social relations bring expected returns^[18]. The possession of social capital enhances individual’s sociability and connectivity with other people. The benefits of social capital may take the form of better employment opportunities^[14], career success^[8], or psychological well-being^[15]^[23].

2.2 Social capital and the Internet

Putnam^[21], in his famous book *bowling alone*, documented a decline of social capital among American citizens. Scholars such as Lin^[18] and Wellman^[24] argued that Putnam’s conclusion could be biased because he only focused on traditional forms of community and participation but ignored the emerging Internet as new channels of social activities. However, the actual effect of Internet on social capital was still a controversial topic^[19]^[24]^[27]. Different views argued that Internet may increase, decrease, or supplement social capital.

Wellman^[24] reviewed these previous views and tested the issue using data from 2000 National Geographic Society Survey. He conclude that people’s interaction online supplements their face-to-face and telephone communication, without increasing or decreasing it. Based on 2000 General Social Survey data, Zhao^[27] found that social users of Internet have more social ties than nonusers do. He defined social users of Internet as people who use Internet for social purpose. Also, he indicated that chat users (people who use Internet to chat with

others) maintain some social ties exclusively online. As a contrast, Nie ^[19] suggested that Internet users are the ones who already display high degrees of social connectivity and participation and simply using Internet do not make them more sociable. These three studies used survey data collected at approximately the same time, but yielded quite different results.

Some researchers entered this debate by focusing on specific applications of the Internet such as SNSs. Reference [11] examined the relationship between use of Facebook and the formation of three kinds of social capital (bridging, bonding, maintained) and concluded that Facebook use is strongly associated with the formation of social capital, especially bridging social capital, and it will generate greater benefits for users experiencing low self-esteem and low life satisfaction. Reference [23] conducted a longitudinal study on the relationship between intensity of Facebook use, self-esteem and bridging social capital, and found that Facebook use in year one strongly predicted bridging social capital outcomes in year two, with self-esteem as a moderator.

A few researches went one step further, asking how different kinds of activities on SNSs influence social capital. The joint study by Moira Burke and a Facebook employer Cameron marlow investigated the role of directed interaction between pairs of users and found that it is positively associated with greater perceived bonding social capital ^[6]. In another research, Burke et al. contrasted three types of Facebook activities: one-to-one communication, broadcasts to wider audience, and passive consumption of social news. They showed that only person-to-person communication is associated with increase in bridging social capital ^[7]. Reference [12] looked at the same question with a different perspective, focusing on three sets of Facebook activities as using the site for connecting with total strangers, with latent offline ties, and with close friends. The results suggested that only users' information seeking activities with their latent offline ties contribute to perceptions of social capital ^[12].

However, these eminent studies shared one potential problem. They modeled and measured only offline social capital, and used it as dependent variable in regression analyses, with the independent variables being Facebook use and other control variables. But it is online social capital, not offline social capital that is the direct result of Facebook usage. In the attempt to make clear of the underlying relationships, this study measures and analyzes online and offline social capital separately. It will firstly investigate the relationship between SNSs use and online social capital, and secondly discuss the relationship between online and offline social capital.

2.3 Benefit of Internet usage

Through the use of Internet, especially the SNSs, people can maintain existing social relationships and get to know new friends. An interesting and heated debate driven by this social aspect of Internet is that whether the socially inhibited users or the socially competent ones benefit most from Internet. This debate is often notated as “the poor get rich” (socially inhibited users benefit most from Internet) vs. “the rich get richer” (socially competent users benefit most from Internet).

On the one side, studies by Hamburger & Ben-Artzi suggested that introverted and highly neurotic women tend to use more social services online ^[1], and that introverted and neurotic people locate their “real me” on the Internet ^[2]. These findings are consistent with “the poor get rich” proposition. A possible explanation is that online social services provide the introverts with a secure and often anonymous environment, which enables them to overcome the obstacles and behave like extraverts ^[3].

On the other side, Reference [17] found that using the Internet predicted better outcomes (social involvement and psychological well-being) for extraverts and those with more social support but worse outcomes for introverts and those with less support, in line with “the rich get richer”. Their reason is that “the rich” already have better social skills in using social resources, and they are more likely to take advantage of online tools.

Despite the complexity of this issue, divergence in the definition of “benefit” earned from Internet usage

might be a reason for such controversial results. Since this study is carried out in the context of relationship-building SNSs, and people use them mainly to build and maintain their social networks, the “benefit” here is defined as the online social capital (bridging and bonding) accumulated directly through the use of SNSs. Under this definition, it is possible to associate this debate with the discussion about SNSs’ influence on social capital. For instance, if the use of SNSs increases online social capital, and this relationship is stronger for extraverted people, it will be an evidence for the “rich get richer” perspective.

3. HYPOTHESES

Based on the previous studies, this paper proposes the following hypotheses regarding three main research questions.

RQ1: What is the relationship between SNSs use and online social capital?

RQ2: What’s the relationship between online social capital and offline social capital?

RQ3: What is the influence of personal characteristics on the relationship between SNSs use and online social capital?

The positive association between SNSs use and the formation of bridging social capital is supported by Reference [11], and the direction of association is from SNSs use to bridging social capital [23]. Logically, the usage behavior precedes the formation of corresponding online social capital, and the use of SNSs facilitates the establishment and maintenance of both weak ties and strong ties. Thus, the first hypothesis is:

H1: SNSs use has a positive impact on individual’s online bridging social capital and online bonding social capital.

When SNSs such as Facebook first started their business, the target market is mainly high school and university students. As users graduated from high schools and entered universities, they regarded the SNS as a platform to maintain their contacts with old friends in high schools and get to know new people in universities. Such usage pattern exemplifies the fact that many online links originally come from offline links, and can further lead to new offline links. Consequently, social capital formed online and offline enhance each other. Thus, it is predicted that online social capital is positively correlated with offline social capital.

However, it is difficult to determine which kind of social capital precedes the other, or which direction of enhancement is stronger. Studies about Facebook pointed out an “offline-to-online” trend, which means that people usually meet people in reality and then add them into Facebook [11][22], implying that offline social capital leads to online social capital. But it is equally possible that users in the same community get connected online by some “recommendation” services or common interests and then meet up in reality. Therefore, in this paper, we suggest that these two kinds of social capital interact with each other through the use of SNSs. This leads to the second hypothesis:

H2: online social capital and offline social capital are positively correlated.

Many prevalent SNSs are based on real-name systems. Identities online are closely related with identities offline. Because of this feature, introverted people may find it difficult to establish new identities online and consequently gain less from the usage [3], consistent with the “the rich get richer” proposition. The causal link from the use of SNSs to the formation of corresponding online social capital, which is regarded as the benefit of using SNSs, guarantees the reasoning. This paper explores whether the relationship between SNSs use and online social capital varies depending on individual’s extraversion. Extraversion, out of the Big Five traits, is demonstrated to be valid in predicting Internet use [1]. The following hypothesis concludes the idea:

H3: The relationship between SNSs use and online social capital will be moderated by the user’s extraversion. For more extraverted users, the relationship between SNSs use and online social capital is stronger.

4. METHOD

The subject of this study is Renren, which is a typical and famous real-name SNS in China. A person with a Renren account can get connected with others by adding them as “Renren friends” on her profile, after which she can view their homepages and communicate with them online. She can also update her own homepage; post a message or write an article. Because of the similarities in design and functions, Renren is frequently compared with Facebook.

4.1 Questionnaire design

The questionnaire used in this study is made up of 38 questions divided into four sections. The first section includes eight questions designed to obtain the duration, frequency, and depth of respondents’ Renren usage behavior. The second section measures social capital on two dichotomies (online vs. offline, bridging vs. bonding). This paper adopted the scales developed by Williams [25]. Each of the four categories contains five items selected from Williams’ inventory. Items are translated into Chinese and adapted to fit the context of Renren and the community. To measure respondent’s extraversion, one item from TIPI (10-Item Personality Inventory) developed by Gosling et al. [13] was adopted. The last section collected some demographic information including gender, age, year at school, time spent on Internet per day. Please refer to the appendix for measurement items of social capital and extraversion.

4.2 Data collection

The survey was carried out in a university during May, 2012. A total number of 183 students were invited to complete the questionnaire. Most of the students are from the same department. The sampling is not completely random in that 61.7% (113) respondents are in the third year. To alleviate the common method bias, respondents were asked to look up the required information directly from their Renren profiles when filling in the data concerning their Renren usage.

After the raw data was collected, severely incomplete or biased responses were dropped, and records from those who don’t have a Renren account were deleted, resulting in 169 records for further analysis. 101 (59.76%) of them are female. Several missing values in these records are replaced with mean values of corresponding variables.

5. RESULTS

5.1 Findings about user behaviors

Among the total 183 respondents, 95.6% (175) have Renren accounts, indicating that Renren is indeed widely adopted by university students as social networking platform. However, Renren is not the only SNS students are using. 74.3% (136) respondents use SNSs other than Renren (such as Weibo, Qzone, etc.), and 69.4% (127) respondents use both Renren and other SNSs. Since only 2 respondents don’t use any SNS at all, this sample cannot shed light on whether SNSs users and non-users differ in their demographic characteristics.

The following analyses are based on the data concerning only Renren users. According to the survey, respondents reported, on average, using Renren for 2.65 years, spending 30 – 60 minutes on it every day, and having 628 friends on their profiles. Besides, 75% of Renren users also use other SNSs, for averagely 36.25 minutes every day.

Many Renren users especially care about how many friends they have and how many times have their personal homepages been viewed by others. Regressions were conducted to explore the determinants of these two variables, controlling for respondents’ age, extraversion, and total time spent on the Internet. It is suggested that students who have used Renren for more years and for a longer time every day have significantly more friends on profile ($p < 0.001$; $p < 0.05$; $R^2 = 0.364$), and their homepages are viewed more often ($p < 0.001$; $p < 0.01$; $R^2 = 0.275$). Also, extraverted users tend to have more friends ($p < 0.001$), and homepages of female students tend to be viewed more frequently than male students’ ($p < 0.05$).

5.2 Confirmative factor analysis

In order to test the reliability and validity of the research, confirmative factor analyses of four constructs of social capital were implemented, after which the latent variables scores were computed and regression analyses conducted. Confirmative factor analysis was performed by LISREL (8.70).

Table 1 Summary of results of confirmative factor analysis of social capital items

Construct	Cronbach's alpha	Goodness of fit
Online bridging social capital	0.77	$\chi^2 = 395.82$ d.f. = 164 p-value < 0.00001 RMSEA = 0.092
Offline bridging social capital	0.87	
Online bonding social capital	0.66	
Offline bonding social capital	0.73	

Table 2 Correlation matrix for social capital constructs

	Online bridging	Offline bridging	Online bonding	Offline bonding
Online bridging	1.00			
Offline bridging	0.78	1.00		
Online bonding	0.72	0.53	1.00	
Offline bonding	0.55	0.72	0.51	1.00

The construct of Renren usage is formative, made up of two standardized variables: the amount of time spent on Renren every day and the total number of Renren friends. These two variables partly reflect the intensity of Renren use [11].

For social capital constructs, data measuring online bonding social capital have low reliability (Cronbach's alpha less than 0.7). Factor loadings for some items in both online and offline bonding social capital scales are unsatisfactory. Some potential problems in the questionnaire design may account for such reliability and validity issues. Items used to measure online and offline social capital were directly imported from Williams' inventory [25] and translated into Chinese. This Chinese version of Williams' measurement for social capital hasn't been rigidly tested. Thus, some wordings may be inaccurate or simply improper in Chinese context.

After the confirmative factor analysis, latent variable scores were computed by LISREL. These are standardized scores with mean 0 and standard deviation 1.

5.3 Hypotheses testing

Regressions were conducted to test Hypothesis 1. The first two regressions intend to examine the contribution of Renren usage to the formation of online bridging social capital. In the first regression, all control variables (gender, year in university, time spent online per day, and extraversion) are put into regression function and they altogether account 14.6% of the variance of dependent variable. When Renren usage is entered, as in the second regression, the R^2 rises to 0.170, and it is significant. The same goes for the third and fourth regressions, with dependent variable being the online bonding social capital. However, although the entering of Renren usage also raises the R^2 by about 0.02, it is not a significant predictor at 5% significance level ($p = 0.055$). Besides,

extraversion is shown to be a significant predictor of online bridging social capital ($p < 0.001$), suggesting that extravert people tend to form a wider network of “weak ties” through Renren than introverts.

To conclude, Hypothesis 1 is partly supported by the data. The use of Renren does facilitate accumulation of online bridging social capital. Independent variables explain about 17% and 7% of variation of online bridging and bonding social capital, respectively.

Hypothesis 2 concerns with the relationship between online social capital and offline social capital. It is shown in table 2 that the correlation between any two kinds of social capital constructs is very high, indicating that they are all positively and strongly correlated. However, as stated in the Hypotheses section, the causalities between social capital constructs cannot be specified using current data. To further test such relationships, panel data or social network analysis will be needed. These methods are currently in-progress.

Finally, to test the moderating effect of extraversion, interaction term of Renren usage and extraversion is entered into the regression functions. The interaction term is not significant either for online bridging or bonding social capital, leaving Hypothesis 3 unsupported. This is probably because the measurement of extraversion was not precise enough, since only one question was assigned to measure extraversion in the questionnaire.

6. DISCUSSION AND IMPLICATIONS

The survey results provide some insights into students' usage behavior of Renren. Despite the high coverage of Renren in universities, students are more “diversified” in their choice of social networking platforms. Not surprisingly, students who have used Renren for a longer time and higher frequency tend to have more friends added to their profiles and receive more visitors to their homepages. It is also suggested that extraverts are found to have more Renren friends, which is probably a reflection of the “offline to online” pattern. Considering the fact that extraverted people usually have more friends in offline environment, it could be that their large number of Renren friends is just a “transportation” of the offline relations.

Although the three Hypotheses are not fully supported by the data, it can still be concluded that the use of Renren does promote the formation of corresponding online social capital, especially bridging social capital. It means that Renren, by connecting people, provides its users with a window through which they gain a wide range of new information and fit in an online community. By separating the modeling and measurement of online and offline social capital, the relationship between them is partly revealed. Online social capital (bridging and bonding) is positively correlated with offline counterparts. The expected moderating effect of extraversion on the relationship between Renren usage and online social capital is not found, leaving the “poor get rich” vs. “rich get richer” debate unaddressed.

Several important limitations exist in this working project, which call for future refinement. First, currently, data was collected only at one time point. From this cross-sectional data, it is hard to derive causality. Online and offline social capital were shown to be strongly and positively correlated, but few implications about the direction of this relationship can be made at this stage. This temporary conclusion is intuitive, but more details are needed to clarify the channels through which online and offline social capital interact. Second, for the specific sample studied in this project, their online social networks significantly overlapped with offline networks. Many of their Renren friends are their classmates in the university. Such characteristic makes it difficult to generalize the conclusions drawn from this sample. Third, only one community was focused in this study. The selection of this group of people could have important but omitted influence on usage behavior and social capital. Moreover, how people use SNSs is profoundly influenced by culture^[26]. So what's true about Facebook in U.S does not necessarily apply to Renren in China, despite that many designs and functions of them are the same.

Future research should try to study different kinds of SNSs in more diverse contexts and culture backgrounds. For Chinese researchers, works addressing this issue should be encouraged because China has a huge population of

SNS users and its impacts on the individual as well as society cannot be ignored. In order to facilitate such studies, effective scales to measure online and offline social capital should be redeveloped in Chinese and tested. This entails more than importing foreign measurement tools and changing them into Chinese. Chinese scholars should create new scales that specifically fit the culture and background of Chinese people. Additionally, conducting longitudinal studies and combining other methodologies such as interview are also meaningful improvements.

7. CONCLUSION

This empirical study investigates the usage of Renren and the formation of social capital, through evidence from Renren users in a university in China. The data shed some light on the usage behaviors of the respondents. Extraverted users seem to have more friends on Renren because they can take advantage of their large offline social networks. Positive association is found between the intensity of use and online bridging social capital, supporting the view that SNSs will broaden people's online network. The correlation between online social capital and offline social capital is demonstrated to be positive. Further progress is needed to understand how SNSs will influence the total amount of social capital.

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REFERENCES

- [1] Amichai-Hamburger, Y., & Ben-Artzi, E. (2000). The relationship between extraversion and neuroticism and the different uses of the Internet. *Computers in Human Behavior*, 16, 441–449.
- [2] Amichai-Hamburger, Y., Wainpel, G., & Fox, S. (2002). On the Internet no one knows I'm an introvert: Extroversion, introversion, and Internet interaction. *Cyber Psychology & Behavior*, 5(2), 125–128.
- [3] Amichai-Hamburger, Y., Kaplan, H., & Dorpatcheon, N. (2008). Click to the past: The impact of extroversion by users of nostalgic website on the use of Internet social services. *Computers in Human Behavior*, 24, 1907–1912.
- [4] Bourdieu, P. (1985). The forms of capital. In *Handbook of Theory and Research for the Sociology of Education*, ed. JG Richardson (pp. 241–258). New York: Greenwood.
- [5] Boyd, D., & Ellison, N. (2008). Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication*, 13, 210–230.
- [6] Burke, M., Marlow, C., & Lento, T. (2010). Social network activity and social well-being. In *Proc. CHI 2010*: 1902-1912.
- [7] Burke, M., Kraut, R., & Marlow, C. (2011). Social network activity and social well-being. In *Proc. CHI 2011*: 571-580.
- [8] Burt, R. S. (1992). *Structural Holes, the Social Structure of Competition*. Cambridge, MA: Harvard Univ. Press.
- [9] Butt, S., & Phillips, J. G. (2008). Personality and self-reported mobile phone use. *Computers in Human Behavior*, 24(2), 346–360.
- [10] Coleman, J. S. (1988). Social Capital in the Creation of Human Capital. *American Journal of Sociology*. Supplement: Organizations and Institutions: Sociological and Economic Approaches to the Analysis of Social Structure, 94, S95-S120.
- [11] Ellison, N., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends": Exploring the relationship between college students' use of online social networks and social capital. *Journal of Computer-Mediated Communication*, 12(4), article 1.

- [12] Ellison, N., Steinfield, C., & Lampe, C. (2011). Connection strategies: social capital implications, of Facebook-enabled communication practices. *New Media Society*, 13(6), 873-892.
- [13] Gosling, S. D., Rentfrow, P. J., & Swann, W. B. J. (2003). A very brief measure of the big five personality domains. *Journal of Research in Personality*, 37, 504–528.
- [14] Granovetter, M. S. (1974). *Getting a Job: A Study of Contacts and Careers*. Cambridge, MA: Harvard Univ. Press.
- [15] Helliwell, J. F., & Putnam, R. D. (2004). The social context of well-being. *Philosophical Transactions of the Royal Society*, 359(1449), 1435–1446.
- [16] Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukhopadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist*, 53(9), 1011–1031.
- [17] Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. (2002). Internet paradox revisited. *Journal of Social Issues*, 58(1), 49–74.
- [18] Lin, N. (1999). Building a Network Theory of Social Capital. *CONNECTIONS*, 22(1):28-51.
- [19] Nie, N. H. (2001). Sociability, Interpersonal Relations, and the Internet: Reconciling Conflicting Findings. *AMERICAN BEHAVIORAL SCIENTIST*, 45(3), 420-435.
- [20] Nahapiet, J., & Ghoshal, S. (1998). Social Capital, Intellectual Capital, and the Organizational Advantage. *The Academy of Management Review*, 23(2), 242-266.
- [21] Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon & Schuster.
- [22] Ross, C., Orr, E. S., Siscic, M., Arseneault, J. M., Simmering, M. J., & Orr, R. R. (2009). Personality and motivations associated with Facebook use. *Computers in Human Behavior*, 25, 578–586.
- [23] Steinfield, C., Ellison, N., & Lampe, C. (2008). Social capital, self-esteem, and use of online social network sites: A longitudinal analysis. *Journal of Applied Developmental Psychology*, 29, 434–445.
- [24] Wellman, B., Haase, A. Q., Witte, J., & Hampton, K. (2001). Does the Internet Increase, Decrease, or Supplement Social Capital? : Social Networks, Participation, and Community Commitment? *Social Networks, Participation, and Community Commitment. AMERICAN BEHAVIORAL SCIENTIST*, 45(3), 436-455.
- [25] Williams, D. (2006). On and off the ‘net’: Scales for social capital in an online era. *Journal of Computer-Mediated Communication*, 11, 593–628.
- [26] Ji, Y. G., Hwangbo, H., Yi, J. S., Rau, P. L. P., Fang, X., & Ling, C. (2010). The Influence of Cultural Differences on the Use of Social Network Services and the Formation of Social Capital. *International Journal of Human-Computer Interaction*, 26(11–12), 1100–1121.
- [27] Zhao, S. (2006). Do Internet users have more social ties? A call for differentiated analyses of Internet use. *Journal of Computer-Mediated Communication*, 11(3), article 8.

APPENDIX

Table 3 Measurement items for social capital and extraversion

Online bridging social capital subscale

Interacting with people on Renren makes me want to try new things.

Interacting with people on Renren makes me interested in what people unlike me are thinking.

Talking with people on Renren makes me curious about other places in the world.

Interacting with people on Renren makes me feel like part of a large community.

I am willing to spend time to support general Renren online activities.

Offline bridging social capital subscale

Interacting with people in X University makes me want to try new things.

Interacting with people in X University makes me interested in what people unlike me are thinking.

Talking with people in X University makes me curious about other places in the world.

Interacting with people in X University makes me feel like part of a large community.

I am willing to spend time to support general offline activities in X University.

Online bonding social capital subscale

There are several people on Renren I can trust to help solve my problems.

There is someone on Renren I can turn to for advice about making very important decisions.

When I feel lonely, there are several people on Renren I can talk to.

There is no one on Renren that I feel comfortable talking to about intimate personal problems. (reversed)

If I needed an emergency loan of 100 RMB, I know someone on Renren I can turn to.

Offline bonding social capital subscale

There are several people in X University I can trust to help solve my problems.

There is someone in X University I can turn to for advice about making very important decisions.

When I feel lonely, there are several people in X University I can talk to.

There is no one in X University that I feel comfortable talking to about intimate personal problems. (reversed)

If I needed an emergency loan of 100 RMB, I know someone in X University I can turn to.

Extraversion subscale

I see myself as: extraverted, enthusiastic.
