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THE RELATIONSHIP BETWEEN COLLEGE STUDENTS' SELF-DISCLOSURE ONLINE AND LONELINESS, SOCIAL SUPPORT AS MEDIATION

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ABSTRACT

To investigate the relationships between online self-disclosure and loneliness of college students as well as the mediating role of social support, the study took the WechatMoments (an SNS tool in China) for an example, recruited a sample of 250 college students from three different universities in the capital of China. Instruments are questionnaires contained revised questionnaires of WechatMoments use, self-command questionnaires of WechatMoments preference, and revised questionnaires of self-disclosure and loneliness. The results showed that:(1) Wechat use is pretty prevalent among college students. (2) The intensity of WechatMoments use is significantly positively correlated with loneliness. (3) The amount of self-disclosure is not significantly correlated with loneliness, but the negativity is significantly positively correlated with loneliness, the intent as well as the honesty are significantly negatively correlated with loneliness. (4) Online social support plays as a mediation between online self-disclosure and loneliness.

General Terms

Social Network Services, College Students' Loneliness

Keywords

Network Communication, WechatMoments use, On-line self-disclosure, On-line social support, College students' Loneliness

1. INTRODUCTION

From the beginning of the rise of the Internet to the present, the social network service platform has undergone changes from e-mail, ICQ, chat rooms, forums, blind date websites, instant messaging tools, real-name social networking sites (such as Facebook), Instant messaging and social networking sites have become popular social ways for most people today[1]. Internet has become one of the most important tools people use to communicate with other people.

Past research has focused on the well-being or loneliness of people who use the Internet. But results showed mixed conclusions. There are people think that the use of internet and SNS has negative effects on social life and well-being. They use a Displacement Hypothesis[2] to explain it, that people choose to engage in network interaction with strangers because of their fear of possible rejection situations in the real world of social interaction, resulting in poor quality "weak ties" on the internet; The effort involved in developing and managing these weak relationships displaces time for individuals to engage in high quality interactions with existing

offline partners[3]. However, other research asserts that social life online can have positive effects on personal well-being. A Stimulation Hypothesis[4] explained it that, nowadays people use social tools to do more with "acquaintance social", so online socialization helps non-loneliness individuals to improve the quality of their existing friendship offline. [5]. These conflicting arguments are yet to be resolved.

1.1 Usage of Instant Message VS Social Network Services

With respect to online interactions and loneliness, studies have yielded inconsistent results, highlighting the need for further research to clarify the association. Cheryl F. Gordon[6] attest that for college students, their loneliness depends on the types of internet use. Specifically, Using the Internet for coping purposes was significantly associated with depression and social anxiety, but for other purpose such as meeting people/information seeking/distraction are not significantly associated with those psychological consequences. Similarly, Robert Kraut[7] find that communicating online with close friends and family can have beneficial effects on psychological well-being as measured by declines in depression, loneliness and stress, and increases in perceived social support, mood, and life satisfaction. J Heo tested 5203 older adults (aged 65 years and older) and find that higher levels of Internet use were significant predictors of higher levels of social support, reduced loneliness, and better life satisfaction and psychological well-being among older adults[8].

In contrast, many other uses of the Internet, including using the Internet for information, entertainment and communicating online with weaker ties, do not have similar, positive associations with psychological wellbeing[7]. From these research, we can figure it out that, those who can enhance or get strong social ties on the internet can have beneficial effect on psychological consequence, but for those who use internet as an escaping method, too much online social is not good.

The tools we use to communicate can be categorized into two kinds: SNS (Social Network Services) and IM (Instant Message), which can foster different types of user behavior. People use SNSs for one-to-all communication, the latter account for a potentially very large audience, including both strong and weak ties. But people use IMs mainly for one-to-one communication, which is meaningful for the maintenance of strong ties[9]. We hypothesis that people who frequently use IMs will have a lower degree of loneliness than those who use SNSs more. For two reasons: one is that using IMs more can help people enhance their existed strong ties, the other is that, people who prefer SNSs more than IMs may have no one to talk to on IM so seek to get response from those potential audience on the SNS platform.

In China, Wechat has become a most prevalent on-line social tool, which has almost 9 hundred million daily activate people. It is a combination of IM and SNS, through its IM function, people can send messages to their friends online, through SNS function (named WechatMoments), people can post status and wait for others to comment. It's a good object to study the mechanism of online interactions and loneliness.

H1: the intensity of WechatMoments use is significantly related with loneliness; the intensity of Wechat IM use is not significantly related with loneliness.

1.2 Self-Disclosureon Social Network Services and Loneliness

The growing popularity of SNSs has demanded significant online information disclosure, self-disclosure has become an important activity that people do on SNSs. Conceptually speaking, broadcasting status updates/posts on social media that contain any form of self-information can be treated as self-disclosure [10]

In off-line situation, Scholars have defined self-disclosure as a behavior to reveal personal or private information about self that is generally unknown to others[11]. In private conversations, self-disclosure was supposed to be negatively related to loneliness in general, because greater amounts of disclosure information were often associated with more liking of the discloser when perceived as appropriate, (for review, see [12])and it promote the receiver to respond in a way of disclosure and reduce uncertainty. In other words, individuals tend to reveal themselves to people who self-disclose to them [12] it can promote relationships and thus reduce loneliness.

It can be supported in another researcher's definition that, self-disclosure is a type of communication through which individuals make themselves known to other people and, when others reciprocate by sharing revealing information that leads to intimacy and relational development[13]. In this way, the relationship between one's self-disclosure and loneliness is mediated by the responsible support he get in offline situation[14].like emotional support, instrumental support, information support and affectionate support. In Facebook, one person's self-disclosure input, such as postings, messages, or photos on his/her profile, can encourage another's disclosure in response to the first person's postings and photos, which in turn encourages the first person to disclose more, and so on. This reciprocal process of self-disclosure is expected to increase intimacy between Facebook users and reduce loneliness as well. However, compared to self-disclosure in traditional off-line one-to-one communication public, self-disclosures on social media have some unique properties. For example, public self-disclosure on SNS is broadcasted simultaneously to all the friends on-line[15]. People would not feel directed to, so they may not think it necessary to give a high-quality response. On the other hand, when you disclose highly intimate things on SNS platform, it is more likely to be perceived as inappropriate than discloses it privately[16]. We infer that people who disclose themselves on the SNS but didn't get the expected support may feel lonely instead.

What on earth is the relationship between online self-disclosure and loneliness and what is the mechanism? There already are some researches throwing light upon this, but findings are not consistent. Some recent studies indicated that browsing social media helps to enhance familiarity, creates awareness/knowledge of online contacts[17], and generates a feeling of closeness[18]. However, other researchers have found that more information about a person may decrease liking due to a higher level of perceived dissimilarity[19].It can be seen that, the relationship between online self-disclosure and loneliness needs deeper investigation. Indeed, self-disclosure is not a one-dimensional construct, it can be assessed by both quantity and quality. In studies of off-line self-disclosure, we can evaluate self-disclosure in five dimensions: amount, honesty, intent, control and negativity[20].

The amount dimension represents the quantity aspect of self-disclosure, while the other dimensions (i.e., how much honest, how much intended, and how much positive personal information are presented) reflect the quality aspect. We expect different relationships between different dimensions of self-disclosure and the degree of loneliness, as an online survey of 249 college students once showed that self-disclosure amount and positivity were positively associated with intimacy, while self-disclosure honesty and intent were not associated with intimacy[21]. Adolescents as well as college students counts a huge part of the online social group, it needs more research to focus on younger people.

Research about blogs has demonstrated that bloggers who engage in deeper levels of self-disclosure (i.e.,writing about their thoughts and feelings and sharing them with others openly and honestly) are more likely to receive social support and thereby experience higher levels of SWB[22]. We speculate that, self-disclosure on the SNSs will signal a need for support, hence will more or less change the likelihood of receiving support, which will ultimately change discloser's degree of loneliness. Thus, the social support may act as a mediating role between them. We use Chinese WechatMoments as the platform of the research, for it is the biggest SNS platform in China, people's social behavior on it is typical and stable.

H2: the amount, honesty, intent, control dimensions of self-disclosure on WechatMoments are negatively related with loneliness. The negativity dimensions of self-disclosure on WechatMoments are negatively related with loneliness.

H3: social support mediates the relationship between different dimensions of self-disclosure and loneliness.

2. METHOD

2.1 Sampling and survey administration

In order to test the hypotheses and answer the research questions, the current study distributed questionnaires at three public university in the capital of China. 98, 94 and 96 copies of questionnaires were sent out respectively in the three schools. A total of 273 questionnaires were returned, with a recovery rate of 94.79%. Except for the respondents who did not answer the questionnaire seriously, 250 were the remaining valid questionnaires (91.58% efficient).

Among the participants surveyed, 87 were males, accounting for 34.8% of the total; 160 were females, accounting for 64% of the total (3 did not fill in the sex). The average age of participants was 20.64 (SD = 3.55). All of the participants were Chinese.

2.2 Measures

   a) **Demographic Information:** self-compiled, including gender, age, grade, time used on Wechat, the number of Wechat friends.

   b) **Wechat IM Intensity:** 3 items adapted from the Facebook Intensity Scale developed by Ellison (2007)[23] in the study of Facebook, replace Facebook in the original scale with Wechat IM. Sample questions included: "Wechat IM has become part of my daily routine" Participants rated their agreement to these statements on a 5-point Likert scale, where 1="strongly disagree'' and 5="strongly agree''. This index was reliable (Cronbach's a=0.792).

   c) **WechatMoments Intensity:** 3 items adapted from the Facebook Intensity Scale developed by Ellison (2007)[23] in the study of Facebook, replace Facebook in the original scale with WechatMoments. Sample questions included: "I feel out of touch when I haven't checked WechatMoments for a while". Participants rated their agreement to these statements on a 5-point Likert scale, where 1="strongly disagree'' and 5="strongly agree''. This index was reliable (Cronbach's a=0.625).

   d) **Online self-disclosure:** 13 items adapted from Wheeless's (1976)[20] general situation self-disclosure questionnaire was used to measure the "amount", " honestly ", " negativity " and "intent" dimensions of online self-disclosure. Sample questions included: "my statements of my feelings on WechatMoments are usually brief"(amount dimension), "I usually disclose positive things about myself on WechatMoments" (negativity dimension). The disclosure situations are all phrased as WechatMoments. Participants rated their agreement to these statements on a 5-point Likert scale, where 1="strongly disagree'' and 5="strongly agree''. Cronbach's alpha for four dimensions were 0.814, 0.616, 0.777 and 0.832 respectively.

e) **Online social support:**3 items selected from Zimet's (1988)[24] Multidimensional Scale of Perceived Social Support were used to measure the perceived support from family, friends and significant others online. Sample items included:" I have friends/family/a special person with whom I can share my joys and sorrows on the WechatMoments", all of which had been translated into Chinese and back into English to insure accuracy. The instrument provides response options ranging from 1 to 7 (very strongly disagree to very strongly agree). Cronbach's alpha for the scale in this study was 0.894.

f) **Loneliness:** Loneliness was measured using the eight-item version of the UCLA Loneliness Scale(A short-form measure of loneliness)[25]. This scale consists of statements rated on a 4-point Likert-type scale from strongly agree ("1") to strongly disagree ("2"). The items were translated in Chinese and translated back in English for accuracy. Cronbach's alpha for the scale in this study was 0.741.

3. RESULTS

3.1 Descriptive Information

Participants reported spending about 1 hour a day on Wechat (including instant messenger and Moments) on average, posting one status on Moments about every 3-4 days, having about 147 Wechat Friends on average. All of the above variables have no significant difference for girls and boys (See Table 1).

Table 1: Summary Statistics for Wechat use

	total N=250 M(SD)	man n=87 M(SD)	woman n=160 M(SD)	t
frequency of updating status "In the past week, on average, approximately how many statuses do you update on WechatMoments?" 1=more than 5 every day, 2=about 3-4 every day, 3=about 1-2 every day, 4= about one every 2-3 days, 5=about one every 3-4 days, 6=about one every more than 5day.	5.08 （1.09）	5.04 （1.11）	5.11 （1.08）	-0.528
time spent on Wechat "In the past week, on average, approximately how many minutes per day have you spent on Wechat?" 1= less than 10 mins, 2 = 10–30 mins, 3 = 31–60 mins, 4 = 1–2 hours, 5 = 2–3 hours, 6 = more than 3 hours.	3.39 （1.45）	3.21 （1.46）	3.51 （1.44）	-1.584
numbers of Wechat friends "how many Wechat friends do you have in total?"	146.88 （88.81）	135.55 （83.66）	152.57 （91.08）	-1.419

Notes：$^{*}p<0.05$ $^{**}p<0.01$ $^{***}p<0.001$

3.2 Wechat use and loneliness

The hypothesis was confirmed that the intensity of Wechat IM use is not significantly related with loneliness, but the intensity of WechatMoments use is significantly related with loneliness (r=0.145, p<0.05)(see table 2)

Table 2: Correlations between Wechat use and loneliness

	Loneliness
Intensity of Wechat IM use	0.095
Intensity of WechatMoments use	0.145[*]

Notes：$^{*}p<0.05$ $^{**}p<0.01$ $^{***}p<0.001$,N=250

3.3 Online self-disclosure and loneliness

As shown in Table 3, there was no significant correlation between the Amount of self-disclosure and the sense of loneliness on the WechatMoments. There was a significant positive correlation between the negative self-disclosure and loneliness (r = 0.311, p <0.001); a significant negative correlation between intent of self-disclosure and loneliness (r = -0.296, p <0.001); a significant negative correlation between honesty and loneliness (r = -0.144, p <0.05). This suggests that people who feel lonelier tend to self-disclose more negative, unconsciously, and less honestly.

Table 3: Means, standard deviations and bivariate Correlations for Study Variables

Study variables	M	SD	1	2	3	4	5	6
1.Amount of self-disclosure	2.36	0.83						
2.Negativity of self-disclosure	1.97	0.81	0.182[*]					
3.Honesty of self-disclosure	3.39	0.78	0.095	-0.265[**]				
4.Intent of self-disclosure	3.94	0.84	-0.040	-0.259[**]	0.147[**]			
5.Control of self-disclosure	2.60	0.84	0.533[**]	0.064	0.199[*]	0.049		
6.Social support	5.77	1.19	-0.020	-0.335[**]	0.238[***]	0.368[**]	0.055	
7.Loneliness	2.01	0.47	0.005	0.357[**]	-0.208[*]	-0.360[**]	0.040	-0.356[**]

Notes：[*]$p<0.05$ [**]$p<0.01$ [***]$p<0.001$,$N=250$

3.4 Social support as a mediating role between online self-disclosure and loneliness

Based on the correlational results, we find that social support is significantly correlated with the negativity/honesty/intent dimensions and significantly and positively correlated with loneliness. Three mediational analyses were examined, testing whether social support mediated the link between their self-disclosure online and their loneliness. Negativity of self-disclosure is significantly related to social support and to loneliness, the same comes for the honesty and intent dimensions of self-disclosure. We specifically examined the negativity, honesty and intent path. According to Preacher and Hayes (2004)[26], mediation is demonstrated when the indirect effect is significant and the confidence intervals do not contain zero(indicating that the indirect effect differs significantly from zero). Considering these criteria, the indirect effect was significant for social support as mediators between negativity/honesty/intent dimensions of self-disclosure online and loneliness. We can see table 4 for standardized estimates and errors and confidence intervals for the significant indirect effects.

Table 4: Standardized estimates and errors and confidence intervals for mediational analyses

	a path(β,SE)	b path(β,SE)	c path(β,SE)	c' path(β,SE)	95% CI
Negativity-support-loneliness	(-1.401,0.264)	(-0.317,0.067)	(1.643,0.281)	(1.199,0.284)	0.235 to0.736
Honesty-support-loneliness	(1.122,0.281)	(-0.350,0.066)	(-0.991,0.303)	(-0.598,0.296)	-0.677 to -0.189
Intent-support-loneliness	(1.556,0.257)	(-0.276,0.067)	(-1.594,0.271)	(-1.165,0.282)	-0.736 to -0.191

4. DISCUSSIONS

4.1 Wechat usage in college students

Judging from the report results, university students spend a relatively large amount of time (an average of 1 hour every day) on Wechat. Although the Wechat using time is the approximate range of the subjects' own estimates, we can still see that Wechat occupies college students' daily life. There was no gender difference in the using time of Wechat, the number of friends, the number of Wechat friends, and the frequency updating statuses on the WechatMoments, indicating that the Wechat using habit for boys and girls are more consistent.

4.2 WechatMoments usage and loneliness in college students

The results showed that there was no significant correlation between the intensity of Wechat IM usage and the loneliness score, but a significant positive correlation exists between the intensity of WechatMoments (a one-to-all SNS platform) usage and loneliness. That is, the more frequently individuals use WechatMoments, the stronger they felt a sense of loneliness. It is believed that the relationship

between loneliness and self-disclosure is two-way[27], thus the results can be interpreted as "the lonelier the individual is, the more dependent they will be on the WechatMoments", or" those who are more dependent on WechatMoments are lonelier." For the first interpretation, we can see that, due to the special communication pattern of WechatMoments, people who cannot find someone to talk to in the offline life or on the IM platform, may turn to the "one-to-all" platform, where the rejection risk is low, and the self-disclosure do not need a specific one to take place. In a word, the lonelier people choose the WechatMoments to make up for the lack of response in the one to one situation. On the other hand, the heavy usage of WechatMoments would cause a sense of emptiness. WechatMoments is a one-to-all social platform, when people post status, a potentially large audience would see it, but no one of the audience feel the responsibility to give response, even there is response, the interactions would not come in time, causing the user feel ignored and lonely.

4.3 Self-disclosure on WechatMoments and loneliness

The study found that the amount of self-disclosure on the WechatMoments was not significantly related to loneliness. This is inconsistent with the expectation, which may be due to the fact that on a "one-to-all disclosure platform", a large number of individuals' self-disclosure may reveal personal privacy. Individuals with stronger awareness of privacy protection will not disclose too much on it. Therefore, there is no inevitable connection between the number of self-disclosures on the circle of friends and loneliness.

However, the negativity of self-disclosure was significantly positively correlated with loneliness. This is consistent with previous research on IM(one-to-one) chat platforms[28].It can be inferred that, individuals with high level of loneliness are more likely to show negative information on the WechatMoments than individuals with low loneliness, because they accumulate much dissatisfaction with themselves or others in daily life but have no one to pour out. At the same time, the negative content of self-disclosure from lonely individuals on the WechatMoments may not attract friends' interest, thus cannot get them a timely, positive and warm response, which aggravates the sense of loneliness that they are not concerned by others.

There was also significant negative correlation between honesty of self-disclosure and loneliness. In other words, individuals with low loneliness are more inclined to reveal their sincere thoughts, which is also consistent with the results of IM(one-to-one) chat platforms [28].In general, the lonelier individuals have poorer interpersonal trust [29]. They do not trust the people around them, nor do they like the people around them. This negative view about others may cause their self-disclosure on the WechatMoments not that honest. For individuals with less loneliness, they have stronger interpersonal trust and a higher evaluation of themselves and others [30], so they are more willing to conduct sincere and positive disclosure on WechatMoments. At the same time, their sincere and positive self-disclosure are more likely to attract the interest of friends, earning them a warm response, thus feeling accepted and cared for. As McKenna (2002)[31] found: Individuals who better demonstrate "true self" on the Internet can form intimate online relationships. Intimate online relationships make individuals feel less lonely.

This study also finds that the intent as well as control of self-disclosure on WechatMoments is also significantly negatively related to loneliness. That is, individuals with low loneliness are more aware of their own disclosure and control more. According to social penetration theory[32], if individuals want to establish a good intimate relationship, they need to consciously control their own degree of self-disclosure and gradually develop from shallow to deep. This means that higher quality interpersonal relationships require individuals to be more aware of self-disclosure. Individuals with more mature social skills can realize and control what they are talking about, so that they can get better quality human relationships and feel not alone.

4.4 The mediating role of social support between online self-disclosure and loneliness

Our results demonstrated that the support get online mediated the relations between some dimensions of self-disclosure and loneliness. These findings were consistent with previous literature focusing on off-line interactions, which proved our hypothesis.

Specifically, online social support can mediate the relationship between self-disclosure negativity and loneliness. It can also mediate the relationship between honesty and loneliness, as well as the relationship between intent/control and loneliness.

The self-disclosure negativity on WechatMoments influences loneliness through the partial mediating role of social support. The mediating effect accounts for 0.270 of the total effect. According to the direction of the mediating effect, the more negative self-disclosure is, the less social support obtained by individual, the lonelier they will be. Similarly, honesty influences loneliness through the partial mediation of social support. The mediating effect accounts for 0.397 of the total effect. The more honest self-disclosure is, the more social support they will get and the less loneliness they would get. Intent influences loneliness through partial mediating role of social support. The mediating effect accounts for 0.270 of the total effect. People who is conscious of their disclosure content will get more social support, thus feel not alone.

5. LIMITATIONS AND PROSPECTS

These results add to our understanding of the influencing factors on people's loneliness online from self-disclosure perspectives. We investigated the usage of Wechat (a prevalent chat tool in china, which has both IM and SNS functions) of college students, find that

Wechat occupied a large amount of students' life. Different dimensions of self-disclosure have different correlations with loneliness, and the social support received online play as a mediating role between self-disclosure and loneliness.

Although the findings bridged the existing gaps in the literature about the relationship and mechanism of self-disclosure on SNSs, several limitations should be considered. First, a major concern is the selection of participants. This study randomly selects college students from all grades as samples and fails to match the grades. The sample size of junior students is significantly more than that of other grades. The sample size of doctoral students is significantly smaller than that of other grades. Future studies may balance the selection of different grades of participants.The second point is the causal relationship between self-disclosure and loneliness on the Internet. Studies in offline situations have shown that between loneliness and self-disclosure, there is no determination of who is the dependent variable and who is the outcome variable. Future research may consider adopting a tracking method to confirm the independent variables.

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