DO FRIENDSHIP AND INTIMACY IN VIRTUAL COMMUNICATIONS EXIST? AN INVESTIGATION OF ONLINE FRIENDSHIP AND INTIMACY IN THE CONTEXT OF HIDDEN YOUTH IN HONG KONG

Gloria Hong-Yee CHAN, T. Wing LO

Do Friendship and Intimacy in Virtual Communications Exist?
An Investigation of Online Friendship and Intimacy in the Context of Hidden Youth in Hong Kong

Gloria Hong-Yee CHAN[1], T. Wing LO[2]

Abstract

This study uses "hidden youth" in Hong Kong as an example to investigate whether online friendship and virtual intimacy are present because these young people are commonly viewed as "socially isolated" and "lacking in social skills" but actually involve in extended Internet use to engage in social interactions. Using the data from 357 hidden youth participants, a paired t-test was performed to look for the significant differences in friendship quality and intimacy between online and offline interactions in different levels of friendship. Results show that the friendship quality of offline relationships is generally slightly higher than that of online relationships, while online friendships display a generally higher intimacy level than the offline relationships. This reflects the fact that friendship and intimacy can be developed in the virtual platform and are similar to the traditional interpersonal relationships.

Keywords: hidden youth, friendship quality, intimacy, online and offline, virtual communication.

Introduction

Although hidden youth are well-known as those who withdraw from society and stay at home for a prolonged period of time (Wong & Ying, 2006), most hidden youth (about 70%) use computers for various purposes such as making virtual friends (Wong & Ying, 2005). According to Wong and Ying (2005: 7), hidden youth surf the Internet as a means to "bridge the inner world…with the outside world" and to connect with outer society. This reflects the fact that

[1] City University of Hong Kong, HONG KONG. E-mail: chanhongyee2004@yahoo.com.hk

[2] City University of Hong Kong, HONG KONG. E-mail: sstwl@cityu.edu.hk

developing social connections and making friends are plausible on the virtual platform. Supported by McKenna, Green, and Gleason (2002), strong connections can be facilitated by computer-mediated communication, particularly among teenagers. Hence online friendship is likely to exist in which the depth of friendship and intimacy found in the virtual world can be comparable to that found in real life face-to-face relationships.

To argue that online friendship and intimacy exist, this study compares the friendship quality and level of intimacy of online friendships and offline friendships of hidden youth. This study suggests that friendship developed via online and offline interactions are quite similar. In support of our claims, literature about the concept of friendship as well as related studies about online and offline interactions will be reviewed as below.

Literature review

Definition of friendship

Friendship is known as one kind of interpersonal relationship and it has been a very popular research interest of scholars (Chan & Cheng, 2004). According to Wright (1984: 119), friendship is defined as "a relationship involving voluntary or unconstrained interaction in which participants respond to one another personally," or two persons "spontaneously seek the company of one another…in the absence of strong social pressures to do so"(Hartup, 1975: 11). Some researchers even stated that friendship "may involve varying types and degrees of companionship, intimacy, affection, and mutual assistance"(Hays, 1988: 395). Hence, from the above definitions, we see that friendship develops between two persons who voluntarily maintain interaction with each other; furthermore, friendship contains elements including emotional attachment and mutual support, which determine the degree of friendship. In the past, face-to-face interaction was the most prominent way for two persons to develop friendship. Along with the technological advancement in recent years, computer-mediated communication (McKenna et al., 2002) takes place on the Internet, including chat rooms, newsgroups (Chan & Cheng, 2004), and instant messaging (Gross, 2004; Lenhart, Madden, & Hitlin, 2005). Due to the difference in the nature of this form of communication from traditional face-to-face interaction, this type of communication will be discussed in the following section to see if friendship can also be developed on the virtual platform.

The plausibility of online friendships

Although the internet allows users to assess a large number of people who share similar interests (Wong, 2008), some scholars argue that it would be harder to develop close relationships in the virtual platform (Lea & Spears, 1995), due to a lower availability of social context cues including postures and gestures (Kiesler, Siegel, & McGuire, 1984). As suggested by the reduced social context cues model (Chan & Cheng, 2004), virtual communication could "filter-out" cues (Chan & Cheng, 2004: 306) such as emotional tones and gestures on the Internet platform. As such, some argue that computer-mediated communication decreases the risk of connecting with strangers and thus encourages weakly-tied relationships (Rice & Love, 1987). Some researchers also agreed by asserting that offline interactions are more likely to bring about a higher friendship quality than the online ones, since it allows a richer exchange of information (Sproull & Kiesler, 1986). On the other hand, some researchers support the view that online friendship are more fleeting than traditional friendships, as deception easily occurs on the Internet in the absence of social cues. Based on the physical distance between the two friends using computer-mediated communication, friendships end easily when individuals no longer perceive each other as ideal (Yum & Hara, 2006). This reflects the fact that online friendship is weaker when compared with the offline counterparts due to the lower level of commitment between online friends.

However, other scholars disagree with the supposed frailty of internet-based friendships. According to Jain, Gorantla, and Saxena (2011), online social networks (e.g., Facebook) allow the exchange of a variety of information including text, images, voice, and videos. In a study conducted by Hancock and Dunham (2001), it is found that there is a higher self-disclosure in online interactions as individuals can freely communicate in the absence of the communicating partner which causes them the feeling of being restrained. In another study which compares the frequency of self-disclosure between shy individuals in visually anonymous contexts (no webcams) and non-anonymous contexts (with webcams), it is found that individuals' frequency of self-disclosure is higher when they are in visually anonymous contexts (Brunet & Schmidt, 2008). Hence, it is seen that in the unique virtual environment, the exchange of personal information as well as both textual and non-textual cues is possible, which facilitates relationship development.

As self-disclosure fosters trust, commitment, intimacy (Park, Jin, & Jin, 2011), and feelings of satisfaction in a relationship (Altman & Taylor, 1973), it facilitates the growth of a relationship (Altman & Taylor, 1973; Derlega, Winstead, Wong, & Greenspan, 1987; Laurenceau, Feldman, & Pietromonaco, 1998; Laurenceau &

Kleinman, 2006; Patterson, 1984). Since self-disclosure is found in both online and offline relationships, both kinds of friendships are assumed to be able to grow, given sufficient exchange in messages as friends maintain the interactions (Chan & Cheng, 2004; Walther, 1995). Information sharing is the basis for inter-personal interactions (Mazilescu, Abdellaoui, & Gangloff, 2012). Summarizing from the above literature, we see that regardless of whether online or offline, friendship is assumed to grow due to the accumulation of information exchange. As self-disclosure promotes trust, companionship, intimacy, and feelings of satis-faction between the relational partners, friendship development is plausible and friendship quality can be enhanced.

The Present Study

The literature review supports the fact that virtual interactions can foster friendship development and intimacy. Friendship and intimacy are able to exist in the virtual world - just like face-to-face interactions - only the nature between the two environments is not the same. In the study, hidden youth in Hong Kong will be used as the targets of study to test this assumption because they are described as "being disengaged from connections, interactions" and "being excluded from social relations" (Wong & Ying, 2006: 66) but found engaging in prolonged computer use to chat with people online, making friends with people they do not know on the virtual platform, and even develop intimate virtual relationships without intending to meet their counterparts face-to-face (Wong & Ying, 2005). According to Wong and Ying (2005: 13), "this kind of virtual relationship can give them a sense of security and at the same time minimize the potential danger of being hurt or frustrated in the real world." This reflects the idea that these people may have developed face-to-face relationships with others before social withdrawal but the unfavorable experience brought about from these relationships make them prefer developing virtual relationships instead, to seek a sense of belongingness to avoid being isolated (Yeung & Fan, 2013). Since hidden youth is a group of individuals which have had relational experiences in both the face-to-face and the virtual contexts, comparison of the friendship development and intimacy between these two contexts is possible to see if the relationships de-veloped on these two contexts are truly different. Also, by using hidden youth in Hong Kong as targets of study, we are able to determine whether intimate friend-ships do exist online, as stated by Wong and Ying (2005).

To examine the existence of virtual friendship and intimacy, a paired t-test will be conducted to examine whether the scores for friendship quality and intimacy between online and offline interactions significantly differ from each other.

Method

Participants

There were originally 403 hidden youth included in this study, whose withdrawal period lied within the range of 6 to 96 months. 357 of them were valid for analysis meaning that the response rate was 88%. The failure to achieve a 100% response rate was due to the research design of this study. Each participant was randomly assigned to one of the four friendship levels among "Acquaintances," "Friends," "Good friends," and "Best friends," for subsequent data collection and analysis; when participants reported to have no friends, either online or offline, corresponding to the assigned friendship level the whole case was excluded from the analysis.

Hidden youth participants were contacted through the Internet platform. The sampling method adopted in this study is purposive sampling, which is particularly useful for approaching "unusual," deviant, or extreme cases (Patton, 1990: 182)—such as those hidden youth who are difficult to approach in social situations. To ensure the inclusion of appropriate cases, all hidden youth participants had to meet the following requirements: 1) being residents of Hong Kong; 2) falling into the age range of 12 to 30; 3) having been socially withdrawn for six months or longer, "typically withdrawing from most social activities and retreating into their living spaces" (Ogino, 2004: 120); and 4) not having any kinds of psychiatric illness or related treatment. Delineating the age range of hidden youth to be within 12-30 fits the definition of "youth" in Hong Kong. In addition, research excluded cases of psychiatry from real hidden youth cases due to the consideration that "hidden youth" is a phenomenon rather than a "problem" or "illness."

Procedure

Participants in this study needed to fill out a questionnaire containing the measurement scale of friendship quality and intimacy. Before the administration of the questionnaire, we first established four levels of relationship, namely "Acquaintances," "Friends," "Good friends," and "Best friends," based on the consideration that: 1) the level of friendship quality and intimacy in different friendship levels are different, regardless of the type of interactions; and 2) the comparison of the friendship quality and intimacy between online friendships and offline friendships is valid only when it is undertaken when the same friendship levels are defined. We then randomly assigned the friendship level for which each participant was responsible. As a result, each participant only provided data regarding one friendship level only, and not each of the four levels.

With reference to this friendship level, each participant was requested to think of two friends – one developed from online relationship and the other one developed from offline interactions – and provide information about the friendship quality and intimacy of the two friendships. Offline interactions are referred to interactions which are mainly developed in face-to-face contexts while the online ones were those that have never involved interpersonal face-to-face interactions.

Measurement scale

Friendship Quality Scale (Parks & Floyd, 1996) (α = 0.98). This scale measures the quality of friendship developed from both online and offline interactions. The *Friendship Quality Scale* has 18 items and includes seven domains: "Independence" (3 items) (i.e., the degree of mutual dependence felt and mutual influence); "breadth" (2 items) (i.e., the range of topics covered during conversations); "depth" (3 items) (i.e., the degree of self-disclosure which constitutes intimacy); "code change" (3 items) (i.e., the use of own language and symbols in the relationship between the two parties); "understanding" (2 items) (i.e., how well the two parties know each other); "commitment" (3 items) (i.e., the level of importance of the relationship in the eyes of both parties, as well as their willingness to maintain the relationship); and "network convergence" (2 items) (i.e., the degree of overlapping of social circles of the two people and the amount of mutual friends). The questionnaire adopts a 7-point scale (1= *strongly disagree*; 7 = *strongly agree*).

Miller Social Intimacy Scale (Miller & Lefcourt, 1982) (α = 0.98). This scale has 17 questions which assess the degree of satisfaction, trust, affection, understanding, and companionship in the friendship. Each of the items is rated on a 10-point scale (1 = *very rarely*; 10 = *almost always*) while the other eleven items are anchored at 1 = *not much* and 10 = *a great deal*.

Friendship levels. To assess online and offline friendships at different stages of friendship development, we developed the four friendship levels mentioned above ranging from "Acquaintance" to "Best Friends."

Analysis

In this study, the paired sample t-test assessed if there were any significant differences between the means of the two groups, online friends and offline friends, in friendship quality and intimacy. In the analysis, each of the four friendship levels was assessed in order to investigate friendship development in online and offline interactions. SPSS for Windows 20.0 was the tool used for the statistical analysis. $p = 0.05$ was the level determining the significance of results.

Results

Friendship quality and intimacy

Overall results

Table 1. *Means, Standard Deviations, and Paired T-Test Results for Overall Friendship Quality and Intimacy between Online and Offline Friends*

| | Pair | N | M | SD | Paired differences | | | | | |
					M	SD	SE	t	df	p
FQt	Online	357	3.42	1.54	-.14	.35	.02	-7.82	356	0.000
	Offline	357	3.56	1.72						
Independence	Online	357	3.32	1.86	-.21	1.00	.05	-3.88	356	0.000
	Offline	357	3.53	2.29						
Breadth	Online	357	4.18	1.50	.45	.92	.049	9.18	356	0.000
	Offline	357	3.73	1.80						
Depth	Online	357	3.80	1.83	.22	.87	.046	4.76	356	0.000
	Offline	357	3.58	1.91						
Code change	Online	357	3.02	1.52	-.58	.84	.044	-13.04	356	0.000
	Offline	357	3.60	1.83						
Understanding	Online	357	3.36	1.84	-.06	.86	.05	-1.29	356	0.000
	Offline	357	3.42	1.82						
Commitment	Online	357	2.84	1.50	-.49	.60	.03	-15.53	356	0.000
	Offline	357	3.33	1.78						
Network	Online	357	3.72	1.64	-.10	.52	.03	-3.68	356	0.000
	Offline	357	3.82	1.65						
Intimacy	Online	357	4.76	2.67	.02	.16	.01	2.46	356	0.014
	Offline	357	4.74	2.65						

Note. *FQT = Total friendship quality.*

Table 1 shows the paired t-test results regarding the overall friendship quality and intimacy between online and offline friends. Offline friendships have a significantly [t (356) = -7.82****] higher overall friendship quality ($M = 3.56$, $SD = 1.72$) than online friendships ($M = 3.42$, $SD = 1.54$) and in aspects including independence ($M = 3.53$, $SD = 2.29$), code change ($M = 3.60$, $SD = 1.83$), commitment ($M = 3.33$, $SD = 1.78$), and network convergence ($M = 3.82$, $SD = 1.65$). However, online friendships display higher means in breadth ($M = 4.18$, $SD = 1.50$) and depth ($M = 3.80$, $SD = 1.83$). Also, online friendships display significantly [t (356) = 2.46, $p = 0.014$] higher level of intimacy ($M = 4.76$, $SD = 2.67$) than offline friendships ($M = 4.74$, $SD = 2.65$).

The above results show that although there are significant differences observed between online friendships and offline friendships, the means of friendship quality and intimacy are similar. In order to have an in-depth investigation into this phenomenon, a paired t-test will be performed to examine friendship development

for both the online and offline interactions in detail. Results of the four levels of friendship will be illustrated.

The four different levels of friendship

In this section, the friendship quality and intimacy in online friendships and offline friendships will be examined in each level of friendship. In order to show the changes of friendship quality and intimacy in both types of friendships during the process of friendship development more clearly, graphical presentations are used and will be followed by textual illustrations. Tables which show the results of paired t-tests are in the appendix.
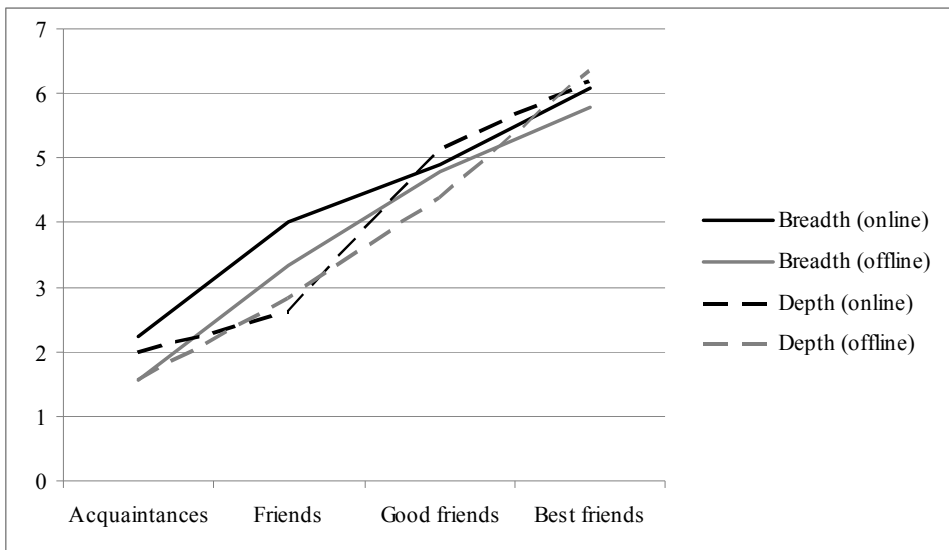
Breadth and depth

Figure 1. *The changes in breadth and depth of online and offline friendships as friendship develops*

As shown in Figure 1, the breadth and depth of both online and offline friendships increase as a friendship develops. Breadth in online friendships is significantly higher than the offline counterpart in all levels of friendship ($p< 0.05$), so as the depth in online friendships ($p< 0.05$), except the level of "Friends" in friendship development (Online: $M = 2.60$, $SD = 0.86$; Offline: $M = 2.82$, $SD = 0.96$) [t (99) = 4.02****]. This suggests that the friendship development from "acquaintance" to "best friend" in online interactions is mainly displayed by the domains of breath and depth.
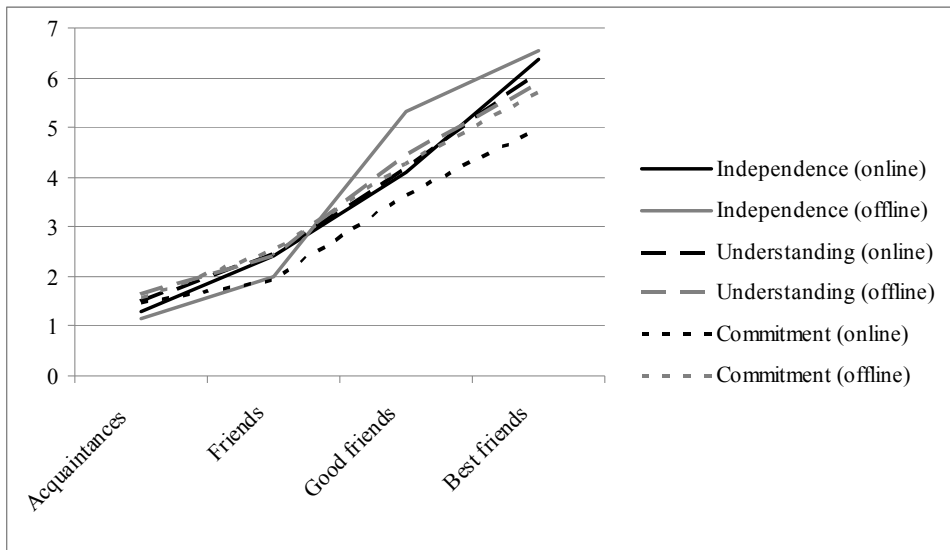
Independence, understanding, and commitment

Figure 2. *The changes in independence, understanding, and commitment of online and offline friendships as friendship develops*

As shown in Figure 2, independence, understanding, and commitment in both online and offline friendships increase as the friendship develops. In early levels of friendship (i.e., "acquaintances" and "friends"), independence in online friendships is significantly higher than the offline counterpart ($p < 0.05$). But as friendship develops to a deeper level (i.e., "good friends" and "best friends"), levels of independence in offline friendships are significantly higher than the online counterpart ($p < 0.05$). Regarding understanding, its level in online and offline friendships is similar. For commitment, its level in offline friendships is higher than the online one in all levels of friendship ($p < 0.05$). This reflects the fact that commitment plays an important part in the friendship development in offline interactions.

Code change and network convergence
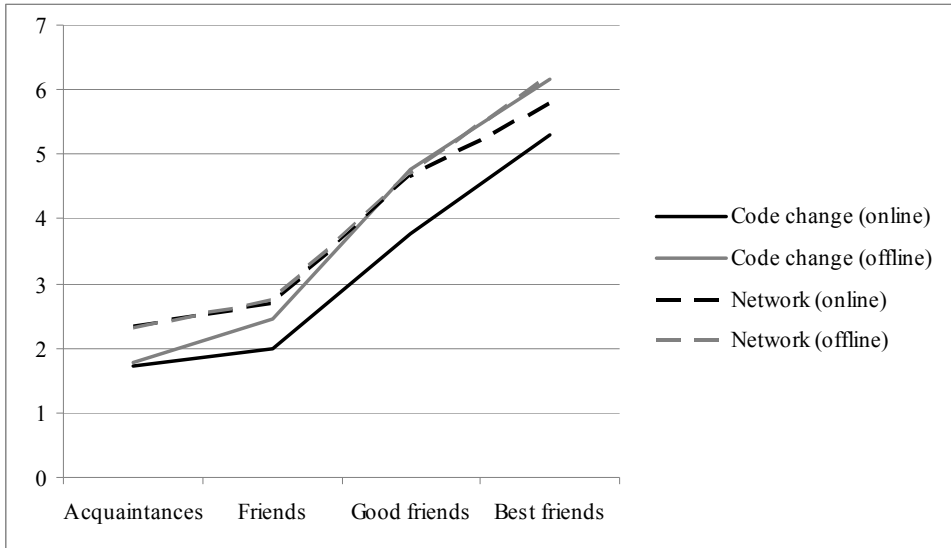
Figure 3. *The changes in code change and network of online and offline friendships as friendship develops*

As shown in Figure 3, code change and network in both online and offline friendships increase as the friendship develops. Code change in offline friendships is significantly higher in all levels of friendship ($p < 0.05$). For network convergence, its level in online and offline friendships is similar; however, as the friendship develops from "good friends" to "best friends," network convergence in offline friendships is higher than the online counterpart ("good friends": $p > .05$; "best friends": $p < .05$). This suggests that friendship development in offline interactions is mainly made through code change and network convergence.
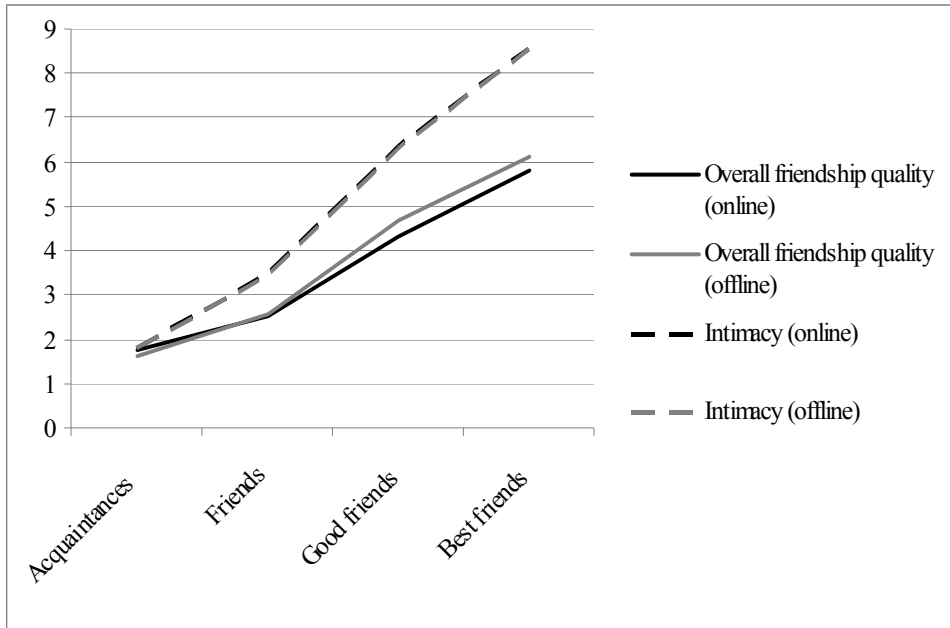
Overall friendship quality and intimacy

Figure 4. *The changes in overall friendship quality and intimacy of online and offline friendships as friendship develops*

As shown in Figure 4, both online friendships and offline friendships grow as the friendship develops in terms of friendship quality and intimacy. Speaking overall, offline friendships show a significantly higher friendship quality than the online friendships ($p < 0.05$). Regarding the four levels of friendship development, online friendships show higher friendship quality in the initial stage of friendship but, as the friendship grows, offline friendships tend to show higher quality. Besides, although online friendships display a slightly higher level of intimacy, it should be noted that online and offline intimacy are very similar in all levels of friendship levels with the exception of "good friends," in which online intimacy ($M = 6.35$, $SD = 0.96$) is significantly higher than the offline counterpart ($M = 6.30$, $SD = 0.91$) [$t (94) = 2.69***$]. There are no significant differences in online and offline intimacy for other friendship levels. This reflects the idea that the level of virtual intimacy is comparable to the offline counterpart.

Discussion

In summarizing the results it can be seen that: 1) for both online and offline friends, the friendship quality and intimacy increase; 2) comparing online and offline friendship in general shows that offline friendships have an overall higher friendship quality; however, online friendships have a higher level of overall intimacy than the offline counterpart; and 3) regarding the four levels of friendship which indicate friendship development, offline friends tend to show higher scores in friendship quality domains including "code change," "network convergence," and "commitment," whereas online friends show higher scores in friendship quality domains including "breadth" and "depth." These findings will be discussed below.

The results of this study oppose the notion asserted by some scholars that close friendships are more difficult to develop on an online platform (Lea & Spears, 1995) by showing that online intimacy is higher than offline intimacy. Although offline friendships generally have a higher overall friendship quality than online friendships, online and offline friendships display higher scores in different domains of friendship quality than the counterpart. From the results, we see that online friendships are able to develop with higher scores in "breadth" and "depth," in general. This is due to the uniqueness of the virtual environment. Anonymity, which refers to a disguise of personal identity, can help lower the risk of embarrassment and disappointment caused by fear of being rejected (Leung, 2002). Hence, it encourages self-disclosure for people who are fearful of social contexts where face-to-face interactions take place. Hidden youth, a stigmatized social group in Hong Kong, might feel free to disclose themselves more on the Internet platform not only because of their reclusive living patterns but also because of the social discrimination suffered in mainstream society (Wong & Ying, 2006). For offline friendships, it is observed that these relationships generally score higher in "code change," "network convergence" and "commitment" than their online counterparts. "Code Change" determines friendship quality as the evolvement of a specialized, distinctive language in the friendship fosters more efficient communication between the two friends and reinforces their relational identities (Parks, 1997). Also, "commitment" indicates friendship quality, since friendships develop as the two friends depend on each other more and become more committed to each other (Parks, 1997). Apart from the above, a point to be noted is that offline friendships have higher scores in network convergence and commitment than online friendships. This finding might be caused by the difference of the nature between the online and offline contexts. Despite some studies which suggest that the network convergence in online friendships is higher (Parks & Floyd, 1996), Wolak, Mitchell, and Finkelhor (2002) pointed out that more than half (two-thirds) of the teenager participants in their study introduced their close online friends to their offline social network. This reflects that, firstly, commitment is

associated with network convergence and, secondly, that network convergence is more likely to appear in the offline world. In fact, the uniqueness of the virtual environment might reduce the commitment and network convergence between the two online friends. Since the virtual world allows a process of self-selection in which personal information is revealed (Tidwell & Walther, 2002; Walther, 1995, 1996), the degree of privacy is higher than in the face-to-face world. Although commitment still exists in the virtual world (Wolak et al., 2002), network convergence might be lower in the virtual world than the offline contexts as the self-selection of personal information on the Internet platform (Tidwell & Walther, 2002; Walther, 1995, 1996) might obstruct the information exchange among mutual friends.

Despite that differences in friendship quality and intimacy between online and offline interactions were found, the degree of online friendship and intimacy is comparable to that in the face-to-face contexts. This suggests that virtual friendship and intimacy do exist. In contemporary society, in which the use of advanced technology is prevalent and virtual means of communication (including SNS and instant messengers which allow a variety of information exchange) enable the development of friendship and intimacy among users. Hence the importance of virtual means of communication in social contact cannot be denied as it is a current trend in society.

Limitations and future directions

One important limitation of this study originates from the sampling method adopted. Since the participants were located based on their relative proximity to the researchers, the sample might solely come from a single source (i.e. the Internet platform), which might diminish its ability to represent the entire population. Despite this limitation, our study made a significant contribution by acknowledging the significance of virtual platform in friendship and intimacy development with the use of hidden youth in Hong Kong as an example. Based on our findings, future studies can be conducted on hidden youth couples to investigate the feasibility of the development of intimate romantic relationships on the Internet as a separate trend from friendships.

Conclusions

Whether online communication can be comparable, or even replace offline communication, has long been argued (e.g., Derks, Fischer, & Bos, 2008; Sproull & Kiesler, 1986; Walther, 1992). Some scholars stated that the development of close relationships was difficult on the Internet due to limited exchange of social context cues (Kiesler et al., 1984; Lea & Spears, 1995), which implies that online

communication cannot replace offline ones. However, results of this study, though only applicable in the context of hidden youth who use CMC, show that the level of friendship quality and intimacy in online friendship is comparable to the offline counterpart, and intimate online friendship is perceived as existing. This differs from previous studies, which state that hidden youth are characterized by "being disengaged from connections, interactions" and "being excluded from social relations" (Wong & Ying, 2006: 66). Results of this study reflect that they are not in the state of social isolation or lacking in social skills (Chan & Lo, 2010), but they have social life, maintain social connections with others, and even are able to develop intimate relationships with others. Thus, it is suggested that a call for revision of the definition and descriptions of hidden youth is needed. According to the study by Chan & Lo (2013), hidden youth find a mismatch with the real-life context. They seldom find good friends at school, who can share common interests with them. Therefore, they turn to the online platform in which its anonymity nature allows the development of friendship based on common interests rather than social identity (Chen, 2002) to find friends with common interests. These notions support that hidden youth are not *socially isolated* or *lack of social skills*, and their social withdrawal is not caused by their social isolation or lack of social skills, but rather, they choose to find friends on the Internet platform due to the absence of significant others who can understand them and develop intimate relationships with them in their daily encounter.

The nature of friend-making in the Internet and face-to-face contexts is different (Pan, 2010). In traditional contexts, relationship development is based on the exchange of verbal and non-verbal information to foster intimacy (Bell & Daly, 1987); meanwhile, in the virtual world, the nature of *anonymity* facilitates individuals' creation and shift of identities to communicate with others, and the establishment of relationship is based on common interests (Pan, 2010). Due to the differences between the nature of the Internet and face-to-face contexts, it is observed that online friendship display different characteristics from the offline counterpart. Results of the study showed that online friendship scored higher in "breadth" and "depth" than the offline counterpart, while offline friendship scored higher in "commitment", "network convergence", and "code change" than the online counterpart. The higher level of "breadth" and "depth" in online friendship is rooted in the anonymous nature of the Internet interaction, through which people can freely communicate with each other without feeling constrained (Hancock & Dunham, 2001). For offline friendship, the higher level in "code change", "network convergence" and "commitment" is supported by the following literature. Regarding "commitment", it is stated that the lower "involvement, particularly commitment and seriousness - tended to be lower in cyberspace than in real space relationships" (Cornwell & Lundgren, 2001, p. 197), because the relationship in cyberspace allowed fewer exchange of non-verbal information (Parks & Floyd, 1996) and was perceived as "unrealistic" (Cornwell & Lundgren,

2001, p. 208). This suggests the higher level of commitment in offline friendships is due to the feeling that the relationship is "more real", with abundant information exchange that facilitates mutual understanding, whilst the nature of *anonymity* on the Internet hinders the building of trust in online friendships, which may cause people feel dreadful developing committed relationships online.

Regarding "network convergence", it is stated that people on the Internet can easily connect with others with similar backgrounds and attributes, owing to a vast number of Internet users (Bonebrake, 2002). This encourages people to "expand their social networks" (Chang, 2008, p. 6) and develop relationships (McKenna et al., 2002). Supported by Wang (2000), the relationships developed online allow expansion, which overcomes the geographical restrictions. This suggests that the expansion of social circle may likely cause less overlapping of social networks with others, that is, a lower level of network convergence. As stated by Fang (2004), traditional relationship-building heavily relies on classmates, friends, and colleagues. This reflects that traditional relationship-building is largely built upon mutual friends, which causes a higher level of network convergence in offline friendships. The concept of "code change" refers to the evolvement of distinctive language that facilitates communication among relational partners, which indicates quality of friendship (Parks, 1997). Since the development of online friendships is based on self-disclosure among users with similar background and interests (Tao, 2004), it may become less reliant on the code change which involves the development of unique language and forms of communication, as well as the ability to read each other's mind (Parks & Floyd, 1996). This may explain why a lower level of code change is found in online friendships.

To conclude, in this era of information, the communication and relationship-building patterns among people have changed and migrated from offline to online platforms (Fang, 2004). As discussed above, online friendships and offline, face-to-face friendships display differences in terms of communication patterns and relationship development. This does not hinder people from developing intimate relationships online, only that the context of developing relationships is different.

References

Altman, I., & Taylor, D (1973). *Social penetration: The development of interpersonal relationships.* New York: Holt, Rinehart, & Winston.

Bell, R. A., Daly, J. A., & Gonzalez, M. C. (1987). Affinity-maintenance in marriage and its relationship to women's marital satisfaction. *Journal of Marriage and the Family*, *49*, 445-454.

Bonebrake, K. (2002). College students' Internet use, relationship formation, and personality correlates. *CyberPsychology & Behavior, 5*, 551-557.

Brunet, P. M., & Schmidt, L. A. (2008). Are shy adults really bolder online? It depends on the context. *Cyberpsychology and Behavior, 11*, 707-709.

Chan, D. K. S, & Cheng, G. H. L. (2004). A comparison of offline and online friendship qualities at different stages of relationship development. *Journal of Social and Personal Relationships, 21,* 305-320.

Chan, H. Y., & Lo, T. W. (2010). *Hikikomori and the internet—Empowerment and disempowerment*. Hong Kong: City University of Hong Kong Press.

Chan, H. Y., & Lo, T. W. (2013). Family relationships and the self-esteem of hidden youth: A power dynamics perspective. *Journal of Family Issues*. doi:10.1177/0192513X14537479

Chang, Y. Y. (2008). *Motivations of online relationships and associations with personality, loneliness, social anxiety and self-disclosure* (Master's thesis). Graduate Institute of Information Management, National Taipei University of Education, Taiwan.

Chen, Y. L. (2002). The formation of cyberpeer and its impacts on youth socialization. *Journal of Cyber Culture and Information Society, 3*, 149-181.

Cornwell, B., & Lundgren, D.C. (2001). Love on the Internet: involvement and misrepresentation in romantic relationships in cyberspace vs. real space. *Computers in Human Behavior, 17*(2), 197-211.

Derks, D., Fischer, A. H., & Bos, A. E. R. (2008). The role of emotion in computer-mediated communication: A review. *Computers in Human Behavior, 24*, 766-785.

Derlega, V. J., Winstead, B., Wong, P., & Greenspan, M. (1987). Self-disclosure and relationship development: An attributional analysis. In Roloff, M. E., Miller, G. R. (coord.), *Interpersonal processes: New directions in communication research*, Thousand Oaks, CA: Sage, pp. 172-187.

Fang, Z. H. (2004). Online friendship building. *E-soc Journal,* 36. Retrieved September 1, 2014 from http://mail.nhu.edu.tw/Îsociety/e-j/36/36-31.htm

Gross, E. F. (2004). Adolescent internet use: What we expect, what teens report. *Journal of Applied Developmental Psychology, 25,* 633-649.

Hancock, J. T., & Dunham, P. J. (2001). Impression formation in computer-mediated communication revisited. *Communication Research, 28*, 325-347.

Hartup, W. W. (1975). The origins of friendships. In Lewis, M., Rosenblum, L. A. (coord), *Friendship and peer relations*, New York: Wiley, pp. 11-26.

Hays, R. B. (1988). Friendship. In Duck, S. W. (coord.), *Handbook of personal relationships: Theory, research, and interventions*, New York: Wiley, pp. 391-408.

Jain, I., Gorantla, M. C., & Saxena, A. (2011). *An anonymous peer-to-peer based online social network.* Proceedings of Annual IEEE India Conference: Engineering Sustainable Solutions.

Kiesler, S., Siegel, J., & McGuire, T. W. (1984). Social psychological aspects of computer-mediated communication. *American Psychologist, 39*, 1123-1134.

Laurenceau, J-P., Kleinman, B. M. (2006). Intimacy in personal relationships. In Vangelisti, A.L., Perlman, D. (coord.), *The Cambridge handbook of personal relationships*, New York: Cambridge University Press, pp. 637-653.

Laurenceau, J-P., Feldman, B. L., & Pietromonaco, P. R. (1998). Intimacy as an interpersonal process: The importance of self-disclosure, partner disclosure, and perceived partner responsiveness in interpersonal exchanges. *Journal of Personality and Social Psychology, 74*, 1238-1251.

Lea, M., & Spears, R. (1995). Love at first byte? Building personal relationships over computer networks. In Wood, J. T., Duck, S. W. (coord.), *Understudied relationships: Off the beaten track*, Newbury Park, CA: Sage, pp. 197-233.

Lenhart, A., Madden, M., & Hitlin, P. (2005). *Teens and techonology.* Washington, DC: Pew Internet & American Life Project.

Leung, L. (2002). Loneliness, self-Disclosure, and ICQ ("I Seek You") use. *Cyberpsychology & Behavior, 5*(3), 241-251.

Mazilescu, C. A., Abdellaoui, S., & Gangloff, B. (2012). Assessing the social value of personality information. *Revista de cercetare si interventie sociala, 38*, 91-106.

McKenna, K. Y. A., Green, A. S, & Gleason, M. E. J. (2002). Relationship formation on the internet: What's the big attraction?. *Journal of Social Issues*, *58*, 9-31.

Miller, R. S., & Lefcourt, H. M. (1982). The Assessment of Social Intimacy. *Journal of Personality Assessment, 46*(5), 514–518.

Ogino, T. (2004). Managing categorization and social withdrawal in japan: Rehabilitation process in a private support group for hikikomorians. *International Journal of Japanese Sociology, 13*, 120- 133.

Pan, L. R. (2010). *A study of the fifth and sixth grade student's online experience and awareness of sexual harassment* (Master's thesis). Graduate Institute of Educational Technology, National Ping Tung University of Education, Taiwan.

Parks, M. R. (1997). Communication networks and relationship life cycles. In Duck, S., Mills, R. S. L., Ickes, W., Dindia, K., Milardo, R. M., Sarason, B. R. (coord.), *Handbook of personal relationships (2nd ed.)*, Chichester, UK: Wiley, pp. 351- 372.

Parks, M. R., & Floyd, K. (1996). Making friends in cyberspace. *Journal of Communication, 46*(1), 80-97.

Park, N., Jin, B., & Jin, S. A. (2011). Effects of self-disclosure on relational intimacy in Facebook. *Computers in Human Behavior, 27*, 1974-1983.

Patterson, M. L. (1984). Intimacy, social control, and nonverbal involvement: A functional approach. In Derlega, V. J. (coord.), *Communication, intimacy, and close relationships*, New York: Academic Press, 105-132.

Patton, M. Q. (1990). *Qualitative evaluation and research methods (2nd ed.).* Newbury Park: CA: Sage Publications.

Rice, R. E., & Love, G. (1987). Electronic emotion: Socio-emotional content in a computer-mediated communication network. *Communication Research, 14*, 85-108.

Sproull, L., & Kiesler, S. (1986). Reducing social context cues: Electronic mail in organizational communication. *Management Science, 32*, 1492-1512.

Tao, H. J. (2004). *A research of the interaction of friend-making in internet: The illusion and reality of internet relationship* (Master's thesis). Graduate Institute of Communications, Shih Hsin University, Taiwan.

Tidwell, L. C., & Walther, J. B. (2002). Computer-mediated communication effects on disclosure, impression, and interpersonal evaluations: Getting to know one another one bit at a time. *Human Communication Research, 28*, 317-348.

Walther, J. B. (1992). Interpersonal effects in computer-mediated interaction. *Communication Research, 19*, 52-90.

Walther, J. B. (1995). Relational aspects of computer-mediated communication: Experimental observations over time. *Organizational Science, 6*(2), 186-203.

Walther, J. B. (1996). Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. *Communication Research, 23*(1), 3-43.

Wang, H. M. (2000). The proximity of online relationships. *National Taiwan University Journal of Sociology*, *28*, 117-154.

Wolak, J., Mitchell, K. J., & Finkelhor, D. (2002). Close online relationships in a national sample of adolescents. *Adolescence, 37*(3), 441-455.

Wong, S. W. (2008). *Online communication and real-life friendship quality: An interaction between reality and virtual world*. Unpublished paper, Department of Applied Social Sciences, City University of Hong Kong.

Wong, V., & Ying, W. (2005). *Young people and social withdrawal: A social exclusion perspective.* Paper presented at 7th International Conference on Asian Youth Issues: Opportunities and Challenges of Youth in New Era, Macao Special Administration Region, China.

Wong, V., & Ying, W. (2006). Social withdrawal of young people in Hong Kong: A social exclusion perspective. *The Hong Kong Journal of Social Work, 40*(1/2), 61-91.

Wright, P. H. (1984). Self-referent motivation and the intrinsic quality of friendship. *Journal of Social and Personal Relationships, 1*, 115-130.

Yeung, J. W. K., & Fan, C. P. S. (2013). Being socially isolated is a matter of subjectivity: The mediator of life meaning and moderator of religiosity. *Revista de cercetare si interventie sociala, 42*, 204-227.

Yum, Y. O., & Hara, K. (2006). Computer-mediated relationship development: A cross-cultural comparison. *Journal of Computer-Mediated Communication, 11*, 133-152.

Appendix: Paired T-Test Results for Friendship Quality and Intimacy between Online and Offline Friends in all the Four Friendship Levels

Table 2. *Means, Standard Deviations, and Paired T-Test Results for Friendship Quality and Intimacy between Online and Offline Friends ("Acquaintances").*

	Pair	N	M	SD	Paired differences			t	df	p
					M	SD	SE			
FQt	Online	94	1.76	0.24	.12	.21	.02	5.78	93	0.000
	Offline	94	1.63	0.25						
Independence	Online	94	1.31	0.41	.15	.49	.05	2.91	93	0.005
	Offline	94	1.17	0.32						
Breadth	Online	94	2.23	0.66	.65426	.60	.06	10.49	93	0.000
	Offline	94	1.57	0.70						
Depth	Online	94	1.99	0.57	.42	.71	.073	5.74	93	0.000
	Offline	94	1.57	0.57						
Code change	Online	94	1.71	0.47	-.09	.48	.049	-1.73	93	0.087
	Offline	94	1.79	0.67						
Understanding	Online	94	1.51	0.58	-.15	.81	.08	-1.85	93	0.068
	Offline	94	1.66	0.78						
Commitment	Online	94	1.47	0.54	-.09	.35	.04	-2.48	93	0.015
	Offline	94	1.56	0.73						
Network	Online	94	2.35	0.79	.03	.45	.05	0.69	93	0.494
	Offline	94	2.32	0.66						
Intimacy	Online	94	1.79	0.64	-.00	.144	.01	-0.21	93	0.834
	Offline	94	1.78	0.61						

Note. *FQt = Total friendship quality.*

Table 3. *Means, Standard Deviations, and Paired T-Test Results for Friendship Quality and Intimacy between Online and Offline Friends ("Friends").*

	Pair	N	M	SD	**Paired differences**			t	df	p
					M	SD	SE			
FQt	Online	100	2.51	0.30	-.07	.27	.03	-2.53	99	0.013
	Offline	100	2.58	0.41						
Independence	Online	100	2.41	0.48	.41	.71	.07	5.80	99	0.000
	Offline	100	2.00	0.76						
Breadth	Online	100	4.02	0.62	.67	.89	.67	7.57	99	0.000
	Offline	100	3.35	0.91						
Depth	Online	100	2.60	0.86	-.21	.53	.053	-4.02	99	0.000
	Offline	100	2.82	0.96						
Code change	Online	100	2.00	0.51	-.46	.70	.07	-6.55	99	0.000
	Offline	100	2.45	0.66						
Understanding	Online	100	2.45	0.82	.03	.73	.07	0.41	99	0.681
	Offline	100	2.42	0.94						
Commitment	Online	100	1.93	0.65	-.58	.59	.06	-9.75	99	0.000
	Offline	100	2.51	0.95						
Network	Online	100	2.70	0.84	-.06	.32	.03	-1.74	99	0.086
	Offline	100	2.75	0.76						
Intimacy	Online	100	3.46	1.11	.013	.11	.011	1.15	99	0.255
	Offline	100	3.44	1.08						

Note. *FQt = Total friendship quality.*

Table 4. *Means, Standard Deviations, and Paired T-Test Results for Friendship Quality and Intimacy between Online and Offline Friends ("Good Friends").*

	Pair	N	M	SD	M	SD	SE	t	df	p
						Paired differences				
FQt	Online	95	4.30	0.36	-.37	.35	.04	-10.27	94	0.000
	Offline	95	4.67	0.42						
Independence	Online	95	4.08	0.48	-1.23	1.06	.11	-11.35	94	0.000
	Offline	95	5.31	1.08						
Breadth	Online	95	4.90	0.58	.12	1.09	.11	1.04	94	0.301
	Offline	95	4.78	1.16						
Depth	Online	95	5.15	0.70	.76	.98	.10	7.52	94	0.000
	Offline	95	4.39	1.03						
Code change	Online	95	3.77	0.75	-1.00	.93	.09	-10.57	94	0.000
	Offline	95	4.77	0.76						
Understanding	Online	95	4.18	0.95	-.27	1.07	-.11	-2.49	94	0.015
	Offline	95	4.46	0.93						
Commitment	Online	95	3.64	0.74	-.62	.64	.07	-9.41	94	0.000
	Offline	95	4.26	1.11						
Network	Online	95	4.66	1.14	-.05	.60	.06	-0.79	94	0.435
	Offline	95	4.71	0.90						
Intimacy	Online	95	6.35	0.96	.05	.19	.02	2.69	94	0.008
	Offline	95	6.30	0.91						

Note. *FQt = Total friendship quality.*

Table 5. *Means, Standard Deviations, and Paired T-Test Results for Friendship Quality and Intimacy between Online and Offline Friends ("Best Friends").*

	Pair	n	M	SD	M	SD	SE	t	df	p
						Paired differences				
FQt	Online	68	5.81	0.39	-.31	.30	.04	-8.38	67	0.000
	Offline	68	6.11	0.34						
Independence	Online	68	6.38	0.46	-.16	.68	.08	-1.98	67	0.052
	Offline	68	6.54	0.56						
Breadth	Online	68	6.09	0.69	.29	.93	.11	2.62	67	0.011
	Offline	68	5.79	0.90						
Depth	Online	68	6.18	0.69	-.17	.82	.10	-1.73	67	0.088
	Offline	68	6.35	0.88						
Code change	Online	68	5.31	0.84	-.85	.90	.11	-7.77	67	0.000
	Offline	68	6.16	0.76						
Understanding	Online	68	6.13	0.65	.24	.68	.08	2.95	67	0.004
	Offline	68	5.89	0.78						
Commitment	Online	68	4.96	0.91	-.75	.57	.07	-10.94	67	0.000
	Offline	68	5.71	0.79						
Network	Online	68	5.78	0.97	-.43	.61	.07	-5.80	67	0.000
	Offline	68	6.21	0.77						
Intimacy	Online	68	8.57	0.98	.03	.21	.03	1.01	67	0.316
	Offline	68	8.54	0.97						

Note. *FQt = Total friendship quality.*