

CITY UNIVERSITY OF HONG KONG

Online Communication and Real-life Friendship Quality:

An Interaction between Reality and Virtual World

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by

WONG Sze Wing, Wing

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Abstract

Objective

The present research aimed at investigating the relationship between online communication and real-life friendship quality. Earlier finding tended to show a reduction hypothesis that online communication had a negative effect on real-life friendship quality due to the displacement of time used on real-life contact by the time used online and the weak ties formed online. Recent research supported stimulation hypothesis that online communication positively affected real-life friendship quality as online communication served as another mean to interact with preexisting friends and boost the formation of strong tie relationship. It was noted that to whom one mainly communicated with and what online communication tools one used should be account for the effect of online communication on real-life friendship quality.

Methods

There were 102 participants in the present study. Emails were sent to invite participants to fill out a questionnaire, which has adapted “Perceived breadth and depth of online communication”, “Network Relationship Inventory (NRI)”, and “Self-disclosure Index”, on a free online survey generator website. Moreover, they were requested to invite their friends for participating in this study. Snowball sampling was thus resulted.

Results

The results were consistent with stimulation hypothesis that having online communication with real-life friends more frequently would lead to better real-life friendship quality. It is noted that time spent with friends showed a strong effect on support, satisfaction, and disclosure, which influence real-life friendship quality.

Discussion

The present study provided insights on making use of online communication as an auxiliary tool for maintaining real-life friendship. Some limitations of the present study were identified and it is suggested further research may have to adapt to the changing nature of online communication due to the introduction of visual and auditory devices, and the development of other means of online communication.

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Chapter 1 - Introduction and Literature Review

Online communication is, undoubtedly, very common recently. It is found that people predominately go online for interpersonal communication through instant messaging (IM) and chat (Gross, 2004; Lenhart, Madden, & Hitlin, 2005), but some form new relationships with strangers they met online (Wolak, Mitchell, & Finkelhor, 2003). With the rapid integration of the online communication technologies into our daily life, it is essential to understand its social impacts. More specifically, will this kind of communication affect one's real-life friendship quality? The primary goals of this study are to find out the relationship between online communication and real-life friendship quality, as well as having some comparisons between computer-mediated communication and face-to face communication.

Online Communication

Online communication is defined as “private, largely text-based interpersonal communication in a dyadic or small-group setting using internet applications such as email, internet relay chat or instant messaging (IM)” (Peter & Valkenburg, 2006). There are two major concepts describing the possible influences of online communication on one's social relationships: reduction and stimulation hypotheses.

The reduction hypothesis has it that online communication would lead to displacement effect and the formation of “weak ties”, which are the superficial relationships with strangers (Kiesler, Seigel, & McGuire, 1984). Based on this hypothesis, one’s involvement in social activities and friendship quality in the real-life world will be reduced because of online communication (Kraut et al, 1998). This hypothesis is based on four assumptions: (a) the internet motivates one to form superficial online relationships with strangers who met online; (b) superficial online friendships, when compared to real-life friendships, are less beneficial; (c) interacting with strangers online will displace and reduce the time spent with real-life friends (Valkenburg & Peter, 2007b), (d) therefore, online communication is said to be reducing friendship quality in the reality.

The reductive effect of online communication can be further explained by the “reduced social context cues model”, which is proposed by Kiesler, Seigel, & McGuire (1984). This model holds that computer-mediated communication (CMC) is inferior to face-to-face (FTF) communication because non-verbal cues like emotional tones and gesture are unavailable in CMC, resulting in more distance in CMC than in FTF communication. Besides, as CMC provides access to a wide interaction with many people who share common interests and hobbies, it is suggested that the reduced social context cues of CMC lessens the risks of interacting with strangers and thus leads to “weak tie” relationships (Rice & Love, 1987; Sproull & Kiesler, 1986).

Rooted on reduction hypothesis, it is suggested that online communication might encourage people to spend more time alone facing the computer, chatting online with strangers and forming superficial friendships with them. This occurs at the expense of real-life interactions and companionship with real-life friends and family members (Putnam, 2000, p. 179). CMC, therefore, will displace FTF conversations in the real-life world (Cummings, Butler, & Kraut, 2002).

The popular applications of online communication that encourage “weak ties” share some similarities: they provide public spaces that allow people gather around, meet each other, communicate, observe others communicating, and form new relationships with others (Subrahmanyam, Greenfield, Kraut, & Gross, 2002). It helps create a “network society” which enables people to find similar others across time and place (Mesch & Talmud, 2006). Some online services that promote the formation of “weak tie” relationships include social-networking sites (SNS), chat rooms and message/bulletin boards.

On the contrary, the stimulation hypothesis suggests that online communication would enhance the relationships with others. This hypothesis is initially developed to explain relationship formation among strangers (McKenna, Green, & Gleason, 2002), but at present it is applicable to relationship maintenance and the recent research focus on online communication among preexisting friends (e.g. Grinter & Palen, 2002; Leung, 2002; Schiano et al, 2002; Valkenburg & Peter, 2007a; Valkenburg & Peter, 2007b). According to

stimulation hypothesis, online communication is used to keep up with preexisting friends (Gross, 2004) and will stimulate one's closeness to existing friends (Valkenburg & Peter, 2007b).

The stimulation hypothesis is based on the following assumptions: (a) the reduced visual and auditory cues of CMC encourage self-disclosure more easily when compared with FTF communication in the real life (McKenna & Bargh, 2000); (b) intimate self-disclosure is an crucial predictor of reciprocity, trust, liking, and caring (Collins & Miller, 1994); (c) as a result of the above two assumptions, CMC facilitates the formation of "strong ties", especially among adolescents (McKenna et al, 2002), and stimulates the real-life friendships with preexisting friends.

In fact, the unique features of online communication, like anonymity and lack of "gating features", facilitate the ease of self-disclosure and the formation of "strong ties" (McKenna & Barge, 2000; McKenna et al, 2002). Moreover, Utz (2000) argued that the reduced social context cues could be replaced by the use of paralinguage, which are emoticons such as smileys, to express emotions and reveals gesture. Thus, besides FTF communication, CMC is an effective communication tool for interacting with friends as CMC facilitate self-disclosure with the person they communicate.

It is found that online communication is positively related to an individual's size of social circle and the frequency of FTF interactions with preexisting friends (Kraut et al, 2002).

The most common online communication technologies that promote “strong ties” and stimulate friendship quality are instant messaging (IM), “I seek you (ICQ)”, and other messaging services.

The reduction hypothesis and stimulation hypothesis both yield great support from various research findings. However, it is found that the studies which show reductive influences on real-life friendships were conducted at the earlier stage of the internet and the communicating target is mainly strangers who met online (e.g. Kiesler et al, 1984; Katz & Aspden, 1997; Kraut et al, 1998; Mesch & Talmud, 2006). Recent research was more consistent with the stimulation hypothesis (e.g. Baym, Zhang, & Lin, 2004; Gross, 2004; Kraut et al, 2002; Valkenburg & Peter, 2007b). It is noted that the inconsistent findings are depending on whom an individual communicate with and what online communication services one is using. It can be concluded that instant messaging services (IM) are related to “strong ties” as IM is commonly used to keep up and interact with preexisting friends; while social-networking services (SNS) are associated with “weak ties” as SNS is mainly used to meet strangers online.

Time Spent with Real-life Friends (Companionship)

Time spent with friends is found to be a mediator between internet communication and the quality of friendships (Valkenburg and Peter, 2007a). Reduction hypothesis holds that

the time spent on online communication was mainly with strangers and would replace the time spent with real-life friends. Friendship quality is worsened as a result. However, stimulation hypothesis has it that the time spent on online communication was mainly with preexisting friends. So the time spent on online communication is the additional time that spent with friends. Online communication becomes a tool for maintaining preexisting friendships in the real world. Therefore, there is a positive effect on friendship quality.

Friendship Quality

Friendship is reciprocal, voluntary relationship based on affection (Hartup, 2000). Friendship quality can be operationalized in a dimensional and a typological aspect (Hartup, 2000). From a dimensional perspective, friendship quality is divided into positive and negative interactions (Berndt, 1996; Furman, 1996). The positive interactions deal with the functional nature of the resources exchanged, while the negative interactions deal with the structural nature of the interdependency (Furman & Buhrmester, 1985). Examples of positive interactions are support and satisfaction, while examples of negative interactions are conflict and antagonism. From a typological perspective, self disclosure is an indispensable part of friendship quality as it predicts the central characteristics of friendship such as trust and reciprocity (Mesch, 2005).

Both dimensional and typological perspectives will be taken into account in the present study. Firstly, support is a main indicator of positive interactions among friends. The theory of social provisions (Weiss, 1974) suggests that individuals seek specific social provisions or types of social support in their relationships with others. Secondly, the degree of satisfaction in a relationship directly indicates how good a relationship between friends is. Thirdly, interpersonal relationships not only develop along a dimension of warmth, but also along the dimension of conflict (Furman & Buhrmester, 1985; Wiggins, 1979). Conflict reflects the negative interaction among friends. Lastly, self-disclosure indicates how deep a relationship is. The social penetration theory (Altman & Taylor, 1973) has it that the level of social penetration (i.e., self-disclosure) increases as relationships develop. In other words, people feel closer to their friends as they disclose more intimate, personal information about themselves. Therefore, good friendship quality is indicated by a relationship that is high in support, high in satisfaction, low in conflict, and high in self-disclosure.

Perceived Breadth and Depth of Online Communication

It is found that people's perceptions of the characteristics of media significantly affect how they use and benefit from these media (Carlson & Zmud, 1999). Peter and Valkenburg's (2006) study shows that people who communicated more on the internet tended to perceive online communication as boarder and deeper than FTF communication. Thus, the perceived

breadth and depth of online communication will affect one's usage of online communication.

In the present study, the effect of perceived breadth and depth of online communication on the usage of online communication will be examined.

Comparisons between CMC and FTF Communication

Social penetration theory (Altman & Taylor, 1973) holds that relationships develop as the level of social penetration increases. In general, as relationships develop, the communication will become less superficial and involving more deeply personal topics. This process can be similar in both CMC and FTF communication. For example, Yum and Hara (2006) have found significantly more similarities than differences between CMC and FTF communications in self-disclosure. Self-disclosure was found to be positively associated with relationship quality in both CMC and FTF communications.

However, it is found that there is a difference in the duration of friendships between CMC and FTF communication. For instance, Parks and Roberts' (1998) study reported that the friendships formed in CMC are shorter lasting than that in FTF communication. Due to limited social cues and the absence of non-verbal displays, deception and unrealistic idealization is common in this physically distance relationship that formed online. Online friends may break up more easily when they perceive the others do not meet their ideals or expectations in restricted CMC (Yum & Hara, 2006).

It is noted that a clear and sharp line may not be drawn between online and offline relationship (Parks & Floyd, 1996). Relationships that began online rarely stay there and may “migrate” to other settings like the telephone, the postal service, or FTF communication. So it is not surprising that network convergence occurs as online relationships develop into offline contact, further diffusing the boundary between CMC and FTF communication.

Age and Sex Influences

Studies investigating age and sex influence on online communication, perceived breadth and depth of online communication, and friendship quality are limited. For online communication, it is found that there is a positive relationship between age and online communication (Lenhart et al., 2005; Valkenburg & Peter, 2007b) but a slight gender differences on online communication (Gross, 2004; Lenhart et al, 2005; Valkenburg, Schouten, & Peter, 2005; Valkenburg & Peter, 2007b). For the perceived breadth and depth of online communication, research shows that age is negatively related to perceived online breadth (Peter & Valkenburg, 2006; Valkenburg & Peter, 2007b) and there is a curvilinear relationship between age and perceived breadth (Valkenburg & Peter, 2007b). A sex difference is unclear. For friendship quality, women and older people would have closer friendships than men and younger people (Buhrmester & Furman, 1987; McNelles & Connolly, 1999).

Summary of Hypotheses

The reductive and simulative effects of online communication are highly dependent on the communicating tools an individual uses and his or her main communicating target, the level of self-disclosure, perceived breadth and depth of online communication, and also mediated by the time spent with friends.

Regarding what kind of communicating tools one uses will affect the communicating target, the first set of hypotheses is as follows:

Hypothesis 1a: People communicate with real-life friends more in instant messaging (IM) than in social-networking services (SNS).

Hypothesis 1b: People communicate with online friends more in social-networking services (SNS) than in instant messaging (IM).

And regarding with whom an individual frequently communicates will affect their friendship quality with preexisting real-life friends, hypothesis 2a is made based on stimulation hypothesis and hypothesis 2b is made based on reduction hypothesis to test both hypotheses:

Hypothesis 2a: People who always interact with their real-life friends through online communication will have better real-life friendship quality.

Hypothesis 2b: People who always interact with strangers they met online via online communication will have a negative effect on real-life friendship quality.

The time spent with friends act as a mediator between online communication and real-life friendship quality. And it is suggested that:

Hypothesis 3: People who spent more time with real-life friends will have better real-life friendship quality

As the perceived breadth and depth of online communication is found to affect the usage of online communication, it is hypothesized that:

Hypothesis 4: People who perceive computer-mediated communication (CMC) as more effective than face-to-face (FTF) communication in the breadth and depth of communication will spend more time on online communication.

Some comparisons between computer-mediated communication (CMC) and face-to-face communication (FTF) are made. The following hypotheses are set up.

Hypothesis 5: people will disclose more when they have a longer duration of friendships, no matter in the reality or online.

Hypothesis 6: The duration of friendships is shorter lasting in computer-mediated communication (CMC) than in face-to-face (FTF) communication.

The age and sex effect on online communication, the perceived breadth and depth of online communication, as well as friendship quality are explored in the present study as prior research about them is limited. A research question is set up:

RQ1: How would (a) age and (b) sex influence online communication, friendship quality, and the perceived breadth and depth of online communication?

Chapter 2 - Methodology

Participants

The survey was conducted among 102 participants (34% men and 66% women). They were in the age groups ranging from “less than 12” to “46-55” ($M=19.31$, $SD=6.24$). Of those 102 participants, 85% were from Hong Kong/Macau (China), 8% were from Mainland China, 2% were from Britain, 2% were from USA, and the rest (3%) were from other countries. Most of them (41%) were studying University/college, while some of them were studying secondary/high school (junior, 27%; senior, 29%; others, 3%). The participants reported their duration of using online services ranged from 1 to 20 years ($M=7.73$, $SD=2.931$). Most of the participants reported having online communication for about 2 hours every day (instant messaging: $M=3.4$, $SD=3.31$; social-networking services: $M=.79$, $SD=1.21$). It was found that they most often used personal computers at home for online services, but computers at public places and laptops were also quite common. Multitasking was very common during instant messaging (100%) and using social-networking services (73%). About 34% of participants indicated having real-life contact with friends they met online.

Materials

Perceived breadth and depth of online communication scale.

The “Perceived breadth and depth of online communication scale” was constructed by Peter

and Valkenburg (2006). It consisted of nine items all together, which were adapted in the present questionnaire, with four items measuring one's perception of the breadth of communication and five items measuring one's perception of the depth of communication. One of the items in perceived breadth of communication is "talk more easily about different topics". The remaining three items dealt with the ease of changing topics, the extent to hear new information, and the extent to learn about different topics. The following is the example of perceived depth of communication: "talk more easily about my inner feelings". The remaining four items dealt with talking about secrets, concerns, being in love, and sex. The participants were required to choose among "*CMC better* (computer-mediated communication is better)", "*FTF better* (face-to-face communication is better)" or "*the same* (computer-mediated communication is the same as face-to-face communication)" based on each item. Both the breadth and depth items yielded high reliability: the four items in perceived breadth obtained a Cronbach's alpha of .835, while the five items in perceived depth obtained a Cronbach's alpha of .847. This scale is shown in Appendix A.

Network of Relationships Inventory (NRI).

Revised version of Furman and Buhrmester's (1985) Network of Relationships Inventory (NRI-R) was used. This measure, including at least 10 subscales in the most common version, provided explicit comparisons across relationships. The satisfaction, support, conflict subscales of NRI were selected as the measures of real-life friendship quality. There were

three items in each subscale. Some example items were: “How satisfied are you with your relationship with this person?” (satisfaction), “How much do you turn too this person for support with personal problems?” (support), and “How much do you and this person get upset with or mad at each other?” (conflict). In addition, the companionship subscale of NRI was used as a measure of time spent with friends. One of the items was “How much free time do you spend with this person?” Participants were required to respond on a 5-point Likert scale ranged from “*never / none / extremely unsatisfied / very poor (1)*” to “*always / a lot / extremely satisfied / very good (5)*”. They were asked to rate on these four subscales in relationships with the most important friends in each of the following groups: (a) same-sex friend in reality, (b) opposite-sex friend in reality, (c) online same-sex friend, and (d) online opposite-sex friend. These four friends are represented by friend A, B, C, and D respectively. The internal consistency of each of the subscales was computed for both the real-life friends and online friends and the results were summarized in Table 1. The Cronbach’s alpha ranged from .767 to .942, which were of high reliability. The items adopted from NRI are shown on Appendix B.

Table 1

Reliability Test on the Subscales of NRI

	Number of items	Cronbach's alpha	
		real-life friends (A & B)	online friends (C & D)
Satisfaction	3	.837	.918
Support	3	.767	.942
Conflict	3	.882	.911
Companionship	3	.820	.909

Self-disclosure Index. Self-disclosure index was developed by Miller, Berg, and Archer (1983). The index contained 10 items. Example items are “my personal habits” and “my close relationships with other people”. Participants were required to rate their extent of self-disclosure on a 5-point Likert scale ranged from “*never* (1)” to “*always* (5)” for each of the items in relationships with friends A, B, C and D as mentioned above. The internal consistency of the index was computed for both the real-life friends (Cronbach's alpha=.951) and online friends (Cronbach's alpha=.969), which are of high reliability. The Self-disclosure Index can be found in Appendix C.

Procedure

From January to April, 2008, the questionnaire was written and made available online at a free online survey generator website my3q.com (See Appendix D). This set of questionnaire consisted of five parts: (1) internet using instant messaging (IM) and social networking services (SNS), (2) an adapted version of “perceived breadth and depth of online communication” (Peter and Valkenburg (2006), (3) a revised Network of Relationship Inventory (NRI-R) (Furman and Buhrmester, 1985), (4) Self-disclosure Index (Miller, Berg, & Archer, 1983), and (5) participants’ demographic information. Participants were required to answer all the questions before submitting their results.

E-mails were sent to invite friends to fill out the questionnaires online. The links of the questionnaire and an indication about forwarding these links of questionnaire to their friends were included in the e-mails. As a result, snowball sampling was used in this study.

Chapter 3 - Results

To examine if there were differences with whom participants communicate more in IM and SNS, paired-sample t-tests were conducted. The frequencies of interacting with real-life friends in IM and SNS were compared. Significant differences were found: $t(101) = 7.46$, $p < .001$. The mean differences indicated the frequencies of interacting with real-life friends in IM ($M=3.9$, $SD=1.05$) was greater than in SNS ($M=2.98$, $SD=1.39$). As a result, people communicate more with real-life friends in IM than in SNS.

Moreover, the frequencies of interacting with online friends in IM and SNS were compared. The result showed statistically significant differences: $t(101) = 4.5$, $p < .001$. However, the mean differences indicated the frequency of interacting with online friends in IM ($M=2.57$, $SD=1.20$) was greater than in SNS ($M=2.08$, $SD=1.20$). So it is found that people communicate more with online friends in IM than in SNS, which contradicts hypothesis 1b.

To test if the frequencies of interacting with real-life friends or online friends through online communication would affect real-life friendship quality, Multivariate analysis of variance (MANOVA) was conducted. The frequency of interacting with real-life friends through online communication was independent variable, and the four friendship quality subscales (disclosure, conflict, satisfaction, and support of real-life friends) were dependent variables. Multivariate greatest characteristic root test was significant on disclosure, conflict,

satisfaction, and support of real-life friends: $F(4, 97)=2.808, p<.05, \eta^2=.104$. Table 2 summarized the results. It could be concluded that people who always have online communicate with their real-life friends would have better real-life friendship quality.

Table 2

Means, Standard Deviations, F-test, and Effect Size for Disclosure, Conflict, Satisfaction, and Support of Low, Middle and High Interaction Group with Real-life Friends Online

	Interaction with real-life friends						F	η^2
	Low		Middle		High			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Friendship quality								
Disclosure	2.93	.98	3.45	.85	3.42	.89	3.280*	.062
Conflict	2.04	.83	2.44	.81	2.40	.97	1.968	.038
Satisfaction	3.81	.75	3.87	.66	4.02	.83	3.160*	.060
Support	2.78	.81	3.40	.82	3.36	.90	5.233**	.096

* $p<.05$

** $p<.01$

The MANOVA conducted in which the frequency of interacting with online friends through online communication was independent variable, and the four friendship quality subscales were dependent variables. Multivariate tests were not significant on disclosure,

conflict, satisfaction, and support of real-life friends. Thus, the frequency of interacting with online friends through online communication has no effect on friendship quality.

In order to inspect whether time spent with real-life friends would influence friendship quality, MANOVA was conducted in which time spent (companionship) with real-life friends was independent variable, and the four friendship quality subscales were dependent variables. Multivariate greatest characteristic root test was significant: $F(4,97)=24.298, p<.001, \eta^2 =.50$. Table 3 summarized the results. It was found that people who spent more time with preexisting friends will have better real-life friendship quality, which was shown in Figure 1. The partial η^2 reflects considerable relationships between the time spent with friends and real-life friendship quality subscales. The strongest effect was found on Support (46%), followed by Satisfaction (32%) and Disclosure (29%).

Table 3

Means, Standard Deviations, F-test, and Effect Size for Disclosure, Conflict, Satisfaction, and Support of Low, Middle and High Companionship with Real-life Friends Online

Friendship quality	Companionship with real-life friends						<i>F</i>	η^2
	Low		Middle		High			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Disclosure	2.68	.87	3.48	.82	3.82	.65	19.723**	.285
Conflict	2.00	.74	2.49	.87	2.49	1.00	3.837*	.072
Satisfaction	3.43	.70	3.85	.47	4.36	.49	23.680**	.324
Support	2.52	.65	3.25	.71	3.95	.61	42.878**	.464

* $p < .05$

** $p < .001$

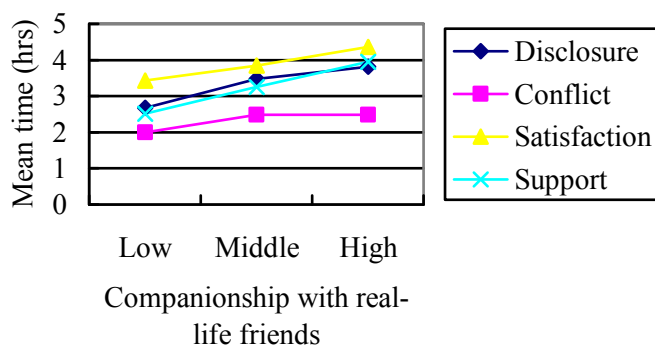


Figure 1. Mean time spent with real-life friends for sub-items of friendship quality

Independent t-tests were conducted to investigate how the perceived effectiveness in breadth and depth of communication in CMC and FTF would affect the time spent on online communication (both IM and SNS). Significant differences were found on talking about different topics, inner feelings, and being in love. The results were summarized in Table 4.

Table 4

Summary Table of Independent t-test

	CMC		FTF		
	M	SD	M	SD	
Time spent on IM					
Talk more easily about different topics (breadth)	2.38	1.12	1.91	1.07	$t(62)=1.70\#$
Talk more easily about my inner feelings (depth)	2.32	1.17	1.85	1.09	$t(69)=1.735\#$
Talk more easily about being in love (depth)	2.38	1.15	1.80	1.06	$t(75)=2.229^*$

$p < .05$ (one-tailed)

* $p < .05$ (two-tailed)

To inspect whether the duration of friendships would influence self-disclosure in CMC and FTF communication, one-way analysis of variance (ANOVA) was conducted. For CMC, the test of the duration of online friendships was significant on self-disclosure towards online friends: $F(1,99)=17.194$, $p < .001$. For FTF, the test of the duration of real-life

friendships was also significant on self-disclosure towards real-life friends: $F(1,99)=11.529$, $p<.001$. As a result, the duration of friendships will affect the degree of self-disclosure and this applies to both the real-life and online world.

In addition, paired-sample t-test was carried out to examine the differences between the duration of online and real-life friendships. The result was significant: $t(101)=11.516$, $p<.001$. The mean differences indicated that the duration of real-life friendships ($M=4.76$, $SD=1.53$) is much greater than the duration of online friendships ($M=2.41$, $SD=1.64$). It showed that the duration of friendship in CMC is shorter lasting than in FTF communication.

Furthermore, MANOVA was conducted to investigate the influence of age on online communication, perceived breadth and depth of communication, and real-life friendship quality. Only some of the results were significant, which are summarized in Table 5. The impacts ranged from 11% to 23%. The strongest effect was shown on time spent on instant messaging, (23%). The mean differences showed a curvilinear relationship between time spent on IM: younger people tends to spend more time on IM, but the time spent on IM decrease with age but increase dramatically in late adulthood.

Table 5

Means, Standard Deviations, F-test, and Effect Size for Items in Perceived Depth (Secrets, Inner Feelings, Concerns, Being in Love, Sex), Time Spent on Instant Messaging (IM), and Items in Friendship Quality (Conflict and Disclosure) of Different Age Groups

Items	Age groups								F	η^2
	12-18		19-25		26-35		36-48			
	M	SD	M	SD	M	SD	M	SD		
D_secret	1.16	.77	1	.75	.25	.5	1.5	.71	2.424*	.112
D_inner	1.16	.77	.95	.78	.00	.00	1.5	.71	3.086*	.138
D_concern	1.06	.75	1.07	.79	.00	.00	1.5	.71	2.785*	.127
D_in love	1.16	.66	1.02	.76	.25	.50	1	1.41	2.511*	.116
D_sex	.92	.64	.98	.63	.25	.50	1	1.41	2.342*	.109
time_IM	3.46	.60	3.09	3.05	3.00	2.09	14	2.28	5.837***	.233
conflict	2.35	.87	2.17	.87	2.71	.29	4	1.41	2.44*	.113
disclosure	3	.89	3.6	.87	4	.88	3.1	.14	3.344**	.148

* $p < .05$

** $p < .01$

*** $p < .001$

Independent t-test was conducted to investigate if there is sex difference on online communication, perceived breadth and depth of communication, and real-life friendship

quality. Only the perceived breadth and depth of communication showed significant results.

The results are summarized in Table 6. It is noted that dummy codes were used and thus it

can only be concluded that there is sex difference on the following items.

Table 6

Summary Table of Independent t-test for Sex on Items in Perceived Breadth and Depth

Items	Male		Female		
	M	SD	M	SD	
hear more new information (breadth)	.69	.72	.99	.66	$t(64)=-2.051^*$
learn more about different topics (breadth)	.63	.73	.96	.75	$t(70)=-2.126^*$
talk more easily about inner feelings (depth)	.77	.84	1.15	.74	$t(100)=-2.326^*$
Talk more easily about being in love (depth)	.74	.70	1.21	.71	$t(100)=-3.168^{**}$

* $p < .05$

** $p < .01$

Note: dummy code was used in the items of the perceived breadth and depth of online communication in which 1= "CMC batter" and 2= "FTF better".

Chapter 4 - Discussion

The primary aim of this study was to examine if online communication would affect real-life friendship quality. Most of the results were statistically significant. It is noted that the results were in line with the stimulation hypothesis, which suggested that having online communication mainly with preexisting friends in the real-life world does affect real-life friendship quality in a positive way. There are important implications for this study. It reveals the integration of virtual and real-life world. The auxiliary value of computer-mediated communication technologies, assisting traditional face-to-face communication, is essential for keeping up with real-life friends and maintaining good friendship quality.

As expected, people communicate more with real-life friends in instant messaging (IM) than in social-networking services (SNS). However, it is found that people communicate more with online friends in IM than in SNS. This contradicts the hypothesis that people would interact more with strangers in SNS as it provides public place for similar others to share common interests and hobbies. This discrepancy may be due to the vague nature of SNS. SNS is originally assumed to be dominated by friendship formation among strangers who have similar interests. Some of the popular SNS like facebook and xanga, however, not only provide space for creating new friendships across time and place, but also provide a ground for maintaining preexisting friendships in real world. This ambiguity may account for the contradictory result.

The results showed that people who always communicate with their real-life friends online would have better real-life friendship quality. It reflects that online communication is an auxiliary tool to keep up with their real-life friends aside from face-to-face interactions. Interacting with the real-life friends via online communication technologies, in fact, will increase the time spent with real-life friends. The more the time spent with friends, the better the friendship quality. It is found that time spent with friends has a considerable impact on friendship quality, especially on support, satisfaction, and disclosure. This provides another support for Altman and Taylor's (1973) social penetration theory that through companionship and interactions, understanding, trust and liking accumulate.

The reduction hypothesis of online communication is further rejected as the results showed that the frequency of online interaction with online friends has no significant effect on friendship quality. There is no evidence on interacting with online friends would reduce interacting with real-life friends. Thus, interacting with online friends may be a subsidiary act for online interpersonal communication, a testing ground of real-life interaction, and a widening social circle.

The perceived breadth and depth of online communication yielded significant but little impact on time spent on online communication. This may be due to the omission of the personality characteristics underlying the perception on breadth and depth of communication. Valkenburgh and Peter (2007b) reported lonely and socially anxious person would perceive

computer-mediated communication as a deeper and boarder disclosing mean than face-to-face communication. The present study did not deal with those factors. Further research may be interested in focusing more on this direction.

The duration of friendships will affect the degree of self-disclosure and this applies to real-life and online world. This implies that the friendship development is similar in various situations, ranging from face-to-face communication to computer-mediated communication. Time is needed for any relationships to develop. However, the duration of friendship in CMC lasts shorter than in FTF communication. This may due to CMC's higher degree of uncertainty (Berger & Calabrese, 1975; Parks & Adelman, 1983), a lack of interaction history and shared norms (Yum & Hara, 2005). Thus the duration of CMC are generally last shorter than FTF communication.

This study on online communication and real-life friendship quality may provide some insights in the integration of virtual and real-life world. Computer-mediated communication technologies are assisting traditional face-to-face communication to help one keeping up with real-life friends and maintaining friendships. Meeting strangers online would not replace the time spent with preexisting friends and affect real-life friendship quality. Instead, some of the people actively integrate online friendship into real-life world that they develop actual contact. No wonder it is found that online communication is positively related

to one's size of social circle (Kraut et al, 2002). However, possible dangers in the transition of online and real-life friendship should be aware.

Interestingly, social-networking services (SNS), especially facebook, are a great hit recently. The present study identified that SNS may not only serve as friendship formation ground for strangers who share similar interest, but also act as a friendship maintaining place for distant and "old" friends. Some old friends who may not been contacted for long could be found through the social network system in these sites. Future research may find it interesting to explore the effect of this new online communication tool.

In conclusion, having online communication with preexisting friends in the real-life world predominately does affect real-life friendship quality positively. But with the rapid advancing technologies, research of computer-mediated communication should adapt to the recent changes: the introduction of webcam and microphones eliminates the limitation on the lack of visual and auditory cues, the rise of social networking services link strangers and friends together, the popularize of multi-player online game with chat function that allow interaction among players all around the world... Undoubtedly, an increasing interaction between online and offline world would be resulted in the future. And thus the nature and operationalization of computer-mediated communication may change considerably and further research on these topics may be of interest.

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Appendix A

Perceived Breadth and Depth of Online Communication Scale

(Peter & Valkenburg, 2006)

	Number of items	Items
Breadth	4	(a) talk more easily about different topics (b) change topics more easily (c) hear more new information (d) learn more about different topics
Depth	5	(e) talk more easily about secrets (f) talk more easily about my inner feelings (g) talk more easily about my concerns (h) talk more easily about being in love (i) talk more easily about sex

Appendix B

Network of Relationship Inventory (NRI) (Furman & Buhrmester, 1985)

Subscales	Number of items	Items
Conflict	3	(a) How much do you and this person get upset with or mad at each other? (b) How much do you and this person disagree and quarrel? (c) How much do you and this person argue with each other?
Support	3	(d) How much do you turn to this person for support with personal problems? (e) How much do you depend on this person for help, advice, or sympathy? (f) When you are feeling down or upset, how often do you depend on this person to cheer things up?
Satisfaction	3	(g) How satisfied are you with your relationship with this person? (h) How good is your relationship with this person? (i) How happy are you with the way things are between you and this person?
Companionship	3	(j) How much free time do you spend with this person? (k) How much do you play around and have fun with this person? (l) How much do you go places and do enjoyable things with this person?

Appendix C

Self-disclose Index (Miller, Berg, & Archer, 1983)

1. My personal habits.
2. Things I have done which I feel guilty about.
3. Things I wouldn't do in public.
4. My deepest feelings.
5. What I like and dislike about myself.
6. What is important to me in life.
7. What makes me the person I am.
8. My worst fear.
9. Things I have done which I am proud of.
10. My close relationships with other people.

Appendix D

Questionnaires on my3q.com – English version

Online communication
Author: Wing

This is a research about online communication including instant messaging and social networking sites. It takes about 10 minutes. Your data will only be used for analysis and kept confidential. Thank you for your precious time and help.

[Next >>](#)

Questions with '*' sign must be answered

IM services

1* Do you regularly use the following instant messaging (IM) service(s)?
(you may choose more than 1)

- AIM (AOL Instant Messenger)
- ICQ (I seek you)
- MSN (Windows Live Messenger / MSN Messenger / Windows Messenger / Microsoft Messenger / MSN Web Messenger)
- YM (Yahoo! Messenger)
- I do NOT use any IM services
- others, please specify:

How often do you use those IM service(s) to communicate with... (for question 2 & 3)

2* existing friends

- Never Seldom Sometimes Often
 Always

3* strangers you met online

- Never Seldom Sometimes Often
 Always

On weekdays (Mon-Fri)... (for question 4 & 5)

4* how many days do you use those IM service(s)?

- 0 1 2 3 4 5

5* how long do you use those IM service(s) EACH DAY?

hours

During weekends (Sat & Sun)... (for question 6 & 7)

6* how many days do you use those IM service(s)?

- 0 1 2

7* how long do you use those IM service(s) EACH DAY?

hours

8* Are you doing any other activities while using those IM service(s)?

- Yes No

9* If yes, what else are you doing?

(you may choose more than 1)

- web surfing
- listening to music
- watching video (like at Youtube)
- playing pc/online games
- working on school work (e.g. homework, presentation)
- others, please specify:

social networking services

10* Do you regularly use the following social networking services?
(you may choose more than 1)

- Facebook
 Friendster
 tagged
 MySpace
 I do NOT use any social networking services
 others, please specify:

How often do you use those social networking service(s) to communicate with... (for question 11 & 12)

11* existing friends

- Never Seldom Sometimes Often
 Always

12* strangers you met online

- Never Seldom Sometimes Often
 Always

On weekdays (Mon-Fri)... (for question 13 & 14)

13* how many days do you use those social networking service(s)?

- 0 1 2 3 4 5

14* how long do you use those social networking service(s) EACH DAY?

hours

During weekends (Sat & Sun)... (for question 15 & 16)

15* how many days do you use those social networking service(s)?

- 0 1 2

16* how long do you use those social networking service(s) EACH DAY?

hours

17* Are you doing any other activities while using those social networking service(s) service(s)?

- Yes No

18* If yes, what else are you doing?

(you may choose more than 1)

- web surfing
 listening to music
 watching video (like at Youtube)
 playing pc/online games
 working on school work (e.g. homework, presentation)
 others, please specify:

For the following items, is it better to use CMC or FTF, or both are the same?

Choose ONE only (*guide:CMC = computer-mediated communication, FTF = face-to-face communication, the same = CMC is the same as FTF)

	CMC better	FTF better	the same
19* talk more easily about different topics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20* change topics more easily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21* hear more new information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22* learn more about different topics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23* talk more easily about secrets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24* talk more easily about my inner feelings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25* talk more easily about my concerns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26* talk more easily about being in love	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27* talk more easily about sex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Answer question 34 onwards based on the following 4 friends (A, B, C, and D).

Please choose your *MOST IMPORTANT FRIENDS* regarding the following 4 groups. Do *NOT* choose your siblings, relatives, or boyfriend / girlfriend.

28* A represents your most important SAME-SEX friend in the REALITY.

How long is the friendship last until now?

- < half year half-1 year
 1-2 years 2-3 years
 3-4 years 4-5 years
 >5years, please specify:

29* B represents your most important OPPOSITE-SEX friend in the REALITY.

How long is the friendship last until now?

- < half year half-1 year
 1-2 years 2-3 years
 3-4 years 4-5 years
 >5years, please specify:

30* C represents your most important ONLINE SAME-SEX friend. You *MUST* first met this friend online.

How long is the friendship last until now?

- < half year half-1 year
 1-2 years 2-3 years
 3-4 years 4-5 years
 >5years, please specify:

31* Did you developed any real-life contacts with him / her?

- Yes No

32* D represents your most important ONLINE OPPOSITE-SEX friend. You *MUST* first met this friend online.

How long is the friendship last until now?

- < half year half-1 year
 1-2 years 2-3 years
 3-4 years 4-5 years
 >5years, please specify:

33* Did you developed any real-life contacts with him / her?

- Yes No

For friends A, B, C, and D...

How much free time do you spend with this person? (*A: same-sex friend in reality // B: opposite-sex friend in reality // C: online same-sex friend // D: online opposite-sex friend)

	Never	Seldom	Sometimes	Often	Always
34* Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35* Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36* Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37* Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you and this person get upset with or mad at each other?

38* Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39* Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40* Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41* Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you turn to this person for support with personal problems?

	None	Little	Some	Many	A lot
42* Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43* Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44* Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45* Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How satisfied are you with your relationship with this person?

	Extremely unsatisfied	Not quite satisfied	Quite satisfied	Very satisfied	Extremely satisfied
46* Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47* Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
48* Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49* Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you play around and have fun with this person?

	Never	Seldom	Sometimes	Often	Always
50* Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
51* Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
52* Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
53* Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you and this person disagree and quarrel?

54* Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
55* Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
56* Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
57* Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you depend on this person for help, advice, or sympathy?						
58*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
59*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
60*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
61*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How good is your relationship with this person?						
		Very poor	Poor	ok	Good	Very good
62*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
63*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
64*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
65*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How much do you go places (e.g. for friends A & B, you go shopping in mall together; for friends C & D, you read jokes in forum together) and do enjoyable things with this person?						
		Never	Seldom	Sometimes	Often	Always
66*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
67*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
68*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
69*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How much do you and this person argue with each other?						
70*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
71*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
72*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
73*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When you are feeling down or upset, how often do you depend on this person to cheer things up?						
74*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
75*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
76*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
77*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How happy are you with the way things are between you and this person?						
		Extremely unsatisfied	Not quite satisfied	Quite satisfied	Very satisfied	Extremely satisfied
78*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
79*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
80*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
81*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much would you disclose yourself to those friends for the following topics?

my personal habits (*A: same-sex friend in reality // B: opposite-sex friend in reality // C: online same-sex friend // D: online opposite-sex friend)

		Never	Seldom	Sometimes	Often	Always
82*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
83*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
84*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
85*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
things I have done which I feel guilty about						
86*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
87*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
88*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
89*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
things I wouldn't do in public						
90*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
91*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
92*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
93*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
my deepest feelings						
94*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
95*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
96*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
97*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
what I like and dislike about myself						
98*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
99*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
100*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
101*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

what is important to me in life						
102*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
103*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
104*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
105*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
what makes me the person I am						
106*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
107*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
108*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
109*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
my worst fear						
110*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
111*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
112*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
113*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
things I have done which I am proud of						
114*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
115*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
116*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
117*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
my close relationships with other people						
118*	Friend A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
119*	Friend B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
120*	Friend C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
121*	Friend D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Personal information

122* Sex

- Male Female

123* Age

- <12 12-18 19-25 26-35
 36-45 > 45

124* Nationality

- Chinese British American

others, please specify:

125* Highest education level

- Junior secondary / high school
 Senior secondary / high school
 Bachelor
 Master
 Doctorate
 Others, please specify:

126* How long have you been using online services on computer?

years

How often you use the following device(s) for online services?

	never	little	sometimes	often	always
127* personal computers at home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
128* computers at public places e.g. school, library, Netcafe, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
129* mobile phone / PDA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
130* laptops	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix D (2)

Questionnaires on my3q.com – Chinese Version

網上溝通

作者：Wing

這是一個關於即時通訊 (IM) 及社交網絡服務 (social networking services) 的調查，需時約十分鐘。你所提供的資料只作研究分析用途，並會絕對保密。感謝你所付出的寶貴時間及幫助。

[下一頁 >>](#)

必須回答有 '*' 記號的問題

網上即時通訊(IM)服務

1* 你有定期地使用下列網上即時通訊服務嗎？

(可選多於一個)

- AIM (AOL Instant Messenger)
- ICQ (I seek you)
- MSN (Windows Live Messenger / MSN Messenger / Windows Messenger / Microsoft Messenger / MSN Web Messenger)
- YM (Yahoo! Messenger)
- 沒有使用任何網上即時通訊服務
- 其他，請註明:

你有多常運用該批即時通訊服務與下列群組溝通？(第2、3題)

2* 真實世界中的朋友

- 從不 極少 有時 常常 經常

3* 網上認識的陌生人

- 從不 極少 有時 常常 經常

在平日(星期一至星期五)……(第4、5題)

4* 你有多少天會使用該批即時通訊服務？

- 0 1 2 3 4 5

5* 你每天會使用該批即時通訊服務多久？

小時

在週末(星期六及星期日)……(第6、7題)

6* 你有多少天會使用該批即時通訊服務？

- 0 1 2

7* 你每天會使用該批即時通訊服務多久？

小時

8* 在使用該批即時通訊服務時，你會同時做其他事情嗎？

- 會 不會

9* 若會，你在做甚麼事情？

(可選多於一項)

- 瀏覽網站 聽歌
- 看短片(如在Youtube) 玩電腦或網上遊戲
- 做家課(功課、報告)
- 其他，請註明:

社交網絡服務 social networking services

10* 你有定期地使用下列社交網絡服務嗎？

(可選多於一個)

- Facebook
 Friendster
 MySpace
 tagged
 沒有使用任何社交網絡服務
 其他，請註明:

你有多常運用該批社交網絡服務與下列群組溝通？(第11、12題)

11* 真實世界中的朋友

- 從不 極少 有時 常常 經常

12* 網上認識的陌生人

- 從不 極少 有時 常常 經常

在平日(星期一至星期五)……(第13、14題)

13* 你有多少天會使用該批社交網絡服務？

- 0 1 2 3 4 5

14* 你每天會使用該批社交網絡服務多久？

小時

在週末(星期六及星期日)……(第15、16題)

15* 你有多少天會使用該批社交網絡服務？

- 0 1 2

16* 你每天會使用該批社交網絡服務多久？

小時

17* 在使用該批社交網絡服務時，你會同時做其他事情嗎？

- 會 不會

18* 若會，你在做甚麼事情？

(可選多於一項)

- 瀏覽網站
 聽歌
 看短片(如在Youtube)
 玩電腦或網上遊戲
 做家課(功課、報告)

在下列各項中，你覺得是電腦中介的溝通(CMC)較好、現實中面對面溝通(FTF)較好、還是兩者一樣？請選你認為最適合的一個。

	CMC較好	FTF 較好	兩者一樣
19* 更易談及不同的話題	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20* 更易轉換話題	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21* 知道更多新資訊	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22* 知道更多不同話題	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23* 更易談及秘密	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24* 更易談及自己的內心感受	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25* 更易談及自己擔憂的事	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26* 更易談及戀愛關係	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27* 更易談及性	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

請根據下列四個組群的朋友回答34及其後的題目。

下列四個群組中，請各選定一個你最重要的朋友，請勿選你的兄弟姐妹、親戚或男女朋友。

28* 朋友 A 代表一個你在現實世界中最重要的同性朋友。

這段友誼至今維持了多久？

- 小於半年 半年至一年 一至兩年
 兩年至三年 三年至四年 四年至五年
 多於五年，請註明:

29* 朋友 B 代表一個你在現實世界中最重要的異性朋友。

這段友誼至今維持了多久？

- 小於半年 半年至一年 一至兩年
 兩年至三年 三年至四年 四年至五年
 多於五年，請註明:

30* 朋友 C 代表一個你在網上世界中最重要的同性朋友，而他/她必須是在網上認識的。

這段友誼至今維持了多久？

- 小於半年 半年至一年 一至兩年
 兩年至三年 三年至四年 四年至五年
 多於五年，請註明:

31* 你與他/她其後有在真實世界中有接觸嗎？(如通電話、約會)

- 有 沒有

32* 朋友 D 代表一個你在網上世界中最重要的異性朋友，而他/她必須是在網上認識的。

這段友誼至今維持了多久？

- 小於半年 半年至一年 一至兩年
 兩年至三年 三年至四年 四年至五年
 多於五年，請註明:

33* 你與他/她其後有在真實世界中有接觸嗎？(如通電話、約會)

- 有 沒有

你和該四個朋友A, B, C 和 D.....

你和這個人花多少空餘時間在一起？(*A：現實中最重要同性朋友 // B：現實中最重要異性朋友 // C：網上最重要同性朋友 // D：網上最重要異性朋友)

	從不	極少	有時	常常	經常
34* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

你和這個人有多常會弄至對方不愉快或惱火呢？

38* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

你有多少私人問題求助於這個人？

	沒有	極少	一些	很多	極多
42* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

你有多滿足於你和這個人之間的關係？

	極不滿足	不很滿足	頗滿足	很滿足	極滿足
46* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
48* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

你有多常和這個人輕鬆愉快地談笑玩耍？

	從不	極少	有時	常常	經常
50* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
51* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
52* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
53* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

你和這個人有多常意見不合和爭吵呢？

54* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
55* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
56* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
57* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

在幫忙、勸告或諒解上，你有多倚賴這個人？					
	從不依賴	極少依賴	有時依賴	常常依賴	經常依賴
58* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
59* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
60* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
61* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
你和這個人的關係有多好？					
	惡劣	欠佳	一般	很好	極好
62* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
63* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
64* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
65* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
你有多常和這個人外出並做一些令人享受的事情(例如：與朋友A及B一起到商場逛，與朋友C及D一起到論壇看笑話)？					
	從不	極少	有時	常常	經常
66* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
67* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
68* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
69* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
你和這個人有多常互相爭論呢？					
	從不	極少	有時	常常	經常
70* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
71* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
72* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
73* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
當你感到情緒低落或不開心時，你有多常依賴這個人去使你開心起來？					
	從不	極少	有時	常常	經常
74* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
75* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
76* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
77* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
你有多滿意你和這個人之間的事？					
	極不滿足	不很滿足	頗滿足	很滿足	極滿足
78* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
79* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
80* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
81* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

下列各項中，你會透露多少給該四位朋友知道？

我的個人習慣 (*A：現實中最重要的同性朋友 // B：現實中最重要的異性朋友 // C：網上最重要的同性朋友 // D：網上最重要的異性朋友)

	從不	極少	有時	常常	經常
82* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
83* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
84* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
85* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我做了卻感到內疚的事情					
86* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
87* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
88* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
89* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我不會當眾做的事情					
90* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
91* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
92* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
93* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我內心深處的感受					
94* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
95* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
96* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
97* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我喜歡和不喜歡自己的地方					
98* 朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
99* 朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
100* 朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
101* 朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

我生命中重要的事物						
102*	朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
103*	朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
104*	朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
105*	朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
有甚麼使我是我						
106*	朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
107*	朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
108*	朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
109*	朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我最深的恐懼						
110*	朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
111*	朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
112*	朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
113*	朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我做過且令我驕傲的事情						
114*	朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
115*	朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
116*	朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
117*	朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我與他人的親密關係						
118*	朋友 A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
119*	朋友 B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
120*	朋友 C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
121*	朋友 D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

個人資料

122* 性別

- 男 女

123* 年齡

- <12 12-18 19-25 26-35
 36-45 46-55 >56

124* 國籍

- 中國(中國大陸) 中國(台灣)
 中國(香港/澳門) 中國(其他)
 英國 美國
 澳洲
 其他，請註明:

125* 最高學歷

- 初中(中一至三)
 高中(中四至七)
 大學(學士/副學士/高級文憑)
 大學以上(碩士/博士)
 其他，請註明:

126* 你使用了電腦上網服務多久？

年

你有多常運用以下途徑上網？

	從不	極少	有時	常常	經常
127* 個人家居電腦	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
128* 公眾地方如學校、圖書館、網吧等的電腦	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
129* 流動電話/個人電子手帳(PDA)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
130* 手提電腦	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>