Unwillingness-to-communicate, Perceptions of the Internet and Self-disclosure in ICQ

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Abstract

This exploratory research examined the ICQ usage pattern among a group of 591 Internet users, aged 15-36, as well as their self-disclosing behaviors in ICQ conversations. It focuses on the effects of unwillingness-to-communicate and media perceptions of the Internet on self-disclosure in ICQ in terms of control of depth, honesty, positive-negative, and amount. The results show that both the unwillingness-to-communicate and Internet perceptions are not related to level of ICQ use. However, Approach-Avoidance (UCS-AA) and Reward (UCS-R) dimensions of unwillingness-to-communicate were found significantly related to different self-disclosure dimensions. People who are more willing to participate in real life communication tend to disclose more intimately, positively, and in great amount about themselves in ICQ; whereas, people who find real life communication un-rewarding would tend to be more dishonest, negative, less desirable, and less open in disclosing their opinions and beliefs. In addition, when the Internet is perceived as a sociable medium, the disclosures on ICQ tend to be open, personal, intimate, honest, and in great extent about their negative feelings and opinions. Similarly, when people perceive the Internet as a personalized medium, disclosures will be more about themselves. Furthermore, when the Internet is perceived as sensitive, warm, and active, the disclosures appear more private and intimate but the contents are more negative and undesirable.

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Introduction

Increasingly the Internet has become one of the most important communication tool. People use the Internet for diverse purposes ranging from information seeking, entertainment, companionship, and interpersonal communication. The Internet has brought great impacts on the communication models because it provides a mediated environment for interpersonal communication, facilitating friendly or even romantic relationships (Erich & Rhonda, 2000). Therefore, the advent of computer-mediated communication (CMC) and its penetration into people's lives provides an interesting lens on human behavioral studies. What kinds of people would prefer CMC than face-to-face communication? Which type of persons would disclose more in the cyber world where nonverbal cues are lacking? How the media perceptions of the Internet would affect peoples' communication pattern in CMC? These are all very interesting research questions for communication theorists to explore.

Past research showed that psychological antecedents such as unwillingness-to-communicate and perceptions of media were related to Internet motives. Internet users who were less valued in their face-to-face communication used the Internet more for interpersonal communication purpose (Papacharissi & Rubin, 2000). Papacharissi and Rubin also found that people who perceived the Internet as warm, social, and active, used it primarily to fulfill pastime, convenience, and entertainment desires, and for interpersonal utility, as opposed to information seeking. Furthermore, researchers also found that Internet communication enables a higher level of self-disclosure because of its relatively anonymous nature

(e.g., Bargh, McKenna, & Fitzsimons, 2002; Derlega, Metts, Petronio, & Margulis, 1993), and it fosters idealization of the other in the absence of information to the contrary (Murray, Holmes, & Griffin, 1996). As evidences showed that psychological attributes do have impacts on people's interpersonal communication, it would be important to further explore how people use technology such as the ICQ to communicate in the mediated context.

Among the different communication applications of the Internet, ICQ is one of the most widely used software within the younger generation. It is a user-friendly communication tool that lets people chat, exchange messages, and send files instantly. It has become a desktop companion for youngsters as it can operate simultaneously with other applications on the computer. In May 2001, America Online, Inc. announced that there are already 100 million registered ICQ users around the world and more than 100,000 new registrants a day on average. With ICQ, people can enter into a mediated interpersonal relationship without taking face-to-face social risks.

In order to explore whether social anxious people would turn to the ICQ world to achieve communication fulfillments, this exploratory study investigates how the psychological attributes in unwillingness-to-communicate in real lives would affect the usage pattern as well as the level of self-disclosure in ICQ among youngsters. In addition, the relationships between media perceptions of the Internet and the characteristics of self-disclosure in ICQ will also be examined in this research.

Theoretical frameworks

Computer-mediated Communication

The text-base and low social presence nature of CMC sometimes leads to

impressions that it is a relatively impersonal medium. Past research has suggested that CMC has problems in coordination owing to the lack of information feedback, absence of social influence cues in discussion, and depersonalization due to the lack of nonverbal involvement (Kiesler, Siegel, & McGuire, 1984).

On the other hand, the social information processing (SIP) theory of CMC (Walther, 1992) argues that without nonverbal cues, communicators can still develop personalized relationships by adapting their relational behaviors to the remaining cues available in CMC, such as content and linguistic strategies, as well as typographic cues. Besides, the hyperpersonal perspective of CMC argues that the absence of nonverbal cues, as well as editing capabilities, identity cues and temporal characteristics, may prompt CMC users to engage in selective self-presentation and partner idealization, enacting exchanges more intimately than those of face-to-face counterparts (Walther, Slovacek & Tidwell, 2001). Consistent with the hyperpersonal perspective, other research found that CMC partners would engage in more intimate questions and deeper disclosures than those in ongoing face-to-face relationships (Tidewell & Walther, 2002).

All these findings show that, although CMC precludes the exchange of nonverbal cues, the mediated environment does not really hinder the level of self-disclosure of communicators.

Unwillingness-to-communicate

Burgoon (1976) conceptualized unwillingness-to-communicate as "a chronic tendency to avoid and/or devalue oral communication" (p. 60). The well-tested Unwillingness-to-Communicate Scale (USC) today consists of 20 items measuring two dimensions: (1) Approach-Avoidance (UCS-AA) is "the degree to which individuals feel anxiety and fears about interpersonal encounters and are inclined

to actively participate in them or not" and (2) Reward (UCS-R) which reflects "the degree to which people perceive that friends and family don't seek them out for conversation and opinions, and that interactions with others are manipulative and untruthful" (Burgoon & Hale, 1983).

The USC-AA dimension significantly predicts a group member's total participation, information giving, information seeking, and satisfaction with the decision (Burgoon, 1977). Daly (1978) also found that the UCS-AA dimension is correlated with social anxiety, avoidance, tension, communication apprehension and social sensitivity; whereas, USC-R predicts individual members' satisfaction with the decision (Burgoon, 1977).

Unwillingness-to-communicate (UC) has been linked to anomia and alienation, introversion, self-esteem, communication apprehension, and reticence. And it has been applied to mass media research to help explain differences in media use. For example, in radio research conducted by Armstrong and Rubin (1989), it was found that, as compared with non-callers, talk radio callers were less willing-to-communicate in face-to-face interaction and perceived face-to-face communication to be less rewarding. Similar to talk-radio callers, ICQ users might have found a functional alternative to more traditional channels for those who find face-to-face communication less rewarding.

Moreover, Papacharissi & Rubin (2000) indicated that Internet users who avoided face-to-face interaction, or found it less rewarding, chose the Internet as a functional alternative channel to fulfill interpersonal needs. In addition, it was also found that UC-Reward had a positive correlation with information seeking and a negative correlation with interpersonal utility. It suggests that those who felt valued in their interpersonal environment considered the Internet to be primarily an informational tool, whereas those who felt less valued in their face-to-face

interaction turned to the Internet as an alternative tool.

Under this conceptualization, understanding how one's social anxiousness and unwillingness to communicate in real lives may affect the consumption of ICQ would provide insights in people's communication behaviors in CMC. Therefore, the first research question in this exploratory research addressed the relationship between unwillingness-to-communicate and ICQ usage.

RQ1: How does unwillingness-to-communicate in real life context relate to ICQ usage?

Media Perception - Social presence

Social presence refers to "the feeling that other actors are jointly involved in communicative interaction" (Short, Williams, & Christie, 1976). In other words, it is a sense that people are psychologically present and that communication exchanges are warm, personal, sensitive and active. Because of the lacking nonverbal cues compared to other media, computers have been found to have less social presence or media richness than other media such as the telephone or voice mail (Perse & Courtright, 1993; Rice, 1993). Past research showed that perceptions of social presence influence CMC motives and outcomes. For example, college students rated computers as more socially present tended to use them more often and to find them more helpful in learning (Perse, Burton, Kovner, Lears, & Sen, 1992).

Other research, however, have argued for the existence of computer-mediated interaction. Walther (1992), for example, found that as computer-mediated communication develops over time, communicators adapt their language and textual displays to enhance immediacy and to manage relationship they develop through CMC. He proposed a social

information-processing perspective that embodied relational motivators and the decoding of textual cues that may substitute nonverbal ones. Therefore, CMC users, just as communication in any context, should desire to transact personal, rewarding, and complex relationships. Straus (1996, 1997) supported Walther's arguments, by concluding that electronic communication was not inherently more depersonalized than face-to-face communication, and these patterns of performance and interaction are similar in computer-mediated and face-to-face groups.

These contrasting viewpoints lead to another scope of investigation, i.e., the relationship between social presence and the usage pattern of ICQ. Therefore, the second research question is:

RQ2: How does ICQ usage relate to media perceptions of the Internet (in the dimensions of sociability, personalization, sensitivity, warmth, and activeness) and demographics?

Self-Disclosure

Self-disclosure is conceptualized as "any message about the self that a person communicates to another" (Wheeless & Grotz, 1976). Wheeless (1976) developed a 31-item Revised Self-Disclosure Scale (RSDS) to study self-disclosure in a multi-dimensional discipline. Five dimensions were derived to constitute an extensive connotation of self-disclosure including: (1) Intent to disclose, (2) Amount of disclosure, (3) Positive-Negative nature of disclosure, (4) Honesty/ Accuracy of disclosure, and (5) Control of depth in disclosure. Wheeless & Grotz (1976) also found that healthy people tended to self disclose more positive than negative information.

Consistent with Kraut, Patterson, Lundmark, Kiesler, Mukophadhyay, &

Scherlis (1998), Papacharissi and Rubin (2000) found that Internet users who were less satisfied with their lives and who used the Internet for interpersonal utility reasons had greater affinity with the Internet. Therefore, ICQ may provide a less threatening medium for those who are unwilling to communicate in real lives to disclose themselves more comfortably. Similarly, a qualitative research by Wysocki (1998) indicated that Internet users came to personally know one another more quickly and intimately than in face-to-face relationships. Also, it found that self-disclosure in computer-mediated relationships appears to be richer and progress faster since the Internet affords a level of anonymity that can reduce feelings of discomfort one may experience in face-to-face communication.

Research findings have also shown that loneliness is inversely related to self-disclosure in the dimensions of positive-negative, honesty, and amount (Leung, 2002). This means that the lonelier the person, the more dishonest, more negative and the less revealing was the quality of the self-disclosure in their ICQ interaction. It demonstrates that psychological attributes do have influences on one's communication preference and their behaviors in mediated communication. Based on these theoretical frameworks, three more research questions are constructed as follows:

RQ3: How does self-disclosure on ICQ relate to level of ICQ use?

RQ4: What are the relationships between the depth, honest, positive-negative, amount, and intent dimensions of self-disclosure and (1) unwillingness to communicate and (2) media perceptions of the Internet?

RQ5: To what extent can unwillingness-to-communicate, perceptions of the Internet, and demographics predict self-disclosure in terms of (1) control of depth, (2) honesty/accuracy, (3) positive-negative nature, (4) amount, and (5) intended disclosure in ICQ?

Method

Sampling

A questionnaire survey, using snowball sampling method, was conducted in this exploratory research. The target of this study was Internet users aged 15-36 because it is observed that students and office workers use ICQ most often. An electronic questionnaire was posted on the Internet and spread to the researcher's mailing list composing of 80 colleagues and friends. In turn, all of the respondents were encouraged to spread the questionnaires to their own mailing lists after completion. Besides, 400 hard copies of the questionnaire were sent to a convenience sample of several classes in two secondary schools, a vocational training school, and two universities.

The final sample size was 591 (291 from the online survey and 300 from the returned offline copies), with all non-ICQ users and those aged 36 or above eliminated. The majority of the participants were female (66%), ranging in age from 15 to 36. In which, 33% were 15-18, 37% in 19-22, 18% aged 23-26, and 12% between 27-36. With regard to education, 34% were secondary school students, 19% attained diploma or higher diploma levels, and 46% were tertiary educated.

Measurements

Unwillingness-to-communicate. A 20-item Unwillingness-to-Communicate Scale (Burgoon, 1976) was used in this study. It included the dimensions of Approach-Avoidance (UCS-AA) and Reward (UCS-R), each with 10 items. Low UCS-AA scores mean that a respondent was anxious or fearful about interpersonal encounters, whereas low UC-Reward scores imply that respondents found

communication less rewarding, less valued, and were less sought out for conversation and opinions by his/her friends and family. To be consistent, a 5-point Likert scale was adopted throughout the study with 5 = strongly agree and 1 = strongly disagree. The mean score of all the items for the UCS-AA dimension was 3.25 (SD = 0.59, Cronbach's alpha = 0.82), whereas the mean score for the UC-Reward dimension was 3.66 (SD = 0.46, Cronbach's alpha = 0.74).

Media Perceptions of the Internet. To assess the media perceptions of the Internet, respondents were asked how they perceived the Internet, using a 5-point semantic differential scale, on sociability, personalization, sensitivity, warmth, and activeness. The two anchors were 5 being "very" and 1 being "not at all."

Self-disclosure. A Revised Self-Disclosure Scale (RSDS), developed by Wheeless and Grotz (1976), was employed in this study. Five dimensions of self-disclosure in ICQ communication were measured by 31 items using a 5-point Likert scale with 5 = strongly agree and 1 = strongly disagree. As shown in Table 1, factor analysis using Varimax rotations yielded four interpretable factors, with eigenvalue greater than 1. According to the theoretical assumption, there should be five expected factors derived, however, in order to improve the stability of the factor structure and the reliability of each factor, the intent to disclose dimension was omitted. As a result, the four dimensions generated were (1) control of depth, (2) honesty/accuracy, (3) positive and negative nature, and (4) the amount of self-disclosure.

The first factor, *Control of Depth* (eigenvalue = 4.58, explained 27.00% variance) consisted of seven items reflecting how personal and intimate the disclosures about the respondents were. This factor yielded the lowest mean score of 2.91, which indicates that majority of the respondents did not disclose themselves freely and intimately on ICQ. The Cronbach's alpha was 0.75.

Honesty/Accuracy of disclosure (eigenvalue = 2.32, explained 13.67% variance) was the second factor in self-disclosure in ICQ. Four measurement items were used to assess how honest and accurate respondents disclosed themselves. The mean score for the factor was 3.62, with Cronbach's alpha equals 0.74. *Positive-Negative* nature of self-disclosure (eigenvalue = 1.34, explained 7.89% variance) was the third factor, consisted of three items measuring how positive or negative the disclosures about the respondents were on ICQ. Higher scores reflect more positive and desirable disclosures. The mean score for the factor was 3.39 and Cronbach's alpha equals 0.75. The fourth factor was *Amount* of disclosure (eigenvalue = 1.10, explained 6.45% variance) included three items, indicating the extent the disclosures in ICQ were about themselves. The mean score for the factor was 3.36 and Cronbach's alpha equals 0.63.

ICQ Usage: To assess the level of ICQ use, respondents were asked (1) how many hours a day they usually spend on ICQ and (2) how many days a week they use ICQ on average.

<Insert Table 1 about here>

Analytical procedure

Besides the factor analysis discussed, Pearson's correlations were used to examine the relationships between ICQ usage pattern (i.e., hours per day and days per week of ICQ use) and unwillingness-to-communicate, media perceptions of the Internet, the four dimensions of self-disclosure on ICQ, and demographics. Regression analyses were also used to identify predictors for self-disclosure.

Findings

Unwillingness-to-communicate and ICQ usage

As shown in Table 2, correlational analyses indicate that ICQ usage patterns, on both hours per day and days per week, were not significantly related to UCS-AA and UCS-R dimensions of unwillingness-to-communicate in real lives. This suggests that people did not increase or decrease their levels of ICQ use because they were more socially anxious, more fearful about personal encounters, or felt less rewarded in face-to-face communication.

ICQ Usage and Perceptions of the Internet and Demographics

Relationships between ICQ usage and media perceptions of the Internet in the dimensions of sociability, personalization, sensitivity, warmth, and activeness were also tested. However, no significant relationships were found between Internet perceptions and ICQ usage pattern. In spite of this, demographics were found significantly correlated to level of ICQ use. Specifically, gender was found significantly related to both hours per day (r=.11, $p<.01$) and days per week (r=.08 $p<.05$) on the use of ICQ. This means that males are heavier users of ICQ than females. This finding is interesting despite past research (Rubin & Shenker, 1978) demonstrated that females are usually more active in interpersonal communication. However, this may be due to the characteristics of the ICQ software, which usually acts as a desktop companion running in the background. In fact, users of ICQ may be running other applications in the foreground while occasionally engaged themselves in interpersonal communication via ICQ. The heavier usage of ICQ by males may imply a heavier usage of the computer. Furthermore, age (r=.09, $p<.05$) and education (r=.11, $p<.01$) were also found positively correlated with hours per day in ICQ use. This means that frequent users

of ICQ tend to be older (among the 15-36 group) and better educated.

Self-disclosure and ICQ usage

As there were only four interpretable factors emerged in the factor analysis of the 31 self-disclosure items in this exploratory study, only control of depth, honesty, positive-negative nature, and the amount of self-disclosure were analyzed. Results in Table 2 show that the control of depth in self-disclosure was significantly related to both hours per day (r=.15, *p*<.001) and days per week (r=.18, *p*<.001) in ICQ use. Similarly, the amount dimension of disclosure and ICQ usage patterns were also significantly linked (with r=.12, *p*<.01 for hours per day and r=.09, *p*<.05 for days per week). These findings suggest that frequent users of ICQ are those who often disclose personal and intimate things without hesitation and often express their personal opinions and beliefs.

<Insert Table 2 about here>

Self-disclosure, Unwillingness-to-communicate and Internet Perceptions

Results from the correlational analyses in Table 3 show that UCS-AA is significantly related to the depth (r=.11, *p*<.05), positive-negative (r=.11, *p*<.05), and amount dimensions (r=.19, *p*<.001) of self-disclosure on ICQ. This indicates that people who are less socially anxious or willing to participate in real-life communication tend to disclose themselves more intimately, reveal more positive and desirable feelings, as well as talk more frequently about themselves on ICQ. On the other hand, UCS-R was also found to be significantly linked to honesty (r=.22, *p*<.001), positive-negative (r=.19, *p*<.001), and the amount (r=.18, *p*<.001) dimensions of self-disclosure. This means that people who find their real

life communication rewarding tend to be more honest, positive, and spend more time to share their opinions and beliefs in their ICQ self-disclosures.

Significant relationships between perceptions of the Internet and self-disclosures were also found. In particular, when the Internet is perceived as a sociable medium, the disclosures on ICQ tend to be open, personal, intimate (r=.12, $p<.01$), honest (r=.17, $p<.001$) but negative (r=-.10, $p<.05$), and in great amount (r=.11, $p<.05$) about their own feelings and opinions. Similarly, when people perceive the Internet as a personalized medium, they will disclose more often about themselves on ICQ (r=.10, $p<.05$). Furthermore, when the Internet is perceived as sensitive, warm, and active, the disclosures would appear more private and intimate (r=.12, $p<.01$, r=.24, $p<.001$, & r=.11, $p<.05$ respectively); however, the content of their disclosure would be more negative and undesirable (r=-.11, $p<.05$, r=-.16, $p<.001$, & r=-.11, $p<.05$ respectively).

Furthermore, demographic differences were also found, with the older (among the age group of 15-36; r =.16, $p<.01$) and the better educated (r=.12, $p<.05$) discloses more positively and the younger discloses more intimately on ICQ.

Predicting Self-disclosure on ICQ

Regression results in Table 3 show that control of depth in self-disclosure in ICQ was significantly predicted by the warm perception of the Internet (β =.23, $p<.001$). This suggests that when the Internet is perceived as a warm medium, disclosure on the Internet would tend to be personal and intimate and vice versa. However, no significant relationship between control of depth and unwillingness-to-communicate was found. The regression equation explained 12 percent of the variance.

Honesty dimension of self-disclosure on ICQ was analyzed next and found two significant predictors: Reward (UCS-R) (β =.24, *p*<.001) and perception of the Internet being sociable (β =.20, *p*<.001). This means that the feeling of face-to-face communication being rewarding and the perception of the Internet being a sociable medium influence honest and accurate disclosure on ICQ. A total of 12 percent of the variance were accounted for.

Furthermore, UCS-AA (β =.10, *p*<.01), Internet as a warm medium (β =-.20, *p*<.01), and age (β =.13, *p*<.05) were found significant predictors for positive-negative dimension of self-disclosure. This indicates that people who are socially anxious or feeling less comfortable with face-to-face communication in the off-line world are those who are less positive about themselves in disclosing their thoughts and feelings on ICQ. In addition, these people tend to be young and perceived the Internet as a warm medium. The regression equation contributed 12 percent of the variance.

Finally, the amount dimension of the self-disclosure was analyzed last. Results showed that UCS-AA (β =.14, *p*<.01) and UCS-R (β =.17, *p*<.01) were both significant predictors. This shows that the less fearful and more rewarding when one finds face-to-face communication in the real world, the more fully the person will self-disclose their opinions and beliefs on ICQ. The two predictors explained 11 percent of the variance.

<Insert Table 3 about here>

Conclusions and Discussion

In this investigation, it was found that level of ICQ usage is not affected by people's psychological attributes -- unwillingness-to-communicate -- in their real

life communication. No support was found that people who are socially anxious or feeling less valued in their face-to-face communication will turn to the mediated ICQ world, which seems to contain less social risks. This finding is inconsistent with Papacharissi & Rubin's (2000) study, which found that people, who avoided face-to-face interaction or found it less rewarding, used the Internet more for interpersonal communication purpose and chose it as a functional alternative channel to fulfill interpersonal needs. However, the insignificant relationship is not unexpected in Hong Kong. One possible explanation is that the Internet penetration rate is as high as 52.5% among all households and ICQ adoption rate was at 77.8% among college students in Hong Kong, chatting on ICQ has become a very popular pastime among youngsters (Leung, 2001). Furthermore, this finding is in line with a recent ICQ study in Hong Kong, which indicated that lonely people who were unwilling to reveal themselves in face-to-face communication did not spend more time or use ICQ more often than others (Leung, 2002). Therefore, it appears that ICQ no longer serves as alternative communication channels but has already become a common communication channel among Hong Kong youngsters, regardless of their psychological inclinations or satisfaction gained in real life communication.

The relationships between media perceptions of the Internet and ICQ use were also found insignificant. This can also be explained by the high penetration rate of Internet and ICQ adoption. Communicating via ICQ has become a way of life among young Internet users in Hong Kong. Thus, the perceptions of the Internet as a medium do not affect people's usage pattern of ICQ.

Despite all these insignificant findings, however, ICQ usage is considerably related to control of depth and amount of self-disclosure in ICQ. This indicates that heavy users of ICQ tend to be more open and intimate in their self-disclosures.

Those spend more hours in using ICQ tend to talk more about themselves as well. This finding seems to be in line with the social penetration theory, which explains that intimate relationships can be built only when the communicators disclose themselves genuinely and totally so as to achieve communication satisfactions (Hecht, 1978). A higher ICQ usage level seems to bring more satisfactions and fulfillments resulting from the intimate and personal exchanges in the mediated world.

Secondly, this study investigated how the different dimensions of self-disclosure are linked to the psychological attributes (i.e., UCS-AA and UCS-R) and the perceptions of the Internet. UCS-AA was found significantly related to the depth, positive-negative, and the amount dimensions of self-disclosure. People who have less fear and are willing to involve and participate in real life communication tend to disclose more intimately, positively, and in greater amount in ICQ of their personal opinions and beliefs. Consistent with the hyperpersonal perspective, this demonstrates that although CMC precludes the exchange of nonverbal cues, people who gain satisfactions in their real life communication will also gain satisfaction through intimate self-disclosures in ICQ (Tidewell & Walther, 2002). However, no evidence shows that those socially anxious would turn to the ICQ world in greater number.

Similarly, UCS-R was found significantly related to honesty, positive-negative, and the amount dimensions of self-disclosure. In which, UCS-R was also a strong predictor for the honesty and amount dimensions. This suggests that those who find their real life communication rewarding are more honest, positive, and often in disclosing themselves in ICQ. Conversely, people who find real life communication un-rewarding would tend to be more dishonest, negative, and less desirable in their disclosures. Such finding is consistent with Leung's study

(2002), which showed that lonely people, who found fewer rewards in their daily communication, were less honest and disclosed more negative things about themselves.

Thirdly, although the perceptions of the Internet demonstrate no effect on the level of ICQ use, several perceptions show significant relationships with people's self-disclosure behaviors. People perceiving the Internet as a sociable medium tend to disclose more intimately, honestly, and in great detail about themselves in negative ways. People who perceived the Internet as a personalized medium are those usually disclose more about themselves. When the perceptions of the Internet are sensitive, warm, and active, the disclosures would appear more private, intimate, but the content would be more negative and undesirable. These findings are consistent with previous study which found that when people perceived the Internet as warm, social and active, it's primarily use would be for interpersonal utility (Papacharissi & Rubin, 2000). However, the results that when people perceive the Internet as a sensitive, warm, and active medium, they will disclose more negative or undesirable things about themselves is particularly worth noting. This may be because the high social presence perceived of the Internet may have strengthened people's trust, which in turn leading them to reveal their innermost, unpleasant, and undesirable feelings in a less threatening environment – the ICQ. In addition, the notion that the Internet affords a level of anonymity that can reduce feelings of discomfort one may experience in face-to-face communication may actually encourage users to disclose their negative and unpleasant thoughts. Nevertheless, further studies are needed to examine the reasons behind these CMC outcomes brought by different social presences perceived. It is especially useful in the cyber counseling areas for improving the counseling effectiveness by creating a more sensitive, warm, and

interactive environment in the webpage designs.

Results from the regression analyses also found that the perception of the Internet as warm was a strong predictor on the control of depth in people's self-disclosure. This finding is expected because people will disclose more freely and intimately when they perceive that they are communicating through a warm medium. This result may be of interest to those hardware and software designers, who may consider including more human and warm elements in communication software tools.

Furthermore, regression results also show that people who find real life communication rewarding and feel that the Internet is sociable tend to be more honest and accurate in their self-disclosure in ICQ. People feel valued in their opinions and often sought after by friends and families usually trust other people and it is natural for them to be more honest in communication. And that communication behavior in real life context seems to be consistent with the cyber world.

UCS-AA was also identified as a positive predictor for the positive-negative dimension of self-disclosure, whereas the perception of the Internet as a warm medium is a negative predictor. This indicates that people who are more willing to participate in real-life communication tend to disclose themselves more positively in ICQ and vice versa. People receiving more communication satisfactions in real life context usually have more positive self-evaluations and thus it is understandable for them to have more positive self-disclosures in both the offline world and the cyber world. On the contrary, people perceiving the Internet as a warm medium would be more likely to disclose negative or undesirable things about themselves. This may be explained that ICQ is a warm and perhaps safe environment to escape from negative feelings, release pressures from work, or to

seek counsels to alleviate troubled relationship.

Finally, both of the UCS-AA and UCS-R dimensions are significant predictors fro the amount of self-disclosure in ICQ. People who are willing to involve in face-to-face communication and find it rewarding are also comfortable to disclose themselves more often. It can also be explained that people who gain satisfaction in communication have a more positive self-image, therefore it is no surprise for them to be more eager to disclose themselves in ICQ.

There are limitations in the present research. The first is the generalizability of these results as the data were gathered in a snowballing fashion. Second, the ICQ usage measured in this research cannot truly reflect respondents' actual communication duration. It is because the measurement is limited by the characteristics of ICQ. The launching time of the ICQ software does not necessarily equal the time of interpersonal communication taken place. User can just login to the software without any interpersonal communication occurs. Third, the causal relationships between unwillingness-to-communicate, perceptions of the Internet, and self-disclosure cannot be established in this research. Further studies using multi-methods of a panel study and qualitative research are recommended to explore the reasons behind these CMC behaviors and outcomes.

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Table 1: Factor Analysis of Self-disclosure on ICQ

	Mean	SD	Factors			
			1	2	3	4
Control of Depth						
1. I usually talk about myself for fairly long periods at a time.	2.82	0.84	.72			
2. I often talk about myself.	2.78	0.86	.68			
3. Once get started, I intimately and fully reveal myself.	2.82	0.90	.59			
4. I often disclose intimate, personal things about myself without hesitation.	2.86	0.88	.52			
5. I feel that sometimes I do NOT control my self-disclosure of personal or intimate things I tell about myself.	3.39	.093	.52			
6. Once get started, my self-disclosure last a long time.	2.31	.078	.51			
7. I intimately disclose who I really am, openly and fully in ICQ.	3.33	.092	.44	.41		
Honesty						
8. I am always honest in my self-disclosures.	3.43	0.81		.73		
9. I always feel completely sincere when I reveal my own feelings and experiences.	3.51	.079		.72		
10. When I am self-disclosing, I am consciously aware of what I am revealing.	3.73	.076		.72		
11. My statements about my feelings, emotions and experiences are always accurate self-perceptions.	3.82	0.79		.58		
Positive-Negative						
12. I usually disclose negative things of myself. (R)	3.46	0.78			.81	
13. I often reveal more undesirable things about myself than desirable things. (R)	3.37	0.87			.80	
14. On the whole, my disclosures about myself are more negative than positive. (R)	3.35	0.82			.76	
Amount						
15. I do not often talk about myself. (R)	3.31	0.85				.81
16. Only infrequently do I express my personal beliefs and opinions. (R)	3.50	0.88				.73
17. I often discuss my feelings about myself.	3.28	0.83	.42			.52
Eigenvalues			4.58	2.32	1.34	1.10
Variance explained (%)			27.00	13.67	7.89	6.45
Cronbach's Alpha			.75	.74	.75	.63

Scale: 1=strongly disagree and 5 = strongly agree; N=591

Table 2: Correlations between ICQ Usage Pattern and Unwillingness-to-communicate, Perceptions of the Internet, Self-disclosure on ICQ, and Demographics

	ICQ Usage Pattern	
	Hours per day	Days per week
	r	r
Unwillingness-to-communicate		
Approach-Avoidance (UCS-AA)	.03	.07
Reward (UCS-R)	-.08	-.09
Perceptions of the Internet		
a sociable medium	.01	.02
a personalized medium	.03	-.03
a sensitive medium	-.03	.00
a warm medium	.08	.06
an active medium	.01	.02
Self-disclosure on ICQ		
Control of depth	.15***	.18***
Honesty	.04	.01
Positive-Negative	-.07	-.08
Amount	.12**	.09*
Demographics		
Gender (male=1)	.11**	.08*
Age	.09*	-.05
Education	.11**	.05
Household income	.05	.00

Notes: #p<=.1; *p<=.05; **p<=.01; ***p<=.001; N=591

Table 3: Regression of Unwillingness-to-communication, Perceptions of the Internet, ICQ Usage, and Demographics on Self-disclosure on ICQ

Predictor Variables	Self-disclosure on ICQ							
	Control of Depth		Honesty		Positive-Negative		Amount	
	r	B	r	B	r	β	r	β
Unwillingness-to-communicate								
Approach-Avoidance (UCS-AA)	.11*	.09#	n.s.	n.s.	.11*	.10**	.19***	.14**
Reward (UCS-R)	n.s.	n.s.	.22***	.24***	.19***	n.s.	.18***	.17**
Perceptions of the Internet								
a sociable medium	.12**	n.s.	.17***	.20***	-.10*	n.s.	.11*	.09#
a personalized medium	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	.10*	.09#
a sensitive medium	.12**	n.s.	n.s.	n.s.	-.11*	n.s.	n.s.	n.s.
a warm medium	.24***	.23***	n.s.	n.s.	-.16***	-.20*	n.s.	n.s.
an active medium	.11*	n.s.	n.s.	-.10#	-.11*	n.s.	n.s.	n.s.
Demographics								
Gender (male=1)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Age	-.09*	n.s.	n.s.	n.s.	.16***	.13*	n.s.	n.s.
Education	n.s.	n.s.	n.s.	n.s.	.12*	n.s.	n.s.	n.s.
Household income	n.s.	n.s.	.09*	n.s.	n.s.	n.s.	n.s.	n.s.
R^2		.12		.12		.12		.11

Notes: Figures are standardized beta coefficients.
#p<=.1; *p<=.05; **p<=.01; ***p<=.001; N=591