

**The Roles of Gratification Opportunities, Gratifications-
Obtained, and Demographics in Determining Usage
Preference of Instant Messaging and E-mail
among College Students**

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The Roles of Gratification Opportunities, Gratifications-Obtained, and Demographics in Determining Usage Preference of Instant Messaging and E-mail among College Students

Abstract

In studying media choice, past researches have focused on using gratifications sought and obtained to explain media preference. However, Dimmick and Wallschlaeger (1986) introduced a new construct - gratification opportunities - to supplement the traditional research framework of using "uses and gratifications" in examining motives for media use. Dimmick and Albarran's (1994) study on media preference found significant contributions from gratification opportunities in determining media choice. Grounded in uses and gratifications and gratification opportunities perspectives, this exploratory research examined (1) the preference of IM and e-mail among college students, (2) the motives college students associated with IM and e-mail use, (3) perceived gratification opportunities from IM and e-mail, (4) how demographics, gratification opportunities and gratifications obtained predict computer-mediated communication preference between instant messaging and e-mail, and (5) to what extent can these factors predict the level of use in IM and e-mail among a group of 236 college students.

Data show that 78% of the students' preferred instant messaging (MSN Messenger /Yahoo! Messenger) while 22% preferred e-mail. A discriminant analysis was run and results show that students who preferred instant messaging (IM) tended to be in lower school year and they greatly value the multi-functions opportunities provided by IM with functions such as the ability of MSN Messenger /Yahoo! Messenger to allow users to send voice mail, download and use flash and animated emoticons, personalize their user interface, and use of webcam, conference chat, and

play games online. In addition to gratification opportunities, students also reported that in using IM they have obtained much gratification from their peers as most of their friends also use IM. Interestingly, it was also found that students who preferred IM tended to report that their friends have become less reliant on e-mail to keep in touch, to make new friends, and even with professors.

Furthermore, in terms of frequency of use, data show that heavy users of IM tended to be upper class male students. Regression results demonstrate that the multi-functions opportunities of IM, the gratifications obtained from the common use of IM among their peers, feeling that IM improves their social relationships, and students' use of IM for entertainment or relaxation are significant factors determining the amount of IM usage. In contrast, in a separate regression analysis using the same predictors shows that no dimensions from gratification opportunities from e-mail were found significant for the level of e-mail use. However, those who often use e-mail were those who reported that their friends also use e-mail regularly in a mutual or reciprocal relationship. The amount of variance explained by demographics, gratification opportunities, and gratifications obtained were 30% for IM use and 7% for e-mail.

Word count = 440

Introduction

Instant messaging (IM) is becoming so popular that it may displace e-mail (Herring, 2004). The major differences between IM and e-mail are that IM requires an instant messaging service and the conversations are able to happen in real-time. As reported by Jupiter, the latest figure of all instant messaging (IM) users in the U.S. has reached 81.7 million in July 2005 (Clickz Network, 2005). The 2005 "Teens and Technology" report from the Pew Internet and American Life Project found that 87% of American teens age 12 to 17 used the Internet in 2004, up from 73% in 2000 (Kerner, 2005). The report also shows that 75% of American teens and 42% of adults use Internet to send and receive IM. From the same report, teens choose IM for everyday communications and they use IM for more than just basic messaging. Half of the respondents have included a link to an article, 45% said they had used IM to send a document or photo, and 31% sent music and video. In a Nielsen/NetRatings report in 2003, MSN Messenger and Yahoo Messenger ranked number one and number nine respectively in the top ten Internet applications in the U.K. In 2005, MSN Messenger users have outgrown ICQ. MSN reached 23 million users worldwide which make it second after AOL IM which has 54 million users; the third place is Yahoo! Messenger which has 21 million users and followed by ICQ (ranked fourth) with 1.8 million users only (Altucher, 2005). Microsoft announced its MSN Messenger 7.0 which is available worldwide in 26 languages now has more than 155 million registered users who exchange more than 2.5 billion instant messages every day (Converge!Network Digest, 2006).

With this growth rate, IM has edged out older computer-mediated communication modes of group chat and even the once popular ICQ. But what determines such

gradual displacement? In studying media choice, past researches have focused on using gratifications sought and obtained to explain media preference. However, Dimmick and Wallschlaeger (1986) introduced a new construct - gratification opportunities - to the traditional uses and gratifications framework in examining motives for media use. According to Dimmick and Albarran (1994), gratification opportunities can be defined "as the perceived attributes of a medium relating to time use and expanded choice of content (p.224)." As a result, if a medium offers more of a given content type because of the attributes of the medium, it will provide a greater array of gratification opportunities to the audience. Thus, the concept gratification opportunities differ from gratifications obtained in that it reflects the attributes of a medium instead of attributes of the users. Applying this construct to study media preference among TV, Cable TV, and VCR, Dimmick and Albarran (1994) found significant contributions from gratification opportunities in determining media choice.

Thus, this exploratory research is based on the uses and gratifications and gratification opportunities perspectives to examine (1) the preference between IM and e-mail among college students, (2) the motives college students associated with IM and e-mail use, (3) perceived gratification opportunities from IM and e-mail, (4) how demographics, gratification opportunities and gratifications obtained predict computer-mediated communication preference between instant messaging and e-mail, and (5) to what extent can these factors predict the level of use in IM and e-mail among a group of 236 college students.

Computer-mediated Communication

The Internet was available for public in the early '90s and since many researches are studying how computer-mediated communication (CMC) technologies shape

communication and social behaviors. Many of them found negative impact of CMC in real-life circumstances. As Adam Joinson pointed out that “the low social presence of CMC will lead to depersonalized communication. Therefore, CMC will be less friendly, emotional, or personal and more business like, or task oriented” (as cited in Gackenbach, 1998, p. 50). Flaherty, Pearce and Rubin (1998) found out in their preliminary investigation that “use of the Internet as a communication channel is not perceived as a functional alternative to face-to-face communication” (p. 250).

On the contrary, many researchers support the notion that CMC enhances traditional forms of communication by extending the real space community into the cyberworld. Franzoi and Davis (1985) stated that “greater self-disclosure is associated with heightened private self-consciousness” which suggested that computer users experience increased private self-awareness (p. 51). Matheson and Zanna (1988) “suggested that people using CMC are not deindividuated, but rather are self-regulated and responding in tune with their innermost thoughts, attitudes, and goals” (p. 51). Barnes (2001) summarized three reasons for Internet interaction is comparable to face-to-face interpersonal communication that “the Internet transforms written text into a more oral-oriented medium that resembles face-to-face communication” (p.10). These may explain why Internet users are still increasing in number and various form of CMC applications like chat room, e-mail, instant messaging (ICQ, MSN, Yahoo! Messenger, Gmail Chat, etc) keep emerging into the market.

In recent years, researchers start to look at what determines people’s use of computer-mediated communication modes. Researches have already revealed that Internet communication enable higher-level of self-disclosure because of its anonymous features (Bargh, McKenna, & Fitzaimons, 2002; Derlega, Metts, Petronio, & Margulis, 1993). Studies also showed that “college students living away from home

also used IM as a way to maintain ties with their families, as Nardi et al. also found among office workers.” (cited in Grinter & Palen, 2002, p. 24). Mantovani suggested that “IM offers shy people, who find it difficult to flirt, a form of expression perhaps more suitable to their personality. Further, in the absence of visual presence, physical appearance is downplayed and personality becomes more important” (2001, p. 150). However, the focus is still placed on anonymous CMC models like ICQ and there are limited studies on other forms of instant messaging - MSN Messenger or Yahoo! Messenger – where users are aware of the identities of the recipients. They are now mostly used by teenagers, college students and adults for both leisure and business. Studies show that the use of these forms of IM has already surpassed ICQ and is edging out e-mail. Therefore, it is important to understand why.

Flaherty, Pearce and Rubin (2002) also agreed that “users consider CMC, such as e-mail and political computer bulletin boards, as vehicles for interpersonal communication because they are interactive and personal” (p. 253). Therefore, there are urgent needs to understand why people use IM for interpersonal communication as its popularity is outgrowing other forms of CMC.

E-mail and Instant Messaging

Computer-mediated communication is a wide range of technologies that facilitate both human communication and the interactive sharing of information through computer networks, including e-mail, discussion groups, newsgroups, chat, instant messengers, and web pages.

E-mail, “a computer-based messaging system, generally is asynchronous... quick, text-based,... and allows written messages to be composed and edited on a computer screen and then sent either individually addressed or to a predefined list of recipients” (Rice & Webster, 2002, p. 195). On the other hand, IM is a computer

application which allows synchronous text communication between two or more people through a network such as the Internet. Communicating through IM, both parties in the conversation see each line of text right after it is typed (line-by-line), thus making it more like a telephone conversation than exchanging letters. Instant messaging applications may also include the ability to post an away message, the equivalent of the message on a telephone answering machine (Bambooweb Dictionary).

So, what does IM offer that e-mail does not? The most significant difference is that IM is synchronous and real time. IM eliminates the “waiting time” associated with e-mails and enable multi-participation in real time. In contrast to e-mails, IM users know if their peers are available online. IM differs from e-mail with its “presence” feature – “the function of being able to see if people are logged in on the networks, and send messages in real time” (Alvestrand, 2002). There are several applications that outstand IM from e-mail including a "pop-up" mechanism to display messages the moment they are received; a visible list ("buddy list") of other users, compiled by the user; and a method for indicating when "buddies" are online and available to receive a message. IM applications also allow users to change parameters in the system in order to provide a more detailed view of their online availability status (e.g., in a meeting, out of the office, at lunch, or away from desk). The users can then decide whether to contact the person later or send an e-mail, voicemail, or other message that the recipient can respond to later (Quan-Haase, Cothrel, and Wellman, 2005). On the other hand, people are not forced to reply immediately to incoming messages. In this way, communication via instant messaging can be less intrusive than communication via telephone and is a cheaper communication mode compared with sending SMS and talking on mobile phone.

IM has functions that e-mail does not have. For example, in some IM like AOL

Instant Messenger or Yahoo! Messenger, they provide functions with pictures, URLs, personalized colors and fonts, profiles, login name, buddy list, etc. The newer version even has functions like voice-chat (like talking on telephone but free even for overseas calls); file sharing, flash emoticons and etc which e-mail cannot compete with. Besides, IM has more sophisticated emoticons which are in flash and animation. The original goal of using emoticons is to avoid misunderstandings due to the lack of contextual information. Instead of writing the word "happy" or using a static emoticon, IM users can use animated character to represent various levels of happiness and which is also fun to use. Users can just send an emoticon instead of typing text to express their feelings or simply send an emoticon to finish a conversation to lessen the oddness. More, through IM, users can transfer any size of files or formats (e.g. PowerPoint, photos, and videos) whereas e-mail has limitation in transmitting the number of files and size. For examples, Yahoo e-mail users can only send a maximum of 5 files each time with up to 250MB while Gmail offers 1GB of free storage with no limitation of files to be sent each time. With the exceptional functions IM offers, the first question of this research is:

RQ1: What is the CMC preference between IM and e-mail among college students?

Uses and Gratifications

Uses and gratifications research often looks at social and psychological antecedents that affect people's motives (Rosengren, 1974). Previous researches are tended to associate those who are less socially active and lonelier as more likely to be users of the computer-mediated technologies because of the anonymous nature of the Internet. McKenna (2002) found that the Internet helps those who are shy, lack of social skills, or have social anxiety to form relationships. She particularly found that

those who are socially anxious and lonely feel that they can better express themselves on the Internet than with the people they know offline. Caplan (2003) also found people who have higher levels of depression, shyness and loneliness, and lower self-esteem have a higher preference for online conversation. Other researches have found that the Internet has great importance for people who are less satisfied with their social interactions and they use the Internet as a functional alternative to face-to-face communication (Papacharissi & Rubin, 2000). They found that people who are not satisfied from interpersonal communication and are anxious about face-to-face communication will use the Internet for interpersonal utility.

Matei and Ball-Rokeach (2001) found that belonging to offline community groups increases the likelihood of a person forming relationship online. Many college students have used the Internet and its CMC capabilities to stay in touch with friends and involvement in large networks may be one aspect of people's social networks that prompt their use of CMC. However, how college students will choose one medium over another?

Uses and gratifications is built on five assumptions (Katz et al., 1974): (a) the audience is viewed as active, (b) the choice to use a particular medium to fulfill a certain gratification lies within the user, (c) media compete with other media to satisfy users, (d) the audience is capable of self-report, and (e) value judgments should be suspended while conducting research. Several of these assumptions show how uses and gratifications can clarify CMC. The audience of CMC is active when choosing which medium to communicate, e.g. the choice of e-mail or instant messaging. The choice of using a particular medium to fulfill certain gratifications lies within the user. E-mail or instant messaging is competing with traditional communication tools like telephone and face-to-face interactions to fulfill their social and psychological needs.

The uses and gratifications perspective allows researchers to ask both how and

why and thus considered to be most useful for describing the various reasons or motivations for choosing one medium over another. Lichtenstein and Rosenfeld's study in 1984 stated that people "choose their media experiences according to the particular gratifications" (as cited in Charney & Greenberg, 2002, p. 381). They further explained that "there is no single master list of the gratifications obtained from media use; instead, multiple lists, categories, and classification systems abound" (p. 381). In their study of the Internet, they adapted a set of potential gratifications from those studies of conventional media. Therefore, the second research question in this exploratory study is:

RQ2: What are the motives of college students' associated with IM and e-mail use?

Gratification Opportunities

Another aspect of uses and gratifications that lends itself to interpersonal research is the concept of functional alternatives. Ruggiero (2000) pointed out that the earliest researchers "often failed to search for the interrelations among the various media functions...that might have led to the detection of the latent structure of media gratifications" (p.5).

Dimmick drew the concept of gratification opportunities from Carlstein's work on time geography which is based on the central fact that people – individuals and groups – change locations over time. This means "human time was a resource because all activities require it" (Dimmick, 2003, p. 31). Thus, media are competing for user(s)'s time. Dimmick explained that the connection between gratifications and time use can be seen clearly in the contrast between the newer and the older media of communication. The traditional media like newspapers, radio, and television have rigid and limited time schedules which users have less flexibility in allocating time

usage. These unique features of the traditional media can also apply to the CMC mode like e-mail and instant messaging which allows multiple users to communicate asynchronously and synchronously. However, when users require immediate feedback, IM can offer more gratification opportunities than e-mail.

According to Dimmick and Albarran (1994), gratification opportunities can be defined “as the perceived attributes of a medium relating to time use and expanded choice of content” (p.224). As a result, if a medium offers more of a given content type because of the attributes of the medium, it will provide a greater selection of gratification opportunities to the audience. Thus, the concept gratification opportunities differ from gratifications obtained in that it reflects the attributes of a medium instead of attributes of the users. Applying this construct to study media preference among TV, Cable TV, and VCR, Dimmick and Albarran (1994) found significant contributions from gratification opportunities in determining media choice.

Thus, when measuring the preference of IM and e-mail in this exploratory study, the dimension of gratification opportunities is added to the traditional uses and gratifications research framework. Therefore, the third research question is:

RQ3: What are the perceived gratification opportunities from IM and e-mail among college students?

Recent studies already show that IM has the potential to edge out e-mail. The 2005 "Teens and Technology" report from the Pew Internet and American Life Project shows that 75% of American teens use Internet to send and receive IM while 42% of adults do so. However, teens and adults share similar figures in sending emails with 89% and 90% respectively (Kerner, 2005). Besides, past researches have demonstrated gender differences in the use of information technology. For example, it was found that men have dominated the technological genre and have also “comprised the majority of users of computer networks” (Herring, 1994, p.1). Leung

(2001) found that males used ICQ to fill time between classes; females on the other hand used ICQ to show or seek affection and to socialize with friends. Will age and gender determine the choice of CMC? Thus, the fourth and fifth research questions are:

RQ4: How can demographics, gratification opportunities and gratifications obtained discriminate CMC preference between instant messaging and e-mail by college students?

RQ5: To what extent can demographics, gratification opportunities and gratifications obtained predict the level of use in (a) instant messaging and (b) e-mail?

Methods

This exploratory research adapted both gratification opportunities and gratifications-obtained to study their roles on CMC mode preference between IM and e-mail. A focus group was conducted to produce a set of gratification opportunities items for e-mail and instant messaging particularly refers to MSN Messenger and Yahoo! Messenger which are the two most popular applications used.

Sample and Data Collection

A group of 40 college students of Year 3 and 4 were asked to give ten reasons for using instant messaging. Data were used to construct a questionnaire which contains 13 gratification opportunities questions about the use of instant messaging and e-mail. The questionnaire also contains 22 questions on gratifications obtained which are modified from the Interpersonal Communication Motives Scale developed by Rubin, Perse, and Barbato in 1988 (Rubin, Palmgreen, & Sypher, 1994) for the use of IM and e-mail; 2 questions on usage frequency of IM and e-mail and one question on media choice together with 4 questions on demographics (gender, year in school, age and

daily time spend online). The questionnaire adopted a 7-point Likert scale with 7 = strongly agree and 1 = strongly disagree.

The questionnaire was posted on the Interactive Learning Network (ILN) of the Hong Kong Shue Yan College from 18 March to 1 April 2006. Only students and staff of the college have access to the ILN which ensure all respondents are the desired research target - college students. Announcements were made on the ILN to encourage participation and it was made clear that their participation was voluntary.

There were a total of 236 respondents of which 181 were female and 55 were male. The respondents were asked to indicate their year in school by clicking on the appropriate item. First-years accounted for 25% (n = 60), second-years 21% (n = 49), third-years 31% (n = 72) and forth-years 23% (n = 55).

Respondents were also asked to report how many hours they spend online on a typical day using MSN Messenger/Yahoo! Messenger (M = 3.14, SD = 1.09), and using e-mail (M = 2.18, SD = 0.56). The length of time, in years, that respondents had used MSN Messenger/Yahoo! Messenger (M = 3.57, SD = 1.27) and e-mail (M = 4.68, SD = 0.76) was also measured.

Analytical Procedure

Based on the 13 gratification opportunities questions about the use of IM and e-mail, principal components factor analysis was conducted and three questions were eliminated. The factor analysis identified two common IM and e-mail gratification opportunities factors: *multi-functions* and *synchronicity*. Similarly, factor analysis was conducted with the 22 gratifications-obtained items from IM and e-mail and six items were dropped.

Besides, discriminant analysis were used to identify predictors for IM and e-mail preference and regression analyses were also conducted to explain the frequency of

use of IM and e-mail among college students.

Findings

Preference between IM & E-mail

There were 236 completed questionnaires received. CMC preference between IM and e-mail was assessed by asking respondents "If you could only choose 1 channel to communicate with your friends and relatives, which one would you choose?" Data show that 78% (n = 185) of the students preferred instant messaging (MSN Messenger /Yahoo! Messenger) while 22% (n = 51) preferred e-mail.

Motives Associated with IM and E-mail Use

Factor analysis was conducted and four common factors were identified from the use of IM and e-mail and which are: *peer pressure, relationship maintenance, entertainment/relaxation and sociability*. Sixteen questions remained significant and six items were dropped because they are modified from the Interpersonal Communication Motives Scale which is not developed for CMC use and cannot fully reflect the attributes of CMC. However, college students obtain different levels of gratifications from IM and e-mail from the four factors.

Gratifications Obtained from IM – (1) '**peer pressure**' which contains 5 items including most of my friends use / prefer IM to communicate, it is a habit and trendy to use IM, IM is fun and entertaining (alpha = 0.85; eigenvalue = 3.26; explained 23.32% variance), (2) '**relationship maintenance**' comprises of 3 items like I can make new friends, keep contact with friends/family/boyfriends/girlfriends (alpha = 0.63; eigenvalue = 2.10; explained 15.05% variance), (3) '**entertainment/relaxation**' has 2 items including I feel less pressure/embarrass and can express myself freely (alpha = 0.66; eigenvalue = 1.97; explained 14.07% variance) and (4) '**sociability**' consists of

3 items including I engage in more social activities, feel less lonely, and my relationships with friends are better (alpha = 0.71; eigenvalue = 1.77; explained 12.63% variance). Table 1 summarizes the results of factor analysis.

Gratifications Obtained from E-mail - (1) '**peer pressure**' consists of 4 items including most of my friends use / prefer IM to communicate, it is a habit and trendy to use IM (alpha = 0.79; eigenvalue = 2.47; explained 19.01% variance), (2) '**sociability**' contains 3 items including I engage in more social activities, feel less lonely, and I can make new friends (alpha = 0.69; eigenvalue = 2.19; explained 16.83% variance), (3) '**relationship maintenance**' is made up of 4 items I can keep contact with friends/family/boyfriends/girlfriends/professors and my relationships with friends are better (alpha = 0.71; eigenvalue = 1.93; explained 14.87% variance), (4) '**entertainment/relaxation**' has 2 items I feel less pressure/embarrass and can express myself freely (alpha = 0.63; eigenvalue = 1.66; explained 12.97% variance). Table 1 also summarizes the results of factor analysis.

<Insert Table 1 about here>

Gratification Opportunities from IM and E-mail

Similar to gratifications obtained, college students gained different levels of gratification opportunities from IM and e-mail from the two factors identified from the factor analysis, namely, multi-functions and synchronicity (Table 2).

Gratification Opportunities of IM – (1) '**multi-functions**' consists of 5 items including I can design my own user interface, download and use different emoticons, IM has many functions and accessories to use and are easy to use, I can send free voicemails (alpha = 0.81; eigenvalue = 3.15; explained 24.27% variance) and (2) '**synchronicity**' is made up of 5 items including I can get immediate response,

chat with my friends in real-time, arrange conference chat, chat with different friends at the same time and it has incoming message alert (alpha = 0.78; eigenvalue = 2.59; explained 19.92% variance). Table 2 summarizes the results of factor analysis.

Gratification Opportunities of E-mail – (1) **'synchronicity'** has 5 items including I can get immediate response, chat with my friends in real-time, arrange conference chat, chat with different friends at the same time and it has incoming message alert (alpha = 0.86; eigenvalue = 3.11; explained 34.62% variance) and (2) **'multi-functions'** contains 2 items including I can design my own user interface, download and use different emoticons (alpha = 0.72; eigenvalue = 1.63; explained 18.10% variance). Table 2 summarizes the results of factor analysis.

<Insert Table 2 about here>

Predictors of IM & E-mail Preference

To understand what contribute to such preference, a discriminant analysis was run using demographics, gratification opportunities and gratifications-obtained from IM (MSN Messenger /Yahoo! Messenger) and e-mail as predictors.

Results in Table 3 suggest that students who preferred instant messaging (MSN Messenger/Yahoo! Messenger) tended to be in lower school year and greatly value the multi-functions opportunities provided by IM – functions such as the ability to allow users to send voice mail, download and use flash and animated emoticons, personalize their user interface, use of webcam, conference chat, and play games online (see detail questions in Table 1). The results support Fulk's (1993) study that "those who are younger and more educated would be more receptive to a newer medium" (as cited in Rice & Webster, 2002, p. 205). It is obvious that e-mail lacks a majority of functions that IM can provide especially those considered 'interactivity'

items important like webcam, voice chat, conference chat, online games, and voicemails that can determine the choice of IM and e-mail. William, Rice, & Roger's study in 1988 showed that "interactivity is significant in uses and gratifications research because participants can have control over and can exchange roles in mutual discourse during a communication process" (as cited in Ruggiero, 2000, p. 15). Besides, instant messaging has an advantage over e-mail is its ability to enable users to multi-task which means IM allows users to have multiple synchronous conversations at once (Lenhart et al., 2001). These explain why IM is becoming more popular than e-mail among college students.

In addition to gratification opportunities, students also reported that, in using IM, they have obtained much gratification in a reciprocal manner from their peers as most of their friends also use IM. Factor "peer pressure" in gratifications-obtained has very high significance among other three gratification factors (relationship maintenance, sociability, and entertainment/relaxation). Students reported that they prefer IM because most of their friends use it and prefer it to communicate. Their use of IM has become a habit and they also feel trendy to use IM which is fun and entertaining to use. This finding is consistent with the multi-functional gratification opportunities that students gain from IM. The more opportunities that college students gain from IM, the more they will use it to communicate with their friends. Interestingly, it was also found that students who preferred IM tended to report that their friends have become less reliant on e-mail to keep in touch with friends, relatives and professors, and even to make new friends. The cases correctly classified 82.1% of the cases.

<Insert Table 3 about here>

Usage Frequency in IM and E-mail

Regression analyses of demographics, gratification opportunities and gratifications-obtained on frequency of use in IM and e-mail were run. Results show that gender, male ($\beta=.11$, $p<.05$) and year in school ($\beta=.17$, $p<.05$) were significant predictors of using IM. This means that heavy users of IM tended to be upper class male students. Regression results demonstrate that the multi-functions of gratification opportunities of IM, the gratifications-obtained from the common use of IM among their peers (peer pressure, $\beta= .35$, $p<=.001$), feeling that IM improves their social relationships (sociability, $\beta= .22$, $p<=.001$), and students' use of IM for entertainment or relaxation ($\beta= .15$, $p<=0.01$) were significant factors determining the amount of IM use. In contrast, in a separate regression analysis using the similar predictors shows that no dimensions from gratification opportunities from e-mail were found significant for the level of e-mail use. However, those who often use e-mail were those who reported that their friends also used e-mail regularly in a mutual or reciprocal relationship (peer pressure, $\beta= .20$, $p<=.001$) and their use of e-mail were for entertainment or relaxation ($\beta= .13$, $p<=0.01$). The use of e-mail is explained by Charney and Greenberg (2002) who stated that traditional assumption on e-mail usage was primarily for task-related communication and therefore, 'sociability' is not a significant factor for e-mail usage. The amount of variance explained by demographics, gratification opportunities, and gratifications obtained were 30% for IM use and 7% for e-mail (details in Table 4).

<Insert Table 4 about here>

Conclusion

In sum, the traditional approach of using gratifications obtained in the study of motives in the adoption and use of media put much emphasis on the users' perspective and paid less attention on the attributes of the medium. This exploratory research confirmed the important role of gratification opportunities in studying media preference for CMC mode and implication for future research will be discussed.

First, gratification opportunities is a powerful predictor of CMC preference between instant messaging (MSN Messenger / Yahoo! Messenger) and e-mail. As illustrated in Table 5, the factor means of the four dimensions in gratifications-obtained and two from gratification opportunities from IM all scored higher than those from e-mail (Table 5). Furthermore, the majority (78%) of the total 236 respondents indicated they will choose IM instead of e-mail if they can only choose one medium to communicate with friends and family. Among the two newly labeled dimension of gratification opportunities, 'multi-functions' was considered an important predictor for college student to choose IM. This suggests that the attributes of a medium is a major concern for CMC users. IM not only offers multi-media functions but also interactivity where user can communicate with more than one recipient synchronously. Besides exchanging text, they can use webcam, voice chat, web-conferencing to communicate with multi-recipients at the same time. The Pew Internet and American Life Project revealed its findings in 2005 that most American teens use IM to share music and videos with friends on their 'buddy list'. More, users can exchange files in various formats like videos, voice, animated emoticons instantly without the worry of file size. The functions that IM offers excelled other interpersonal communication modes like telephone and e-mail. These functions provide more opportunities for interpersonal communication and thus enhance user's social activities which links to other gratifications obtained from the use of IM.

Furthermore, it is interesting to find that respondents spent more time on using MSN Messenger/Yahoo! Messenger ($M = 3.14$, $SD = 1.09$) than e-mail ($M = 2.18$, $SD = 0.56$) despite their years of experience in using IM ($M = 3.57$, $SD = 1.27$) is a lot less than e-mail ($M = 4.68$, $SD = 0.76$). Trepte, Ranne and Becher (2003) stated that “new media are much broader in terms of their content, the communication channels involved and the possible patterns of usage” (p. 458). This further illustrates that the gratification opportunities given by IM will determine the media choice among college students. It also strengthened the notion that gratification opportunities is a key media choice predictor in CMC.

Second, in addition to gratification opportunities, students also obtained other gratifications from using IM and e-mail. College students prefer IM because of ‘peer pressure’. Respondents disclosed that they have obtained much gratification in a reciprocal manner from their peers as most of their friends also use IM. In addition, IM is so popular that if one is not using IM, he or she will be considered out-dated which is indicated in one of the items of this factor. Besides, IM is so common that students will log in to MSN Messenger or Yahoo! Messenger whenever they are connected to the Internet. More, the softwares will automatically alert every members of their ‘buddy list’ instantly. It is also found that students who preferred IM tended to report that their friends have become less reliant on e-mail to keep in touch, to make new friends, and even with professors. This suggests that students are more rely on IM to maintain their relationships with friends and relatives and even to make new friends.

Third, IM usage preference is significantly related to ‘sociability’. This suggests that students feel less lonely when they are engaged in IM chat than from e-mail because they know the recipient’s online status and they can gain instant feedback. During IM chat, they can fire off flash or animated emoticons or play online games together. More importantly, this will increase interactivity between users. Researches

have shown that interactive function of a medium will determine user's preference.

Fourth, it is interesting to find out that both IM and e-mail users consider 'entertainment/relaxation' is significant in determining their usage. College students reported that they feel more relaxed and easier to express themselves through the use of either IM or e-mail. This may be explained that both IM and e-mail is text-based communication which is not functional alternative to face-to-face communication (Flaherty, Pearce and Rubin, 1998) where stress will be a result. More, the use of emoticons in both applications can help users to avoid misunderstandings when lacking contextual information.

Fifth, results from the regression analyses using demographics as predictor, despite the majority of the respondents are female (77%), male consisted 23% of the sample use IM more often. Despite the fact that more females are gaining equal chance to education and internet access, researches show "gender differences do exist in CMC, and males tend to assume the same roles they do when communicating face-to-face" (Gregory, 1997, cited from abstract). However, recent studies have revealed that gender gap in the Internet is narrowing; therefore, future studies may be required to find out the reasons why fewer women are using CMC than men. This study also shows that students in lower year in school and male in higher school year tend to choose IM over e-mail.

Limitation & Suggestion for Future Research

There are limitations in the present research. One is that there is no master list of gratification opportunities and gratifications-obtained for CMC this study can follow. There were only 7 items used in the gratification opportunities dimension in Dimmick and Albarran's study in 1994 and the research was about the traditional media preference. Thus, this research can only draw 2 new dimensions of gratification

opportunities: multi-functions and synchronicity. However, only 'multi-function' was found significant as a predictor for CMC preference while 'synchronicity' which is a unique feature of IM was found not a predictor of CMC. Thus, it is believe that the construction of the items used in the questionnaire did not reflect all attributes of IM and e-mail. A second concern is that, a pilot study was not conducted to collect more concise data in designing the questionnaire. Therefore, items in the four factors of gratifications-obtained for IM and e-mail are not compatible which may affect the reliability of the results in applying to a larger population. In future research, a pilot study is recommended to ensure data and factors of gratification opportunities and gratifications-obtained can truly reflect the attributes of these two computer applications. Furthermore, the data were collected from a sample of college students in Hong Kong, therefore, applications or generalization of these results from this study to other population may not be justified. Future studies on CMC preference should focus on gender differences as past researches have shown the imbalance usage of the Internet despite the fact that both men and women gain equal access to the Internet in most of the developed countries. Also, the amount of time used with IM and e-mail should be analyzed to provide further information of their context of use. This study shows that students tend to use e-mail to keep contact with professors instead of using IM. The fact that college students use e-mail to submit assignments and ask questions about class work is very popular. However, only a few students who have developed a closer relationship with their professor offline will use IM to communicate with them. This suggests that IM is still being considered as a casual CMC mode and e-mail as task-oriented. Moreover, this study shows that 59% of the respondents are not aware of the high risk in virus attack when sending and receiving files via instant messaging. Recent studies have indicated that IM is widely used in the workplace and companies are losing money on low internet security reasons. This finding is

important for future research on IM usage in the workplace as these college students will join the workforce in the near future. Thus, new research is needed to better understand the role of gratification opportunities, gratifications-obtained and demographics in CMC preference in the workplace.

Despite the limitations, this research has successfully drawn 2 new gratification opportunities dimensions: multi-functions and synchronicity for computer-mediated communication mode which could be used as reference in future research.

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Table 1: Factor Loadings of 16 Gratifications Obtained Items in Instant Messaging and E-mail (N = 236)

	IM (MSN/Yahoo Messenger)				E-mail			
	Factors				Factors			
	1	2	3	4	1	2	3	4
Peer Pressure								
1. I use (MSN/Yahoo Messenger OR e-mail) because most of my friends use it	.84				.83			
2. Because most of my friends prefer (MSN/Yahoo Messenger OR e-mail) to communicate	.83				.78			
3. Because it is a habit to use (MSN/Yahoo Messenger OR e-mail)	.67				.68			
4. I feel trendy to use (MSN/Yahoo Messenger OR e-mail)	.65				.66			
5. It is fun and entertaining to use (MSN/Yahoo Messenger OR e-mail)	.65							
Relationship Maintenance								
6. I can make new friends using (MSN/Yahoo Messenger OR e-mail)		.70						
7. I can keep contact with friends/family using (MSN/Yahoo Messenger OR e-mail)		.69				.72		
8. I can keep contact with boyfriend/girlfriend using (MSN/Yahoo Messenger OR e-mail)		.62				.57		
9. I can keep contact with professors using e-mail						.84		
10. My relationships with friends are better after exchanging e-mails with them						.43		
Entertainment/ Relaxation								
11. I feel less pressure/ embarrass using (MSN/Yahoo Messenger OR e-mail)			.82				.84	
12. I can express myself freely in (MSN/Yahoo Messenger OR e-mail)			.70				.78	
Sociability								
13. I engage in more social activities after chatting on (MSN/Yahoo Messenger OR e-mail)				.77				.77
14. I feel less lonely chatting on (MSN/Yahoo Messenger OR e-mail)				.68				.71
15. My relationships with friends are better after exchanging (MSN/Yahoo Messenger OR e-mail) with them				.44				
16. I can make new friends using e-mail								.70
Eignevalue	3.26	2.10	1.97	1.77	2.47	1.93	1.66	2.19
Variance explained (%)	23.32	15.05	14.07	12.63	19.01	14.87	12.79	16.83
Cronbach's alpha	.85	.63	.66	.71	.79	.71	.63	.69

The scale used was 1 = strongly disagree, 7 = strongly agree.

Table 2: Factor Loadings of 10 Gratification Opportunities Items in Instant Messaging and E-mail (N = 236)

	IM (MSN/Yahoo Messenger)		E-mail	
	Factors		Factors	
	1	2	1	2
Multi-functions				
1. I can design my own user interface in (MSN/Yahoo Messenger OR e-mail), e.g. background color, user profile, text font, etc.	.764		.876	
2. I can download and use different emoticons in (MSN/Yahoo Messenger OR e-mail) e.g. flash emoticons, animation emoticons	.738		.837	
3. Various functions in (MSN/Yahoo Messenger OR e-mail) are easy to use	.598			
4. (MSN/Yahoo Messenger OR e-mail) has many functions and accessories to use, like webcam, voice chat, conferencing, online games, etc.	.718			
5. I can send free voicemails through (MSN/Yahoo Messenger OR e-mail)	.761			
Synchronicity				
6. I can get immediate response using (MSN/Yahoo Messenger OR e-mail)		.751		.843
7. I can chat with my friends in real-time using (MSN/Yahoo Messenger OR e-mail)		.727		.776
8. I can arrange conference chat using (MSN/Yahoo Messenger OR e-mail)		.603		.777
9. I can chat with different friends at the same time using (MSN/Yahoo Messenger OR e-mail)		.601		.792
10. (MSN/Yahoo Messenger OR e-mail) will alert me when someone wants to chat with me while I am working on other things		.504		.679
Eigenevalue	3.15	2.59	1.63	3.11
Variance explained (%)	24.27	19.92	34.62	18.10
Cronbach's alpha	.81	.78	.72	.86

The scale used was 1 = strongly disagree, 7 = strongly agree.

Table 3: Discriminant Analysis of CMC Preference ^a with Demographics, Gratification Opportunities and Gratifications Obtained from Instant Messaging (MSN/Yahoo Messenger) and E-mail as Predictors (N=236)

Predictors	Structure Coefficients
Demographics	
Gender (male = 1)	.17
Age	-.19
Year in school (year 1 = 1)	-.35***
Gratification Opportunities from IM	
Multi-functions	.33***
Synchronicity	.19
Gratifications Obtained from IM	
Peer Pressure	.48***
Relationship Maintenance	.20
Sociability	.13
Entertainment/Relaxation	.01
Gratification Opportunities from E-mail	
Multi-functions	-.11
Synchronicity	-.07
Gratifications Obtained from E-mail	
Peer Pressure	-.34***
Relationship Maintenance	-.30***
Sociability	.02
Entertainment/Relaxation	-.07
<hr/>	
Eigenvalue	.50
Canonical correlation	.58
Degree of freedom	21
Wilks' Lambda	.67
Significance	p<.000
<hr/>	
Group Centroids	
IM	-.37
E-mail	-1.33
Cases correctly classified	82.1%

Notes:

^a CMC preference was assessed by asking respondents "If you could only choose 1 channel to communicate with your friends and family, which one would you choose?" IM (MSN/Yahoo Messenger) was coded 1 and E-mail = 0.

Table 4: Regression of Demographics, Gratification Opportunities, and Gratifications Obtained on Frequency of Use in Instant Messaging (MSN/Yahoo Messenger) and E-mail (N=236)

Predictors	Level of Use in	
	IM	E-mail
	β	β
Demographics		
Age		
Gender (male = 1)	.11*	
Year in school (year 1 = 1)	.17*	
Gratification Opportunities from IM or E-mail		
Multi-functions	.19**	
Synchronicity	.00	
Gratifications Obtained from IM or E-mail		
Peer Pressure	.35***	.20**
Relationship Maintenance		
Sociability	.22***	.12#
Entertainment/Relaxation	.15**	.13*
<hr/>		
R^2	.33	.11
Final adjusted R^2	.30	.07

Notes:

* Figures are standardized beta coefficients.
 # $p < .1$; * $p < .05$; ** $p < 0.01$; *** $p < .001$

Table 5
Factor Means: Respondents' CMC Preference of IM and E-mail

	IM Factor Mean	E-mail Factor Mean	Sig. (2-tailed)
Gratifications Obtained			
Peer Pressure	5.75	4.45	.000***
Relationship Maintenance	5.61	4.88	.002***
Entertainment/ Relaxation	5.48	4.84	.014**
Sociability	5.00	3.62	.000***
Gratification Opportunities			
Multi-functions	6.07	4.38	.000***
Synchronicity	6.02	3.57	.004***

Notes: #p ≤ .1; *p ≤ .05; **p ≤ .01; ***p ≤ .001