The Impact of the increasing use of Instant Messaging (IM) on user's real social communication and Integration

Hameed, Shafqat; Badii, Atta; and Mellor, John

Abstract—*The aim of the study was to establish whether instant messaging displaced some of the students' normal amount of traditional social communication thus negatively impacting the students' social integration.*
There have been some conflicting findings regarding the positive and negative impacts of Internet Messaging on the quality of communication and relationships as attained, and, the pattern of deployment of communication channels as maintained by the users of Internet Messaging and CMCs generally.

Previous research had resulted in somewhat fragmented and contrasting sets of findings relating to the above research question; this motivated an in-depth study as was performed in this research with several insights arising. Following the analysis of previous research in this area and the research methods they had deployed, a survey-based instrument was adopted together with a supplementary structured interview to elicit explanations responses to the completed questionnaires as returned by 82% out of the sample frame size of 250 comprising equal number of males and females university students.

These findings verified that although students preferred face-to-face or phone communication, their use of IM reduced the amount of time they spent communicating in this way without detracting from their engagement in social communication overall; rather some students maintained that they experienced a greater sense of connectedness with their family and friends as facilitated, not hindered, by their online messaging. It was suggested that the reasons were rooted in the convenience, flexibility and economy offered by IM and that IM in this sense contributed as inexpensive social amplification rather than detracting from the feeling of being connected. The findings also revealed that IM use by subjects in this study did not detract from the amount of time they spent in social environments. This could imply that there are specific underlying needs uniquely met by each distinct social interaction modality e.g. face-to-face versus IM and this essentially protects each modality from having its normal usage significantly eroded such that for each individual a framework of complementary and mutually amplifying communication modalities largely co-exist.

Keywords: Communication, Internet, Integration, Messaging, pattern, Trends, user.

1. INTRODUCTION

As the Internet is expanding the realms of communication for all its users, many researchers are exploring the impact of it on people. We have seen the recent expansion of computer–mediated communication (CMC) both in popularity and features. But how has this new form of communication impacted on those that use it? Since the emergence of the Internet, many researchers have delved into the impact of such a huge technology. Some researchers believe it is a godsend, allowing Internet users to communicate with one another, viewing the massive amounts of information for research purposes, for personal entertainment and online shopping. Norman Nie (2004) explored the patterns of activities Americans take part in online. He found that 70 – 75 percent of his 4,839 sample had an email address and that the average user spent close to 3 hours online per day compared to a mere 1.7 hours per day watching television. Of this time spent online, 57 percent of it was spent communicating through email, IM and chat rooms. The remaining 47 percent of the users' time was spent playing games, surfing, shopping amongst other things. Although this is a completely American study, these figures are difficult to ignore. It is evident that communication on the Internet is increasing.

However, whether the Internet has a positive or negative impact depends upon the quality of users' online activity, i.e. essentially this is decided by considering what the users are giving up in order to pursue their activities online. For instance, Nie and Erbring (2002) suggested that Internet users spend more time on the Internet than they did on the telephone, an estimated 25 percent less time. This implies that Internet communication is rising at the expense of old technologies, this is called displacement. Nie (2004) also compared the impact of the Internet on users socialising, sleeping and television habits. He found that the average respondent who reported spending 55 minutes a day on the

Internet encounters a 22minute reduction with face–to–face time spent with family, a 10minute reduction in time spent watching television and an 8minute a day less sleep.

But why are people spending more time communicating on the Internet than on the telephone? Its popularity could be due to the fact that users can experience a vast array of communication forms on the Internet. The Internet allows users to communicate asynchronously through electronic mail (email) and bulletin boards, as well as synchronously through Instant Messaging (IM) and chat rooms. So why do researchers appear to regard this as an unwelcome trend? Some researchers believe that this vast technology is affecting Internet users' social relationships and psychological well–being. Katz and Aspden (1997) investigated the effect of involvement in social networks. They failed to find a correlation between Internet usage and poor social involvement, even although their study was conducted through a large nationwide survey.

Kraut et al (1998) through the original findings of the Home Net Project of Carnegie Mellon University suggested that Internet use is linked with poor social relationships. The study revealed that increased Internet use was associated with less family communication, a smaller social network and an increase in loneliness and depression. Kraut et al's longitudinal research allowed the direction of potential causality to be established even although their sample may have been unrepresentative. However, the follow-up study revealed that the negative effects had disappeared. It was now perceived that Internet use had a positive impact on face–to–face communication, although this was dependent on whether the user was an introvert or extrovert.

Other researchers are also beginning to agree with the notion that communication on the Internet is limited compared to face–to–face interaction. Researchers believe that Computer Mediated Communication Systems (CMCs) lack communicative cues such as facial expressions, voice tone and physical bearings. This theory is called the cues – filtered out (Culnan et al 1987). Kiesler et al. (1991) agrees with this perspective. She and her colleagues believe that these forms of CMCs are only text – based and therefore lack any physical and social cues; for instance, a smile to indicate attraction or happiness, or a frown to indicate anger or unhappiness. Because of the limited use of CMCs, it is thought that communicating via the Internet becomes formal, task orientated and impersonal thus making it difficult to form close relationships with others using the Internet. Kiesler and her colleague's work may now lack some validity due to recent developments in this area as there has been a transformation in new CMC technology. Users can now mimic these physical cues through the use of 'emoticons' such as ☺ to indicate a smile and ☹ to indicate a frown. As well as this, user can also take part in audio and visual (through a webcam) communications that are used in many IM and chat room atmospheres.

Despite these negative impacts, users are still logging on to the Internet, and using it to communicate. Fischer (1992) believes the Internet increases people's social involvement in the same way that the telephone did. Being connected to the Internet can give users the opportunity to meet millions of people as well as keep in touch with people existing in social circles that they may otherwise not see, consequently expanding the number of people that they can communicate with. Although this communication is perceived as impersonal, one study conducted by Walters and Burgoon (1992) suggests that online relationships simply take longer to develop than face–to–face ones and could be just as rich.

As you can see, there are many theories regarding the impact of the Internet as a communication tool, some believe the use of it is a result in time displacement and simply a 'new' way to do an 'old' thing. Others believe that it could lead to poor social involvement, and that online relationships are less personal than those that are face–to–face.

This study is aimed at considering the Instant Messaging usage patterns amongst students and whether their offline communicational patterns are affected. This will be determined through primary research in the form of questionnaires using a survey based approach. The sample will include all personality types (introvert and extrovert) to gain a perspective on the overall impact of Instant Messaging on students.

A hypothesis will be based on the following research questions:

What are the impacts of the Internet on students?
What are the impacts of computer – mediated communication on students?
How do these affect student offline communications?
How have previous technologies impacted students?

2. THE SIGNIFICANCE OF THIS STUDY

Much of the research done on the Internet is predominantly American, based on the holistic impact of the Internet. Although the Internet is regarded as a predominant communicational tool,

there are growing concerns for the quality of these relationships compared to face–to–face, and, the communication modality displacement issues etc as described above. The fundamental limitation of prior research is the assumption that all kinds of people respond to the Internet in the same way. For instance those who have limited access to the Internet will utilise it in a different way than those who have unlimited access. Much of the research available on the use of CMCs is fairly new therefore the area needs to be explored fully in order to understand its consequences.

3. REVIEW OF PREVIOUS RESEARCH

It was in 1973 that the first Internet-like connection was made by University College London. It had previously been used as a communication tool within the US military. Now, it is integrated into the lives of 190 million Europeans according to Stats Compiler Nua (December 2004), and in 2004 – 5 saw an estimated 840 millions people worldwide (Global Reach Research Agency) joining the Internet; so it has become a very important part of our lives. It allows people to stay connected with their friends and families through email, instant messaging and webcam technology as well as allowing access to newspaper articles, check stocks and shares, online game participation and gambling (Coget et al 2002 Levy and Strombeck 2002).

With this technology now becoming increasingly accessible worldwide, many researchers have developed arguments concerning the impact of the Internet as a modern communicational tool.

4. BACKGROUND TO INSTANT MESSAGING (IM)

Computer Mediated Communication (CMC) is the term used to describe all communications that take place through computers. Before the Internet was as well established and powerful as it is today, people would communicate through simplistic bulletin boards. Users would need to dial up to the computer housing the bulletin board and then navigate through the board using text based commands (HowStuffWorks?). This soon became a popular means of communication amongst Internet users leading to large computer firms catching onto the idea. The online services such as America Online (AOL) and CompuServe began integrating these bulletin boards into their software packages. These became immensely popular as they created online communities for the users. This resulted in the key features of real – time instant messaging and chat rooms being developed. Although in order for this type of real – time communication to succeed, users must be online at the same time to correspond with one another in real-time.

As the popularity of this new communication channel grew, various new software products were developed for this market. However, it was Mirabilis, a company founded by four Engineers from Israel that created the first standalone instant messaging client in November of 1996 called ICQ. This was a free instant messaging (IM) service that was accessible to anyone connected to the Internet. ICQ, an abbreviation meaning “I Seek You”, was the first to develop many of the standard features of IM services currently available. This extraordinary service was then bought by AOL to add to their Internet services. Soon after the phenomenal success of this, AOL developed its own instant messaging service AOL Instant Messenger (AIM). Its popularity soared due to the fact that users could communicate with up 200 million users of regular America Online. Since the introduction of ICQ and AIM, many other IM services have been created, such as Microsoft’s Instant Messenger (MSN Messenger) and Yahoo Instant Messenger.

4.1 Attraction of IM

The most obvious attraction of IM is that it allows people to stay in touch with their friends and family. This sense of availability is of great importance to students as it enables them to feel connected and supported by allowing instantaneous contact with their friends and family irrespective of the convenience value of exchanging messages to make arrangements etc. Sending a message over an IM link has become so simple that many people are using it as their primary form of communication. IM also allows users to interact in one–to–one conversations as well as group conversations and facilitate interaction between everyone. IM also has integrated tools to allow file transfer between friends, video messaging, and, online gaming which increases the users’ entertainment and communication online. One reason for the ever increasing popularity of IM may be due to the fact that IM communication is relatively cheap compared to other forms of communication such as the telephone (Grinter and Eldridge 2001). This may be true for users communicating with one another over different continents; however, it is uncertain if this is the case with national calls as these may be variable depending on special tariffs, free phone call allowances, as compared with Internet service charges. Another reason for the increased popularity of IM suggested by Nardi et al (2000) is that as IM is almost synchronous and text based, allowing group communication as well as one–to–one, it virtually combines the

features of the telephone, e–mail and chat rooms into one.

Another important impact of IM on students' social lives is that IM allows users to express themselves in many ways. For instance MSN messenger service allows users to talk to one another through text based conversations. However, if one wanted to express a smile, they could do so using a feature called 'emoticons'. These are small cartoon like pictures that may express how the user is feeling at that point in the conversation. They also allow away of creating profiles, which can be customised to the users' desire and can be used to express their thoughts and feelings.

4.2 The Previously Reported IM Usage Patterns and Trends

In 2000, Neustadtl and Robinson conducted a study in America into the usage of the Internet. The researchers posed a question: "do Internet users report more extensive social contacts, or do they report fewer contacts than non-users?" They based their study by questioning users' social interactions with relatives, neighbours, friends, and, at bars. Neustadtl and Robinson used a frequency scale based on a rating ranging from of 1 (almost everyday) to 7 (never) to characterise a respondents' contacts through each type of interaction channel. The weighting scheme used for this ranking was as indicated below:

Table1: weighting scheme used

Category	Weight
Almost every day	350
Once or twice a week	75
Several times a month	40
About once a month	12
Several times a year	5
About once a year	1
Never	0

Of the total 2353 respondents who were surveyed, some 2278 reported using the email and the Internet. The weights produced an estimated annual average of traditional social interaction as 84 evenings with relatives, 50 evenings with neighbours, 53 evenings with friends and 20 evenings in bars. In order to identify the preferred method of contact, the respondents were asked how many people they kept in contact with through the different communication channels in person, by telephone, letters, meetings and e-mail. The researchers then compared these values with those taken from the General Social Survey (GSS) of 1974 and found that there was a decline in frequency of contacts with neighbours and at bars. Contrary to these findings, they discovered that the contact with relatives had not changed, and frequency of contact with friends had shown an increase. However, since no questions had been asked in the 1974 survey to distinguish channel-specific components of the total social contact time, any comparisons between the two results had to remain at the aggregates level i.e. could not take into account any computer-mediated communication. Neustadtl and Robinson did however notice a "Newtonian correlation", in that as the respondents who had reported that they communicated more via e-mail, tended to have more contacts also through other channels i.e. via phone, in person etc. Neustadtl and Robinson concluded that more gregarious people will have contact with more people through all the communication channels. Such a correlation may however no longer apply, as further development of CMCs has resulted in different patterns of communication emerging.

On the quality side, researchers such as Kiesler et al 2001 states clearly that the quality of the online relationships are found to be lower than those of face-to-face and over the telephone. This suggests that the level of intimacy normally attained through such online relationships is fairly low. Hu et al (2004) examined the relationship between IM and intimacy. Their study was administered on 138 university students in North-Eastern United States. They found that IM tends to promote rather than hinder intimacy, and that frequent communication via IM actually encourages the desire to meet face-to-face. According to this result online communication re-enforces and promotes face-to-face communication. However, Mallen et al (2003) examined the relational and discourse variables in face-to-face and online communication. They found that more people who communicated face-to-face felt satisfied with their experiences and had attained a greater level of closeness or inter-connectedness than those who communicated online. In their findings they stated that users, communicating within online groups, who had more online friends in their daily life, reported a greater degree of closeness during conversations.

They theorised that online interaction could be dependant upon the users familiarity with technology. Previous research has shown (find research) that the demographics of Internet users have shifted to a younger and less technically-skilled population. This could be due to the fact that younger users have developed a familiarity

with computers than was the case with the majority of people born in 1981.

Some researchers believe that CMCs are just a new means to communicate with old friends and family. Herring 2004 suggests that CMC on the Internet is slouching towards the ordinary. She maintains that as CMCs provide a medium to communicate peer-to-peer, this is typically secondary and is a sub-ordinate of another purpose, such as exchanging files between users and participating in online games. This viewpoint contrasts with the views of earlier researchers, as described above, who regarded CMCs as, in the main, a means of communication to form new relationships.

5. RESEARCH IMPLEMENTATION

Further research was motivated to seek to clarify any dominant correlations re the above parameters of usage of CMCs and this motivated the research as described in the rest of this paper. It was decided that whilst the previous research typically had surveyed perhaps what had been missing had been the lack of in-depth interviews with users to elicit the underlying facts that could explain the personal preference of users for particular communication channels as reflected in their patterns of usage. Accordingly the sample frame for this research comprised 250 people, consisting of 50% male and 50% female users, which permitted in-depth surveys to be conducted including both questionnaire and semi-structured interviews. The users mainly belonged to student community at university.

The questionnaire was divided into two sections. The first section included the participant's demographic information related to their use of instant messaging. The second section allowed the participant to express their attitudes to their use of IM. This section was designed using the Likert 5 point scale to elicit a range of qualitative information regarding the users' patterns of usage etc. However the Likert scale does not allow for more than ordinal levels of data. This was acceptable as the purpose here was to establish the relative interval-based value in the answer rather than expect the respondents to give absolute measures in their responses which would have been an unreasonable expectation as their answers would in any case be no more than a best estimate best elicited by a Likert scale and treated as qualitative ranges of values. Follow-on semi-structured interviews were carried out with selected users to disambiguate issues arising from their responses and to pose contingent open questions so as to discover the root explanations for some of the issues raised by their responses.

6. DISCUSSION OF RESULTS

6.1 Demographic Data

The age group of the respondents ranged from 18 to 45 years old; mostly students with the 18-30 age range constituting the majority (90%) which was to be expected given that the primary constituency addressed in this research was to be student as heavy users of CMCs. The majority of students (44%) tended to spend between 1 and 3 hours a week on instant messaging services.

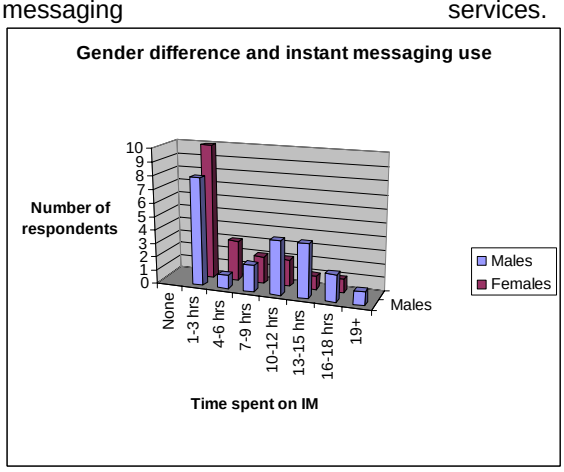

Fig1. Gender difference and instant messaging use

The number of their online correspondents ranged from 5 to 185. On average they communicated with around 35 people using instant messaging. The scatter graph below displays the relationship between the number of people that the respondents socialised with online and offline.

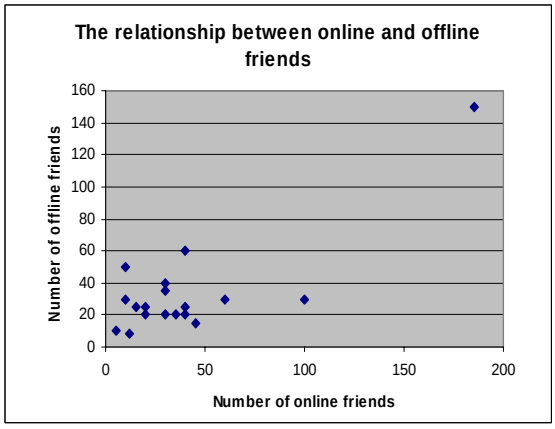

Fig2. The Relationship between online and offline friends

Their time spent socialising offline was distributed fairly equally as can be seen below.

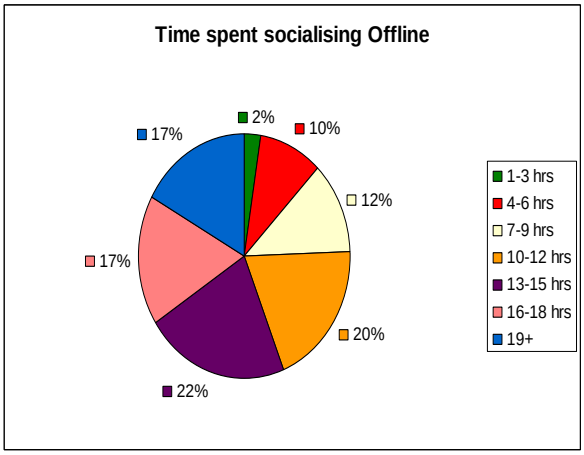

Fig3. Time spent socialising offline

The chart below compares time spent socialising offline vs. online by the respondents. The majority used telephones/mobiles for 1-3 hrs/day.

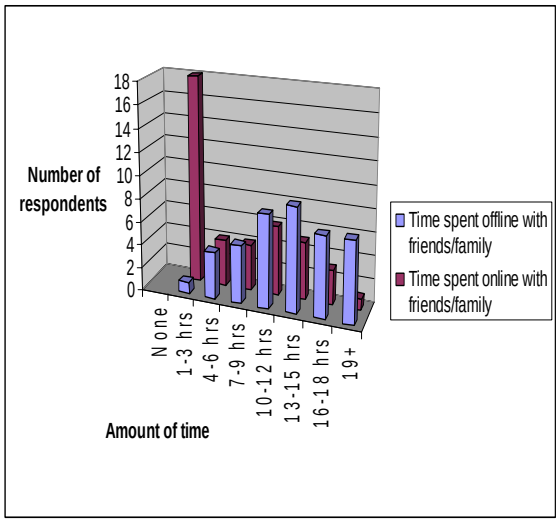

Fig4. Time spent socialising offline vs. online

6.2 IM Usage Patterns and Trends

The more time spent by the user on IM services, the more of an impact this will have on the users' social life. Based on the findings of the study, the average student would spend less than half an hour a day on IM services, thus this was expected to impact their lives minimally.

6.3 IM Versus Face-To-Face Communication

Only 15% of respondents admitted that they preferred talking to people using IM, whereas 56% preferred talking face–to–face. Daft and Lengel (1984) contention that CMC is a less rich media to communicate through, is supported here. As respondents preferred talking face-to-face rather than using IM. This also seems to support the theory offered by Kiesler et al (1991) who suggested that CMC becomes more impersonal than face–to–face communication. This is also demonstrated in the responses to the statement that 'online relationships were more fulfilling than offline relationships'. 59% of respondents disagreed with this statement, suggesting that their online relationships may be more impersonal than their offline relationships. These findings therefore do not support Walther's (1992) liberated perspective of CMC whereby he maintained that CMC is friendlier and more social than face–to–face.

6.4 IM Versus Telephone Communication

Here the findings were similar to those for face-to-face communication; 61% of respondents agreed that they had spent less time on telephones/mobiles since the emergence of IM. Although the findings initially did not specify why users spent less time on the phone, following the semi-structured interviews, it was found that that the relatively cheap cost IM which virtually combines the features of telephone, email and chat rooms into one was indeed the main factor here as also suggested by Grinter & Eldridge (2001) as well as Nardi et al (2000).

7. CONCLUSION

An analysis of the results of previous research indicated that although there was a widely shared view in terms of the negative impact of the Internet generally on the amount of usage of other communication modalities; the extent of the influence of Instant Messaging in this respect remained mixed as reported in some research papers but these previous results taken overall led to the conclusion that IM had a negative impact on students' social lives and the objective of this research was to confirm and quantify this impact of IM.

The results that were obtained did not support the hypothesis that the use of Instant Messaging negatively impacted the extent of respondents' offline social communications overall.

The majority of respondents believed that they were able to keep track of time when online using IM. They mainly used IM for communication with friends and family although

they agreed that IM could also be a way for meeting new people whom they would otherwise not meet and allowed them to have simultaneous conversations with several people. However the users did not deploy IM specifically as a tool for finding new friends as they were reluctant to form relationships with people encountered over IM links and chat rooms. They expressed no preference over IM compared to face-to-face chat with their friends and did not feel that they had ended up spending less time in physical social environments due to their IM activity. Overall they believed that Instant Messaging had not had a negative impact on their offline relationships although it had helped them reduce the time spent on the phone.

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