48. Determining University Students’ Motivations for Using Computer-Mediated Communication Technologies

Zixiu Guo  
The University of New South Wales, Sydney  
z.guo@unsw.edu.au

Felix B. Tan  
Auckland University of Technology, Auckland  
Felix.tan@aut.ac.nz

Abstract
Motivated by the increasing popularity of computer-mediated communication (CMC) technologies in university students learning, this study will explore students’ motivations for using CMC technologies in their learning. By employing uses and gratifications (U&G) perspective, this paper aims to identify dimensions of motivation in students’ CMC technology use. It also proposes that students’ technology self-efficacy and communication apprehension influence their motivations for using technologies. A three-stage research design procedure is proposed. Finally, the paper concludes with a discussion of the implications for both IS researchers and higher education.

Keywords: Computer-Mediated Communication (CMC), motivations, Uses and gratifications (U&G) perspective, higher education, media choice

Introduction
Compared to the general population, university students are the heaviest Information and technology users (Aiken et al. 2003; Hoffman et al. 2004; Parker et al. 2000). Many of the university students are already working collaboratively with other students via Computer-Mediated Communication (CMC) technologies, such as email, instant messaging, WebCT, listervs, and many other computer-mediated applications. Internet-based CMC technologies have become the integral part of university students’ education and have actually enhanced their educational experience (Hoffman et al. 2004).

However, despite the widespread use of these technologies among university students, we know little about what motivates their use of one particular type of communication technology over another. Little scholarly research has been carried out investigating the personal and social attributes that affect students’ use of CMC and the outcomes of CMC-related behaviors (Papacharissi et al. 2000). Further, although researchers have shifted their attention to the Internet due to the increased popularity as a communication tool, most have studied Internet in general. Different components of the Internet are functionally different from each other. Each of these technologies has its own usage conditions and therefore, each should be analyzed in its own right (Baron 2004; LaRose et al. 2004). Although the uses and gratifications (U&G) perspective to the study of media choice offers some insight into the reasons why people adopt a new medium when it becomes available, much of them were limited by the fact that they examine only one medium at a time (Flanagan et al. 2001). In addition, although researchers recently have increased their focus on the U&G perspective to examine how individuals use the Internet (Ruggiero 2000), factors that influence the motivations and outcomes from media related behaviors have received little attention.

By employing the U&G approach, this study proposes to examine university students’ motivations for using CMC technologies, consider how motivations are affected by certain social and psychological antecedents, and examine how motivations and antecedents affect
media use. A better understanding of factors influencing students’ technology use would be useful for university policy-makers regarding the implementation of information technology for student use in a university setting. It would also assist our educators in finding ways of effectively using CMC technologies in their teaching. Also today’s university students can be expected to be tomorrow’s business executives and they will carry their perceptions of media with them into the workplace. Thus, understanding their motivations for using different technologies is of importance for a rigorous examination of the new information technologies’ development, use and social effects (Flanagin et al. 2001).

**Computer-Mediated Communication**

For the purpose of this study, CMC is defined as any form of interpersonal communication that uses some form of networked telecommunications systems to create, transmit, store, annotate, and present information. Common applications of CMC are email, bulletin boards systems (BBS), audio/video-conferencing, white board, news group, chat rooms, instant messaging (IM), listervs, groupware, world wide web (WWW), and other forms where communicating is the primary intent. Characteristics of these systems that have implications for organizational communication include: asynchronicity/synchronicity, feedback, electronic transmission and storage of information, structuring of communication, connectivity and integration (Rice, 1988 #141). Through these characteristics CMC systems have been shown to reduce delays in information exchange, improve maintenance of records and information received, increase coordination of geographic dispersed groups, and improve users’ capabilities to process large amounts of information (Baltes et al. 2002; Kettinger et al. 1997; King et al. 1997).

As communication media, due to less social presence (Short et al. 1976) and less rich than face-to-face (Daft et al. 1986), CMC technologies were described as lacking nonverbal cues, which affects the nature of interpersonal interaction via the medium (Walther et al. 1995). Other researchers, however, have argued for the existence of computer-mediated interaction, lean media being used effectively for social interactions (Rice et al. 1987; Sproull et al. 1986). Also research shows that much CMC conveys nonverbal cues in terms of chronemic cues. CMC systems can support a range of relational interactions resulting in a variety of perceptions, each of which can become more or less pronounced over time (Walther et al. 1995). In addition, the evolution of information technology has offered Internet-based CMC five defining technical qualities of communication: multimedia, hypertextuality, packet switching, synchronicity, and interactivity, which are not commonly associated with traditional media (Newhagen et al. 1996). Thus, communication through Internet-based CMC can possess both interactive/social and informational/task-oriented dimensions for users (Papacharissi et al. 2000). Relational dimension limitations of CMC had overcome through adaptive message strategies (Flaherty et al. 1998).

**Uses and Gratifications Perspective and CMC Usage**

Derived from the mass communication literature, the U&G approach provides a user-centered perspective on the relation between users and media. The U&G perspective focuses on explaining the social and psychological motives that shape why people use the media and that motivate them to select certain media in order to gratify a set of psychological needs behind those motives (Katz et al. 1974; Rubin 1994).

One basic assumption of this approach is that media users are goal-directed in their behavior, and the personal use of media is an active choice made to satisfy needs (Katz et al. 1974). The second assumption of this approach is that media users are aware of their needs and select the appropriate media to gratify their needs. The U&G approach has been considered a
useful vehicle to explore why people are engaged in one specific mediated communication or another, and what they get from it (Newhagen et al. 1996; Ruggiero 2000). Media studies that have taken a U&G approach have focused on a number of media, such as television, VCR, telephone, cable TV, and the Internet (Ruggiero 2000).

As communication technologies become more ubiquitous in university students interactions, some important questions are raised: how do they use these technologies? What are their motivations for using one over another? What are students’ attitudes and preferences within their particular learning contexts? Studies focusing on students technology use found that students sometimes have different motivations for using the technologies (Parker et al. 2000; Vicent et al. 1997).

These studies discussed above, however, examined motivations for using the Internet in a very general way, although recognizing various functions of the Internet (Parker et al. 2000). In addition, most of them examined Internet motivations with previously defined mass media gratifications items instead of identifying the gratification uniquely associated with Internet technologies used by students in the university contexts. Knowledge of the motivations associated with CMC technologies, therefore, is an important first step in describing and explaining use of the CMC technologies in the university context. Thus, our first research question proposes to address the motivations for using the CMC technologies in the university context.

RQ1: What motivates students to use CMC technologies?

Many studies using U&G approach indicate that gratifications are related to media usage (Ruggiero 2000). For example, a study of the use of an electronic political bulletin board demonstrated that the audience’s needs for surveillance, personal identity and diversity all contributed equally to the adoption and use of the new media (Garramone et al. 1986). Papacharissi and Rubin (2000) found that interpersonal utility motivation was positively associated with the total Internet use.

Since the literature provides little evidence about how university students’ motivations for using CMC technologies are related to the use of the technologies, the following research question is posited:

RQ 2: How do motivations for using CMC technologies predict university students’ CMC technology use?

Antecedents of CMC Use Motivations

According to the U&G perspective, people are influenced by various social and psychological factors when selecting communication alternatives (Rubin et al. 1985). Self-efficacy and communication apprehension are two factors associated with motivations for interpersonal communication and Internet use. They have received increased attention from researchers because of their impact on Internet users and communication (Eastin et al. 2000, Stafford, 1999 #988).

Technology Self-Efficacy

Originated in social cognitive theory, self-efficacy is defined as “beliefs in one’s capabilities to organize and execute the courses of actions required to attain designated types of performance (Bandura 1986,p391). It emphasizes the importance of the judgments of what one can do with whatever skills one possesses, rather than what skills one has. Because “efficacy beliefs play a central role in the cognitive regulation of motivation” (Bandura 1997,
Although research on Internet self-efficacy is only recent and fairly sparse, studies have focused on the relationships between Internet self-efficacy and expected outcomes as well as internet usage (Eastin et al. 2000; LaRose et al. 2004; LaRose et al. 2001). Bandura (1986) defines outcome expectations as judgments of the likely consequences of a behavior and would provide incentives for enacting behavior. Expectations about the positive outcomes of technology use should increase individuals’ motivations for using the technology as well as actual usage. Although gratification and outcome expectations may be related (LaRose et al. 2001), little is known how Internet self-efficacy is related to users’ motivations for using the Internet technologies. In particular, it is unclear how people’s level of self-efficacy with each particular technology is related to their motivations for using that specific technology. Research shows that self-efficacy may vary depending upon a particular medium (Chen et al. 2000).

Thus, in the technology mediated learning environment, technology self-efficacy which is an individual’s “belief in one’s ability to use the CMC technology”, may be a key predictor of one’s motivations for using the technologies. If students feel uncomfortable with the technologies implemented in their learning and do not feel confident in their ability of using the technology effectively, they may experience difficulty in their interactions with their peers and instructors, which would affect negatively their communication satisfaction as well as their learning outcomes.

**Communication Apprehension**

McCroskey (1978) defines that communication apprehension is a person’s level of fear or anxiety about either real or anticipated communication with other people. It is closely related to the constructs of shyness, reticence, unwillingness to communicate, and stage fright. People with high communication apprehension are less likely to engage in communication with others than their low communication apprehension counterparts (Scott et al. 2005).

Past studies found that people high in communication apprehension communicated to fulfill inclusion (Kondo 1994; Rubin et al. 1988). Flaherty et al. (1998) found people high with CMC apprehension communicated on the Internet primarily for inclusion and escape. Because CMC technologies are primarily for communication purpose, users’ anxiety to communication should influence the likelihood of using new CMC technologies (Scott et al. 2005). Collectively, these studies provide support for studying the influence of communication apprehension in CMC context.

As discussed above, technology self-efficacy and communication apprehension are two important dispositions toward CMC technologies. We argue that these influence one’s motivations for using technologies. Given the limited research in this area, the following research questions will guide this study:

**RQ3:** How well does students’ technology self-efficacy predict their motivations for using CMC technologies?

**RQ4:** How well does students’ communication apprehension predict their motivations for using CMC technologies?

### Research Design

Identifying student motivations for using CMC in their learning is the first step of this study. Kuehn (Kuehn 1994) suggested a two-stage research design for uses and gratifications profile development. In this study, this two-stage procedure will be supplemented by fitting a
confirmatory analysis of the model as a third stage. Participants will be recruited from a large university in Australia. Table 1 describes the procedures.

### Table 1: Research Design

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<th>1. Stage</th>
<th>2. Description</th>
<th>3. Data Analysis Techniques</th>
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<tr>
<td>1. Pilot Study</td>
<td>15-20 students will be interviewed using the repertory grid technique (RGT) in order to elicit their motivations for using CMC technologies. There is a growing stream of IS research using the RGT (Tan et al. 2006). Details of the method can be found in Tan and Hunter (Tan et al. 2002).</td>
<td>Content analysis (Jankowicz 2004) to develop a reduced set of motivation categories</td>
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<td>2. Exploratory Analysis</td>
<td>A survey will be conducted to collect data for analysis. Data collected from this survey will be split into two parts. The first part will be used for this exploratory analysis. Measures include: currently owned communication technologies and used technologies in their learning; years of using each technology; self-efficacy for each technology (LaRose et al. 2004); frequency of use of each technology; motivations for using each technology (identified in stage one); communication apprehension (Scott et al. 2005); and demographics (age, gender, degree, race, income).</td>
<td>Factor analysis to identify motivation dimensions of CMC use (RQ1); then correlation analysis and hierarchical regression analysis to test research questions 2 to 4.</td>
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<tr>
<td>3. Confirmatory Analysis</td>
<td>The motivation dimensions identified in exploratory factor analysis are subjected to confirmatory analysis to verify their structure and examine dimensionality (Stafford et al. 2004). Thus the second part of data collected in the survey will be used for this confirmatory analysis. Research questions 2 to 4 will also be tested here.</td>
<td>Due to its capacity to estimate simultaneously both the structural component and the measurement component, Partial Least Squares (PLS) (Chin 1998) technique will be used to analyze the model.</td>
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### Conclusion

This study will contribute to the evolving literature on CMC use in three ways. First, by empirically developing dimensions of students CMC use motivations, this study will reaffirm the usefulness of the U&G approach in studying CMC technologies. Second, the development and trait validation of student-specific CMC use motivation scale will be useful for future technology motivation research when using students as samples. Third, by examining relationships between social and psychological factors and motivations for technology use as well as media use behavior, this study proposes to extend the uses and gratifications approach of technology use.

There has been high institutional investment in technology infrastructure to support more flexible models of teaching and learning within higher education (Kirkup et al. 2005). Without an understanding of the social contexts of CMC use in the universities from the students’ perspective, the smooth implementation of technologies and flexible teaching and learning models can easily be impeded or disrupted by students anxieties and insecurities, caused by rapid change in the learning environment (Breen et al. 2001). When educators understand the motivations that guide student interactions with the technology, they will be able to accommodate those needs more responsively in their teaching strategies. Using various CMC technologies has become so pervasive in the lives of this young generation, and it has become a natural extension of themselves (Hoffman et al. 2004). So, it is also important...
for organizations to understand the motivations and choice behaviors of their future executives' technology use.

References


