

7-1997

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Recommended Citation

Somera, L. B. P., Logging in: Perceptions of e-mail usage by university students in the Philippines, *Asia Pacific Media Educator*, 3, 1997, 70-88.

Available at: <https://ro.uow.edu.au/apme/vol1/iss3/5>

Logging In: Perceptions Of E-mail Usage By University Students In The Philippines

This study identifies the factors that influence the patterns and perceptions of e-mail usage among students in a Philippine university. The results indicate that the medium appears to be used primarily for social, rather than academic, purposes. The age of e-mail accounts, frequency and length of log-ins were found to be significantly related to students' e-mail use. The analysis of perceptions of media appropriateness for various communication activities indicate some support for the hierarchy suggested by social presence and media richness theories. E-mail was highly ranked for exchanging information and for staying in touch. Novelty, access, and faculty issues related to using e-mail as a tool for discussion and feedback are discussed.

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Less than a decade ago, the definition of computer-mediated communication (CMC) only included computer conferencing and electronic mail (Williams and Rice, 1988). More recently, Barnes and Geller (1994) defined CMC as "when people use computer-networked systems to communicate to other people or to small groups of people" (p. 129). Since then, CMC's scope has broadened and now includes descriptors such as Web sites, Internet relay chat (IRC), file transfer protocol (FTP), mailing lists, and so on. Messages that are transmitted cross over traditional boundaries of interpersonal, small group, organizational and mass communication and encompass academic, personal, social, and business contexts (Morris and Ogan, 1996). Consequently, Morris and Ogan (1996) define CMC more broadly to include all "information exchange that takes place on the global, co-operative collection of networks using TCP/IP protocol suite and the client-server model for data communication" (p. 24).

CMC is said to have signalled a new age of unprecedented

connectivity, information access and exchange. But like many innovations, CMC's real impact on organizational productivity and performance continues to be queried. The increasing use of CMC and its evolving role in various aspects of human interaction necessitates the understanding of how it is being used and how it is affecting other forms of communication. Rice and Case (1983) note that CMC has the potential to affect social and organizational structures and thus "designers, vendors, organizational managers, and users alike are becoming more aware of the need to understand, and where possible, control these impacts" (p. 132).

As the most basic and one of the earliest forms of CMC, e-mail offers "fast, dyadic or multiple connections in a textual form that can be stored and manipulated and is not dependent on users being connected at the same place or time" (Elliott, 1996, p. 97). To date, it has been indicated that e-mail affects "changes in patterns of attention, social contact and interaction, interdependencies in organizations, perception, spontaneity, articulation, access, interactional cues and contextual cues" (Elliott, 1996, p. 97).

A substantial body of research on e-mail has developed over recent years. However, most of these studies have been conducted in Western countries where CMC use has become pervasive, at a very rapid rate. In contrast, the use of e-mail in South East Asian countries started later. Within the last five years, however, the progress has been dramatic, particularly in the Philippines where its growth has been exponential. Internet service providers in Metro Manila alone grew from zero to 58 (Mariano, 1997), and they are presently expanding their services to other areas in the country. This current situation is fascinating, because it represents a historical perspective which, in all likelihood, is going to be short-lived. That is, the present level of access and utilization, prevalent attitudes, and knowledge, are likely to change rapidly as more commercial servers offer on-line services.

As Internet access becomes more affordable, more academic institutions have jumped on the CMC bandwagon. Whether e-mail will go the way of cellular phones and pagers as far as widespread and multi-level adoption is concerned remains to be seen. It appears that the greater cost involved in the initial investment in computers and modems, as well as the cost of maintaining an account, however, will inhibit the number of e-mail users through commercial Internet service providers from growing as rapidly.

However, there ought to be a different expectancy in academic institutions, where e-mail access for faculty and administration is available at no additional cost to the individual

user, with the exception of dial-up services which allow one to connect from off-campus locations via modem. However, this type of access, which has become the norm among universities in Australia and the United States, is so far available only in a limited number of colleges and universities in Metro Manila and the larger cities.

PHNet, which was set up by the Philippine Department of Science and Technology in 1993, initially linked eight universities, as well as the Asian Development Bank and the Asian Institute of Management (Mariano, 1997). Since then, other schools have established their own links. Moreover, the limited number of computers available on campus (approximately one for every fifty students at best) makes access a factor in students' motivations to activate and maximize the use of their accounts. It is not clear, though, how much influence difficulty of access has on individual decisions about CMC. Thus, following Williams and Rice (1988), there is a need to consider how "individuals or groups become aware of the new medium, decide to adopt it, or decide to stay with that adoption" (p. 89).

Theoretical Influences

Two theories commonly used to characterize media are the social presence theory (Short, Williams, & Christie, 1976) and media richness theory (Daft, Lengel & Trevino, 1987). Social presence is the degree to which a medium is perceived to convey the presence of the communicator (Short et al, 1976). This social presence relies on words as well as a range of verbal and nonverbal cues, and the communication context to carry meanings in interactions. Various media can be presented on a hierarchy, as it were, of social presence with face-to-face communication having the greatest social presence, followed by telephone, with its diminishing nonverbal cues, followed by electronic mail, and written communication.

Media richness theory (Daft & Lengel, 1986; Trevino, Daft & Lengel, 1990), on the other hand, represents the extent to which a medium is able to enhance communication through its availability of immediate feedback, the capacity to transmit multiple nonverbal cues to convey interpretations, personalization, and the use of natural language. A similar hierarchy for media richness can be drawn, based on these characteristics. According to Rice (1993, p. 453): "the essential underlying principle in both theoretic traditions is that a good match between the characteristics of a medium (such as high in social presence or media richness) and one's communication activities (such as socioemotional activities like getting to know

someone or equivocal tasks like strategic decision-making) will lead to better performance."

In the seventies, considerable research effort was devoted to measuring social presence in order to reduce communication costs in organizations (Rice, 1993). That is, if a consistent system of matching media and communication activities could be developed, efficiency can be assured (Short et al., 1976). The research was able to identify specific communication activities which can be affected by the medium's social presence, including "exchanging information, problem-solving and making decisions, exchanging opinions, generating ideas, persuasion, getting the other person's side of the argument, resolving disagreements or conflicts, maintaining friendly relations/staying in touch, bargaining, and getting to know someone" (p. 454).

The advent of new media including e-mail identified two additional activities of particular relevance — exchanging confidential information and exchanging timely information (Rice and Case, 1983). In contrast to traditional media, however, the confidentiality and timeliness of e-mail messages are more a function of the medium itself rather than the messages per se. That is, organizations vary in terms of the access, and individuals may have less control of confidentiality in situations where an e-mail account is shared with other people in an organization or where supervisors have access to subordinates' accounts. They may have even less control of timeliness, which relies on the efficiency of the technology. One may respond very promptly to a message, for instance, only to discover hours later that the message had bounced back because of some network problem. Consequently, perceptions of e-mail may be affected by experiences that heightens other characteristics of the medium apart from its perceived social presence and media richness, including its timeliness and confidentiality. Given the greater variety of options, these perceptions may affect media choice even more so than in the past.

As e-mail use increases, are changes in the perception and use of other communication media inevitable? Garton and Wellman (1995) note that CMC may affect traditional forms of communication in various ways, including acting as a substitute form of communication, thereby reducing the use of other forms; becoming an additional form of communication that increases the total amount of interactions; or boosting all types of communication activity. As the level of utilization of new media reaches "critical mass" (Markus, 1990), its impact on the use of traditional media needs to be clarified. Both positive and negative impacts have been reported in the literature. Bailey and Cotlar (1994) suggest that e-mail provides opportunities for students and

professors to "successfully explore, experience, and better understand each other" (p. 186) and makes feedback faster and more spontaneous. Emotional and intellectual support can be provided (McComb, 1994) and the faculty-student consultation can be enhanced since "online availability amounts to electronic office hours, beyond the regular face-to-face times" (p.164). As Elliot (1996) points out, the "artificial boundaries of the classroom as the arena of learning are broken down by CMC and a radical change in teacher-student relationships becomes possible" (p. 97).

On the other hand, CMC may be perceived to reduce and distort the personalization associated with face-to-face communication and diminish the satisfaction that comes from interpersonal relationships (Cuban, 1986). Gratz and Salem (1984) also point out that CMC emphasizes self-reflection rather than social and cultural contexts, since it promotes increasing use of time in nonsocial behaviour. However, all in all, the literature presents more positive, rather than negative, implications about CMC. In general, these studies imply that perceptions of media are activity-specific.

The perceptions about media which may direct individual choice and utilization are not global in the sense that one would see a specific medium as most applicable, regardless of the communication activity. Somera (1997) notes that certain Philippine cultural values such as personalism and *pakiki-pagkapwa-tao* (a sense of justice or fairness ... and a concern for others, p. 47), as well as "the available media's degree of formality, individual preference for and belief in the effectiveness of specific media, and the sequential nature of images" (p. 50) may affect decisions about media choice. Rice (1993), however, argues for the unidimensionality of social presence, which he operationalizes as media appropriateness. Little evidence of information processing influence was found on the perceptions of media appropriateness, which were relatively stable over time and across several contexts.

Sitkin, Sutcliffe and Barrios-Choplin (1992) argue that perceptions of media are based on their capacity to carry data and symbols. Data carrying capacity is "the degree to which a medium is able to effectively and efficiently convey task-related data" (p. 566), including verbal and nonverbal data, as well as quantitative and qualitative data. Symbol-carrying capacity, on the other hand, is the extent to which "a medium is able to convey or manifest symbolic meaning" (p. 567), or communicate nuance and metaphor. Along with its technological capacity to overcome the limitations inherent in traditional media, CMC may also carry symbolic meanings about status, innovation, expertise, and other implications of access to cutting-edge technology. In the emerging

Philippine context, this symbolic capacity may be central to perceptions about CMC.

Most studies on CMC focus on the point of view of academics (Elliot, 1996). As such, they have addressed faculty concerns such as peer interaction (West, 1994), fear and resistance to the use of computers for instructional purposes (Foa, 1993), the use of the Internet to supplement research and teaching efforts (McComb, 1994). There has been less focus on students as the other group of academic players involved in CMC. How are students using CMC? What are their perceptions of e-mail in relation to other forms of communication that they use in the university? To what extent are they using it to enhance their academic activities?

This paper focuses on the patterns of use and perceptions of CMC, specifically in the academic institution and seeks to address the following questions: (a) What are the patterns of e-mail utilization among students? (b) What are the perceptions of e-mail and its role in the academic setting? (c) What are the perceptions about the appropriateness of e-mail for different communication activities? How do these affect perceptions of appropriateness of other media?

These questions address the need to look at the students' perspective, to determine the divergence or convergence, as the case may be, of patterns of use and perceptions of CMC in the academic setting.

Given the dearth of information on CMC in the developing context, this study was conducted in Manila, Philippines, to gain insights into the patterns of utilization and perceptions of CMC, particularly e-mail, among students. It examined perceptions about the appropriateness of e-mail for different communication activities. In part, it sought to replicate Rice (1993) by testing for the dimensionality of media appropriateness as a measure of social presence.

In looking at the data that represent what may be a short-lived stage before the medium is used at the same level as traditional media, the study also attempted to provide insights into communication behaviours which may be unique to this time frame. The data for this study were collected through a survey administered to the officers and members of the student organizations in November, 1996 in one of the three largest universities, De La Salle University in Metro Manila, Philippines. This university was the first in the country to provide e-mail accounts to all its students as from June 1996.

Methodology

The Study Subjects

A total of 123 subjects from 18 student organizations participated in the present study. The organizations, which represent 30% of the professional and academic organizations in the university (N=60) were chosen randomly from among the recognized student organizations in the university. Since more overlaps may be expected among athletic and cultural organizations, these were not included in the sample. Less overlaps were expected in the professional and academic organizations, since these were based on the students' major fields of study.

The original sample included 20 organizations. Two organizations were dropped because none of their members were active e-mail users. Within each organization, active e-mail users were asked to participate in the study. Questionnaires from subjects who indicated that their e-mail accounts were inactive were not included in the present study.

There were 61 males and 62 females in the study which, after rounding off, accounts for 50% each for both males and females. This gender distribution is consistent with the undergraduate population of the university (N=10,451) which has a ratio of 49.5 females to 50.5 males. Fifty-seven percent of the subjects were officers of the student organizations, while 43% were members. The mean age of the subjects was 19.28 (s.d., 1.37).

Freshmen accounted for 12% of the sample, sophomores 14%, Juniors 38%, and Seniors, 36%. Because more officers of the student organizations participated in the study, the juniors and seniors accounted for a greater percentage of the sample. Since these students have had a greater opportunity to use e-mail, as well as to be exposed to people in the university who are already regular users and may be able to influence their choices between e-mail and other communication media, they were deemed an appropriate sample for the study, rather than a group more representative of the general student population.¹

The questionnaire developed for this study was distributed to the student organizations included in the sample. The assistance of the organizations' presidents was sought in giving out the questionnaires. The questionnaire included demographic information, items measuring various aspects of e-mail utilization, including length of time the e-mail account has been active, frequency of log-ins, time spent on e-mail per week, type of orientation or training for using e-mail, and relationship to people with whom e-mail was exchanged.

A semantic differential patterned after Rice (1993) was used to measure perceptions of the appropriateness of various communication channels [face-to-face, group, telephone, text, e-mail, and fax] to specific communication activities such as

exchanging information, negotiating, exchanging time-sensitive information, making decisions, and getting to know someone. Reliability assessments of the scale based on t-tests over time indicate moderately consistent patterns of responses across individuals.

In addition, scale items reflecting attitudes towards computer-mediated communication in general and e-mail in particular were developed for the study. The items were developed on the basis of the literature review and pretested with a group of similar subjects. Subsequent modifications were made.

The subjects' e-mail accounts have been active for an average of 6.4 months (s.d., 5.9). Twenty-four percent of the accounts are less than three months old, while 49% are between three to six months old. Twenty-nine percent are six months or older, with the oldest at 36 months.² In addition to their university account, 28% have access to an account with a commercial Internet service provider, which they use for e-mail, surfing the Internet, and other purposes.

E-mail use appears to be fairly regular among the study participants. In a typical week, they indicated that they logged in an average of 4.39 times (s.d., 5.18). Forty-six percent indicated that they logged in once or twice a week, while 15% logged in between three to five times a week. Another 13% logged in between six to ten times a week, while the remaining 16% logged in eleven or more times a week. These log-ins ranged from a weekly total of five to 750 minutes, with a mean of 61.7 minutes per week (s.d., 86.01). Ten percent (10%) of the subjects reported total weekly log-ins of ten minutes or less, while 18% indicated that their weekly log-ins ranged from 10 to 20 minutes a week. Twenty-five percent (25%) reported total weekly log-ins between 20 to 30 minutes, while another 26% were logged in between 31 minutes to one hour weekly. The remaining 21% reported weekly log-ins of one hour or more, with the maximum at 12.5 hours.

The subjects were asked to indicate how many courses they have had which gave them occasion to send e-mail to their professor and/or classmates. Forty-three percent (43%) indicated that they did, with 31% having been in one such course, nine percent (9%) in two courses, one percent (1%) in three courses, and two percent (2%) in three courses.

Sixty-one percent (61%) of the respondents have not had e-mail contact with any of their professors. Of the 39% who have exchanged e-mail with their professors, 20% have done so with one professor, 7% with two professors, 11% with three to five

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professors, and the remaining 2% with eight to 15 professors. Fifty percent (50%) of the respondents have exchanged e-mail with classmates about course-related matters, with a mean of 5.11 (s.d., 14.24). On the other hand, only seven percent (7%) have not exchanged e-mail with friends about course-related and personal matters. The mean number of contacts was 10.45 (s.d., 12.97), with fifty percent (50%) of the subjects indicating 5-10 contacts.

Only twenty percent (20%) of the subjects indicated e-mail contact with school administrators. Of these, 15% had contact with one to three administrators, while 5% had exchanged e-mail with four administrators. Among members of the student organizations, only 38% indicated e-mail contact. Twenty percent (20%) had contact with one to three other members, while eighteen percent (18%) had contact with five or more other members. Eighty-one percent (81%) of the subjects indicated e-mail exchange with individuals outside of the university, including friends and relatives from other countries, particularly the United States. Of these, 58% had one to five contacts, 13% had six to ten, while 10% had ten or more contacts.

Forty-five percent (45%) of the subjects indicated that they did not have any form of training for CMC. Nineteen percent (19%) were basically "self-taught," i.e., they sat in front of the computer terminal and tried to figure things out for themselves. Another eighteen percent (18%) had some orientation through a class or a special session on campus, while 13% said their friends gave them some help at the outset. Four percent (4%) got some hands-on instruction in seminars, while one percent (1%) got information from books. The relationship among these indicators of e-mail use was investigated using correlational analysis (see Table 1).

The results indicate that the "age" of the account, i.e., how long the account has been active, is significantly related to its use for communicating with all target audiences, with the exception of other members of the student organization. It is also significantly related to frequency and length of log-ins. Frequency of log-ins, on the other hand, is only significantly related to e-mailing with friends and people outside the university. The length or duration of log-ins is significantly related to e-mail with professors, classmates and friends.

The indicators of e-mail with various target audiences - professors, classmates, friends, administrators, student organization members, and university outsiders - were regressed on the three characteristics - age of the e-mail account, frequency

Table 1:
Correletations Among Indicators of E-mail Use

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 Age of e-mail account | -- | | | | | | | |
| 2 Frequency of log-in | .47** | -- | | | | | | |
| 3. Length of log-in | .43** | .40** | -- | | | | | |
| 4 With professors | .26* | .25* | .23* | -- | | | | |
| 5 With classmates | .24* | .11 | .49** | .58** | -- | | | |
| 6 With friends | .37** | .29** | .56** | .55** | .63** | -- | | |
| 7. With administrators | .26* | .18 | .16 | .70** | .17 | .34** | -- | |
| 8 With members | .11 | .08 | .02 | .70** | .43** | .44** | .57** | -- |
| 9 Outside university | .26* | .36** | .21 | .30** | .28* | .51** | .28** | .44** |

** $p < .01$ * $p < .05$

Table 2:
Regressions of E-mail Indicators on Contact with Target Audiences

| Target Audience | Length of Log-in | Standardised Beta Coefficients | |
|--|------------------|--------------------------------|------------------------|
| | | Frequency of Log-in | Age of E-mail Accounts |
| <u>Professors</u> Adjusted R ² 07 F (3,115) 3.92 ($p < .01$) | .09 | .13 | 16 |
| <u>Classmates</u> Adjusted R ² 24 F (3,115) 13.11 ($p < .0000$) | .51** | -.14 | 09 |
| <u>Friends</u> Adjusted R ² 31 F (3,115) 18.92 ($p < .0000$) | .48** | .03 | 16 |
| <u>Administrators</u> Adjusted R ² 05 F (3,115) 3.07 ($p < .03$) | .04 | .06 | 21* |
| <u>Student members</u> Adjusted R ² 01 F (3,115) .06 (<i>n.s.</i>) | -.04 | .04 | 12* |
| <u>University outsiders</u> Adjusted R ² 12 F (3,115) 6.13 ($p < .001$) | .05 | .29** | 10 |

** $p < .01$ * $p < .05$

**Perceptions
Of Email**

of log-ins, and length of log-ins. F-values, beta coefficients and multiple regressions are presented in Table 2.

All were statistically significant with the exception of e-mail with student organization members. In effect, the three characteristics influence the patterns of e-mail exchange with the various target audiences. Those whose accounts are relatively ordered and who log in more frequently and for longer durations have probably established "habits" or more consistent patterns of e-mail use. As might be expected, they are probably more proficient and comfortable with the medium, and more willing to explore other possibilities as far as its use is concerned.

Subjects were asked to respond to Likert scale items indicating perceptions of various aspects of e-mail as a communication channel. These items, along with their means and standard deviations are presented in Table 3:

**Table 3:
Scale Items, Means and Standard Deviations**

| FACTOR 1 (TECHNOLOGICAL IMMEDIACY) | MEAN | S.D. |
|---|------|------|
| 1. Having e-mail accounts for students is an indication of a university's "world-class" standards | 3.96 | 1.04 |
| 2. The majority of students use their e-mail accounts actively | 2.90 | 1.03 |
| 3. E-mail puts one of the forefront of the latest in technology | 4.05 | .82 |
| 4. E-mail provides access to the most current research info | 3.85 | 1.07 |
| 5. E-mail enables me to get more immediate feedback from my professors | 3.20 | 1.10 |
| 6. E-mail makes me feel like I really live in a "global village" | 3.85 | .96 |
| FACTOR 2 (CAMPUS INVOLVEMENT) | MEAN | S.D. |
| 7. E-mail helps me know what's going on on campus | 3.00 | 1.11 |
| 8. Gives me better access to my professors than regular office hours | 3.22 | 1.03 |

| FACTOR 2 (CAMPUS INVOLVEMENT) | | MEAN | S.D. |
|---------------------------------|--|------|------|
| 9. | The student orgs I belong to utilises e-mail regularly | 3.40 | 1.12 |
| 10. | The officers of our student organization use e-mail to communicate with the members | 3.24 | 1.17 |
| FACTOR 3 (PERSONAL INVOLVEMENT) | | MEAN | S.D. |
| 11. | E-mail has made me more efficient in my course work | 3.29 | 1.05 |
| 12. | I have used e-mail in doing research for my term papers | 3.02 | 1.25 |
| 13. | I have surfed the Net to get materials for my papers | 3.60 | 1.23 |
| 14. | I have had a class project involving the use of e-mail and/or the use of Internet resources. | 3.47 | 1.30 |
| FACTOR 4 (UTILITY) | | MEAN | S.D. |
| 5. | Investing in an e-mail account is worth the money | 3.96 | .81 |
| 16. | E-mail is convenient to access | 3.63 | 1.08 |
| 17. | The functions of e-mail are easy to understand | 3.94 | .79 |
| 18. | E-mail benefits all students in the community | 3.23 | 1.19 |
| 19. | E-mail is an effective means of communication | 4.06 | .87 |
| FACTOR 5 (COST) | | MEAN | S.D. |
| 20. | E-mail just adds to the fees we pay (Reverse-code) | 3.29 | 1.21 |

Factor analysis (principal components with varimax rotation) resulted in five factors, which accounted for 60.8 percent of the variance (see Table 4). These factors can be interpreted to represent perceptions of technological immediacy (e-mail being perceived to be on the cutting edge of new media), campus network access (e-mail provides information about campus activities), academic resource (e-mail provides access to research materials), utility (ease of use or effectiveness of e-mail), and cost (e-mail access as part of increased student fees).

Table 4:
Factors and Loadings of Scale Items
Measuring Perceptions of E-mail

| Scale Items | FACTOR1 | FACTOR2 | FACTOR3 | FACTOR4 | FACTOR5 |
|---------------------|---------------|---------------|---------------|---------------|---------------|
| V29 | .66493 | -.04064 | .00741 | -.07813 | .34336 |
| V30 | .60556 | .17683 | .17169 | .20013 | -.25864 |
| V31 | .69793 | -.06217 | .01282 | .16636 | .09671 |
| V32 | .60312 | .11671 | .31210 | .07015 | .02090 |
| V33 | .14053 | .11298 | .04048 | .09158 | .84100 |
| V34 | .46688 | .34678 | .32930 | -.04390 | -.19210 |
| V35 | .52432 | .59455 | .08864 | .05147 | .02728 |
| V36 | .09393 | .27374 | .05401 | .59458 | .36318 |
| V37 | .42167 | .23907 | .10110 | .54806 | .16869 |
| V38 | -.03193 | -.03535 | .18347 | .77380 | -.12042 |
| V39 | .46303 | .34788 | .15789 | .49583 | -.04682 |
| V40 | .49663 | .17468 | -.04737 | .55552 | .07711 |
| V41 | .64617 | .16238 | .23668 | .35856 | .27829 |
| V42 | .25849 | .35713 | .55374 | .14351 | -.06085 |
| V43 | .41334 | .51246 | .25260 | .08550 | .09140 |
| V44 | -.01440 | .80016 | -.00136 | .20592 | .12793 |
| V45 | -.00809 | .85038 | .02917 | .09565 | .01134 |
| V46 | .18785 | .08437 | .76459 | .06882 | -.20290 |
| V47 | -.04353 | -.03772 | .83563 | .18181 | .06809 |
| V48 | .17218 | .01191 | .71289 | .00082 | .26219 |
| Eigenvalue | 6.20 | 1.91 | 1.61 | 1.33 | 1.28 |
| %Variance explained | 31.0 | 9.5 | 8.1 | 6.6 | 5.6 |

The first factor is consistent with the perceived status of e-mail use. Since it was originally limited to presidents of student organizations, its access to other students signalled an inclusion in the privileged group of users. The next three factors - campus network access, academic resource and general utility - indicate the [potential] usefulness of e-mail for academic pursuits. Since this is not supported by the patterns of use, these responses may simply indicate tacit recognition of these potentials, without a recognition of specific value or a commitment to capitalize on its usefulness. Since the creation of new e-mail accounts at the beginning of the 1995 school year occurred simultaneously with the annual increase in tuition fees, it is not surprising that cost is a factor identified with e-mail use.

Responses to the media appropriateness scales for the different communication activities suggest a variety of patterns.

An overall "appropriateness" score was computed by summing across responses to the ten communication activities. The resulting hierarchy of media is consistent with what social presence and media richness theories suggest. That is, face-to-face communication was rated most appropriate, followed by group communication, telephone, e-mail, text, and fax. Scores following this hierarchy are expected to be higher for the media with greater availability of both verbal and nonverbal cues, or "richer" media. However, the patterns vary for the different communication activities as evidenced by the mean scores in Table 5.

While face-to-face communication is viewed as most appropriate for most communication activities, group communication is seen as most appropriate for generating new ideas and making decisions. For staying in touch, face-to-face communication ranks third after telephone and e-mail.

Differences can also be observed in the mean scores for appropriateness for text (all forms of written communication, including letters and memos) and fax. Mean scores for fax rank higher than text for information exchange, bargaining, asking

Table 5:
Mean Scores on the Appropriateness Scale for
Communication Activities in Different Media

| TOTAL | Info Exchange | Bargain | Get to know someone | Ask question | Stay in touch | Time sensitive info | Generate new ideas | Resolve disagreements | Make decisions | Confidential info |
|-------------------------------|---------------|----------------|---------------------|----------------|----------------|---------------------|--------------------|-----------------------|----------------|-------------------|
| Face to Face 4.11 (.59) | 4.39 (.73) | 4.23 (.87) | 4.34 (.81) | 4.11 (.85) | 4.03 (1.00) | 3.82 (1.08) | 4.04 (.92) | 4.28 (1.01) | 4.02 (1.05) | 4.37 (1.04) |
| Group 3.83 (.63) | 4.28 (.91) | 4.07 (.91) | 3.30 (1.09) | 3.96 (.88) | 3.41 (1.10) | 3.55 (1.04) | 4.45 (.80) | 3.94 (1.02) | 4.25 (.89) | 3.11 (1.35) |
| Phone 3.64 (.57) | 4.13 (.71) | 3.46 (.95) | 3.60 (.99) | 3.97 (.75) | 4.27 (.76) | 3.76 (1.00) | 3.51 (.95) | 3.09 (1.16) | 3.33 (1.00) | 3.35 (1.20) |
| E-mail 3.57 (.60) | 4.22 (.73) | 3.26 (1.03) | 3.58 (1.03) | 3.89 (.80) | 4.10 (.89) | 3.77 (1.05) | 3.71 (.96) | 2.93 (1.14) | 3.04 (1.04) | 3.12 (1.38) |
| Text 3.20 (.71) | 3.87 (.91) | 2.89 (1.08) | 3.09 (1.14) | 3.16 (.92) | 3.96 (.97) | 2.85 (1.16) | 3.07 (1.18) | 2.99 (1.20) | 2.88 (1.21) | 3.27 (1.29) |
| Fax 3.00 (.72) | 3.91 (.88) | 2.98 (1.02) | 2.51 (1.15) | 3.23 (1.07) | 3.02 (1.10) | 3.40 (1.18) | 2.99 (1.03) | 2.40 (1.07) | 2.83 (1.08) | 2.85 (1.37) |
| Overall | 4.13 (.51) | 3.49 (.54) | 3.40 (.57) | 3.72 (.51) | 3.80 (.54) | 3.53 (.53) | 3.63 (.51) | 3.28 (.65) | 3.39 (.65) | 3.34 (.79) |

questions, and time-sensitive information; while text means rank higher than fax for getting to know someone, staying in touch, generating new ideas, resolving disagreements, making decisions, and dealing with confidential information.

The pattern for e-mail use suggests that its technological immediacy may be seen as an advantage for communication activities where time is crucial. It ranks higher than telephone for information exchange. For staying in touch and time-sensitive information, however, e-mail ranks third after face-to-face communication and telephone. Factor analysis of the appropriateness scales via SPSS (1990) routines using principal components and varimax rotation yielded two factors, which may be labelled as high versus low social presence.

As Table 6 indicates, the first factor accounted for 48.1 percent of the variance, while the second factor accounted for 14.8 percent of the variance. The high social presence activities (negotiating/ bargaining, generating ideas, resolving disagreements, making decisions, and exchanging confidential information) loaded on the first factor (48.1 percent of the variance, while the low social presence activities (exchanging information, asking questions, staying in touch), loaded on the second factor. "Getting to know someone" and "exchanging time-sensitive information" had equivocal loadings on both factors. With an Eigen value of 1.48 for the second factor, media appropriateness may be considered unidimensional. However, the variance accounted for in this sample is lower than Rice's (1993) findings. This may be due to the more homogeneous sample of students, compared to Rice's combination of subjects from several organizations.

Table 6:
Factors and Loadings of Activity Evaluations Across Media

| Activity Evaluation | Factor 1 | Factor 2 |
|--------------------------------------|----------|----------|
| Exchange information | .00658 | .74439 |
| Negotiate/Bargain | .50406 | .49604 |
| Get to know someone | .42392 | .51533 |
| Ask questions | .17935 | .88355 |
| Stay in touch | .18056 | .78967 |
| Exchange time-sensitive information | .48655 | .45748 |
| Generate ideas | .60243 | .56147 |
| Resolve disagreements | .86079 | .13415 |
| Make decisions | .86162 | .20219 |
| Exchange confidential information | .80617 | .04387 |
| Eigenvalue | 4.81 | 1.48 |
| Percentage of variance accounted for | 48.1 | 14.8 |

Emergent Issues

The results of this study highlight the predominantly social function of CMC, particularly e-mail, for the student sample. The patterns of use indicate that academic concerns are not the major foci of e-mail interactions. There is little evidence that the medium is used for academic purposes. Interactions with professors, administrators, and reported use for research purposes are very limited, while interpersonal contacts both inside and outside the university constitute the bulk of e-mail communication.

The reported lack of training may be critical to the patterns of use. Since the majority of the subjects have not had any form of instruction regarding CMC, it is not surprising that they have not maximized its potential to provide information that can be valuable to their academic work. With the dearth of classes in which CMC is integrated into the curriculum, students' awareness of e-mail's capabilities has not increased.

Furthermore, since friends were responsible for instructing many of the subjects about e-mail, it seems natural that these friends are the primary recipients of their e-mail communication.

The dominant social, rather than academic, function for e-mail use in the university setting carries evaluative implications. Surely, universities would like to see some returns in their investment in the technology in terms of research enhancement, improved faculty-student interactions, and more effective instruction. The social support which may be gained from CMC is a valuable consequence.

However, it seems that the university community would want CMC to be more than just an electronic *tambayan* (colloquial Filipino term for "hang-out") for the students. Its potential for enhancing the academic experience has been barely scratched, and students cannot be expected to initiate a change in these patterns of use.

The question is whether the academic players, both faculty and students, really want these patterns of use to change. If they do, in what way and to what extent? Given the existing constraints, students may balk at being required to use CMC for course-related activities, particularly when they consider the problems of access. For instance, a requirement to make Communication majors use the resources of the Communication Institute for Online Scholarship (CIOS) in a class had to be reconsidered after students expressed the difficulty of getting a turn at some of the computers in the library, which some other students were apparently using for IRC or chat purposes.

Faculty, by the design of courses and course-related activities, have the potential to direct student utilization of CMC. However, from their point of view, expanding the borders of the classroom to the electronic environment, as it were, may signal

nothing more than an increased work load. Responding to e-mail may be viewed as additional uncompensated office hours.

In the absence of parameters regarding electronic faculty-student interaction, it is not clear how e-mail content can be directed towards academic-related issues. For instance, in a class in which e-mail feedback was encouraged, a faculty member noted that she became the recipient of chain letters, forwarded messages about urban legends and the like, and too many "Hi, I hope you're having a nice day" messages and not too many messages clarifying or extending points raised in class discussion .

However, these patterns may simply be a response to the novelty of the medium. It is hoped that as familiarity increases and e-mail networks become more stable some changes in patterns of use may be observed and that communication activities would acquire a more diverse focus beyond the social functions that they appear to serve at the present time.

It is critical, at this point, however, to assess the influences on the choices that individuals make. In the absence of initiatives to redirect the e-mail use among students towards a more academic focus, the current social patterns will continue to be reinforced and may be perceived as normative by future users. Redirecting these perceptions and patterns of utilization is not as simple as putting up signs in the computer areas that say "do not use this terminal for chatting" or imposing sanctions on violators.

Student users, in particular, have to realize the utility of CMC in accomplishing their academic objectives. Furthermore, they must be equipped with the skills to identify its appropriateness for various communication activities, as well as recognize its utility relative to other communication channels. This is only possible with education and training, and the support of other sectors of the academic community.

Directions For Further Research

As the novelty of a new medium passes, individuals may discover the extent of its capabilities and learn to optimize its potential. The patterns of e-mail use among students in this Philippine university may evolve towards its greater utilization for academic purposes. As access becomes less of a problem, the status differentials may be reduced and e-mail use may be directed towards the accomplishment of multiple goals.

The attitudes of the faculty would be critical to any change that may occur, and a comparison of their perceptions with those of the students' would be most enlightening. This is a research area that can be explored not only in the Philippines, but in the cross-national setting. In addition, comparisons between users

and non-users may be instructive in contextualizing attitudes critical to patterns of use and choices among media for various communication activities.

The changes over time need to be monitored, particularly the patterns of use, as individuals becoming increasingly familiar with the medium. The relationship between traditional media and CMC needs to be studied longitudinally, as perceptions continue to be redefined and reevaluated.

Finally, as computer-mediated communication becomes an integral part of academic institutions, there is a need to come to a better understanding of what it can do to enhance our academic pursuits. To the extent that it can help maintain social networks and attain academic goals, CMC use can bring about more meaningful communication. ■

NOTES

1. In the student population, freshmen account for 29%, sophomores, 27.7%, juniors, 23% and seniors, 21%.
2. Before e-mail accounts were created for all the students in the university, presidents of student organizations and student council officers were given e-mail accounts. This further lent to the "status" associated with having an e-mail account.

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