Faculty Use of Electronic Communications Before and After a Lan Installation: A Three-Year Analysis

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Electronic communication (EC), the ability to communicate computer to computer has the potential to greatly change communications patterns in colleges and universities, but research on how faculty use EC for teaching, research, and service activities is sparse. This three-year study tracks actual and perceived future use of EC for teaching, research, service, and personal activities in a college of business at a state-supported midwestern university. A survey instrument was developed to obtain the data just prior to the installation of a college-wide local area network (LAN) and in two subsequent years. During the study period, the use of EC increased dramatically. Teaching uses remained low for all three years and perceived uses for teaching were also low. Research activity was one of the highest during year one and more than doubled during the study period. Service activities increased the most dramatically with a majority of respondents sending and receiving meeting minutes by year three. Personal use of the network was one of the highest uses in year one and also increased dramatically by year three. Overall, perceptions of future use decreased over the three-year period as the uses of EC matured.

Electronic communications, the ability to communicate computer to computer has been greatly enhanced by the widespread installation of local area networks (LANs). These networks have the ability to connect users in limited geographical areas and, through linkages with other mainframe computers, national and international networks. Networks are changing the way organizations do business. A currently installed base of 6.1 million LAN users in 1993 with a predicted increase to 14.5 million by 1995 indicates that networking is a major technological trend for which business devotes major computer funding (Ashton, 1993). This trend, which has also been experienced in colleges and universities, allows the business world and the academic world to be linked together worldwide and has the potential to drastically change the way in which people work.

As O’Brien (1990) and others have noted, the use of electronic communications is causing major changes in business operations, in managerial decision-making, and in the strategic advantage of firms. By changing the nature of the communications process and the time needed to complete the process, electronic communications has compressed the time frame needed to complete all types of business transactions and brought instantaneous communication to virtually all workers.

However, despite the widespread installation of the technology, the availability of electronic networking alone does not guarantee use or acceptance (Kerr & Hiltz, 1982). In fact, research shows that although users may have a high degree of computer proficiency and willingly use many different computer applications, they may be reluctant to use electronic networking as their communications medium. Weitzner (1987) reports that there is a lag time between availability of communication technology and its acceptance by users.

With local area networks (LANS) connecting work-
ers internally and global networks (WANS) connecting thousands of college and universities with business and governmental entities, the potential for electronic networking usage should not be minimized by academic administrators. Research by Sumner (1987), Nath (1990), Straub and Karahanna (1990), and Adams, Todd and Nelson (1993) point out that when business workers used electronic networking, they perceived jobs became easier, data retrieval became faster and easier, data sharing data improved, communication became more efficient, paper was reduced, and decision-making was improved. These trends should also be evident in a university setting and dramatically change the way university faculty, staff, and students communicate as electronic communications becomes “the gateway to the information bases and sources necessary to the instructional and research processes” (Komsky, 1991).

**Research Related to University Electronic Communication Use**

Research related specifically to electronic networking usage in a university setting is sparse and reports conflicting results. Schaefermeyer and Sewell (1988) noted that academic users tended to send and receive over 10 messages per day with individuals who had similar research interests at different locations, but teaching uses were hampered by limited student access. Duxbury and Kozoil (1991) found that after installation, faculty acceptance and use of electronic networking was limited.

Pliskin, Ball & Curley (1989) surveyed information systems professors’ use of electronic mail and found a lower rate of usage for external e-mail then internal e-mail. They also reported that physical access to e-mail and the number of colleagues who have access were the top two features enhancing the use of electronic mail while locating addresses and lost mail were the top features needing improvement.

Scott (1991) reported that prior to installation, faculty were apprehensive because they believed electronic networking would be intrusive and allow administrators to regulate communication. However, these apprehensions were not borne out in post-implementation reports. Pearson (1991) and Lancaster and Strouble (1992) reported that networking had become a major focus on campuses and had been enthusiastically received.

In other research, Komsky (1991) suggested that although universities appear to be conducive settings for electronic communications, they have not yet used electronic communications to the extent business has. Results of research conducted by Rice and Case (1983) with university personnel indicate that while some people became “experienced” users of electronic communications in a matter of months; personality traits, job tasks, positions and media styles affect how technology is used, and is a major force in acceptance of electronic communications. Rice and Shook (1988) reported that improvement in organizational communications is predicted by, among others, the appropriate match with different kinds of organizational activities and different job types. Komsky (1991) recommended that organizations enhance usage by identifying characteristics and attitudes of frequent users.

To date, research has not identified which specific faculty activities are appropriate for electronic communications. If universities are to make effective use of electronic communication media to enhance communications and improve productivity as business has, they need to identify the potential faculty uses and perceptions of electronic communication and then work towards providing access and support to enhance those uses.

The purpose of this research was to identify the application of electronic communications to the tasks of faculty members and to trace the trends in use and acceptance before and after a LAN installation. The research seeks to answer the following questions:

- How did the installation of a LAN and subsequent use of a LAN affect the types of applications for which faculty use electronic communications?
- Is there a time lag between availability of the LAN and acceptance by faculty users?
- How do faculty use electronic communications for teaching, research, service, and personal activities and how did these activities change after the LAN installation?
- How did faculty perceptions of uses for electronic communications change as a result of LAN use over time?

**Limitations/delimitations**

The business faculty of a midwest state-supported university was used for the study because of the opportunity to survey the faculty before fiber optic local area networks had been installed college wide. While the business college encourages and supports research activities, the university is primarily a teaching institution. Therefore the results of this study may not be applicable to academic institutions with different missions. In addition, the small sample size may also limit the generalizability of the results.

**Research Design**

The study was conducted between 1991 and 1993 with surveys being distributed during the spring semesters each year. The first data collection was during the first semester after occupying a new state-of-the-art business building but prior to installation of most electronic communications capabilities in the building. The second and third data collections were after the LAN had been fully installed.

**Sample.** The population consisted of all faculty members and administrators with faculty rank in the college of...