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Use of conferencing systems to do research on them

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Abstract: This paper discusses how the computer conferencing software and data base can be used to perform research on social behavior in the systems.

Keywords: Computer Conferencing, Group Communication, Software design, Internet, Research Methodology.

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Introduction

Computer conference systems are often used to perform research on the systems themselves. Often, the systems are designed to collect a lot of statistics on their usage, which can be used for research. In fact, because all the interaction is handled by and stored in a computer [4], computer conference systems ought to be very useful tools for studying human behavior in general, even though social science researchers do not yet often seem to be aware of this possibility.

Even better is if the researcher can cooperate with the designers of the systems, and get these to modify the design of the systems to collect research information.

Here are some examples of how I did exactly this. For fuller results, see [12] and [13].

New communication, or a replacement for old communication

In one investigation, I wanted to find out if the usage of a conference system was mainly new communication, or if it was a replacement for communication which previously took place using other means of communication.

The normal way to investigate this might be to make a query to the users of the system. However, such a query would tell how many users believe that the communication is new communication, and users' beliefs might not be correct.

Instead, I wrote a program which randomly selected contributions written in the system (both personally addressed mail and conference contributions). For each contribution the program sent a question to the writer of that contribution, asking them to what extent they believed they would have communicated the same information by other means if the conference system had not been available They were also asked how many people they would have communicated this information to if the conference system had not been available. The answers where then weighed by the number of readers of the contribution. For example, if a contribution was read by 20 users, and the writer said that without the conference system, he would have communicated this to only 3 people, this was counted as 3 replacement communications and 17 new communications.

Thus, the figure which came out of the investigation was not how many of the users believed that conferencing replaces or does not replace other communication means, but rather what percentage of the actual communication going on in the system was a replacement for previous communication by other means.

The result of this investigation was as shown in figure 1:

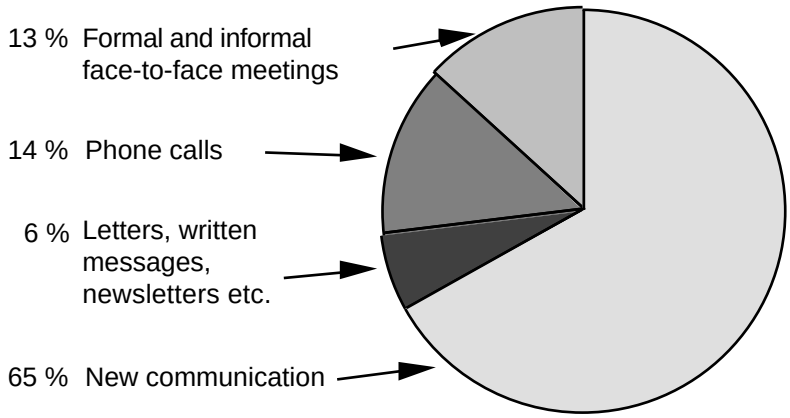

Figure 1: How much of the communication in a computer conference system is new communication, and how much is a replacement for previous communication by other means?

Organizational distance between sender and recipient

I wanted to find out to what extent computer conference systems usage influenced the organizational distance between the sender and the recipient of information. To investigate this I got a programmer to modify the conference system, so that every time anyone read a message or contribution, the organizational position of both the author and the reader was noted in a file. This investigation was made in a large Swedish government research agency with (at that time) about 1400 employees.

This file also noted if this was a personally addressed message, or if it was a conference contribution.

The result of this investigation was as shown in figure 2:

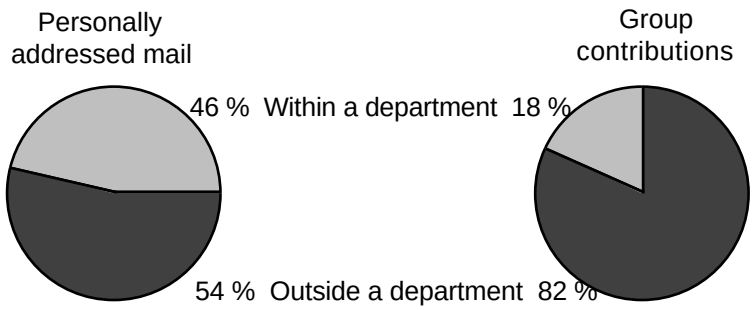

Figure 2: Distance of communication with personally addressed mail versus conference contributions.

Who are allowed to communicate?

In order to investigate this, I made a random sample of computer conference users, and also a random sample of people who were members of groups having face-to-face meetings. Informal face-to-face groups within a department was not included. I then checked the age, education and organizational position of the people who participated in these two communication means.

The result of this investigation is shown in figure 3:

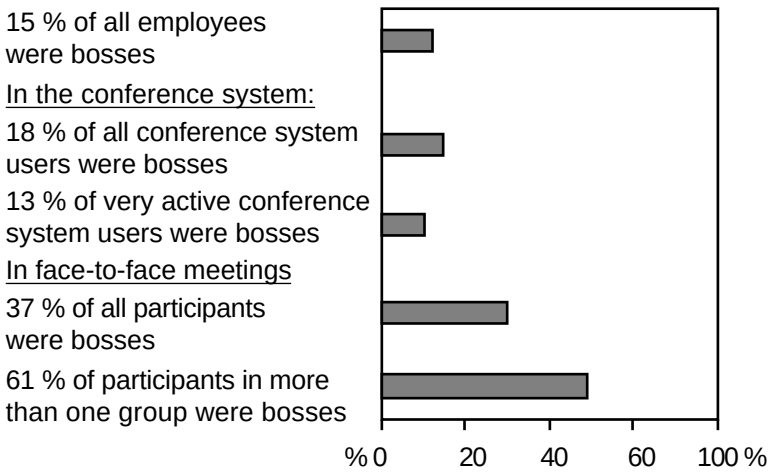

Figure 3: Percentage bosses among participants in computer conferences and face-to-face meetings.

The investigation of age showed that in face-to-face meetings, people older than 40 years of age were more frequent, while in computer conferences, people less than 40 years of age were more frequent.

The investigation of education showed that in both conference system and face-to-face meetings, people with higher education were overrepresented. This over-representation for people with higher education was however much stronger in face-to-face meetings than in computer conferences.

References:

[1] Benford, S. and Palme, J.: Developing Standards for OSI Group Communication. Not yet accepted for publication.

[2] CCITT, Message Handling Systems: System Model - Service Elements, Recommendation X.400, 1988, (Also published as ISO International Standard 10021).

[3] Crocker, D.H.: Standard for the Format of Arpa Internet Text Messages. August 1982. Network Information Center RFC822, SRI, California, 1982.

[4] Hiltz, S.R., Johnson, K., Aronovitch, C. and Turoff, M.: Face-to face vs. computerized conferencing: A Controlled experiment, New Jersey Institute of Technology, Newark, Research Report no 12.

[5] Hiltz, S.R. and Turoff, M.: Structuring Computer-mediated Communication Systems to avoid Information Overload. Communications of the ACM, July 1985, pp 680-689.

[6] Horton M.R., Adams R., Standard for the Interchange of USENET Messages, Network Information Center RFC 1036, SRI, California, 1987.

[7] International Organisation for Standardisation - Basic Reference Model for Open Systems Interconnection, ISO 7498, 1984.

[8] International Standards Organization: Group Communication functionality. ISO/IEC JTC 1/SC 18/WG 4 document N1144, January 1990.

[9] International Organisation for Standardisation - Information Processing Systems - Open Systems Interconnection - Specification of Abstract Syntax Notation One (ASN.1), ISO 8824, 1986.

[10] International Organisation for Standardisation - Information Processing Systems - Text communication - Remote operations (ROS), ISO 9072, 1988.

[11] Keehan, Michael T.: The Participate computer conferencing system. AFIPS Office Automation Conference, Los Angeles, February 1984.

[12] Palme, J: Cost-Benefit Analysis of Computer-Mediated Message Systems. In Information Processing 86, Proceedings of the World Computer Conference 1986 pp 1021-1023.

[13] Palme, J.: Experience with the use of the COM computer conference System. QZ UniversitetsData AB report C10166E, 1982, 1984.

[14] Palme, J. and Tholerus, T.: SuperKOM - Design considerations for a distributed, highly structured computer conferencing system. To be published in Computer Communications in 1992.

[15] Palme, J.: SuperKOM - a distributed computer conference system. Proceedings of the IFIP Symposium on Message Handling Systems and Application Layer Communication Protocols, Zürich, October 1990, North-Holland.

[16] Palme, J.: Data Base Structure in PortaCOM. Byte Magazine, December 1985.

[17] Postel, J.B.: Simple Mail Transfer Protocol. Network Information Center RFC821, SRI, California, 1982.

[18] Turoff, M.: Computer-mediated Communication requirements for group support. Journal of organizational computing, volume 1, number 1, 85-113, 1991.

[19] Vallee, Jaques: The Forum project - network conferencing and its future applications. Computer Networks, 1(1976) pp 39-52.

[20] Whitescarver, J. et al., A Network Environment for Computer Supported Cooperative Work, Proceedings of the ACM SIGCOMM ‘87 Workshop: Frontiers in Computer Communications Technology, ACM Press, 1988, 230-244.