Computer Mediated Communication – the power of email as a driver for changing the communication paradigm

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INTRODUCTION

Email has been with us now for a long time and is being increasingly adopted as a major communication tool in UK Higher Education establishments (colleges of Higher and Further education and universities). As the use of email grows, the effect on communication patterns needs to be established. This paper looks at current communication and working practices within a Higher Education institution in the UK (the author's own). A survey has been conducted to elicit people's feelings about the use of email and how they see future patterns of communication developing within the establishment. The questions that the survey set out to answer were as follows:

➢ Preferred methods of communication.
➢ Advantages and disadvantages of each of the communication methods utilised at Leeds Metropolitan University (LMU).
➢ Efficiency of email to be.
➢ Items not suitable for email transmission.
➢ Ethical considerations in using email
➢ Who is contacted using email.
➢ Increase or decrease of email usage in the future.

The specific focus of the survey was to elicit how staff feel about the increasing dependence on the use of email within the institution and these findings are discussed in the results section.

The paper will present a literature review of the area, the framework for the study, the methodology utilised, the results of the questionnaire and conclusions.

COMMUNICATION AND EMAIL

A basic theoretical model of the communication process states that messages are 'sent' and 'received'. Confirmation of receipt and interpretation of the message indicates that it is a two-way communication process (Warner, 1996). Some major factors to be considered when choosing the communication method are as follows:

➢ Effectiveness – how do we measure this when using email?
➢ Simultaneous reception of information by recipients – what happens when people are temporarily unable to access their email due to technical problems?
➢ Acknowledgement of receipt – read receipts can be used to check how quickly the message has been read.
➢ Speed – how quickly does the information reach the recipients?
➢ Cost of the process – is it cost effective?

Increasingly, email has become a common mode of communication for many people, though exceptions must be made for those who do not have easy and regular access to the technology re-

quired. However, communications theorists argue there are problems with the use of email as the sole communication medium. Culnan and Markus (1987) suggested that a lack of face-to-face communication changes the intra and interpersonal variables because of a lack of social context and this will inevitably lead to problems understanding the message. Sproull and Kiesler (1986) argued that email was devoid of social cues and this would seriously affect communication patterns. Email provides neither audible nor visible cues to the communication process and as such can be seen as a relatively impoverished communication style. Recent developments, (Bavelas et al, 1999) in the form of 'emoticons', typewritten symbols that imitate facial expressions, are helping to bring a visual dimension to email which was not previously there, for example: J, [type : followed by)], L, [type : followed by ( ], however, the effectiveness of these 'emoticons' is difficult to measure. They are not widely used in the UK HE environment where pressure and need to concentrate on speed of response limit developments of further dimensions to email. Hirscheim (1985) argued that one of the major benefits of using email is to support communication between people who are geographically distant as is the case in this paper.

There are further problems with an email system in that it is not always possible to ensure that the recipient has received and read the message in an appropriate time frame. This may be caused by a variety of problems, both technical and human. These issues are discussed in more detail and possible solutions posited in Willis and Coakes (2000).

Further analysis of the current situation indicates that email lacks the collaborative dimension that is needed in today's world and this lack of collaboration is an important factor. There are some email systems which allow simultaneous transmission on split screens but these do not allow full collaboration as there is still a gap between reading the message and composing the reply (Marvin, 1999), however, in this paper, this type of system was not considered.

Computer Mediated Communication (CMC) is often seen as inferior to face-to-face communication. In terms of an analysis of why this is the case, Aycock and Buchignani (1995) state that in several critical ways CMC appears to stand outside the conventions of everyday orality and literacy. Baym (1995) however, argues that much CMC research is too concerned with the view that the computer itself is the sole influence on communicative outcomes, whereas it is obvious that the human element has a vital role to play. Culnan and Markus (1987) identified an assumption that CMC based communication in place of face-to-face results in predictable changes in intra and interpersonal variables because of

a lack of social context. This flags up issues about understanding of the communication process and WHEN each type of communication medium/method is most appropriate.

Marvin (1999) argues that in digitised synchronous, text based interaction, participants are forced to type quickly with less concern for spelling errors and typographical errors. Although synchronous communication was not the normal pattern of communication found in our survey, there is often pressure to respond quickly, perhaps before having thought through what to say and sometimes, leading to regret about the speed of response. Interestingly, contrary to the findings of previous research (Coakes and Willis, ibid) where one of the main problems with email was uncertainty over whether a message had arrived, this no longer seems to be such a large factor. This could have two possible causes. Potential recipients are unaware that they should have received something or the technical systems have improved to the extent that it is not longer an issue. Norman (1988) discusses the principle of closure - agents performing an action require evidence, sufficient for current purposes, that they have succeeded in performing it and in many cases, email fails to provide this sufficient closure. Indeed, the author is uncertain whether all the intended recipients actually received the questionnaire on their desktop, so the principle still applies.

Electronic mail is the most frequently used application of the Internet. EMA Market Research survey (November 1996) found the numbers of email messages sent was increasing markedly from 1.7 trillion in 1996 to a projected 5.3 trillion in 1999.

Advice for writing effective email is given at www.delta.edu as follows:

Ø always make sure to provide the proper context for your message make sure your message is clear and unambiguous.

Hirschehim (1985) built a model of possible benefits of email which is detailed below:

1	To support the communications of people in the same building and on distant continents
2	To support real-time communications, when the parties are present at their terminals at the same time (this did indeed happen on one memorable occasion when on sending a communication to a contributor in the USA, an instant response was received, as he was online at the time - this led to a discussion of the weather on the different continents), and non-real time communications with the recipient reading mail when convenient (the more normal occurrence).
3	To allow all messages to be sent when desired, stored where necessary, routed to the most appropriate destination and then easily retrieved
4	To provide the users with facilities to prepare, edit, read, store, receive and retrieve messages easily.
5	To cater for a variety of message types such as formal letter, informal memos and brief notes (most email systems in use today do not cater for formal letters and memos).

Table One: Hirscheim's characteristics of email

This table still holds true for the present even though in technological terms, systems have moved on considerably. What people believed the system delivered and how appropriate it was for them were key factors in the survey.

Email lends itself to informal communication, ensuring inter-action and conveying important information quickly. Remembering that the main advantage of email is speed, messages should be kept short and to the point to facilitate a quick response. Sherwood, (2000) believes that email is a fundamentally different form of communication to paper based communication, the speed of the process making it lean towards a more conversational tone. As recipients of email can quickly respond and ask questions or seek clarification, there is a tendency for emails to be not so rigorously or painstakingly constructed as letters or memos. Email also does not convey emotions nearly as well as face to face or telephone conversations as it lacks the cues available in these forms of inter-action. Email can be seen merely as a facilitating tool for the communication process.

Sherwood identifies one of main disadvantages email as being that it may be used when face-to-face or written communication is more appropriate. This finding will depend on such issues a preferred communication style and appropriateness of the communication medium.

Email is a communication system which supports both one-to-one and one-to-many communication patterns. (Harasim, Hiltz, Teles and Turoff, 1993). This allows for asynchronous communication which can now be enriched by the addition of pictures and sounds. Because of its place independence, there are many possibilities for using email as a tool for student support when working with part-time or off site students in particular, but this requires a proactive approach.

Problems with email identified by Woolston and Lipschutz (1998) include:

➤ Non-verbal cues are limited, leading to the possible misinterpretation of the feelings associated with email
➤ Discussion of confidential information is not always secure
➤ Emails are context deficient, there is no simple way of determining that the sender of an email is who they claim to be
➤ Overload!

One of the major advantages claimed for email was that it provided a record of the communication which was not always available in face-to-face to telephone conversations. This record seems to be of increasing importance in modern academic life.

Bjørn-Andersen [1983] says that to understand the impact of information systems on an organisation it is necessary to consider five major areas. These are identified as:

1. Psychological factors
2. Organisational structure
3. Societal factors
4. Ethical and moral issues
5. Epistemological aspects.

The survey concentrates on the psychological and ethical issues and the ways in which people's perceptions of the system would influence their use of it. The ethical issues that were raised are discussed in the results section. Psychological considerations include a preference for access to the accompanying body language of a message to enhance their understanding.

FRAMEWORK FOR THE STUDY

The empirical work was conducted within Leeds Metropolitan University (LMU) in the Faculty of Information and Engineering Systems. This Faculty came together in 1987 to integrate the themes of information, engineering and systems; so that information (whatever the medium for storage and retrieval) is linked to engineering (in its broadest sense - manufacturing, software, electronic, communications engineering and media technology) through

a common systems approach. The Faculty comprises three schools – Computing, Engineering and Information Management.

LMU is regarded by many of its staff as being 'email driven' in its communication patterns. This is partly explained by the dispersed nature of the staff in the schools of Computing, Information Management and Engineering. Staff in Computing and Information Management are located in rooms is series of different buildings around the Beckett Park Campus and it is difficult to physically meet to pass on information, so email is utilised to overcome this dispersal problem. Staff in the school of Engineering are located at the City Centre site some 4 miles distant and the advantage of email for keeping staff in touch with what is happening at the campus site is obvious.

In June 1999, LMU developed a policy on the Use and Abuse of email which was distributed to staff on 13th March 2000. As the author is a relatively new member of staff, it is not possible to say whether this was the first time this document had been circulated. One issue which was not addressed by the survey was whether staff were aware of this policy and adhered to it, however this will be addressed in some planned research to be conducted with LMU, a UK college and two institutions in Australia. The accompanying message distributed with the policy states that whilst email is a useful messaging system, it's good features can lead to problems. Items cited include the use of wide distribution lists, using email when the telephone is more appropriate and sending messages hurriedly. Inappropriate use of email wastes time and resources. The policy states that the content of all email stored on University servers and PCs remains the property of the university, that email is not a private or confidential medium and that personal use is permitted. This is interesting and will be revisited in the light of the responses to the questionnaire.

In terms of use of the system at LMU, the systems administrator supplied the following information which gives a useful indicator of the response to email messages.

Read receipts were collated from an email sent to all staff within the institution (almost exactly 2000 users, some recent leavers had not been removed and some new staff not added) and the cumulative totals are given below:

15 minutes	335
1 hour	591
end of day	1115
end of week	1399
after 1 week	1524

This indicates that over 50% of staff had responded by the end of the first day, yet after 1 week, the percentage had only increased to just over 75%. This response rate may well be a useful indicator to staff attitudes across the whole institution. Unfortunately, figures are not available by individual school. It may be that had the author resent the questionnaire after one week, the response rate may have been much higher as the immediate response pattern is higher than after a period of delay.

METHODOLOGY

The methodology chosen was that of an email questionnaire with multiple responses possible. Open questions were also included to enable staff to give opinions where appropriate. An email questionnaire was deemed the most appropriate medium as the focus of the survey is email usage. Considerations about the split site nature of the Faculty also pointed towards the use of email.

The survey was sent to all academic staff within the three schools (a total of 150 people) and a total of 30 responses were received, 26 by email and 4 by internal mail. This represents a response of 20%. Two blank questionnaires were also received via the email system, which were discarded. Obviously, with such a low response rate, care must be taken with both validity and reliability of the findings and especially with the extent to which these findings can be generalised. However, all respondents had strong views, some positive and some negative and as the object of the study was to elicit opinions, the results have value.

The timing of the questionnaire proved difficult. It was delayed until staff returned from their summer break, but coincided for many with a vast amount of email which had built up over the summer holiday and thus many staff did not have time to respond due to email 'overload'. This is probably the prime reason for the low response rate, although a general negative feeling about blanket emails may also have been a contributing factor.

However, the problem which became apparent during the study was that where email was not being accessed quickly enough, the communication process was breaking down.

SURVEY RESULTS

(Please note that some questions had multiple responses and some respondents did not answer all questions).

In terms of preferred methods of communication (Question 1), 6 reported a preference for email, 13 for face to face communication and 6 said it would vary depending on the circumstances. No-one opted for the telephone as the preferred method.

When asked for reasons why a particular method was preferred (Question 2), the most commonly cited method was for face to face communication where people were able to pick up body language at the same time as the verbal language which gave them a greater insight into meaning. In fact the most common response was that staff felt they needed the accompanying body language to understand the message correctly. In terms of preference for email, a variety of reasons were given, with the speed of the transaction being the most commonly cited. Many staff seemed to feel a need for face-to-face communication as well as the email. However, in a couple of instances, staff reported that they would use whichever medium was most convenient or most likely to be effective in the particular circumstance.

Question 3 covered advantages of each type of communication method. The responses are given below as a series of charts.
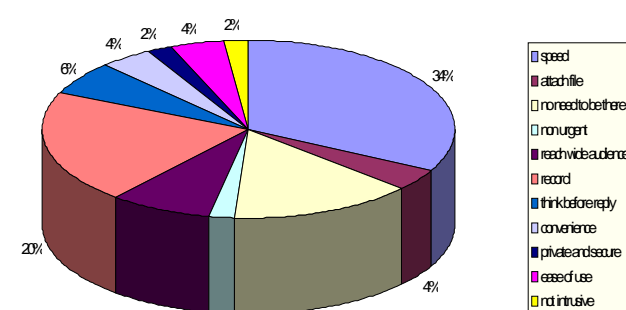

Chart One: Advantages of email

As can be seen from the preceding chart, the major advantages for email are speed and having a record of what has been said, however, that ability for asynchronous communication was also an important factor.
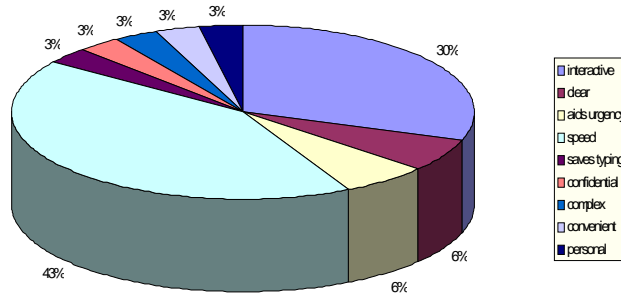
interactive
clear
aids urgency
speed
saves typing
confidential
complex
convenient
personal

30%
43%
6%
6%
3%
3%
3%
3%
3%

Chart 2 Advantages of the telephone

Speed was also an important consideration for the telephone, along with its interactive nature.

interactive
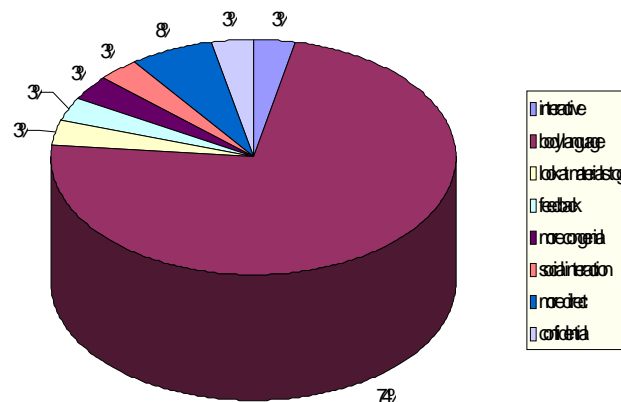body language
look at reaction/stg
feedback
more congenial
social interaction
more direct
confidential

7%
8%
3%
3%
3%
3%
3%
3%

Chart 3 Advantages of Face-to-Face Communication

For face-to-face communication, the real advantage as previously mentioned lies in the ability to pick up the body language that goes with the communication process.

accurate
complex
for others
all get same
permanent record
more personal
use when don't want to Face person
legally binding
those who don't have email
well considered
assess handwriting
personal

14%
10%
14%
3%
7%
3%
3%
3%
3%
3%
3%
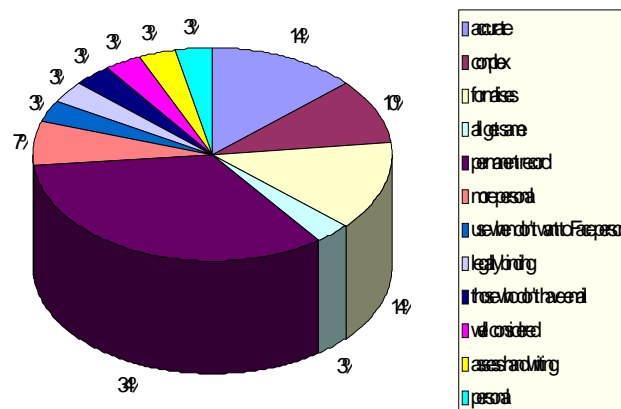
Chart 4 Advantages of written communication

For written communication, the ability to keep a permanent record was the most frequently cites response.

The only other communication method mentioned was the fax and it's use when transmitting diagrams and maps.

When analysing the results of the disadvantages for each communication method, the responses were not so clear. The responses are given below in tables 2-5.

Email medium	No of replies
too hasty	3
not interactive	2
Misleading/misinterpreted	8
not easy to read on screen	1
may be overlooked	3
poor expression	3
unclear	1
curt emails	1
excess volume	9
not read	1
did it arrive?	1
time consuming	4
irrelevant	3
impersonal	1
impossible to recall once sent	1
can get lost	1
Prone to technical failure	2
limit on number saved	2
limit on size	1
not secure	1
speed	1
misused	1
inappropriate	1

Table Two – Disadvantages of email.

As a major disadvantage of email, one respondent pointed out that messages could not easily be recalled once they had been sent, even of the sender had occasion to think better of the response at a later date. Other responses indicated that the informality and speed of the response led to poor expression which made the message difficult to understand.

Telephone medium	No of replies
no record	2
cannot see reaction	2
need to be there	17
being on hold	1
canned music	2
cold calling	1
intrusive and antisocial	4
less personal	1
difficult to track	1
cost	1
may be misunderstood	3
cannot see person	1
inconvenient	1

Table Three - Disadvantages of the telephone.

Face-to-face medium	No of replies
need to meet	1
takes a long time	10
intimidate	1
no record	4
difficult to escape	1
expensive	1
time travelling	5
no access to other documents	1
no time to think about response	1
difficult to arrange	4
disagreeable people	3
body language	1

Table Four – Disadvantages of Face-to face communication

Written medium	No of replies
costs more	1
longer to produce	17
poorly written	1
too slow	10
too formal	2
handwriting hard to read	1
annoying if make mistake	1
impersonal	1
Needless use of paper	1
Confirmation of receipt	2
Feedback	1
can get lost	1
Can be ignored	1
Not interactive	1

Table 5 – Disadvantages of written communication.

The survey highlighted one or two issues in the field of access to the communication space such as the use of email to pressure staff into doing something and one respondent felt that it could be used as a means of bullying staff. However, as the response rate to the questionnaire was low, this is likely to refer only to specific isolated incidents and not be general to the institution.

A question about efficiency of email produced the following results:
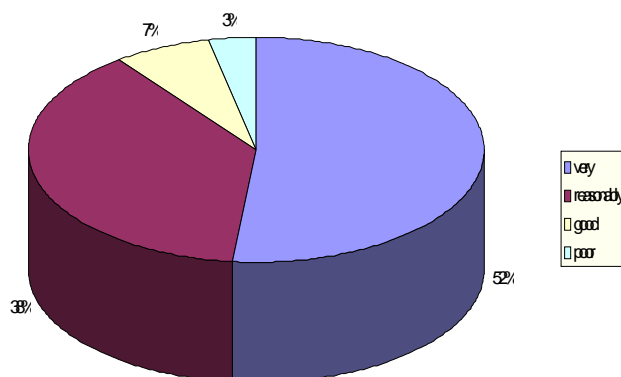
Chart 5 Efficiency of email

The majority of the respondents felt that it was very or reasonably efficient, with only one respondent classifying it as poor.

A large proportion of the respondents (73%) felt that the email was the main communication method within LMU.

Answers as to what not to transmit over the email fell largely into the sensitive area (including exam papers) and personal information. In the light of the university policy on privacy and email, this is unsurprising. Work by Coakes and Willis (2000) found that in UK universities generally, university staff are most concerned about sending exam results/papers over email systems because of a lack of security. Other concerns highlighted were confidential information and whether email was the most appropriate method for communicating the information.

Again the spread of answers to the question about ethical issues was very wide. One disturbing result was that 8 respondents felt there were no ethical issues raised by the use of email. Less surprising in the light of recent litigation where a student sued a university over something that was said in an email message, 5 respondents were concerned about possible libellous statements made in email. Table 6 gives the full range of responses.

Ethical issues	No of replies
None	8
Intrusive junk mail	1
job loss for secretaries	1
info taken out of context	1
Who owns it	1
security	2
monitoring by employers	3
libellous statements	5
easier to insult people/ harassment/bullying	3
porn	1
legal/formal	1
managerial	1
Means of avoiding responsibility	1
Don't know	1
no response	2

Table 6 Ethical issues raised by the use of email

Staff were asked who they normally contacted by email and the results are given in the chart below. This communication pattern was remarkably even in its spread. The only area showing significant deviation was the use of email to contact 'others'. Although university policy allows this type of communication, it was not mentioned as being used by many of the respondents. Perhaps people prefer to separate their working and personal communications for security and privacy reasons.
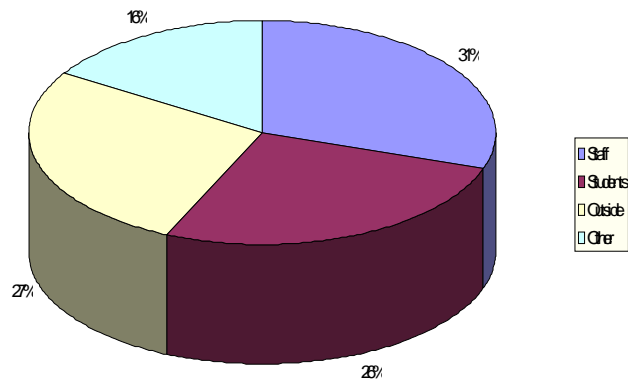
Chart 6 – Contacts by email

The final question related to the incidence of the use of email and whether it would increase or decrease over time. The vast majority felt that the use of email would increase (see chart 8). The notable exception to this rule was the Dean of the Faculty who felt there was such a high level of usage at present that it would not be possible to increase much more.
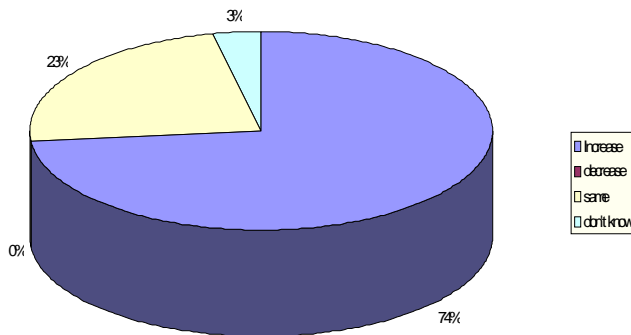

Chart 7 – Use of email in the future at LMU

One area that highlighted the need for further clarity in the questions was where despite the fact that the survey was aimed at discovering people's opinions about using email one respondent referred to textbooks as the source of the answers to questions about advantages and disadvantages of the various communication forms.

It was interesting that although many staff felt the use of email was increasing, several staff made comments about overload already in terms of volume of email received. One question which could usefully have been asked was the extent to which the use of email to contact students was considered to support them in their studies. There is much interest in the university at the present time in the use of email for extra student support and to maintain a closer working environment. Most staff used email to contact their students, though one or two stated that this was a purely reactive response rather than a proactive one initiating a discussion.

SIGNPOSTS FOR THE FUTURE

Given that email is a major communication method within LMU, care must be taken that the volume of email received by each member of staff does not reach the point where it becomes impossible for them to deal with it.

A second consideration lies in the possibility of greater use of email for student support. This will obviously increase the load

on individual lecturers and it may be that a web site solution with FAQs will be more effective than one which requires lecturers to respond to students on an individual basis. Publishing information on a web site also enables staff to be sure all students are receiving exactly the same information which reduces uncertainty.

Guidelines for the effective use of email include the following:

➢ Take care to avoid overload
➢ Speed is the biggest advantage for email, make sure the culture is such that this is adhered to in communication.
➢ Look for ways of using email to facilitate student support.
➢ Use webs sites or the intranet to provide large quantities of information
➢ Target the message carefully to increase efficiency
➢ Think before replying
➢ Use high priority sparingly
➢ Deleted unwanted material to facilitate effective use and save server space.

In conclusion, it can be seen that email has many advantages according to the survey results. However care must be taken to ensure that it does not become the SOLE communication medium. Appropriateness must be the watchword or the quantity of material communicated will increase, but the quality will not.

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