

Can academics afford to use e-mail?

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Abstract

The use of information and communication technologies - in particular, e-mail, forums and the Internet - in combination with new pedagogical insights on collaborative and co-operative learning may create scope for better learning and teaching environments; but such use comes with many hidden workload costs. In the implementation of online learning and teaching strategies, such costs are rarely fully accounted for or even recognised. This paper will investigate some of changes in workload using a study of e-mail activity over 10 years to exemplify the issues.

The move online

While the debate rages over the way that higher education of the future will be delivered, the early claims of a massive revolution due to the introduction of online strategies appear to have been somewhat tempered. The move to electronic delivery of learning, using a variation of the Distance Education (DE) model, was seen by many such as Jones (1997) as the answer to problems of increasing global demand for education in a climate of decreasing public funding. The Western Governors University (Western Governors Association 1996) was one expression of the prevailing mood and seemed like a good idea at the time. It was to herald a new dawn in the delivery of higher education through the establishment of a virtual university model, based on very low investment in high capital items such as physical facilities and tenured staff. Instead, high investment in information and communication technology (ICT) coupled with a variety of staff contracts and outsourcing of content strategies was supposed to provide a superior education at a lower cost. It was widely cited (see, for example, Luke 1996) as one model of the university of the future. Its initial failure was quite spectacular but less widely reported; and required a major re-think of how it was going to deliver courses. The result was a step back from the original vision and links with more traditional institutions.

Noble (1997, 1998a, 1998b) claimed that virtual universities are nothing short of shoddy attempts by administrators at automation and the commercialisation of education which are doomed to fail. Counter claims by others such as White (1998) maintain that there is no evidence that 'cybereducation' is inferior and in any case, it takes time for innovations to find the right formula in order to be most effective. Such debate makes it difficult to determine which position,

if either, is more likely to be correct. It appears that both camps are able to cite enough instances to support their argument. More recent literature (Twigg 2001) urges us to be more selective and innovative in implementing online learning in order to achieve results that go beyond simply matching what is being achieved with conventional strategies. It is clear that there is still much that we do not know about the consequences of adopting particular practices and technologies.

Optimism at the inception is often replaced by rationalisation when the project fails the 'no significant difference' test. Schank (2001 p21) recalls his experiences with Columbia University.

"This was no ordinary 'let's hurry and get our university online' kind of deal. I am an educational revolutionary and Columbia knows that. Columbia wasn't in it for a quick buck. It wanted to offer high quality courses to the world outside its campus. Columbia wanted high quality and so did I. ... How many [courses] will be produced is difficult to estimate, since in the mind of those savvy venture capitalists, e-learning went from hot to not in a matter of months."

Many factors including, but not limited to, technology, pedagogy, globalisation, politics, funding, competition, innovation, ambition and personal preferences, are interconnected in a way which makes it exceedingly difficult to devise a long term strategy that might be successful in all the ways that we choose to measure success. Concentrating on only some of these can set up an inherent instability which results in the ultimate failure of the efforts. That is why protagonists on both sides of the debate are able to cite cases that appear to support their cause.

One of the factors that has been poorly supported with empirical evidence is the change that the use of ICT makes in the workload of the academic.

Of the available communications technologies, e-mail is the simplest and most wide-spread. It has been used since the early 1980's as a means of supplementing traditional DE (Messing & Cornish 1996, Feenberg 1999). Although it has undergone considerable development since the days of 300 baud modems using simple packet switching networks for very basic text messages, it is a relatively stable technology. Having been used for more than 20 years to support education, it is a fertile ground for exploring some of the issues related to the way that the use of online technologies impacts the work of educators.

This study began as an attempt to quantify what many educators have suspected (Boettcher 1998, Collis & Messing 2001), that the workload associated with the use of online tools is considerably higher than with conventional technologies. In the process of trying to make sense of the data, it became clear that there are a number of issues such as increased expectations on the part of students and the disproportionate load that administrative use of e-mail places on academics that are rarely, if ever, considered as part of the debate.

The context

Charles Sturt University (CSU) is by many statistics, the largest provider of conventional DE in Australia. It is also a leader in providing online services to its students at all levels of the enterprise from administration and student services through to teaching. The university has three major campuses, as well as several minor ones, located over a wide geographic area with some 500km between the extremes of the principal campuses. In Australian terminology, it offers

hundreds of courses (programs) from undergraduate to doctoral, consisting of more than 2500 subjects (courses), all supported with online resources as well as conventional ones.

By 1996 when many Australian universities were just contemplating the use of ICT to support teaching and learning, one of CSU's postgraduate courses had more than 20 intakes and 12 years worth of experience in such endeavours (Messing & Cornish 1996). What is clear from personal studies of the CSU experience (Messing, Eustace & Henri 2001, Messing 2000a, 2000b, Messing & Henri 2000, Messing 1998) as well as the implementation of online learning in other institutions (Collis & Messing 2001) is that there are workload factors which, if ignored, may prove to be a stumbling block in the long term viability of the endeavour. No consideration has ever been given at CSU for such factors. Sometimes it is the optimism and enthusiasm of initial implementation that glosses over these and at other times official policy which simply mandates the implementation assuming that workload factors will be negligible and readily absorbed in the light of the supposed benefits.

E-mail was a cornerstone of the Graduate Diploma of Applied Science (Information Technology) and, along with other online tools, is still a major avenue through which electronic communication takes place. The analysis of e-mail data over the last 10 years serves as a basis to demonstrate how easy it is to underestimate the consequences of the use of the tool. As course coordinator since 1990, as well as a teacher in a number of subjects, the author took the decision to archive all e-mail every semester. This was done primarily to ensure a documentary record of official communications with students but the action proved to be a fortuitous one in that it provided a valuable source of data for this study, as well as highlighting some important issues in the archiving of electronic data.

The data

Figure 1 shows the number of e-mail messages in the archived files since 1991. Data from 1994 and autumn 2000 were excluded because the author was on sabbatical during major periods in those semesters. Data from autumn 1998 could not be located. The CDROM on which the files were stored has gone missing and unfortunately, no duplicate was ever made. The data indicate that the number of e-mails has grown by 645% from 498 in autumn 1991 to 3212 in spring 2001.

During that period the student:staff ratio has increased by approximately 40% and is clearly not, by itself, sufficient to account for the increase in e-mail activity. There were no other major changes in the author's responsibilities during that period that could account for the magnitude of the difference. Messages which were automatically dealt with by filtering or mail rules were excluded from the count as were those which were automatically generated by some part of the CSU electronic system, for example, daily "What's new and news" messages in recent years.

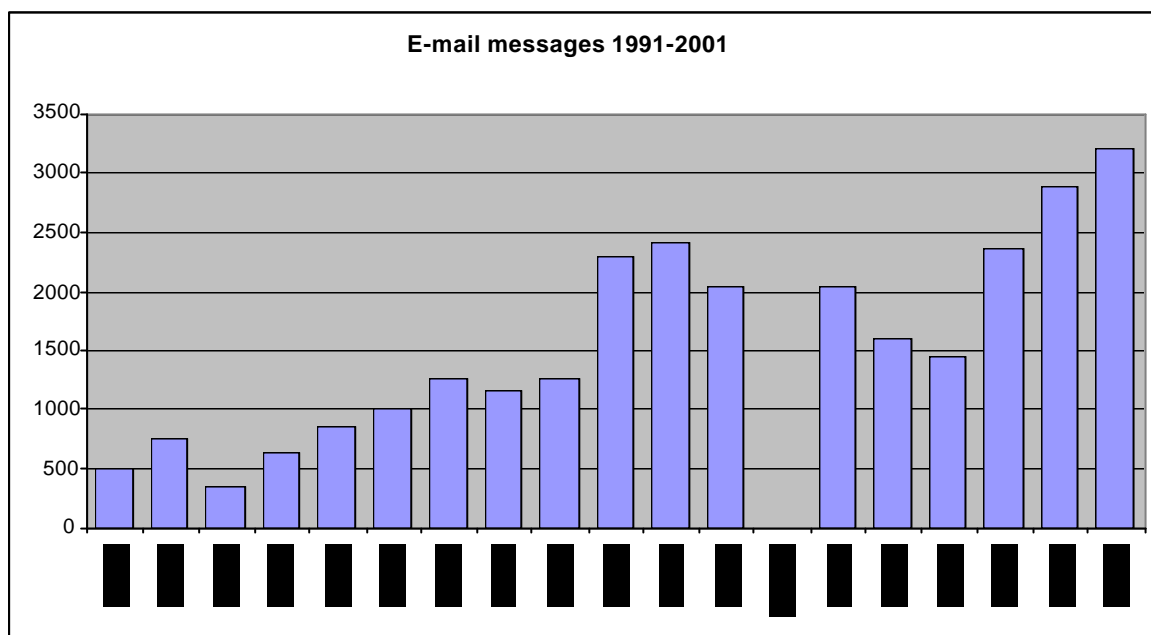


Figure 1

The major changes over that time occurred in the administrative practices within the university and the widespread adoption of Internet strategies. What began as a tool for communicating with students and colleagues, became a medium for communication within the administrative structures of the university as well. In 1991, students had access to e-mail, listservs and conferencing software (Vax Notes). In 2001, students had access to e-mail, listservs, a forum and class specific web sites for downloading material.

In order to understand what differences there were in the nature of the e-mail messages, the messages from two semesters, 10 years apart, were examined in detail.

Table 1 compares the sources and destinations of e-mail in spring 1991 and spring 2001 semesters by separating those which were received from those which were sent and then further classifying them into 5 basic categories:

Subject Content: Such messages are directly related to the teaching of the content of the subject. Frequently, these would be student initiated, asking for explanations of a concept or clarification of an example. Occasionally, they would be listserv messages broadcast to let all students know about an important matter related to the understanding of a concept.

Subject management: These can be characterised as messages, which affect the management of the subject. Examples include requests for information about assignments, extensions to due dates, requests for sample examination papers, details about textbooks and/or necessary software. In 1991, it also included a significant proportion of correspondence related to setting up the e-mail or conferencing accounts and getting the technology to work correctly. However, by 2001, this was almost non-existent with only two messages about password problems.

Course related: Course coordination is an advisory role for both prospective and current students. Correspondence of this type involves a diverse range but is predominantly

related to patterns of study and advice about administrative procedures that need to be undertaken.

Administrative: All other non-teaching-related correspondence with different sections of the university.

Other: Includes mainly professional correspondence with colleagues and organizations, as well as personal communications

Table 1: E-mail Spring 1991 and Spring 2001

	Sent 1991	Rec'd 1991	Total 1991			Sent 2001	Rec'd 2001	Total 2001	
Subject Content	28	21	49	6.4%		8	4	12	0.4%
Subject Management	157	364	521	68.4%		195	428	623	19.4%
Course related	42	76	118	15.5%		508	823	1331	41.4%
Administrative	0	11	11	1.4%		30	560	590	18.4%
Other	24	39	63	8.3%		188	468	656	20.4%
Total	251	511	762			929	2283	3212	
	32.9%	67.1%				28.9%	71.1%		

Discussion

A number of interesting observations about the workload associated with e-mail may be made from Table 1. The proportion of messages sent in both semesters was remarkably similar, roughly two messages received for every one sent. This indicates that the increase in workload was not just due to an influx of mail from new sources. Indeed, while it is not obvious from simple tabulation of the number of messages, the increase in volume of mail sent (360%) has resulted in an inordinate increase in workload. Typing skills play an important part in coping with all forms of online tools and two finger typing (as the author and most of his colleagues are accustomed to using) is an extremely inefficient process. Informal estimates put the workload requirement at approximately three hours per working day, with much of that devoted to sending messages. What was a manageable activity in 1991 has become a burden that creates pressure and stress - as well as decreasing the available time for other activities.

Quite clearly, the category of administrative use of e-mail has grown from an extremely low base in 1991 to almost one fifth of the total communications. This has occurred because successive policies within CSU have progressively reduced the amount of communication that is conducted by conventional media in favour of e-mail as well as other online strategies. Two consequences of this practice - which have had negative impacts on academic workload - are a much less focussed approach to communications and a tendency to transfer workload from the sender to the recipient.

With the advent of address lists, mail now goes to people who may not really need to receive that message. While this does have some benefits in increased levels of communication, the really important mail still goes person to person. The use of address lists, results in a great deal of unnecessary incoming mail. While one could argue that such mail may be easily dealt with, it still takes time to scan the contents of the message and make a conscious decision about what needs to be done, as well as filing the message. The problem is compounded by modern e-mail

systems' use of attachments that may require opening a number of different attachments before being able to make a decision. At least the technology has evolved these days from the earlier times where attachments had to be decoded before being able to be viewed. Regardless of the utility of the message and how efficiently it may be dealt with, the process of dealing with this type of message takes a significant amount of time. The only saving grace is that reading is a much faster process than typing and there is a very high ratio (19:1) of received to sent administrative mail.

While there are many benefits in the use of e-mail - for both the sender and the recipient - when it comes to administrative communications, the balance is predominantly in favour of the sender. Workload has been shifted in subtle ways that are not immediately obvious. For example, instead of minutes of meetings, agendas etc. being distributed in printed form directly to the people concerned, sending them as an attachment to e-mail increases the workload of the recipient. Instead of the originator making the necessary copies and distributing them (an effective decrease in workload), the recipients now each have to extract and print the documents (an increase in workload). A simple calculation demonstrates the magnitude of this effect. It might take a secretary 10 to 15 minutes to duplicate and distribute meeting papers to 20 people. If it takes each recipient just 5 minutes to read, extract, print and collect the meeting papers, that represents a total of 100 minutes. The secretary saves 10 minutes but the recipients collectively lose 100 minutes. It is no wonder that administrative units have increased their use of e-mail. The argument that this may balance out in the long run might be true for administrative units where the proportions of received and sent mail are approximately equal, but is clearly not valid in this case.

The category of message that has increased the most is course-advisory-related matters. While the number of students in the course has doubled, the volume of communication has increased 11 fold and maintained the approximate ratio between messages sent and received. On the surface, there appears no reason why this should be so. One possible explanation lies in other CSU online tools. Web sites that publicise the courses at CSU all have an e-mail link to the course coordinator. Increasing use of the Internet, as well as expansion of courses overseas in the mid 90's, has resulted in a large number of inquiries over the Internet. A proportion of these would make use of the link to the course coordinator's e-mail to clarify some aspect. This increase is inevitable, as potential students are able to explore more options through web sites, but not recognised in planning decisions that make access more readily available.

A second contributing factor is again CSU's internal policy of transacting business electronically. Messages from student administration or the international office regarding course related matters were counted in this category of message rather than administration. Increasingly, mail is coming from internal CSU sources to check some aspect of a student's enrolment or status. In the past, such requests would come via internal mail and be accompanied by all the details required to make the decision. These days, e-mail requests are rarely accompanied by the student's transcript. The assumption is made that the course coordinator can look up the transcript on the database. This is further vindication of the proposition that workload is being transferred from the sender to the recipient. In some cases, the process of collecting the necessary details may take a considerable amount of time - making this a particularly damaging type of communication from the perspective of adding to workload.

Examination of these messages revealed another interesting trend. In 2001 there was a tendency for students to have higher expectations about the frequency of contact than in 1991. In 1991, students were guaranteed a response within two working days, unless there were exceptional circumstances. This obligation was nearly always met and since students did not usually have their e-mail system up and running all the time, there were no occasions where a message was sent a second time. Dialogs usually extended over a period of many days. Examination of the mail messages for 2001 reveals that there were some dialogs which consisted of several messages in the one day. Also, a proportion of messages were repeats of previous ones sent less than 24 hours earlier, as well as forwarding of messages to student administration, who would in turn forward them to the course coordinator. In some cases, if the response was not immediate, as many as three or four messages could be received about the same problem in the space of little more than a day or two.

The increase in e-mail in the 'other' category is directly attributable to increased professional activity with contacts outside CSU. Except for the regular newsletter that comes three times a week from the Association of Computing Machinery, the remainder were communications with colleagues and researchers in widely distributed places in almost all continents. This is clearly one of the tangible benefits of e-mail.

On the surface, the decline in real educational uses of e-mail may suggest that its utility as an educational tool has run its course. To some extent that is true. In the early years it was the only form of electronic communication. As computer conferencing began to be employed in 1989, the use of e-mail for such tasks began to decrease. The introduction of forums and web sites has further reduced the need for e-mail as a major vehicle for communications of that type. Even when students ask a question by e-mail, it is not uncommon to post both the question and its answer in the class forum.

Issues

Noble (1997 p4) warned that the use of technology "*entails an inevitable extension of working time and an intensification of work as faculty struggle at all hours of the day to stay on top of the technology and respond, via chat rooms, virtual office hours, and e-mail, to both students and administrators to whom they have now become instantly and continuously accessible.*" In the case of the e-mail data presented here, the increase in workload has been overwhelmingly of a non-pedagogical nature. The increase in accessibility due to the asynchronous nature of e-mail that is seen as a benefit to students and teachers has been turned to even greater advantage by administration. This begs the question as to how such a situation has come about. Clearly, administrative practices regarding communication have been a major contributor. Academic staff have had no say in this. Unfortunately, that situation echoes what has happened with the introduction of many other online initiatives.

One factor that stands out in Noble's (1998b) description of notable failures is that the initiatives were top-down, university-wide and did not involve academic staff, except in the final stages, where they were required to take part in the implementation. In contrast to this, the successful examples cited by Twigg (2001) involve the academics in specific programs in a way which is able to demonstrate some tangible benefits, such as smaller class sizes or partitioning of

workload by substitution of cheaper labour for lower level tasks. It is precisely the opposite to what has happened in the way CSU practices have used e-mail to increase the workload of academics. The cracks are already beginning to appear with a number of confirmed reports of staff deleting all e-mail once the number of unread messages exceeds a 'threshold of pain', as well as the not uncommon practice of academics placing a message in their forums at the beginning of a semester that they do not intend to make use of that resource.

Just as the Internet facilitated greater e-mail access, there is a change in mobile phone technology which has the potential to raise the level of accessibility even further. Third generation (3G) mobile phone technology has the capacity to deliver a number of broadband services to devices which are only marginally larger than mobile phones and slightly smaller than some personal digital assistant devices. E-mail is seen (Yuen 2002) as a key application that service providers are likely to use to persuade users to move to 3G technology. This effectively means that students could send e-mail with little more inconvenience than that of using the telephone. It also means that academics might be required to answer their e-mail in locations other than their office. While this already happens to some extent on a voluntary basis, the nature of the e-mail arrangements often makes it impractical to do so. The prospect of raising students' expectations that staff are available on a 24/7 basis, as in the case of the "beep a tutor" system at Rio Salado College (Scarafiotti 2001), holds no joy for this author and I suspect, many colleagues.

While the competition between institutions inevitably leads to a university's need to be seen to be abreast with modern developments, as well as at least on a par with others, the real question is do academics and students really share the vision of online learning to the extent that early adopters and university administrators do? In the early days of the use of e-mail in the Graduate Diploma of Applied Science course at CSU, enthusiasts put in the extra work to try out techniques and develop new and appropriate strategies. At times, they could not develop efficient strategies despite the additional effort. Lee and Johnson (1998) note that most early adopters are prepared to work harder for intrinsic satisfaction. Clearly, this is not a realistic expectation of all staff, as they also report considerable resistance in migrating such projects to the mainstream level.

Collis and van de Wende (1999), in an extensive study of the use of ICT in higher education worldwide, report that there are few incentives for either academics and students to engage in the use of ICT for pedagogical reasons. Students need to be coerced into taking part by allocating a proportion of the assessed value of the subject. This might be one explanation for the attitude of administrators in mandating the use of online tools. They are coercing staff through performance management, to take part in activities that they are initially reluctant to undertake. While that strategy may be defensible at one level, administration needs to be fully aware of the implications to that staff member's workload and as Feenberg (1999) warns, such approaches are likely to provoke some hostility. Unfortunately, as the e-mail workload demonstrates, it is highly unlikely that workload considerations are placed in any prominent position on the agenda.

Conclusions

Can we afford to implement online strategies by concentrating on the supposed pedagogical and administrative improvements they might bring without considering the workload for both academics and students? It is highly unlikely that such an approach would be successful. Even if

such issues were allowed for, unanticipated workload shifts may still happen as this study of e-mail has demonstrated. Just how much extra time an individual is prepared to sacrifice in order to also receive the benefits of the use of such tools is debatable. From a personal perspective, the limit has been reached. With well over 3000 e-mails to contend with in one semester, the system has become a scourge rather than a blessing.

On the other hand, we cannot afford to ignore such tools altogether. ICT is firmly established as a part of the higher education scene and either because of utility or pressure from some other imperative, some level of engagement is not only inevitable but also desirable. Ideally, a strategic approach with realistic guidelines and expectations is required if it is not to enslave academics. While the data and discussion focussed on the use of e-mail, the message regarding workload shifts is applicable to other aspects of the use of ICT.

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