The changing face of teaching: 
Using CMC tools for large group interaction

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Abstract: This paper investigates the trial of asynchronous and synchronous interactive computer-mediated communication (CMC) to develop an environment of community and peer-supported self-learning within a highly populated and geographically separated first year university cohort. Student study skills and learning needs were addressed through the use of complex, interwoven CMC tools, with particular use of discussion forums and chat rooms. Significant changes were noted in student attitudes, study skills and personal study responsibility.

Keywords: Learning communities, online study groups, peer support groups

Introduction

Introduction to Information Systems (IIS) is a foundational subject for students in the College of Law & Business at the University of Western Sydney (UWS). These students were from multiple degree programmes varying from law to marketing, hospitality to agriculture, accounting to information systems and full-time, part-time, day, evening and external students. This diversity of student backgrounds and delivery needs is a common problem for all universities (Piccoli, Ahmad, & Ives, 2001; Yoo & Alavi, 2001). Whichever their programme, students consistently displayed limited study and research skills, poor communication, problem solving and self-directed learning abilities. This first year subject is a critical foundation study to several degree programmes, and as an introduction from high school to the standards and expectations of the university environment. Lecturers involved in teaching 2nd and 3rd year students have made it clear that there are serious ripple effects carrying through all succeeding subjects if foundational subjects are not delivered and assessed appropriately.

As is consistent with the plight of universities everywhere in Australia, continual reduction in staff numbers is countered with increasing numbers of students (Franklin & Peat, 2001). Despite the importance of this subject, the statistical differences involved have been more than usually drastic in the case of IIS at UWS. In 2001, with 250 – 350 students per semester, this was run predominantly on one campus, and conducted by one lecturer assisted by one casual tutor. At the beginning of 2002, IIS was simultaneously run across four
geographically dispersed campuses and numbers consequently jumped to 400 - 600 students per semester. This was still delivered by one unit coordinator/lecturer who, therefore, needed a larger bank of support staff. The student numbers required a loading of five casual teachers (assuming teachers undertook the maximum eight hours per week) to meet the need. Unfortunately the disbursement of hours and campuses meant that those five staff were unable to service all the needs and, in the end, eight casual staff were hired to meet the teaching requirements. At this point it became clear that, as university staffing and funding policies were not changing to meet the new needs, extra measures were required to coordinate this subject and ensure consistency and quality delivery for students. The new unit coordinator/lecturer (Claire), after considering the challenges faced by both staff and students, planned strategies to develop a sense of community, peer support, and personal responsibility for self-directed learning using strategically planned combinations of synchronous and asynchronous CMC tools. To reduce the number of casual staff, Claire invested hours with the timetabling department consolidating hours so that fewer staff were required thus assisting consistency throughout the subject. However, by pre-enrolment for Autumn (1st semester) 2003, student numbers had again doubled, with teaching disbursed over four campuses and external delivery. Therefore co-ordination, teaching and delivery strategies needed to change. The strategic planning for teaching students in this constantly growing and uncertain environment, the development process, student participation and responses, staff perception of the results, and future needs are discussed.

The learning landscape

In 2001 IIS was a core unit for ten degree courses growing to twelve in 2002 and fourteen in 2003, as well as an elective for all other management streams within the UWS. Enrolments in 2001 were 360 (rounded to the nearest 50) in the Autumn, and 270 in the Spring semesters, and unit was offered only on one campus. In 2002 it was extended to three additional campuses within the UWS. Enrolments numbered 550 for Autumn, and 450 in Spring. For 2003, enrolments have increased exponentially with 1200 students pre-enrolled before semester begins (described in Table 1 below). Campuses are widely spaced

<table>
<thead>
<tr>
<th>200128: Introduction to Information Systems</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Semester 1</td>
<td>Semester 2</td>
<td>Semester 1</td>
</tr>
<tr>
<td>Student enrolments/year</td>
<td>350</td>
<td>250</td>
<td>550</td>
</tr>
<tr>
<td>Campuses</td>
<td>1 + external</td>
<td>4 + external</td>
<td>4 + external</td>
</tr>
<tr>
<td>Staffing</td>
<td>1 fulltime + 2 part-time</td>
<td>1 fulltime + 8 part-time</td>
<td>1 fulltime + 11 part-time</td>
</tr>
<tr>
<td>Lectures/Tutorials (2hrs /1hr)</td>
<td>2/11 (4hrs/11hrs)</td>
<td>7/28 (14hrs/28hrs)</td>
<td>8/58 (16hrs/58hrs)</td>
</tr>
</tbody>
</table>
well-co-ordinated teaching body. Their wide distribution geographically heightens the importance of this need. In 2001, there was only one full-time lecturer, with teaching mainly undertaken by casuals and full-time staff from other subjects ‘teaching in’. For 2003 this position remains unchanged – for 1200 students on four campuses, there is still only one full-time lecturer/unit coordinator, supported by casual staff holding very little official responsibility. They arrive at classes, teach, and leave. Even limited to the prescribed thirty minutes per semester per student required consultation time, 600 hours consultation is required per semester – although 60 hours consultation per semester is all that is permitted for a full-time staff member. Obviously extraordinary measures need to be taken to meet student need, let alone address ‘correct university policy’.

To modify content and delivery to meet expanding student needs and to co-ordinate the many casual staff was a great challenge. Claire noted early in her experiences within the subject that students tended to:

- have few, if any, study partners or study support groups;
- have limited self-directed study skills;
- stay within their small social circle;
- have poor written, oral and listening communication skills;
- repeatedly ask the lecturer about logistical aspects of the subject;
- have poor initiative in problem solving;
- rely on high-level teacher support.

Student attitudes and behaviour indicated that most had not made the transition from structured high school learning to post-secondary and/or life-long learning.

Also, despite the (erroneous) common view that students graduating from the current high school system must be familiar with computing technology, students demonstrated limited exposure to and understanding of CMC tools other than email and, occasionally, MS chat. In fact, many students come to university computer illiterate or semi-literate. Even more alarming is that students demonstrate little motivation to improve their skills in any of these important areas. It is therefore clear that certain items need to be added to the teaching agenda, including:

- teaching students how to be adult learners;
- skills to become self-directed students;
- motivation;
- weaning from a culture of high-level teacher support, top-down loading and ‘spoon feeding’.

To meet these pedagogical aims as well as to address the simple logistics of a large and ever-expanding subject, a web-based mentoring site was chosen as the primary medium to achieve these goals.

**Using IT to develop communication and community**

UWS has been using various electronic interactive web sites for some years including WebCT (Sheely, Veness & Rankine, 2001), which is the medium that will be described in this paper. It is valid to state, however, that most of the other commercially available interactive web sites would support the strategies described here. Claire’s initial IIS interactive website included the unit outline, assignments and marking criteria, lecture notes
(posted post-lecture), and a grade-book where students could access their assessment results. The site also held a discussion forum, divided into a social thread where students could post personal messages and a study thread where IS-related information could be disseminated. A central feature was the bulletin board which “has significant potential to promote interactivity between students and to build a broad sense of community amongst students” (Curtin, 2002, pp. 124-5). As Claire was unfamiliar with the medium before building her WebCT site, this was at first a time-consuming exercise. Fortunately UWS provides a superb WebCT support team who assisted in development tasks thus relieving a great deal of the pressure of establishing a solid pedagogical format.

Student feedback and suggestions were requested at the end of the first semester’s trial. Student response was positive, with favourable comments on the clear communication and ease of navigation. It was evident, however, that most students accessed the site purely for information gathering or downloading of lecture notes. Students requested that lecture notes be posted before lectures. Staff were uncomfortable with this idea, as there was concern that students would skip lectures. Both student needs and staff concerns were addressed by the decision to post the PowerPoint slides (core headings and points) before the lecture for students to use for preparation and as a guide for note-taking during lectures. To alleviate risk of absenteeism, the full lecture notes were not posted.

Both Claire and the students recognised several aspects of the site as requiring modification or re-design, including:

- elimination of cliques in social interaction;
- increased use as a teaching tool rather than information disseminator;
- more real time interactivity;
- encouragement of student use for problem-solving;
- community development.

As a result, throughout the Spring (2nd) 2002 semester, whilst in use, the site was also constantly under development. Specific issues addressed were:

- lack of staff availability for consultation;
- student isolation;
- consistency of communication between staff and between staff and students.

**Asynchronous computer mediated communication tools**

It was imperative to give priority to developing student independence and problem-solving skills. Therefore discussion forums as a self-directed study tool were abandoned and a Peer Help Forum (PHF) adopted in its place, borrowing from a colleague’s successful use of this tool. The PHF was designed to provide a site where students can offer support and assistance to peers, answer fellow students’ questions on subject content and logistics, and post pertinent subject information. It was restricted to subject-specific discussions, which helped the site to become a proactive problem-solving and community-building tool within the student group. Claire maintained a monitoring position over the first part of the semester, but was able to reduce this as students became self-regulating, and improper postings ceased or were addressed by the students themselves. This one measure – the creation of the PHF - reduced logistical enquires to the lecturer by 20%, from over 100 throughout the Spring 2001 semester to less than 80, even though student numbers had doubled.
A popular use of the PHF was student discussions about the challenges faced with the transition from high school to university, particularly their frustration and disappointment when work was marked at university standards and therefore achieved lower grades than expected. It was exciting to see the challenge to raise standards to university levels so powerfully expressed by students’ peers, as this was accepted more readily than when the same challenges were voiced by teaching staff.

**Formative assessment tools**

Another effective asynchronous function was a series of self-paced tests that foster an environment conducive to self-directed learning. The confidential results helped overcome a great deal of student reluctance, and encouraged repeated use of the tool. Staff relied on the tests as an effective supplemental teaching tool, as incorrect answers were corrected and a guide to further reading included. More importantly, students were able to use these formative assessment tools to monitor their progress, and gain confidence, without embarrassment. One student described the process of these quizzes as “you will be surprised at how much you already know. It’s not cheating but a great way to jog your memory” (Chat log, June 12, 2002). Approximately 5% of students used this tool throughout the first semester, with more students accessing specific problem topics. Near final exams, the tests were used extensively as a study and practice tool by an additional 20% of students. Student PHF postings regularly encouraged the use of these tests as a study tool, and the final summative assessment was structured to be similar in question style to those in the test bank, assisting in student confidence when tackling an otherwise intimidating assessment activity.

**Synchronous computer mediated communication tools**

Although use of asynchronous tools such as bulletin boards is well discussed in the literature, (Andrewartha & Wilmot, 2001; Curtin, 2002; Lefoe et al., 2001), synchronous tools are less thoroughly discussed. Moreover, when synchronous tools are discussed it is usually in terms of Virtual Learning Environments, video-links or computer conferencing (Piccoli, et al., 2001). The literature does not offer us much by way of the use of synchronous CMC for pedagogical purposes. Yet it was apparent that the WebCT chat room was a readily available, inexpensive and easy to use synchronous tool that offered an opportunity to overcome some needs not addressed sufficiently by asynchronous tools. The particular goal was to develop a sense of community between tutorial groups and campuses, as well as a practical experience of CMC. Thus two-hour chat rooms were conducted at three different day/time slots in the study week leading up to final exams. An average of 20 people accessed the site each time, with several students attending all chat rooms so, although student response was not overwhelming, it was, on the whole, positive. Approximately 50% of the participating students had not previously experienced chat rooms and although tentative at first, they quickly gained confidence and were comfortable asking for explanations of and then using chat room shorthand. There was no formal structure to these sessions, but they naturally evolved into a set pattern of cross group greetings, general chatting about the week and study, student-initiated questions followed by lecturer-initiated questions which often evolved into deep and industry focused discussions.

A sense of community was quickly established between the ‘regulars’. Participants took time out to greet and, using the ‘whisper function’, would advise new arrivals of the topic under discussion. In the later sessions the whisper function was also used for small group and one-on-one peer mentoring, particularly with English as Second Language (ESL) students. These mentoring groups were initiated and run by the students themselves. Another positive result
was the student-initiated use of a study group chat room on MSN. Student responses to this use of chat room function included: “I reckon studying like this is way better”; and “[f]rom all of us thanks for taking the time to run this, I know it help me” (Chat log, 12 June 2002). The trial of the chat room seminars indicated they were of value to students but were time-consuming to run, especially to meet diverse student timetables. Although monthly chat rooms, addressing specific topics were planned, due to these time constraints chat rooms were only used in the mid-semester vacation week for consultations directed toward the major assignment due a fortnight later, and again in Study-week, before the final exams. Attendance during this second trial of chat rooms was more sporadic, with attendance mainly from ESL students lacking confidence. This may be reflective of the student cohort group who, in this semester, tended to be less committed to study, or could be due to the fact that this was their second, not first, semester at university. For 2003, because of student numbers and because one person cannot single-handedly provide the multiple sessions needed, plans are to hold mid-semester and Study-week chat rooms as in the last semester. Chat rooms will also be used as an additional function for student consultations, saving up to two hours of driving for a half hour of consultation. The use of these tools is summarised in Table 2: Development of subject processes using CMC tools, over-page.

Overall results

Reflective evaluation of the use of these CMC tools indicates that they address many of the identified needs by providing opportunities for effective student interaction. This reflects the experience of others who have sought to build a collaborative environment with students, “[t]eachers and collaborative peers interact to weave complex information into new knowledge with (not for) the learner” (Bull, Kimball & Stansberry, 1998, p. 211). WebCT provides a stable, easily navigated and useable platform for the development of this complex communication network. The use of synchronous and asynchronous tools to facilitate communication and student learning helps to address specific needs. In particular, student isolation is addressed through the use of e-mail and bulletin boards and more effectively through the chat rooms and PHF.

The CMC tools also help address the pragmatic and administrative needs caused by understaffing and overextension of resources in this constantly growing and changing environment. Chat Rooms, bulletin boards and email assist student access to staff consultation without extensive staff travel. They also help ameliorate the sense of disadvantage experienced by students taught by casual staff, and develop instead a sense of relationship with the lecturer, enabling students to feel more comfortable in asking questions and requesting help. CMC also addresses the problem of tutors hired for teaching computer application packages being unfamiliar with the theory component of the subject, offering a substitute assistance for students who cannot obtain the needed help from tutors. This consequently gives the lecturer confidence in the quality of assistance received by students, and allows special needs to be identified and addressed. Student feedback states that the chat room real time responses to study questions were more conducive to effective learning than overnight email responses. Claire believes that her use of chat rooms helped to overcome students’ surface approach to learning by challenging students’ answers to elicit deeper levels
<table>
<thead>
<tr>
<th>Objective</th>
<th>Autumn</th>
<th>Response</th>
<th>Spring</th>
<th>Response</th>
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</thead>
<tbody>
<tr>
<td>Self-directed study</td>
<td>Unit, assignment outlines</td>
<td>Outlines referred to mainly when directed by lecturer</td>
<td>Unit, assignment outlines</td>
<td>Increased usage</td>
</tr>
<tr>
<td>Independence</td>
<td>Marking criteria</td>
<td>Requests for pre-lecture</td>
<td>Marking criteria guide</td>
<td>Printed and brought to lectures by most students</td>
</tr>
<tr>
<td></td>
<td>Lecture notes - post lecture</td>
<td>Used sporadically, more as semester progressed. Used as learning and</td>
<td>Lecture slides - pre lecture</td>
<td>Accessed by small number</td>
</tr>
<tr>
<td></td>
<td>Online self-paced quizzes</td>
<td>assessment tools</td>
<td>Tutorial notes - post lecture</td>
<td>Increased use as assessment and learning tool</td>
</tr>
<tr>
<td></td>
<td>Online grade-book</td>
<td>Programme struggled with class numbers. Used extensively by students</td>
<td>Related Web links</td>
<td>Performance markedly better</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Online self paced quizzes</td>
<td>Accessed early, dropped away</td>
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<tr>
<td>Initiative</td>
<td>Discussion forum:</td>
<td>Used for social comment, not logistics enquiries</td>
<td>Frequently Asked Questions site</td>
<td></td>
</tr>
<tr>
<td>Problem solving</td>
<td>Social</td>
<td>Episodes of misuse</td>
<td>Peer Help forum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study</td>
<td>Rarely used, not effective for problem solving</td>
<td>Study Guide</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit/assignment outlines</td>
<td>Students mainly contacted staff via e-mail with logistical questions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study support</td>
<td>Discussion forums – 1) study 2) social</td>
<td>Rarely used for study support</td>
<td>Peer Help Forums</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E-mail to lecturer</td>
<td>Repetitive logistic questions</td>
<td>E-mail consultation</td>
<td></td>
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<tr>
<td></td>
<td>Chat room study groups - Study week</td>
<td>Effective. Growth in numbers each session. 1hr sessions lasting 2hrs</td>
<td>Chat room study groups - mid semester and</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Very positive responses. Many repeat attendees. Students developed their   study-week</td>
<td>chat room consultation with</td>
<td></td>
</tr>
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<td></td>
<td></td>
<td>own study groups on MSN</td>
<td>lecturer</td>
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of understanding. Both staff and students express confidence that the postings on WebCT ensure consistent communication that eliminates previous problems of conflicting logistical advice from different teaching staff.

Conclusions

Although the interactive website was initially time consuming to develop, it was valuable in creating student ownership, peer-support, self-directed study groups and multi-faceted communication networks. The time-saved through reduction of repetitive logistical questions directed to the lecturer, was enough to make the time-cost in site development worthwhile. Using both synchronous and asynchronous online CMC provided the students and staff with opportunities to communicate across campuses and develop friendships and study groups, even though many students never met their peers face-to-face. As the development of the site continues from semester to semester, an increasing number of students use it to access information, for study help and peer support. Students have begun taking personal responsibility for their knowledge and problem solving.

Chat rooms alone are inadequate to address student needs for information access, peer support and community building, just as asynchronous means are inadequate in unsupported use. Discussion forums provide opportunities for students to pre-plan questions and answers and provide confidence-building opportunities especially for ESL students. The PHF provides a permanent record (currently unavailable to students in chat rooms) of questions and answers which students may access throughout the semester. The chat rooms provide timely support and a sense of community. Thus the combination of synchronous and asynchronous communication media, with their different advantages and disadvantages, addresses differing student needs and learning styles. While each is an effective communication tool, in combination they become a powerful teaching and learning facility. A site with a combination of PHF, other discussion forums and chat rooms provides a comprehensive medium for student growth, self directed study, community building and peer support.

As this subject continues to grow in student (if not staff) numbers, the use of a combination of CMC tools is seen as vital for dissemination of information and the building of a sense of belonging and interaction within the student/teacher body. Ongoing development of CMC within this site is planned for the rest of 2003 with an emphasis on online case-study discussions to involve a greater percentage of the student body. The success obtained for the small percentage of students who have chosen to participate in these initiatives in the past, fosters belief that the next major development needs to be a means to involve a greater percentage of the students in these rewarding and effective activities.

References


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