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Creating Learning Communities: Using CMC Tools in Large Class Situations

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Abstract

This paper discusses the initial use of interactive computer-mediated communication (CMC) (asynchronous and synchronous) to help create an environment of peer-supported self-learning and community within a highly populated and geographically dispersed first year university student cohort. Learning needs and student study skills were addressed through the use of interwoven CMC tools, with particular emphasis on chat rooms and discussion forums. Significant changes were shown in student attitudes, study skills and acceptance of personal responsibility in academic undertakings.

Keywords

Learning communities, Online study groups, Peer support, Discussion Forum, CMCs

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Abstract

This qualitatively based research paper discusses the initial use of interactive computer-mediated communication (CMC) (asynchronous and synchronous) to help create an environment of peer-supported self-learning and community within a highly populated and geographically dispersed first year university student cohort. Learning needs and student study skills were addressed through the use of interwoven CMC tools, with particular emphasis on chat rooms and discussion forums. Significant changes were shown in student attitudes, study skills and acceptance of personal responsibility in academic undertakings.

Introduction

200128; Introduction to Information Systems (IIS) is a foundational subject for first year students in the School of Management (College of Business) at the University of Western Sydney (UWS). This student cohort is drawn from over 12 degree programs including law, marketing, hospitality, agriculture, accounting, property management and information systems. Students are enrolled as full-time, part-time, day, evening and external students. This diversity in student backgrounds and delivery needs is a common phenomenon in most universities (Piccoli, Ahmad, & Ives, 2001; Yoo & Alavi, 2001). The teaching staff identified that, whatever their program, students consistently displayed limited study and research skills, poor verbal and written communication, and limited problem solving and self-directed learning abilities. This subject is a critical foundation to several degree programs and is an introduction from high school to the university environment and its standards and expectations. Lecturers involved in teaching these students in following years have clearly communicated that there are serious ripple effects if foundational subjects do not instil study independence and an understanding of university standards and expectations.

Consistent with the situation in universities throughout Australia, reduction in staff numbers is combined with increasing numbers of students (Franklin & Peat, 2001). Despite the importance of this subject, the statistical changes involved have been usually drastic in the case of IIS at UWS. In 2001, this subject was run predominantly on one campus, with enrolments of 250 – 350 students per semester and taught by one lecturer assisted by one casual tutor. In 2002, IIS was simultaneously run across four geographically dispersed campuses and numbers consequently jumped to 400 - 600 students per semester. By 2003 student numbers had almost doubled again. As the subject was still delivered by one unit coordinator/lecturer there was a need for a much larger bank of casual support staff. Assuming teachers undertook the maximum eight hours per week allowed by the university, a loading of eight casual teachers was required. In reality, due to the disbursement of hours and geographical locations, eleven staff were needed to meet the teaching requirements. It became clear that university policies on staffing were not changing to meet these new needs and other measures were required to effectively co-ordinate this subject and ensure consistency and quality delivery for students. In the beginning of 2002 a new unit coordinator/lecturer (Claire) was employed. After investigating the challenges faced by staff and students she began developing strategies to encourage a sense of community, peer support, personal responsibility and self-directed learning using strategically planned combinations of synchronous and asynchronous CMC tools.

This qualitatively based research used participant/observer methods of field notes, open ended questions to staff and students in formal and informal sessions and collected artefacts. This paper discusses the narrative of needs identification and responses to these needs using CMC

tools from the teaching staff perspective. The strategic planning for effective teaching and coordination in this constantly growing and uncertain environment, development processes, student participation and responses, staff perception of the results, and future needs are discussed in this paper which builds on the discussion presented at the 2003 HERDSA conference on the 2001 – 2002 trial of the use of CMC tools (Lewin & Jerram, 2003).

The Learning Landscape

In 2001 IIS was a mandatory unit for ten degree courses growing to twelve in 2002 and fourteen in 2003, as well as being an elective for all other streams within the UWS. Enrolments in 2001 were 350 (rounded to the nearest 50) in the Autumn and 250 in the Spring semesters and was offered on one campus. In 2002 this was extended to three additional campuses. Enrolments numbered 550 for Autumn and 450 in Spring and in 2003, 950 in Autumn and 650 in Spring (described in Table 1 below). The campuses involved are widely spaced geographically, and a round trip, through city traffic, takes over 100km. Student numbers, and the enrolment of part-time and full-time students, meant the subject needed to be delivered in multiple day and evening sessions on each campus. These situational needs amply demonstrate the point argued by Lefoe, Gunn & Hedberg: "The need for flexible access to resources and learning support is even more imperative in a distributed learning environment" (2002, p.45).

The large number of students alone requires a large, well-co-ordinated teaching body and their wide distribution, geographically, heightens this importance. In 2001, there was one full-time lecturer/coordinator, with teaching mainly undertaken by one other casual teacher and occasional full-time staff from other subjects “teaching in”. For 2003 this position remains largely unchanged. For 1200 students on four campuses, there is still only one full-time lecturer/coordinator, supported by casual staff holding very little official responsibility other than arrive at class, teach, then leave. Student consultation hours provide an excellent example of how policies and practices which work for student groups less than 120 are not effective for the very large classes which are becoming more prevalent as subject rationalisation and integration occur. Even limited to the prescribed thirty minutes per semester per student consultation time, 600 hours consultation is required per semester – although 60 hours consultation per semester is all that is permitted for a fulltime staff member. Even with some paid consultation undertaken by casual staff, the unofficial loading for the fulltime staff member was high. The below table highlights these changes.

200128:Introduction to Information Systems	**2001** 1st 2nd	**2002** 1st 2nd	**2003** 1st 2nd
Student enrolments/year	350 250	550 500	950 600
Campuses	1 + external	4 + external	4 + external
Staffing	1 fulltime + 1 part-time	1 fulltime + 8 part-time	1 fulltime + 11 part-time
Lectures/Tutorials (2hrs /1hr)	2 / 11 (4hrs / 11hrs)	7 / 28 (14hrs / 28hrs)	8 / 52 (16hrs / 52hrs)
Consultation time (30 mins per student/semester)	300hrs	525hrs	775hrs

Table 1: Subject Growth: 2001 – 2003

Obviously extraordinary measures needed to be taken to meet student and staff needs, 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 teaching of the subject that students tended to:

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

These attitudes and behaviour indicated that most students had not made the transition from structured high school learning to post-secondary and/or life-long learning and that international students where not integrating well or using the resources available to them. The common view that students graduating from the current high school system must be familiar with computing technology appeared to be erroneous. Students demonstrated limited exposure to, and understanding of, CMC tools other than email and, occasionally, MS chat and, in fact, many students came to university computer illiterate or semi-literate (Internet surfing and game playing being the predominant skills). Of even more concern to teaching staff was that students demonstrated little motivation to improve their skills in these important areas. It became clear that certain outcomes needed to be added to the teaching agenda, including:

- developing students' motivation and interest in learning
- teaching students how to be adult learners
- skills to become self-directed students
- weaning students from a culture of high-level teacher support, top-down loading and 'spoon feeding'.

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

Using IT to Develop Communication and Community

UWS has used various electronic interactive web sites for some years including WebCT (Sheely, Veness & Rankine, 2001), which was the platform used to develop these strategies. However, it is valid to state that many of the other commercially available interactive web programs would also support be as effective in implementing these undertakings.

The initial 2002 IIS interactive website included:

- the unit outline,
- assignments,
- 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/bulletin board; divided into a social thread for students to post personal messages and a study thread where IS-related information could be shared. 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,

p.124-5). The UWS provides a superb WebCT support team who assist academic staff in development tasks thus relieving a great deal of the pressure experienced in establishing a solid pedagogical format using computer based technology.

Following good teaching practices, student feedback and suggestions were requested at the end of the first semester's trial of the website. The response was positive, with favourable comments on the clear communication and ease of navigation. However, it was clear that most students accessed the site purely for logistics information gathering or downloading of lecture notes and that little community building occurred. A large number of students requested that the lecture notes be posted before lectures. Teaching staff were unhappy with this idea, as there was valid concern that students would 'skip' lectures as they already had the information. Both student needs and staff concerns were addressed by the decision to post the PowerPoint slides (core headings and points only) before the lecture for students to download and use for preparation and as a guide for note-taking during lectures. To alleviate risk of absenteeism, the full lecture notes were not posted at all.

Both staff and the students recognised several aspects of the website 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 (2^{nd}) 2002 and Autumn (1^{st}) 2003 semesters, whilst in use, the site was also constantly under re-development. Specific issues addressed were:

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

The following sections discuss the implementation and adaptation of CMC tools to achieve these goals.

Asynchronous Computer Mediated Communication Tools

Priority was given to developing student independence and problem-solving skills. The 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 an opportunity for students to ask for help or advice, offer support and assistance to their peers, answer fellow students' questions on subject content and logistics, and post pertinent subject information. The forum was restricted to IS subject-specific discussions, helping the site to become a proactive problem-solving and community-building tool. Claire monitored the use of the PHF 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 emailed logistical enquires to the lecturer by 20%, from over 100 throughout the Spring 2001 semester to less than 80, even though student numbers had almost doubled. This helped address the excessive consultation hours the teaching staff experienced. Regardless of the increased student numbers, in 2003, email enquires on logistics remained approximately 10% of student numbers per semester.

During the second half of the semester, a common use of the PHF was student postings about the challenges they faced with the transition from high school to university, especially their disappointment and frustration/anger when their work achieved lower grades than they expected (marked at university standards rather than high school). Staff were encouraged to see the challenge to raise standards to university levels so powerfully expressed by students' peers. It was clear that this was accepted more readily than when the same challenges were voiced by teaching staff.

Formative Assessment Tools

Another asynchronous function used was a series of self-paced tests designed to foster an environment conducive to self-directed learning. The immediate and confidential results helped overcome a great deal of student reluctance and encouraged repeated use of the tool. Staff relied on the automated tests as an effective supplemental teaching tool, as incorrect answers were corrected immediately and a guide to further reading included. Students were able to use this formative assessment tool to monitor their progress and gain confidence, without embarrassment. One student's description of these quizzes was: "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). In 2002 approximately 5% of students used this tool consistently throughout the first half of semester, with more students accessing specific problem topics. The structure of the tests was similar to that of the final exam and students were advised that these replaced copies of previous years papers (which do not have the answers so are of limited use) assisting in building student confidence when tackling an otherwise intimidating assessment activity. Near final exams, the tests were used extensively as a study and practice tool by an additional 20%- 30% of students. Within the PHF postings students regularly encouraged each other to use these tests as a study tool. 2003 saw the use of the quizzes increase dramatically with almost all students (89%) attempting at least one quiz and most students doing several quizzes. The use of the quizzes as a final exam preparation was popular and student feedback was positive.

Synchronous Computer Mediated Communication Tools

Although use of bulletin boards and other asynchronous tools is well discussed in literature, (Curtin, 2002; Lefoe *et al*, 2001; Andrewartha & Wilmot, 2001), less thoroughly discussed are synchronous tools. When synchronous tools are discussed it is usually in terms of video-links, computer conferencing or Virtual Learning Environments, (Piccoli, *et al*, 2001) rather than the use of synchronous CMC for pedagogical purposes. It was apparent to the teaching staff that the WebCT chat room was a readily available, inexpensive and easy to use synchronous tool offering an opportunity to overcome needs not addressed sufficiently by the asynchronous tools. The use of chat rooms gave students a practical experience of CMC tool while also addressing the objective of developing a sense of community between tutorial groups and campuses. Two-hour chat rooms were conducted at different day/time slots throughout the study week leading up to final exams. An average of 30 people accessed the site each time, with several students attending multiple chat room. Although student attendance was not overwhelming with approximately 25% of students visiting the site over the week, individual responses were positive. Approximately half of the participating students had not previously participated in chat rooms and, although tentative at first, they quickly gained confidence, were comfortable asking for explanations of chat room shorthand and encouraged other first time users. Although there was no formal structure to the chat sessions they naturally evolved into a pattern of:

- cross-group greetings,
- general chatting about the week and study,
- student-initiated questions,
- lecturer-initiated questions and,
- industry-focused discussions.

A sense of community was quickly established between the chat room 'regulars' who took time out to greet each other and new-comers and, using the "whisper function", would advise the new arrivals of the current discussion. As the sessions progressed the whisper function was also used for, student initiated, small group and one-on-one peer mentoring, particularly with English as Second Language (ESL) students. A positive result of these experiences was the student-initiated development of a study-group chat room on MSN. Student responses included: "I reckon studying like this is way better"; and "From all of us thanks for taking the time to run this, I know it help me" (Chat log, 12 June 2002). These chat room seminars clearly were of value to the students but were time-consuming to run, especially to meet diverse student timetables. Although monthly chat rooms, addressing specific topics were planned, concerns about the amount of time this would take (at least three two-hour sessions for each topic) meant that these plans needed to be revised and that the chat rooms would only used in the mid-semester vacation week for consultations directed toward the major assignment, and again in study-week, before the final exams.

Attendance during this second session of chat rooms was more sporadic, with attendance mainly from ESL students nervous about their comprehension of subject logistics. This may have been reflective of the student cohort group who, during that semester, tended to present as less committed to study, or may have been due to the fact that this was students' second, semester at university. For 2003, the chat rooms were again used during mid semester and study week periods. A similar pattern of attendance was identified with higher attendance during first semester sessions (30-40%)and a mainly ESL student attendance in second semester sessions. The chat rooms were also be used as an additional function for student consultations, saving up to two hours of driving to distant campuses. Students could book a time, access the chat room from home, work or the university and interact privately with the lecturer on specific questions. Often the student would email their questions, assignment draft or feedback earlier so that specific research or answers could be prepared. Other times the questions were more spontaneous, confidence building, or career/course direction. Additional time in consultation was saved as at times several students would be logged on at the same time and their questions asked and answered as a group. The use of these tools is summarised in *Table 2: Development of Subject processes using CMC tools*, over-page.

Objective	Autumn	Response	Spring	Response
Self-directed study Independence	Unit, assignment outlines Marking criteria Lecture notes-post lecture Online self-paced quizzes Online grade-book	Outlines referred to mainly when directed by lecturer Requests for pre-lecture Used sporadically, more as semester progressed. Used as learning and assessment tools Program struggled with class numbers Used extensively by students	Unit, assignment outlines Marking criteria guide Lecture slides -pre lecture Tutorial notes -post lecture Related Web links Online self paced quizzes Online grade-book Glossary of technical terms	Increased usage Printed and brought to lectures by most students Accessed by small number Increased use as assessment and learning tool Performance markedly better Accessed early, dropped away
Initiative Problem solving	Discussion forum: Social Study Unit/assignment outlines	Used for social comment, not logistics enquiries Episodes of misuse Rarely used, not effective for problem solving Students mainly contacted staff via e-mail with logistical questions	Frequently Asked Questions site Peer Help forum Study Guide	Used well. E-mail and phone enquiries dropped 20%. Students challenged each others' expectations and behaviour. Became self regulating Used more in later part of semester
Study support	Discussion forums – 1) study 2) social E-mail to lecturer Chat room study groups - Study week	Rarely used for study support Repetitive logistic questions Effective. Growth in numbers each session. 1hr sessions lasting 2hrs Very positive responses. Many repeat attendees. Students developed their own study groups on MSN	Peer Help Forums E-mail consultation Chat room study groups - mid semester and study-week Chat room consultation with lecturer	Very effective. Questions to lecturer reduced Mid semester break for assistance with assignment. Less than previous semester, mainly ESL/distant campus students. Sense of community developing. Worked well with ESL/Distance students. Reduced travel time

Table 2: Development of Subject processes using CMC tools

Overall Results

Using qualitative reflective evaluation tools of observation/participation and open ended questioning in end of semester student evaluations it was shown that CMC tools can and do address many of the subject and student needs as described in this paper and provides opportunities for effective student interaction. This finding reflects the experience of other teachers who have sought to build a collaborative environment with students, "Teachers and collaborative peers interact to weave complex information into new knowledge with (not for) the learner" (Bull, Kimball & Stansberry, 1998, p. 211). In the development of this communication network WebCT provided a stable, easily navigated and useable platform for both staff and students. The use of a combination of synchronous and asynchronous tools helped facilitate cross campus communication and effective student learning and addressed specific needs of large groups and geographic dispersement. In particular, student isolation problems which are usually addressed through the use of e-mail and bulletin boards was more effective through the chat rooms and PHF.

These CMC tools also helped address the pragmatic, logistical and administrative needs of this constantly growing and changing environment and reduced some of the pressures teachers experienced through understaffing and overextension of resources. Chat Rooms, bulletin boards and email assisted student access to staff consultation without extensive staff travel and also helped ameliorate the sense of disadvantage experienced by some students taught by casual staff. Real-time communication through the chat rooms and a staff commitment to timely response to student emails and bulletin board postings helped develop a sense of relationship with the lecturer (often based on a different campus), enabling students to feel more comfortable in asking questions and requesting help. The use of the CMC tools also addressed the problem of some tutors hired for teaching computer application packages only being unfamiliar with the theory component of the subject. Rather, they provided the lecturer with the ability to support and mentor these students. This consequently gave the lecturer confidence in the quality of assistance received by students, and allowed special needs to be identified and addressed. Student feedback indicated that the chat room real time responses to study questions was more conducive to effective learning than overnight (or longer) email responses. This feedback also identified that the use of chat rooms helped to overcome some aspects of students' surface approach to learning by peer and lecturer challenges to students' answers thereby eliciting deeper levels of understanding. Both staff and students expressed confidence that the postings on WebCT helped to ensure consistent communication, eliminating previous problems of conflicting logistical advice from different teaching staff.

Conclusion

Although development of the interactive website was initially time consuming, it has proved valuable in creating student learning ownership, peer-support, self-directed study groups and multi-faceted communication networks. The time saved by staff through the reduction of repetitive logistical questions alone has been 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, study groups and peer support even though many students never met their classmates face-to-face. The development of the site has continued throughout 2002 and 2003 in response to student and staff feedback and an increasing number of students have used these tools to access information, for study help and peer support. Students have

demonstrated that they have begun taking personal responsibility for their knowledge and problem solving.

In this situation, the chat rooms alone have been seen to be inadequate in addressing student needs for information access, peer support and community building, just as the commonly used asynchronous tools such as email and bulletin boards were inadequate in developing a sense of community. Discussion forums provided opportunities for students to pre-plan questions and answers and provided 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 could be accessed by staff and students throughout the semester. The chat rooms provided timely support and a sense of community. Thus the combination of these synchronous and asynchronous communication media, with their different advantages and disadvantages, addressed differing student needs and learning styles as well as many of the specific challenges experienced by large and dispersed groups. While each is an effective communication tool, in combination they became a powerful teaching and learning facility. A site with a combination of PHF, other discussion forums and chat rooms provided 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 2004 with an emphasis on online case-study discussions to involve a greater percentage of the student body. The success obtained for the students who have chosen to participate in these initiatives in the past, fosters the 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.

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