1996 Computer Mediated Communication (CMC)_PALMER

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Teaching Educational Issues to Secondary Student Teachers using Computer Mediated Communication (CMC): An Educational Innovation.

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I have been responsible for the teaching of a secondary teacher education unit called Educational Issues (EDN 482) for the past seven years, in the Faculty of Education in a small, regional Australian University. A brief look at the map will show how geographically isolated form the main centres of population in Australia, Northern Territory University is. This was one reason why I felt that some experimentation with computer mediated communication might be justified.

I taught part of an educational issues unit as a limited form of CMC discussion on a dedicated listserver. A considerable proportion of the course involved teaching the students appropriate computer skills in order to practice CMC, as, surprisingly, the students, who are all graduates, had little experience even of e-mail. Even a limited form of CMC has provided some degree of technological difficulty.

After teaching about the technical aspects, students then discussed a variety of educational issues on the listserver EDN482- 1. Unlike many CMC units, the aim of the on-line discussion was to improve the overall quality of classroom discussion and presentation. The methodology and details of the unit will be explained in the paper.

In future, I hope that some of these students will be encouraged to start using CMC in their own courses in schools, when they start teaching. I am introducing these changes slowly, as I have been in education too long not to have seen numerous technical and philosophical innovations disappear without trace.

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TEACHING EDUCATIONAL ISSUES TO SECONDARY STUDENT TEACHERS USING COMPUTER MEDIATED COMMUNICATION: AN EDUCATIONAL INNOVATION.

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INTRODUCTION, BACKGROUND AND CONTEXT

I work in a fairly typical, though small, Australian university in a Faculty of Education, now one of eight faculties. Within this faculty there are two schools: I teach in the School of Teaching and Educational Studies that runs primary and secondary teacher education courses. I am a senior lecturer in this school delivering units on science education at primary and secondary levels and a general educational issues unit to secondary student teachers.

Some features of note within the university are:

(i) The university is small and isolated.

(ii) It has higher education as well as certificate and diploma students, who would in other states usually be part of a separate VET (TAFE) sector.

(iii) The university structure has recently changed so as to integrate the higher education and the VET sector to a greater extent.

(iv) For the past two years, the Education Faculty and the University as a whole both seem to have slowly decreasing student numbers. Since university grants, depend largely on student numbers, the future resource base of the University and the Education Faculty, looks far from secure.

(v) The main difference between NTU and other universities in Australia is that most staff at NTU teach across a broader range of units to smaller numbers of students than might be usual elsewhere.

(vi) One factor that is about to impact on our courses is that Australian universities will lose considerable Federal Government funding in the next financial year. The size of the cut is now known but the actual formula is complex (roughly a 5% cut over 4 years) (Illing, 1996) (DEETYA, 1996). However the students have had their HECS repayments increased and this may further decrease student numbers. Although cuts impact on all universities, it is likely to impact most severely on the smallest universities.

(vii) I am far from certain about the future of this unit: it seems likely that structures will change significantly in ways that it is not possible to forecast. The changing of units to fit a generic structure is likely, so units that have some degree of flexibility in their structure and delivery will be those most likely to survive.

(viii) I would like some element of an internationalist view of education to survive in our institution.

UNIT EDN 482 (1989-1996)

I have been responsible for the teaching of this unit for the past seven years. The 1996 unit outline in Appendix 1 states the objectives of the unit. It is only the final objective that has been added for the 1996 unit.

Perhaps because I have spent a large proportion of my life in developing countries, I have taken an interest in international education and have written about a number of countries from an international viewpoint (generally at comparative education conferences). Eg Nigeria (Palmer, 1990): Papua New Guinea (Palmer, 1985: Palmer, 1986): Western Samoa (Palmer, 1994): and a paper overviewing several countries (Palmer, 1993).

I have used an international view in teaching this issues unit, as we have looked at particular issues in educational systems in a variety of countries. I give a number of examples, usually based on the papers, cited above and students receive copies of these papers as exemplars of particular issues. For this unit, I see us initially looking through a wide angle lens, in which the field of vision gradually diminishes and in which the magnification gradually increases. The focus shifts from world issues to Australian issues to Northern Territory issues.

For a first assignment in the past, students, working co-operatively in small groups prepared papers and gave talks on educational issues that are important in the countries that they chose, including background information. This year students have a comparative theme as one choice for their final assignment. This year only two students chose an international example: they worked together on issues relating to China, but the quality of the work was so good that the paper was presented at a comparative education conference..

For Australian issues, students used to prepare papers and give talks on background information about Australian states that interested them and they explained educational issues that are important in the State specified. In the past all students worked co-operatively in small groups on this. This year it was an option and there were no projects relating to Australian States this year.

I introduce federal educational issues and a discussion of federal and state powers, using some appropriate videos. Finally students give papers individually on a variety of issues with a Northern Territory focus. In the past the students also kept a set of notes about the whole unit, which was assessed. They also followed some local educational issues by keeping a scrap book of issues described in "The Northern Territory News" (the local newspaper). This assignment was not given this year.

There has always been an emphasis on research in the unit: we look at ways in which students can find out more about particular educational issues, so have covered traditional ways of researching issues. In 1996, the use of the WWW/ search engines has been an easy extension of that theme. It is interesting to note that others also value the WWW as a research tool (Barry, 1996).

The unit has not changed in organisation very much over the years, but it has seemed to be generally well liked by students. One overall objective would be to give new entrants to teaching an interest in the wider aspects of education that lie outside the students' own subjects, that may last as long as they continue teaching. Traditionally education courses were made up of separate disciplines of education (history, sociology, philosophy) etc and currently time does not permit this: so our issues course covers some principles from these disciplines. The brief nature of such excursions into the disciplines of education is limiting, but eventually students should see learning about education as continuous throughout a lifetime rather than having to complete everything before qualifying as a teacher.

THE STUDENTS.

The students enrolled in the Graduate Diploma of Education (Secondary) Course hail from a wide variety of backgrounds and subject disciplines. Although there are variations each year about two thirds of students are female and probably about half of them are mature age entrants. It is a fact that the NTU student body has the greatest average age and the greatest proportion of females of any Australian university. Most secondary school subject combinations are covered by the group. I would class all the students as serious and prepared to work hard to achieve their qualification. The mature age entrants have worked at a wide diversity of occupations before entering the course. Thus, when discussing issues, there are a huge range of perspectives. This variety of views is very stimulating, so I hope that the technological changes I am adopting do not lessen the quality of oral discussion.

The skills that the students possess are as diverse as their backgrounds. Almost all recent students in their degree courses seem to be familiar with basic word-processing, though there were several, who avoid using computers wherever possible. At the other extreme there were students who have expert knowledge of computing systems. Most students connect to the Internet through the university's "Banda" node, set up specifically with the low cost Elm system for e-mail.

I had wanted the students to practice using the WWW but the university has removed 'Netscape' from half its computers, on the grounds that students waste too much time 'chatting' on computers or looking at undesirable WWW pages. We will have to educate our own colleagues and our administrators in order to achieve real educational change. It is ironic that as we try to persuade our students to use the internet, others are trying to reduce access and change from friendly to unfriendly systems.

WHY CMC?

Why did I wish to teach this unit using computer mediated communication (cmc)? Future units and courses at NTU will have to have a feature of flexible delivery before they are approved, so the experience of designing such a course that involved flexible delivery will be useful. In teaching unit EDN 482, the class was still taught in a f2f mode, so that students still attended the class together.

In teaching the new unit, I had to make sure that students were able to use the tools that were necessary for their final assignment. I thus started with an assignment of trivia questions that connected with computing generally. The aim of this first assignment was to allow students to familiarise themselves with the technology of sending e-mail messages. This assignment, as with all assignment tasks, was assessed. Considering their existing skill level, I felt that students were slow to complete this task, but I believe this to be due to the unfriendly nature of the communication package.

I decided to make all assignments carry some weighting in the final assessment because students tend to omit non-assessed tasks altogether. In fact I was influenced by what I think was an impractical but hard-line paper by Taylor, (1994) describing his "Special Relativity" course delivered by e-mail and postal services at Montana State University. It was very regimented and relied on the students doing problems and posting them on a specified day before the evening post left. For example -

> Our e-mail discussion will fall flat if no one posts the first message each week...When it's your turn as First Responder, be sure you read the e-mail assignment first thing on Monday, complete the reading Monday or Tuesday, and then post a CONFER item by midnight Tuesday. Don't let this deadline pass you by!
> Taylor, (1994, p.3)

The requirements are stated, but there is no indication of the degree of success achieved. In my own situation, I know that a course attempting such draconian rules would be doomed. However I did like Taylor's thorough organisation and feel that I have used some of his ideas, but rather more gently.

In EDN 482, co-operation to learn technical skills has been encouraged. In fact, co-operation is so much part of the medium that Orlans (1996) reports that in Washington area schools (USA) students are teaching their teachers computing skills. The students had assignments that involved the use of the WWW. It is interesting to note that "The Web was initially developed at CERN to serve its constituency of high energy physicists" (Levy, 1993). There are a variety of sources of information about the WWW (Engst, 1993), numerous online courses (these were made known to students and some can be found in Assignment 3), but the best method is probably to use the WWW frequently and build up a user's knowledge.

As previously stated, to encourage the use of the WWW for research, I included a section on using search engines. The WWW/Search engines figure prominently as one of the

skills that students need, in order to be able to search the WWW to find a variety of information. Liu (1993) has written a useful general introduction to Search engines on the WWW. Moody's (1996) article gives an explanation as to why anyone should be so public-spirited as to set up a search engine: the answer lies in the advertising revenue that can be generated.

SOME PRACTICAL ISSUES

The group contained 17 students. The overall purpose as detailed in the list of objectives is explained in the unit outline (Appendix 1) . The timing of the unit has needed considerable planning. Roughly the skills needed to use e-mail, listservers, news and the WWW were completed in the first part of the semester. Students then went out on their final five week teaching practice. In the second half of the semester the students have had to put a 2500 word essay online one week before they present the essay in class and they have to comment on at least one of the other essays online.

All assignments that the students write were put online as we had a private listserver (edn482-l) specifically for that purpose. One great advantage of cmc is that everything is open to the view of all students. I will not list the technical failures and difficulties, but there have been a number of niggling little problems that have caused delays and failures in communication. Eventually these were overcome and the students now feel happier about the medium.

It has to be acknowledged that the unit was crowded even in previous years. I have now added considerable additional material in order that students were familiar with modern communications. To prevent overloading, I removed three of the four previous requirements for assessment, increased the length of the final assignment (the essay) and replaced the three existing assignments with three others that related to computing /CMC. The work for the whole semester was given out in advance and students were expected to plan all their work. Progress initially was slow. By the end of week 3 all students had signed on to listserver edn482-l and most had completed the first assignment (on trivia).

Assignment 2 was to join and write to a listserver group or to write to a news group and to comment on one item in the listserver/news group sending both the item and comments about it back to edn482-l, where it formed the basis of a discussion. Some students found difficulty in joining listservers.

Assignment 3 was to find a useful WWW site in the student's teaching area, with the student explaining why they liked it on listserver. Students found this item difficult but it proved useful to some students.

Assignment 4 as previously explained was to write a 2500 word about an issue that the student has chosen. Then other students commented on the issue also on listserver edn482-l prior to the student talking about the issue in class. This was designed to improve the quality of the presentations.

CMC

Computer Mediated Communication (CMC) is said to be "one of the most recent technological systems to be adopted for use in distance education" (Weghuis et al, 1995). They also describe CMC as

> The process by which people create, exchange and perceive information using networked telecommunications systems that facilitate encoding, transmitting, and decoding messages. It typically includes computer conferencing, electronic mail, and electronic bulletin boards.
>
> (Weghuis et al, 1995)

Palme, 1995 discusses the social and psychological factors which might make people choose to use CMC systems. CMC systems are said to "support status, self-esteem, confidence, competence, communion, comradeship, give inspiration and be an outlet for generosity". Palme (1993) also looks at the legal and ethical aspects of CMC.

There are some fairly extravagant claims for CMC, such as that by Kahle (undated) that it "dramatically alters the relationships between teachers, students, and educational institutions", for the OET course (Anon, 1996) that it "liberates both learners and teachers from the time and place" or by December et al (1994) in the outline of their course on CMC that it is "possibly the most important technological innovation of the latter half of the 20th century"

There may be all sorts of reasons for giving new teachers in training some practice in computing. CMC may indeed give such practice, but I feel its justification lies in the realm of philosophy and in what teachers believe about the way students learn.

Aims in introducing CMC vary : McComb (1994) states that her aim was "to help awaken students' capacities for questioning the world in which they live". My aim in introducing CMC is to give my students the opportunity to increase the quality of the discussion that relates to issues in education. For many of the papers given in past issues courses, the presenter put in a lot of hard work, but frequently the quality of any discussion after the paper is not of a high quality, so that there was limited feedback, which was detrimental to real learning. Of course the quality of discussion varies for many reasons: sometimes we all seems tired and lethargic. On other occasions we have really good discussions: often the reasons for success or failure are often not apparent at the time.

My hope was that with the practice sessions on using CMC in assignments 2 & 3, the issues in assignment 4 would have been looked at by at least some students prior to the presentation. The presenter would then have improved the presentation, prior to giving it, so that issues are clarified.

IN THEORY

What theoretical basis might there be for any of the hopes/ assertions previously made? Probably any such basis will be meagre as the variety of possible methodologies is large. Thus the research gives large numbers of case studies (this itself indicates to me that CMC is a "young field"). For example Ahern and Repman (1994) review the earlier literature and agree with earlier researchers that CMC is as effective as on site education. Koehn (1994) also reviews research findings. Nonetheless the case studies chosen, have only limited similarities to the situation in EDN 482. They are really interested to see how much interaction there is rather than how much learning takes place.

In my view Laurillard in her recent book (Laurillard, 1993, pp.167-171) puts CMC in perspective in that she sees CMC as one of a variety of ways of delivering courses in higher education. Sally Brown in her review of the Laurillard book is that:

> "Teacher educators will find much food for thought in this well-researched and strongly argued text, which provides a sound but not uncritical overview of the educational technologies currently available to us".
>
> (Brown, 1994)

Teacher educators are well provided with examples of CMC (though CMC appears under a variety of different names). A recent article in our regional teacher education journal looks at student teachers using computers on teaching practice (Albion, 1996). A variety of other examples on teacher education include these articles (Harrington and Quinn-Leering, 1994: McGee and Boyd 1995: Harris 1995: Fox, 1996: Gillingham et al, 1996). Many teacher educators nowadays hold views that come under a general philosophical heading of "constuctivist" and the literature generally supports this stance (Spiro et al, 1991).

IN PRACTICE

In practice, events were slower than might have been hoped. Students did not take to the new media, like ducks to water. Speed at completing the assignments was very variable. Three weeks into the unit, one student had nearly finished all assignments, whereas several other students had only just started. After four weeks, about half the class has finished assignment 2 but from comments I know the technology is still causing difficulty. As Lawley (1996) says:

> Although CMC is clearly shaped in some ways by its participants, the character and level of that interaction is significantly affected by the interfaces between the user and the computer system. Lawley (1996)

What was the difficulty? One, as indicated earlier was certainly the communication package "Elm". Staff at NTU have Eudora as their mailing software. Although it may have its faults, it is easy to use and is user friendly. Students at NTU have, as their mailing software, a system called Elm: it has the advantage that it is free and will be compatible with the UNIX system, which is the technological path that NTU hopes to go

down. It has the disadvantage that it is user unfriendly and difficult to use. However over the whole unit students became more familiar with it.

Such an unfriendly interface is bound to influence the character of the discussion (as indicated in the quotation above (Lawley, 1996). I have had "banda"/ Elm installed on my computer to try to see what difficulties the students are having. To assist the students, I passed on to them the URL of the site where detailed instructions for Elm (Taylor 1987a) (Taylor 1987b) are given, but the real solution is to have a friendlier system on which students may learn.

Will CMC help learning in my issues unit? It will certainly help students develop new skills, that they will need in schools in the near future, but this unit is more about attitudes and skills rather than a body of content knowledge and it attempts to model ways in which students may choose to teach. Through practice students should improve their skills at marshalling arguments for and against particular issues: they should also practice traditional research and essay-writing skills, though they should be familiar with these already: they should gradually rely more on the use of the WWW in teaching and researching and become familiar with search engines. I have found that others, who are comparatively new to the task feel that they have had success, so in spite of doubts, I remain optimistic.

> By the end of the course even students who had never used a computer when researching for assignments before had mastered skills that allowed them to quickly gather information and produce meaningful papers on issues in international media.
>
> (Iordanova, 1996?)

My worst fear was that the difficulties of using the technology would mask the skills and attitude changes that I had hoped to see. I have evaluated the unit through the mechanisms that NTU has set up for this purpose, but the results are still unavailable.

CONCLUSIONS

I did have the main essays printed and made available to all students: in this way the effort that they have put into their assignments will not be wasted. The amended unit EDN 482 has now been taught and the student assignments marked and returned. Due to positive individual student comments and in spite of technical difficulties, I feel that the unit has been much improved by the changes.

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