

Implementing a CMC tutor group for an existing distance education course

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Abstract 'Artificial Intelligence for Technology' (T396) is a distance learning course provided by the Open University of the UK using face-to-face tutorials. In 1997 a pilot study was undertaken of a computer-mediated communication (CMC) tutor group which consisted of volunteers from around the UK. The student feedback raised a number of issues including: the need for a distinct function for the tutor group conference, the role of and demands on the tutor, and the benefits perceived by students. It is suggested that some issues arise from a conflict of cultures each with their own implicit assumptions. The traditional face-to-face tutorial model is sometimes at variance with the demands of the new CMC based tuition.

Keywords: Attitude; Conferencing; Culture; Distance education; Questionnaire; Tutorial; Undergraduate

Introduction

Artificial Intelligence for Technology (T396) is a course developed at the Open University of the United Kingdom. It is a distance education course which aims to teach the main principles of artificial intelligence (AI), namely knowledge-based systems (KBSs) and neural networks (NNs), in a practical fashion (Weller & Hopgood, 1997). It makes use of commercial software packages for KBS and NNs and the *FirstClass*[™] conferencing system for course communications. It uses a conventional distance learning tutorial model based around six 1-hour face-to-face tutorials through the course's 32 weeks. It uses four tutor-marked assignments (TMAs) as a continual assessment component and feedback mechanism. The final assessment is based around a set project occupying 12 weeks. It has been presented since 1995, with an average population of 550 students every year. Students are obliged to have access to a modem to take the course, and data files for assignments are delivered via the conference. There is no obligation to use the conferences however, and the tutors are not contracted to use it as a teaching medium, although both students and tutors are strongly recommended making use of it.

Accepted: 1 August 1999

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It has long been the case that the conventional face-to-face tutorial is inconvenient for many students. The reasons for this are varied: geographical isolation (especially in low population density areas) which make travelling to a tutorial impractical, work commitments, family commitments, physical disability, and often just lack of motivation. This results in some Open University students never, or rarely, attending tutorials although they still have contact with their tutor via the telephone, letter and their TMA feedback. In 1997 a pilot study was conducted on T396 for one CMC-based tutor group in order to address just these types of students. From a pedagogical standpoint, the aim was to recreate some of the tutorial experience via the conferencing medium.

There were several factors influencing the nature of this pilot study. Firstly, unlike many other courses, the use of the medium in this case did not relate to the subject matter, for example as a means of teaching about data communication networks (Gregor & Cuskelly, 1994). The technology, therefore, needed to be as 'transparent' as possible, since it was not being used to reinforce any subject matter and gaining familiarity with the software should not occupy a great deal of the student's time. A second consideration was that the pilot study tutor group would consist of volunteers who opted to swap their conventional face-to-face tutorial arrangement for CMC use. They would have CMC tuition only, not a mixture of the two, as has been adopted by some courses (Steeple *et al.*, 1996). Lastly, the pilot study group would have the same materials as the conventional students. From an administrative point of view, the aim of the pilot study was to see if CMC tuition was robust enough to be offered as an alternative to face-to-face tutorials on this and similar courses.

The CMC tutor group

Integrating CMC into an existing course arrangement offered a number of administrative and pedagogical problems. On the administrative side, there was a need to select volunteer students from all over the UK. The Open University is based principally around a geographically defined structure with the UK and Europe, being split into 13 different regions each with their own local control, budgets, support structure and staff. Thus a grouping not based around this structure raised a number of difficulties including responsibility and support for the tutor and the students. A somewhat *ad hoc* solution was adopted in which the students and tutor were 'transferred' to the same region. This would not be a scaleable solution if CMC tutorials were offered as an option across the University.

An existing T396 tutor volunteered to act as the CMC tutor and the region was supportive of the pilot study. This led to the pedagogical issues. The Open University has a long tradition of providing good quality distance education and the role of face-to-face tutorials has been important in establishing this. The face-to-face tutorial is well structured, occurring at set times during the year, and in many courses tutors are lecturers and teachers in their full-time employment and thus are well practised in providing this form of teaching. CMC tuition is different in a number of ways which were addressed in an initial briefing with the tutor. The first of these was the

difference in time demands. CMC is generally asynchronous, as opposed to the real-time interaction of face-to-face tutorials, thus CMC tends to require short but frequent periods of interaction to maintain a dialogue, whereas face-to-face uses longer but less frequent periods. Secondly, the means of creating a socially cohesive group in CMC is different from face-to-face groups with the tutor needing to take an active role to keep dialogue alive and provide discussion points. The 'critical mass' needed for active CMC varies depending on the participants and discussion domain, but it may be different from the conventional tutor group size (around 25 students).

Much of the use of electronic technologies in education has tried to map the teaching strategies from the face-to-face situation onto the new medium, with varying success (Robson, 1996). The skills required to achieve and maintain good face-to-face interaction are often implicit, based on common experience. This may not be the case with CMC and what constitutes good face-to-face tuition may not be the same for CMC.

The volunteer students were aware that this was a pilot study and so it represented an ideal opportunity to look at some of these issues. It was agreed with the tutor that he would investigate various means of tutoring including:

- moderating a tutor group conference to which the tutor, pilot study students and members of the course team were subscribed. (this was separate from the national, course-related conferences to which all students had access);
- providing material (either generated by the tutor or obtained from literature) as a means of provoking and focusing discussion on a specific topic (analogous to providing material for tutorials);
- fixing a regular on-line time, so students could be certain that their messages would be read by a particular time, e.g. twice a week;
- using synchronous, real-time 'chat' sessions at specified times;
- using time-limited sub-conferences to focus discussion and recreate the time constraints of face-to-face;
- monitoring his own and student use of the conference to gauge the time demands required by this form of tutoring.

In keeping with the philosophy that the pilot CMC tutor group should not be provided with additional material, the existing *FirstClass* conferencing software was used. This provided all of the functions required and also satisfied the aim of relative transparency. It also had the benefit of centralising the student's resources, since the CMC tutor group conference and the general course conferences were all contained on the same 'desktop'.

Pilot study progress

Twenty-five students for the pilot study were selected from a pool of 70 volunteers who had responded to a call in the Open University's courses newspaper. The volunteers were selected on a number of criteria: firstly they had to be registered for the course already (and thus have a commitment to taking it). Secondly, the reasons for wanting to join the group were considered. A range of these were used, in order to provide a mixed group. The following were considered as strong reasons: geographical isolation,

family commitments, work commitments, and a keen interest in the use of CMC. All the students had taken at least one other Open University course and so had a means of comparison with the 'conventional' model.

Conference activity

At a time leading up to the first TMA, activity in the tutor group conference was steady with approximately 10 messages per week for the group as a whole. The tutor posted some preparatory material for the TMA and, for the week leading up to the TMA deadline, a time-limited sub-conference was set up. This was intended to generate greater discussion by providing an analogy to the face-to-face tutorial experience. This conference was not used heavily (12 messages in total) although the national conference for TMA01, which all T396 students had access to, was very active (with 421 messages from a total population of 530 students), often with messages from the pilot group students.

The tutor group conference continued with a low but steady volume of traffic, averaging eight messages a week. Without prior indication, tutor involvement in the conference tailed off during the summer period which many students felt was their most crucial period. Prior to the project submission, the author conducted two 1-hour synchronous chat tutorials. These were arranged for a specified time and all members of the tutor group were invited to join. About eight students 'attended' each one (this is similar to the attendance figures for a face-to-face tutorial at this period). They were used for general queries regarding the project. The text from these chat sessions was saved and posted to the conference for those students who could not be present. This acted as a prompt for further discussion.

Results

A survey was conducted via email at the end of the course to gather feedback from the students. Fifteen students from the group of 25 responded. A selection of their feedback is summarised in Table 1. Students were also asked to provide any general comments about the CMC tuition experience.

Table 1. A selection of the student responses to the end-of-course questionnaire

Question percent	Response (in percent)	
<i>How successful do you feel the CMC group has been?</i> (in range: 1 = very successful to 5 = very unsuccessful)	1.	13.3
	2.	26.7
	3.	60.0
	4.	0.0
	5.	0.0
<i>How do you find the amount of tutor involvement compared with face-to-face tuition?</i> Greater than normal About the same Less than normal		13.3
		13.3
		73.3
<i>Did you find this tuition method an improvement on the tuition you would have had otherwise?</i>	Yes	66.7
	No	33.3
	Don't Know	0
<i>What was your main reason for wanting to be part of the CMC group?</i>		

Interest in use of CMC		40
Difficulty in attending face-to-face tutorials because of:		
Work commitments		20
Family commitments		6.7
Geographical location		33.3
other		0
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<i>What aspect of the CMC tutor group did you find most useful?</i>		
Tutor feedback		13.3
Discussion with other students		53.3
Chat sessions		20
Other (e.g. "efficient & convenient", "none of it")		13.3
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<i>What aspect of the CMC group did you find least useful?</i>		
Tutor feedback		46.7
Discussion with other students		0
Chat sessions		0
Other (e.g. "all of it was useful")		53.3
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<i>If you were offered CMC tuition on another course would you accept it in preference to face-to-face tuition?</i>	Yes	66.7
	No	13.3
	Don't Know	20

Discussion

The pilot study achieved success on some criteria. The grades achieved by the pilot students were encouraging. The students in the CMC group had an average TMA score of 71% and project score of 86% compared to the course average of 65% and 79%, respectively. It is difficult to draw any conclusions from these figures since the pilot study group was one of volunteers who may have had greater motivation. The reasons for joining the pilot study were spread across an interest in the use of the medium and the advantages it offered in terms of access. Many students expressed optimism for the potential benefits of this form of tuition; for example a typical comment was: *'For me the potential flexibility of the electronic system beats face-to-face tutorials.'* This was felt particularly by those who found it difficult to attend face-to-face tutorials on other courses; for example one student commented: *'I've rarely been to a conventional tutorial in 8 years of Open University study and the CMC offered me access to a resource that I would have otherwise continued to miss.'* However, a caveat should accompany the generally positive feedback. Since 40% of the respondents stated that an interest in the use of CMC was their primary motivation for joining the pilot study, many of them may have had prior motivation to find the experience positive.

The main benefit students seemed to accrue from the pilot study was support from other students. This was both in the tutor group itself and in the national conferences. In many ways this was both the success and failure of the pilot study. The tutor group conference itself was less active than it might have been since many of the students raised their queries in the national conferences. As one student commented, *'Most of the problem with the CMC group is that there was little need to use it as you could reach a wider audience by using the general conferences.'* This is perhaps not surprising. It has been found that the main reason students have for using CMC is in problem solving (Wilson & Whitelock, 1997). In this context problem solving with regards to an assignment or exercise was better facilitated if the question was put to the wider body of students. This seems to indicate that in order for a

conference to be successful it must have a distinct function or personality which is not catered for elsewhere. In this instance what the tutor group seemed to do was create a social structure for those students and give them confidence and motivation in using the medium. One student commented '*... what the CMC achieved was to develop a group of students willing to work together in a way I have never seen in ordinary groups.*'

Although there was good peer support, many students felt that the tutor group conference was student rather than tutor led. The level of involvement of the tutor was an area of disappointment to most students. This raises two important issues for the university as a whole. The first is what form tuition takes in this medium and how tutor performance is monitored. The tutor did initially try to mirror the face-to-face tutorial experience with an explicit structure but later this structure and guidance faded for reasons which were not made apparent. The second issue is whether easy and continual access to a part-time tutor raises the expectation level of students to levels which are not easily satisfied within the current teaching model and tutor contract. The Open University has concentrated its efforts on producing high quality teaching material which is then supplemented by tutorial support. If the use of CMC conferencing leads to a higher demand on tutors this may necessitate a shift in emphasis and consequently finances.

Even with these reservations, the majority of students said they would take this form of tuition if it was offered on another course and they found it an improvement over the amount of tuition they would normally have been able to receive. The main benefit seems to have arisen from contact with other students and with the course team members. Increased contact with the latter would not be a scaleable benefit.

There were also a number of organisational issues which the pilot study raised. These included the considerable administrative overhead in establishing the pilot study which would need to be addressed if this form of tuition were to be scaled across the university.

These issues may not be entirely separate ones, indeed they could all be viewed as manifestations of the same problem, namely that CMC tuition is at some variance with the assumptions of the existing face-to-face model. Tuition has been based around a traditional face-to-face model and an associated infrastructure has arisen to support this over many years. A shift towards a CMC-based tutorial model means that many of the existing organisational structures and practices are no longer applicable, or at least need considerable modification.

It is the author's contention that the problems encountered during this pilot study arose where there was conflict with the existing culture which is based around the notion of physical presence. The Open University has developed an administrative system based on this assumption: to deal with face-to-face tutorials; the physical production of printed course units; geographical regions and regional centres, and so forth. The support structures have thus been developed to deal with this model. CMC operates on a somewhat different model, specifically one that is not geographically restrained. It therefore has a different set of needs that may be difficult to fit into the existing administrative structures. The importance and relevance of

the supporting system for CMC teaching should not be underestimated if it is to be used as the principal teaching mechanism for a broad audience and curriculum.

Acknowledgements

The author would like to acknowledge the help in administering this pilot study provided by the course manager, Sara Pierson and the support of the course team chair, Dr Adrian Hopgood.

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