Supporting undergraduate students' acquisition of academic argumentation strategies through computer conferencing

Other

Supporting undergraduate students' acquisition of academic argumentation strategies through computer conferencing

Dr Ann Hewings
Dr Caroline Coffin
Dr Sarah North

Executive Summary

Background

This research grows out of work on the importance of argumentation in developing students' critical abilities. It focuses attention on how students argue in computer-mediated conferences as opposed to traditional written assignments, investigating the way in which argumentation is realised within the relatively new context of computer conferencing which allows extended written discussions to take place over a period of weeks. Such text-based asynchronous conferencing is typically characterised by features of both spoken and written modes.

Aims

The main aims of the project were:

- to investigate the argumentation strategies used in asynchronous text-based computer conferences;
- to compare the argumentation strategies developed through conferencing with those used in the writing of academic assignments;
- to examine the strategies used by tutors to encourage and facilitate argumentation in text-based computer conferences.

Methods

Data was collected over two years for the distance undergraduate course 'Perspectives on Complementary and Alternative Medicine' at the Open University. Qualitative data was obtained through interviews with the course chair, tutors and students, and through a student questionnaire. Assignments and computer-mediated tutorials were collected for textual analysis, although the timing of the assignments meant that analysis has only just begun on the essay data. To analyse the argumentation in the computer conferences and assignments a method of categorising, coding and tracking argumentative discourse was developed building on earlier work by the authors. In addition, computational searches were carried out to compare linguistic features across conference and assignment data.

Results

In tutorial conferences, student discussion tended to take the form of collaborative co-construction of an argument through exchanging information and experience to substantiate a position. However, students were also prepared to challenge other viewpoints. In both cases, they frequently drew on personal and professional experience to support argument claims. The use of these strategies suggests that text-based conferencing lends itself to the collective combining of diverse sources of information, experiences and ideas.

Conference discussions were often personalised with fewer explicit logical links marking argument structure. They were also marked by complexity of argument strands, many of which reached no conclusion. Preliminary analysis of argumentation in assignments suggests that this did not, however, adversely affect students' ability to create a more traditional, linear argument in their essays. Further analysis will be undertaken to compare argumentation strategies across the two sets of data.

Tutors expressed concern about levels of participation in the tutorial conferences, which varied quite considerably. They also felt uncertain about their own knowledge of appropriate pedagogic strategies which would encourage students to participate in a collaborative yet critical way, and tended to rely on strategies from face-to-face teaching. Analysis of the conference discussion showed that tutors made fewer claims than students and were also less likely to provide information in support of their claims. There was, therefore, little modelling by tutors of the basic type of argumentation that would be expected in formal written assignments.

Despite these concerns, student responses indicated that having a tutor and a group of peers to interact with, or just to observe, was valued as a supportive feature of this form of distance learning. No clear picture arose of how to make conferencing more interactive for more students, and this reinforces the sense gained from the tutor interviews of the difficulty of proposing a model of tutoring in computer conferences that will necessarily engage all students or raise the level of discussion and debate.

Conclusions

Our study suggests that text-based conferencing has an important role to play in developing students' argumentation strategies and understanding of academic discourse and conventions. In view of its hybrid nature, somewhere between spontaneous speech and formal academic writing, course designers and tutors should aim to take advantage of both aspects – on the one hand, the informal dialogic exchange of opinions and co-construction of knowledge, and on the other, the opportunity for consolidation, reflection and re-positioning.

Our findings reinforce the view that students' willingness to exchange ideas freely and openly is partly a consequence of how personally engaged, at ease and confident students feel with one another and their tutor. In particular, it seems that there is a role for the interpersonal and, to some extent, the chat and the frivolity, which in some other studies discussed in the literature review have been regarded as negative influences.

Recommendations

To facilitate students' development of argumentation and learning more generally, tutors need greater awareness of the ways in which academic argumentation operates in computer conferencing as compared to written assignments. Since

pedagogic strategies developed in other contexts may not transfer well to computer conferencing, there is a need for targeted professional development, focussing in particular on:

- Choosing topics for discussion and designing effective task prompts;
- Supporting weaker students;
- Encouraging challenging of ideas;
- Finding the right tone to facilitate peer discussions.

Some specific suggestions are made within the report, but our recommendations at this stage remain tentative as we still have to complete the analysis of the assignment data and draw conclusions about the impact of the computer conferencing on the quality of written argumentation within this more formal context.

Background

1.1. Introduction

> From a rhetorical perspective on academic learning, education can be framed as an ongoing argumentative process (Veerman et al., 2002: 157)

A fundamental aim of higher education is to develop in students a critical attitude towards knowledge and the ability to present well-supported and reasoned arguments (Terenzini et al., 1995). Traditionally, these skills have been developed and rehearsed in dialogic interaction in face-to-face seminars, and in individually-authored written assignments. The growth in higher education of the use of asynchronous computer-mediated forums for pedagogical purposes has provided a new site for the development of these critical abilities.

This project aimed to investigate how asynchronous text-based computer conferencing (hereafter computer conferencing) might contribute to the development of students' ability to argue. The context was an undergraduate course in the field of Health and Social Care for part-time distance students at the Open University, UK. We compared students' argumentation strategies in computer conferencing with those in their single-authored assignments and examined tutor strategies in promoting discussion and debate in conferencing environments and assignments.

The use of computer conferencing is becoming increasingly common not just for students in distance higher education but also to complement face-to-face teaching and learning in more conventional higher education institutions. To date, much of the research in this area has focussed on the perceived benefits of computer-supported collaborative learning (e.g. Mason, 2002; McConnell, 2000) and there has been little investigation of the way in which composing messages in computer conferences can be perceived as a new form of academic writing. Little is known, for example, about the ways in which students might exploit computer conference discussions to help them with their writing for assessment. Given that many students, particularly those from non-traditional backgrounds, have difficulty with understanding current writing and assessment expectations (Lea and Stierer, 2000; Lillis, 2001) there is a need to understand a) how writing in electronic environments may differ from traditional written assignments and b) how it can be shaped to contribute to student understanding of both disciplinary content and disciplinary writing expectations. It is also important to better understand the role of argumentation in each of the media, and their interrelations.

In this project, a central focus of investigation has been the language used by students and tutors – both language form and language function. There is a growing body of research in teaching and learning in higher education which recognises the importance of language use in successful undergraduate study (e.g. Ivanic, 1998;

Lea and Stierer, 2000; Lillis, 2001). Our project builds on and extends this tradition and thus complements the more dominant research paradigms in computer-based learning, which have tended to focus on cognitive models of learning. Underpinning our work is the belief that disciplinary knowledge is, in part, discursively and collaboratively constructed (Hyland, 2000) and that disciplinary expectations may vary in terms both of discourse conventions (see for example North, 2005) and epistemology, including the criteria for effective argumentation (Mitchell and Riddle, 2000)

Over the last decade an increasing number of research projects have investigated the role of argumentation in education. In particular, work by Andrews and Mitchell (2001), Coffin (2006a), Driver et al. (2000) Mitchell and Andrews (2000), Mitchell and Riddle (2000), and Osborne (Osborne et al., 2001) has offered valuable insight into the structure and process of argumentation in a wide range of subject/disciplinary areas. Previous research into computer conferencing carried out by the present authors (Coffin and Hewings, 2005a; Coffin et al., 2005a; Coffin et al., 2005b; Painter et al., 2003) has already established some of the ways in which argumentation operates in this medium and has suggested that some forms of interaction (on the part of both lecturers and students) contribute more effectively to engagement with content and the argumentation process than others. Areas of particular concern which appear to impede effective computer conferencing are:

- a lack of interactivity, organisation and direction;
- a reluctance on the part of students to challenge each other's views;
- a need to be prompted to go beyond anecdote to consider the communicative effects of different forms of evidence.

The research reported here investigated these areas of concern in a new disciplinary context, taking a detailed look at the interactions occurring within computer conferences in an undergraduate course in the Faculty of Health and Social Care (HSC). HSC is a discipline whose evidence-based nature may pose particular problems for students in constructing arguments which relate theory to their own practice and experience (Baynham, 2000). We developed methods of tracking and describing the unfolding argumentation in computer conferences and assignments through an analysis of the language used by students and tutors. Close analysis of computer conferences and assignments is supplemented by qualitative data from interviews and questionnaires involving students and academic staff responsible for designing and delivering the course. In gathering and analysing empirical data we hope to examine the assumptions about current practices, contribute to the evidence base regarding effective teaching (Kirkwood and Price, 2006), and, where appropriate, recommend developments and changes.

1.2. Context

Two aspects of context are relevant in the background to this study: the particular nature of the Open University (OU) as an institution, and the teaching-learning context of the course studied. The institutional goal of widening access to higher-level study is one of the reasons that the OU has been at the forefront of developing the use of electronic media to enhance student learning (Laurillard, 2002; Thorpe, 2002) . The traditional OU model of supporting students through face-to-face group tutorials at regional centres has been supplemented by alternative forms of tutorial using conferencing software on computers (the commercially available FirstClass system). Such computer conferences can be either synchronous, that is, with all the students and their tutor interacting at the same time, or asynchronous, allowing student and tutors to post messages to the conference over a period of time, usually between two and three weeks. Some courses at the OU have moved entirely to computer conferencing; others have employed a mix of face-to-face and computer conferencing (blended learning). Expertise in running tutorials via computer conferencing and in blended learning situations is growing within the institution (Hewings and Coffin, 2004; Macdonald, 2006; Salmon, 2004) but, as elsewhere, many tutors have little experience of teaching in such an environment. Nor do they receive extensive professional development in the pedagogic (as opposed to technological) dimension of e-learning.

The particular course studied in this project was 'Perspectives on Complementary and Alternative Medicine' a 30 credit point second level undergraduate course designed to provide, as the course website explains:

> an accessible but rigorous introduction to complementary and alternative approaches to health. It aims to stimulate lively debates about this controversial and topical subject and to equip [students] with information and analytical frameworks with which to enter the debates. (http://www.open2.net/alternativemedicine/courses.html)

The course did not require students to be health practitioners – whether traditional, alternative or complementary – though a number were, and the approach taken often required students to draw on their own experiences of health-related issues.

The course materials included a specially written course book, other printed materials, a CD-ROM with video and audio clips, a course website, and an assignment booklet. Tutorial help was provided by OU associate lecturers (tutors), who are not necessarily full-time academics, but rather people with sufficient academic and/or professional experience in a relevant field to help promote students' learning through the course materials. A face-to-face tutorial was arranged at the beginning and at the end of the course, and in between there were four asynchronous computer conferences in which tutors posted tasks to stimulate discussion among their students. Neither face-to-face tutorials nor computer conferences were compulsory. The initial face-to-face tutorial was to allow students

to meet each other and their tutor in order to facilitate the communication via computer conferencing, a strategy supported by the literature on online learning (Salmon, 2004). The final face-to-face tutorial was to discuss the end of course project. Tutors and students were given printed guidance on accessing and using the computer conferences, and tutors also attended a one-day introduction to the course where they looked at some aspects of tutoring electronically.

1.3. Literature Review

The project is based on the premise that language is at the heart of the learning process – a premise supported by work in socio-cultural psychology (Mercer, 2001), linguistics (Halliday and Martin, 1993) and education (Wells, 1994). Specifically, we investigate the discourse of argumentation; that is, discourse in which learners take positions, give reasons and evidence for their positions, and present counterarguments to each other's ideas when they have different views (Chin, 2006: 355, cited in O'Donnell et al., 2006). In discussing the benefits of seeing argument as central to education, Eisenschitz notes:

> Argument…forces students to become active learners, making them aware of the competing paradigms which organize knowledge and requiring then to recognize and justify their own positions in the context of the range of social and political alternatives open to society (Eisenschitz, 2000: 15).

Over recent years the literature on argumentation and computer-supported learning has expanded. Below we focus on studies with direct relevance to the context investigated here.

1.3.1. Argumentation and knowledge construction

Over the last decade or so, argumentation has come to be seen by some educational researchers (particularly those working within the field of cognitive psychology) as comprising a sequence of individual steps constituting a knowledge building cycle. Baker et al. (2003) view the construction of arguments as facilitating self-explanation of learning material and Ravenscroft and Pilkington, in their investigations of computer-supported tutor-student exchanges in science courses, have found that argumentative dialogue stimulates belief revision leading to conceptual change and development (Ravenscroft, 2000; Ravenscroft and Pilkington, 2000). Leitão (2000; 2001) sees such a process as (potentially) transformative. That is, students' perspectives on a topic can be altered through their participation in a 'dialogue of opposites'. These opposing views, she points out, may be conveyed not only through direct interaction but through a variety of verbal and non-verbal semiotic devices (for example, books, maps, graphs, and tables and equipment of various sorts). This approach to the 'dialogue of opposites' complements work on the socio-cognitive conflict theories of Piaget (1932) and Doise and Mugny (1984) (cited by Tolmie and Boyle, 2000). In their work on factors influencing successful computer conferencing

in higher education, Tolmie and Boyle (2000: 121) concluded that conflict in the form of a disagreement with a view put forward, particularly in an asynchronous conferencing environment, 'will promote growth in understanding'.

Working within a socio-cultural perspective on cognition, a group of educational researchers involved in the UK-based projects 'Enhancing the Quality of Argument in Science Lessons' and 'Ideas and Evidence in Science Education' (see Driver et al., 2000; Erduran et al., 2004; Osborne et al., 2006), also see argumentation as a significant tool in developing students' knowledge – in their case scientific knowledge. Their view is that through the externalization of thinking in the form of argumentative dialogue (in their case, in face-to-face classroom discussion), students are inducted into scientific discourse and so develop a knowledge and understanding of the evaluative criteria used to establish scientific theories. Such knowledge is essential, they argue, for enhancing the public understanding of science and scientific literacy. Through close analysis of data using a Toulmin model (Toulmin, 1958; Toulmin et al., 1984), their research reveals that rebuttal (a form of counterargument) forces participants to evaluate the validity and strength of a scientific explanation and become engaged in sustained scientific thinking. This echoes Tolmie and Boyle's (2000) and Leitão's (2000) findings that counterarguments play a particularly important role in facilitating meta-cognitive activities, prompting learners to rethink their initial argument and in so doing 'update' their knowledge. There are, however still researchers (for example, Osborne et al., 2004:1016) who believe that we lack sufficient evidence to be certain that engaging in discursive problem solving activities leads to enhanced cognition.

1.3.2. Argumentation and collaborative learning

Collaborative learning (CL) covers a wide range of approaches which involve groups of students working together in order to reach shared understandings or solutions or to create a product (see (Littleton et al., 2000). Computer-supported collaborative learning (CSCL) uses technological environments to facilitate the group process (Wasson et al., 2003). Within CSCL, argumentation is viewed as a particularly important form of collaboration in which participants cooperate in an attempt to resolve different views. Such a process is perceived as involving 'the confronting of cognitions and their foundations' but is more than 'mere incidence of conflicts' (Andriessen et al., 2003b: 3-4). Often it is linked to complex problem solving in which learners construct and balance arguments and counter-arguments in order to prove possible resolutions to problems (Weinberger and Fischer, 2006). According to Andriessen et al. (2003b) argumentation is both semiotic and epistemic: students produce and mutually apprehend a variety of semiotic representations and deliberate which is most acceptable by examining arguments for and against. Rather than a means of convincing partners to accept views, advocates of CSCL hold that argumentation is a process of eliminating 'flawed' claims, one that can lead to reflection and knowledge restructuring. In this model, knowledge co-constructed through argument may amount to being 'a compromise between divergent positions'

(Andriessen et al., 2003a: 11). Equally, such co-constructed knowledge may lead to the acquisition of multiple perspectives on a problem which learners may apply flexibly to solve future problems. Advocates of CSCL also claim that constructing argument aids self-explanation by facilitating the integration of new knowledge into existing cognitive structures (Weinberger and Fischer, 2006).

Within CSCL, asynchronous text-based conferencing is viewed as a particularly valuable form of technology. Proponents argue that text-based and time-delayed communication supports the argumentation process by allowing learners to keep track of complex questions or problems under discussion (Tolmie and Boyle, 2000). Andriessen (2006: 19) describes it as a 'slow discussion', offering students considerable time for reflection and pondering (unlike in face-to-face discussion).

In pursuing the question of how discussions currently operate in computer conferencing, research within the CSCL tradition (e.g. Andriessen, 2006) has identified the following as features/issues for researchers and practitioners to take note of:

- Students want more intervention from the tutor;
- Students rarely initiate e.g. by posing questions;
- Students and teachers need more knowledge of collaboration;
- Text-based and time-delayed communication can be beneficial to keep track and maintain an overview of complex questions or problems under discussion;
- Topics generally disperse rather than reach a conclusion, that is, discussions are elaborated in terms of breadth but do not go deeper and do not arrive at integration or a conclusion;
- Messages are mainly used to explain rather than argue (29% argumentative, 3% challenging, 3% countering);
- Degree of connectivity, or interaction, can be influenced by task instruction, particularly the degree of common ground and familiarity with the topic of discussion.

Andriessen's finding that most messages are used to explain rather than argue accords with studies of argument in non computer-mediated contexts such as that by Kuhn (1991) (cited in Weinberger and Fischer, 2006) who notes that even adult learners rarely construct warranted and qualified claims on their own.

1.3.3. Student and staff perspectives on computer conferencing

A number of studies in recent years have explored the uses made of computer conferencing by students and the work it involves for academic staff. In contrast to the research on collaborative learning, these studies have tended to highlight the problematic side of learning at a distance using computers. In a discussion linking

technology and identity, Wood and Smith (2005) note that the impersonal nature of online interaction can limit its quality and reduce the likelihood of relationships developing between students. On the other hand, some students find the lack of nonverbal elements liberating, enabling them to voice their thoughts and ideas more readily than in face-to-face situations. Hara and Kling (1999) focus on three causes of student frustration: technological problems; minimal and untimely feedback from the instructor; and ambiguous instructions. They commented on the relative lack of the student perspective in studies of computers in education. One recent study that addresses this is by Attar (2005) who looked at inexperienced adult learners and noted their 'dismay and disappointment' with using the Internet. A particularly interesting finding relates to the metaphors of space and travel with which the internet abounds: 'cyberspace', 'hyperspace', 'surfing', 'navigating' 'forward', 'back' (Attar, 2005: 502). Attar found that these terms, even when used in face-to-face classes, confused students with little knowledge of the internet; a reminder of the potential problems faced by students decoding instructions at a distance.

Studies reflecting the difficulties for staff are more common in the literature than studies focusing on the student perspective. Kirkpatrick (2005), for example, reflects on his frustrations as a lecturer trying to integrate a synchronous computer conferencing element into a course on research methods. He found the extraneous chat particularly problematic and concluded that lecturers need to invoke their own authority sooner in this medium. A similar degree of frustration with the lack of on-task messages and 'the degree of frivolity' is noted by Williams (2002: 47), who was evaluating the use of electronic resources and discussions on an undergraduate key skills programme. Another fundamental concern for lecturers is when and how often to intervene in the student discussions. Andriessen (2006) (see above) has found that students want more interventions from tutors. However, the view that a 'critical factor for lively participation in a conference is the regular and active engagement of the moderator' (Macdonald, 2006: 75) disguises many of the problems of when and how much the lecturer should intervene, particularly given the constraints of how much time a lecturer has available for this work (Clark, 1983). If lecturers post contributions too often the fear is that rather than encourage students it might effectively stop discussion, with students waiting for the 'right answer' to come from the lecturer. If lecturers post infrequently, however, students may see the conference as of marginal value or interest (Painter et al., 2003). An extensive study by Mazzolini and Maddison (forthcoming), which gathered data over three years for 58 'instructors' on a range of online postgraduate courses in Astronomy, demonstrates the complexity of the relationship between instructors and students in asynchronous learning environments. They found, for example, that the more often the instructor posted, the less often students posted and the shorter their messages. As Mazzolini and Maddison point out, it is not possible to determine cause and effect from these findings. They speculate, however, that frequent tutor postings might have made discussions more 'efficient' and hence shorter. There was a slight tendency for students to see instructors who posted frequently as more enthusiastic and with

greater expertise, but student satisfaction was high whether or not instructors posted frequently (except when instructor involvement was extremely low).

1.3.4. Computer conferencing; general findings

Much of the broader literature on computer-mediated communication (CMC) in higher education has focused on factors influencing its success. The key findings have been summarised by Tolmie and Boyle (2000) as:

- Size of group: smaller is better;
- Knowledge of other participants: it is better if participants know each other;
- Student experience: it is better if students are experienced communicators under the task conditions involved;
- Clarity about the task: it is better if students understand how to go about the task they are engaged in, especially if this understanding is shared;
- Ownership of the task: it is better if students have the chance to negotiate what the task is to involve;
- Need for system: it is better if there is a clear function for CMC which cannot be served more easily another way;
- Type of system: it is better if the system is easy to use;
- Prior experience of CMC: it is better if students have some familiarity with CMC.

These studies, however, focus primarily on the factors that promote successful interaction within the computer-mediated environment. An alternative perspective is taken by Lea (2001), who argues that computer conferencing can give students the opportunity to rehearse discipline-based debates and then exploit these arguments and counter arguments as rhetorical resources in their written work:

> The technology enables a reflexivity in student learning which has not been possible before, enabling students to benefit from the learning of their peers online and to draw upon this in the construction of their own individual disciplinary knowledge, as explicated in their own written argument (Lea, 2001: 163).

Certainly, the current authors in their study of text-based conferencing and student writing (in a postgraduate course in Applied Linguistics) found that a number of students drew on the views and experience of fellow students as supporting evidence for their arguments (Coffin and Hewings, 2005b). However, they found that a number of potential problems arose with such a practice. For example, by referencing each other's conference contributions individual student experience is implicitly elevated to the level of research data. In some cases this had a negative effect in student essays, where the assignment task was reinterpreted by students to be primarily about personal experience and an excessive amount of reasoning was based on

anecdotal evidence. Thus, while it can be argued that the use of computer conferencing for discussing academic issues has produced a new kind of student writing in which new forms of evidence may be integrated into students' argumentation, it remains an open and important question as to the degree of authority with which such conference texts should be invested.

The question of whether computer conferencing is contributing to a new form of academic writing and argumentation, and the relationship between the writing which goes on in computer conferencing and that which is used in assignments forms the basis for the present research.

Aims

The main aims of the project were:

- to investigate the argumentation strategies used in asynchronous text-based computer conferences;
- to compare the argumentation strategies developed through conferencing with those used in the writing of academic assignments;
- to examine the strategies used by tutors to encourage and facilitate argumentation in text-based computer conferences.

Our interest lies in the extent to which particular pedagogic interventions within the conferencing environment may promote more effective argumentation, and the impact that this may have on students' written assignments. Within the scope of this project, however, it would be unrealistic to expect definitive answers to these questions, so we limit ourselves to exploring similarities and differences between argumentation in the two contexts, and considering the possible implications for the development of appropriate pedagogies to promote effective argumentation skills.

Methods

1.4. Data collection

Data was collected from the course 'Perspectives on Complementary and Alternative Medicine' (CAM) over two years (see Figure 1). Approximately 290 students were enrolled for the course at the beginning of 2005 and 250 at the beginning of 2006. In 2005 all tutors were invited to participate in the project. Those that came forward then contacted their students to tell them about the project and give them the opportunity individually to opt out of any data collection. Nine tutors and their students agreed to participate, a total of 158 people at the outset of the course. The four main tutorial conferences (conducted by all tutors across the student cohort) and any additional conferences set up by the tutor were downloaded and the assignments written by students, together with the marks and comments from the tutors, were also collected. These were used as the data from which our analysis framework was developed.

In 2006 only four of these tutors were still tutoring on the CAM course. The core data set for detailed linguistic analysis is limited to the conferences and assignments (see Appendices 1 and 2) for these four tutors across the two years. The tutors were given the pseudonyms Bethany, Julie, Lucinda and Naomi. Tutor groups usually consist of about 15 to 25 students at the start of the course, and some student drop-out early on in the course is normal. In some cases a tutor may be responsible for two groups, as was the case for one of the tutors, Julie, who had about 35 students in 2006. The four tutors and their students were contacted and data collected from their computer conferences and assignments. As the OU academic year runs from February to October, the 2006 course has only just finished, and the assignments arrived too late for analysis and inclusion in this report. We have concentrated on analyzing interactions in conferences 1 and 4 in both 2005 and 2006, a total of 16 conferences comprising 49,223 words. Conferences 1 and 4 both involved tasks which prompted more discussion and argumentation than conferences 2 and 3. We have also analysed in detail two 2005 assignments written by one student in each of the four tutor groups, a total of eight assignments.

Figure 1 Data collected in 2005 and 2006

	2005	2006
Total no of students at start of course	294	247
No. of consenting tutors	9	4
No of consenting students	149	89
Total no. of assignments collected	462	89
No. of tutorial conferences collected	45	20

Tutors interviewed	-	4
Students surveyed	-	12
Students interviewed	-	7

Additional conference discussions and assignments have been used in electronic searches as detailed below. A corpus of texts consisting of twelve text files of conference data from 2005 (representing tutorials 1, 3 and 4) was compiled and analysed using tools for corpus analysis including concordancing and frequency (see Section 4.5) . This corpus contained 42,565 words. A second corpus was composed of 28 text files of assignment data from 2005, specifically seven tutor marked assignments (TMAs) from each of the four tutors' student groups. This number was chosen to ensure a total word count comparable to that of the conference corpus i.e. 44,893 words. Where possible, essays by students who had played an active role in the conferences were selected, to allow a more direct comparison of style in the different modes. (This was not possible for one student group with very low conference participation.) The data subject to electronic corpus analysis and discourse structure analysis is summarised in Figure 2.

In addition to text data, we also had meetings with the course chair, attended the 'debriefing' meeting which took place with tutors after the first presentation of the course in 2005, conducted interviews with the four tutors in August/September 2006, and conducted a questionnaire survey of students in August/September 2006, with follow-up telephone interviews in October 2006. The questionnaires and interview questions are in Appendices 3, 4 and 5. We also collected the course materials, assignment booklets for 2005 and 2006, and the computer conferencing guide prepared for the tutors by the course team.

Figure 2 Text data analysed in 2005 and 2006

	2005	2006
No. of tutor groups analysed	4	4
Total no. of tutorial conferences analysed (using discourse structure analysis)	8 (2 per tutor) (30,109 words)	8 (2 per tutor) (19,114 words)
Total no. of assignments analysed (using discourse structure analysis)	8 (2 per tutor group) (12,550 words)	-
Total no. of tutorial conferences analysed (using corpus analysis)	12 (3 per tutor) (42,565 words))	-
Total no. of assignments analysed (using corpus analysis)	28 (4 per tutor group) (44,893 words)	-

1.5. Questionnaires and interviews

Face-to-face interviews were held with the four tutors in August 2006. The interviews were semi-structured and concentrated on tutors' views on computer conferencing and on the significance of argumentation in conferencing and in assignments. The interview protocol is reproduced in Appendix 3. Extracts from each tutor's 2005 conferences and students' assignments were used as prompts in the interviews. Student data was collected through questionnaires and telephone interviews between July and October 2006. The questionnaires were made available electronically by the four tutors to all the students in their groups. The questionnaire together with the collated answers is in Appendix 4. Of the twelve students who responded, ten said they were willing to be contacted for an interview by telephone, but only seven could be contacted in the time available. Like the tutor interviews, the student interviews were semi-structured but designed to follow up responses to the questionnaire. The student interview protocol is reproduced in Appendix 5.

1.6. Data preparation

All text data from the students and tutors was anonymised, and any identifying information such as phone numbers or university reference numbers was manually replaced. Assignment question wording, end references and tutor comments were removed manually from the essays, so that only the students' own words would be evaluated. In the conferencing data the duplicate text associated with copying messages or parts of messages that are being replied to into the post was removed.

These cleaned-up texts were then converted into plain text files in order to carry out electronic corpus analysis using the concordancing software, MonoConc Pro (Barlow, 2002). Manual analysis of the text data was carried out as described below (Section 4.4). Responses to the questionnaire survey of students were collated and all interviews transcribed.

1.7. Analysing argumentative discourse in computer conferencing

Approaches to analysing text-based computer conferencing may vary depending on the purpose of the research and the disciplinary tradition involved. Within the field of CSCL (see Section 2.3) the use of content analysis has moved from investigation of observable and quantifiable behaviours such as rate of participation or message length (Henri, 1992), to inferential studies which categorise elements of the discussion with the aim of elucidating processes of knowledge construction, collaborative learning or critical thinking (De Laat and Lally, 2004; Gunawardena et al., 1997; Hara et al., 2000; Perkins and Murphy, 2006; Weinberger and Fischer, 2006). More recently, a growing body of literature has addressed the problems of validity and reliability associated with this inferential use of quantitative content analysis (De Wever et al., 2006; Rourke and Anderson, 2004; Schrire, 2006). Content analysis may categorize text along a number of dimensions: De Laat and Lally (2004), for example, code according to the type of tutoring activity or learning activity taking place, whereas Fahy (2001) classifies content as questioning, statements, reflections, or interpersonal coaching and scaffolding. A number of researchers, however, include discourse analysis as part of a multi-dimensional content analysis. Schrire (2006), for example, in addition to analysing cognition, also investigates interaction using a model of discourse analysis based on Wells's (1999) approach to classroom discourse. In general, however, computer conferencing in educational contexts has been analysed from the perspective of psychology rather than linguistics.

Our own work, on the other hand, has developed within the framework of an applied linguistic approach to educational discourse, influenced by the systemic functional grammar of Halliday (2004) and the approach to genre pioneered by Martin (1989). From this perspective, genres are seen as 'staged, goal-oriented social processes' (Eggins and Martin, 1997: 243) and a text can thus be analysed in terms of the generic stages it passes through in order to achieve its purpose within a given social context. A school history essay, for example, may set out to challenge a commonly held viewpoint, and in so doing moves through the stages of outlining the position to be challenged, presenting rebuttal arguments, and putting forward an alternative interpretation (Coffin, 1997, 2006b). Some texts, however, are more amenable to generic analysis than others. Eggins and Slade point out that casual conversation may include both 'chunks' of text, such as anecdotes, which have a relatively clear text structure, and stretches of 'chat' where a more finely-grained analysis of discourse structure is needed to track the dynamic nature of the interaction (Eggins and Slade, 1997: 270). CMC is widely recognised as displaying features of both

written and spoken modes (Collot and Belmore, 1996; Ferrara et al., 1991), and while in some contexts it may be analysed as 'chunks' with a distinct generic structure, such as the bulletin board messages analysed by Taboada (2004), in other contexts it may be better regarded as a form of written 'chat'. As Harrison (1998) points out in connection with email discussions, if CMC does indeed resemble conversation, then we would expect interactional aspects to be prominent, although its multiparty nature may make the interaction very different from that usually found in face-to-face conversation in small groups.

In analysing the interaction taking place within computer conferences, some analysts have drawn on a model originally designed to examine classroom discourse (Sinclair and Coulthard, 1975; Wells, 1999). This model involves a hierarchy of five levels – lesson, transaction, exchange, move, and act – in which a typical exchange consists of initiating, responding and follow-up (or evaluating) moves, and each move is realised by acts such as eliciting, informing, prompting, acknowledging and commenting. Pilkington (2001), for example, stresses the importance of dialogue analysis in view of the increasing focus on pedagogical rather than technological aspects of computer-based learning, and with her colleagues (Kneser et al., 2001) has developed a model which combines exchange structure analysis with rhetorical structure analysis, based on the work of Mann and Thompson (1988), to deal with relationships such as cause-consequence or problem-solution.

In our own analysis we also found it necessary to account both for the way that participants respond interpersonally to one another, and the relationships between ideational meanings (concerned with the world of experience). 'Interactive' acts such as prompting, agreeing or challenging are concerned with the give and take of the interaction itself, while on the other hand acts such as recounting a sequence of events, describing, or giving an explanation are defined in terms of what they communicate, rather than how (Riley, 1980; Widdowson, 1979). This distinction is particularly important in dealing with argumentation, where we are interested not only in the negotiation of interpersonal relationship and rhetorical alignment but also the co-construction of new knowledge, positions and perspectives.

Andrews (2005) suggests that approaches to argument range along a spectrum from logic at one end to rhetoric at the other. The Toulmin model, for instance, lies towards the logical end, with a focus on the generic properties of rational argument, while at the rhetorical end the focus is on the way views are exchanged, in what he calls 'the choreography of argument' (2005: 110). A similar contrast is implied by Sandvik's (1997) discussion of the interactive and argumentative aspects of spoken political argumentation. She comments that the argumentation would be represented as a hierarchical reconstruction in a 'logical' pragma-dialectic approach (see for example work by van Eemeren, 2001), allowing it to be evaluated against established norms, but in the process the linear unfolding of the discourse would be lost, obscuring interactive aspects of the argumentation. Leitão, too, comments on the need for a dialogical perspective on argumentation that can reveal 'both the

proponent's and opponent's active and interrelated roles in the course of a dialectical weighing up of supporting and opposing elements in social contexts' (Leitão, 2000: 339). She suggests an analysis that identifies three basic elements: argument (a position which is followed or anticipated by a justification); counterargument (an element that potentially undermines a position); and reply (a reaction to a counterargument). In argumentation, claims (or contestable positions) are put forward and may be either supported or undermined by various types of evidence. These argumentative moves are interrelated in terms of ideational meaning, but are also exchanged interactively among participants in the choreography of a discussion.

Our earlier work on argumentation was based on the analysis of generic stages in the development of an argument, and focussed on the ideational meanings that were understood and the linguistic resources used to convey those meanings. However, as Eggins and Slade argue, 'To account for how people construct relationships with each other through talk, we need … to go beyond the topics they talk about or the grammatical and semantic resources they deploy. We need to be able to give functional labels to the activities they are achieving as they talk to each other' (Eggins and Slade, 1997: 177). Their model of discourse structure analysis is similar to the exchange structure analysis discussed above in that it involves identifying the pragmatic function of the various moves used by participants in a discussion. Instead of initiating, responding and follow-up moves, they distinguish opening and sustaining moves, on the basis of whether or not they are elliptically dependent on prior moves. Sustaining moves may involve the same speaker continuing or a different speaker reacting, either by supporting or confronting the first speaker's propositions or proposals. While this model is clearly relevant to the interactive exchange of views within an argumentative discussion, it was developed to analyse face-to-face conversation and requires adaptation to deal with the different nature of asynchronous computer-mediated discussion (see also Harrison, 1998).

In an asynchronous environment, with little pressure to respond immediately, participants can take their time to plan and compose their contribution, and turns are therefore often more expansive than in casual conversation. Asynchronous discussion also disrupts the linear sequence of face-to-face conversation, since a turn need not relate to the immediately preceding turn, but may refer back to something mentioned much earlier. Although in our analysis we have recorded the messages in the order that they were sent, this is not necessarily the order in which participants viewed or responded to them. Eggins and Slade (1997) distinguish opening from sustaining moves on the basis of elliptical dependence, but this distinction does not transfer well to asynchronous discussion, where elliptical responses are often avoided because of their potential ambiguity. A further difference is that participants are under no obligation to respond at all to any particular message – keeping silent is an option in computer conferencing that would be highly unusual in a face-to-face context. These differences make it difficult to represent the choreography of a computer conference using an analytical system designed for use in face-to-face contexts.

A further problem for analysis is determining the unit of analysis. Discourse analysts typically identify functional moves as units of discourse structure; Eggins and Slade, for example, identify moves based on the grammatical independence of the clause and prosodic factors, but note that in casual conversation 'most clauses are moves, and most moves are clauses' (1997: 186). This however, is not true in computer-mediated discussion, where moves are frequently longer, and prosodic criteria are not available to help identify move boundaries. In the study of computer-supported collaborative learning, a range of different types of unit may be used, but definitions are often vague, with little discussion of the criteria involved. In view of the problems of reliable segmentation, Strijbos et al. (2006; see also Weinberger and Fischer, 2006) argue that it should be carried out separately from coding, and moved in their own research to the use of a unit – the sentence or part of a compound sentence – that could be identified reliably without problems of overlapping boundaries. In our system of analysis, we also decided to use a grammatically defined unit that allowed us to segment the text reliably before beginning coding: the t-unit, which consists of an independent clause together with clauses dependent on it. Once the text was segmented in this way, each t-unit was coded according to the functional move that it realised; where a move comprised more than one t-unit, coding was simply continued over all the relevant units. This approach provides us with a practical solution to the problems of reliable segmentation, and not only allows us to compare the frequency of different moves, but also to provide a rough indication of the proportion of the conference occupied by each type of move (which may vary considerably in length).

A number of researchers categorise the type of talk which is going on in computer-mediated discussion, distinguishing for example between task-related and non-task-related material (Schellens and Valcke, 2004), interpersonality and impersonality (Beuchot and Bullen, 2005), or between social, organisational, and intellectual moves (Burnett, 2003). Since our main focus is argumentation, we began by classifying argumentative talk as distinct from social, procedural, and other instructional talk. This distinction, however, proved difficult to maintain. The key criterion for identifying a move as argumentative was that it formed part of the negotiation of claims, either by proposing, supporting or challenging a position. Yet in real life discussions, as Erduran et al. (2004) point out, claims are not always easily identified. They may occur at different levels, so that what is put forward in one move as a claim may in later moves be used as justification for another claim. Erduran et al. resolve the ambiguities in their data through consideration of explicit indicators of logical relationship such as 'so' and 'because'. They were dealing, however, with classroom situations, in which the teacher was consciously encouraging children to make their reasoning explicit. In our data, such relationships were often left implicit, making it difficult to be certain whether or not a piece of information was intended to be taken as evidence for or against a particular claim. Even in cases where a move appeared in context to be unrelated to any claim, and had thus been classed as non-argumentative, it might be picked up later by another participant and woven into the argumentation. Rather than trying to maintain a clear distinction between argumentative and non-argumentative moves, it therefore seemed better to regard

this type of material as contributing to a gradually expanding pool of data which participants could draw on in building arguments, whether with explicit or implicit reasoning.

We therefore ended up with the following four way classification:

- Discussion: Moves relating to the topic under discussion in the conference, which form part of (or potentially contribute to) the on-topic argument.
- Social: Moves which relate primarily to constructing or negotiating solidarity/community.
- Procedural: Moves relating not to the discussion of the topic, but to establishing and maintaining the conditions which allow the discussion to take place. This includes both technical and organisational issues.
- Other field-related: Moves that can be roughly classified as 'classroom talk', and cannot be classified under any of the other three categories as defined above. This includes factual queries and responses not related to the intended topic of discussion, and teaching moves such as evaluating student contributions.

Since our focus was the way that students argued in the conference discussion, we aimed to analyse moves in the 'discussion' category exhaustively. Within the categories. 'social', 'procedural' and 'other field-related' we indicated only particularly salient types of move.

Central to our analysis of the discussion is the claim, or contestable proposition. In addition we recognise three variant types of claim (thesis, recommendation and counterclaim). The label thesis is used when it is necessary to indicate a claim at a higher level in a hierarchy of claims. A recommendation makes a claim about how things should be, rather than how they are; it is hortatory rather than analytic (Martin, 1989). A counterclaim takes an alternative position to a previous claim. Each of these types of move is coded with a unique identifying number, and moves relating to that claim within the same or subsequent messages are given the same reference number, enabling us to track the way that a claim, once put forward, is either advanced, challenged or ignored by other participants.

As mentioned above, participants often put forward material which might, potentially at least, be regarded as support for an explicit or implicit claim. In analysing this type of material, there is a danger of over interpretation; the analyst, by reading 'co-operatively', may infer relationships that were not in fact intended by the participant, creating an idealised interpretation that represents not what participants actually did, but what they perhaps should or could have done. Leitão, for example, considers an idea to be supporting 'if (1) it reads naturally after a typical support indicator (e.g. because) has been inserted between that idea and the speaker's position and (2) it gives an answer to a query that would typically elicit a justification' (Leitão, 2000: 344). Our view, on the other hand, would be that such ideas may be regarded only as potentially supporting, and that we cannot be sure of the participant's intentions. In

our analysis, we code all such material according to its illocutionary function (e.g. reporting, describing, explaining), regardless of whether it is or is not explicitly related to a particular claim. The numbering system, however, allows us to distinguish those moves which are clearly related to a claim, and therefore argumentative, from those where the relationship is no more than a weak inference; we term these ‘integrated’ and ‘unintegrated’ moves. We began with a set of moves in this category derived from earlier work, but have gradually expanded and modified the list to account for the examples actually occurring in our data. The complete list is given below, together with examples from the assignment or conference data. Examples from the data throughout this report retain original typing and spelling mistakes.

Figure 3 Analytical framework

DISCUSSION	Examples
The first five all involve contestable propositions that may be challenged/supported	
Claim A contestable proposition relating to how things are (analytic)	I think the whole structure of the NHS has got too big, unwieldy and inflexible
Thesis An overall position on an issue (at a higher level of generality than a claim) is put forward (i.e. a thesis statement)	The pursuit of statutory regulation may be based on a number of assumptions about the perceived benefits that statutory regulation would offer complementary therapies:
Recommendation A contestable proposition relating to how things should be (hortatory)	A good rule of thumb would be to check whether the CAM specialist is registered as such and/or ask how long a specialist has been practicing.
Counterclaim A claim which takes an alternative position to a previous claim	I don't think the therapy needs to become biomedical, but it could carry out 'clinical tests' to prove it is safe and effective - even if the underlying reasons cannot fully be explained scientifically.
Claim / Support A claim which includes supporting evidence or reasoning in the same move	There appears to be a paternalistic stance from the RP in that she withheld information regarding the effects of the reiki, as there was no explanation on the first visit on what Mrs. Bannister might expect, symptom wise, from the treatment (Stone 2005, p85).
Informing Information or reasoning which is put forward as part of the on-topic discussion; these moves may be either integrated (used to support a claim) or unintegrated (not linked to any particular claim, but available as potential support for a claim).	
recount A recount of a series of actions or events	Although chiropractic grew rapidly in Europe it was not until the late 1970s that the Anglo-European College of Chiropractic (AECC) was established in the UK.
procedure Information about how a procedure is being/has been/will be carried out	In order to find out about CAM usage in a more formal setting, I shall look at websites of local NHS health centres and NHS and private hospitals to check CAM usage there.
description Information about the nature or condition of	In the former USSR there are two schools of homeopathy , a very advanced classical school

a person, place, object or concept	centred on Kiev, and a more French style one centred on Moscow,
counterfactual explanation Reasoning that speculates on what might have happened	Furthermore, had Mrs Bannister known that her symptoms might increase on treatment, she may have refused to have it.
other explanation Other logical reasoning, involving explicit causal relationships	[I feel that there should be statutory regulations for therapist], as otherwise any cowboys can undertake therapies & do more harm than good, at least if there is a regulatory body people are monitored.
personal assertion A comment related to the on-topic discussion which describes the writer's affective response and is therefore not open to challenge	I do not want ot be associated with this practise!
professional experience Reference is made to professional experience provided by the writer	When I sat for a short time on our college regulation panel I was impressed by the help we got from the academic advisor on the panel.
personal experience Reference is made to personal experience provided by the writer	Just after I had my daughter 6 years ago I was diagnosed with hypertention and was told by my doctor I would be on medication for the rest of my life. The side effects were awful
other exemplification One or more specific examples of a general point	The GMC has also been criticised for letting criminals like Harold Shipman "slip through the net".
other information Any other material which is part of the specified on-topic discussion, but does not fall into one of the above categories	and the cry of "Let me through, I'm a qualified aromatherapist" would ensure at least some basic first aid until paramedics arrived!
Agreement A previous claim is confirmed by a participant agreeing with it	I agree there is much more information about CAM available giving us greater choice.

Refute A questioning or criticism of an argument or claim made in a previous turn, (or in a forum outside the conference such as a text book, academic article etc.) No new claim is made, unlike Counterclaim	Is it good enough to say that 'I am good at my jub but I cannot take exams' or I cannot afford to register.
Concession Recognises the validity of an alternative viewpoint expressed in a previous turn. This move is subsidiary to a claim being put forward by the writer	I agree with Alexs comment about increased access to information [but also believe that a little knowledge is far more dangerous than no knowledge]
Argument Prompt A question designed to stimulate and prompt participants' views on an issue	are communities now also linked to time as we continually move, breaking old relations and creating new?
Information Prompt A question designed to stimulate participants to provide information as part of the on-topic discussion	i think some of the treatments particularly sonic, stones and reiki are a load of baloney - has anyone ever experienced any of those...?
Issue The overall issue to be debated is identified (without indication of the stance or approach to be taken by the writer)	THE SAFEGUARDS PROVIDED FOR USERS OF CHIROPRACTIC WITHIN THE U.K. (essay heading)
Preview The direction of the forthcoming discussion or section of discussion is explicitly introduced	Finally it's interesting here to digress briefly and consider the alternative versus complementary argument.
Summary Preceding discussion points are explicitly summarised or completed	To summarise what I see as the 'story so far' drawn from preceding emails [...] I suggest the following: [...] 1. Increased information available to 'all' a) media – TV, radio etc.
SOCIAL	**Examples**
Encouragement Participants motivate and encourage each other	Many thanks to those of you who have contributed so far.
Teasing Participants denigrate each other or each others' contributions, playfully or otherwise	Enthusiasms one thing but some of you peeps are getting carried away!!!

(opposite of Encourage)	
Deferring Participant minimises own contribution and/or seeks reassurance from others	as far as I know, […] oesteopaths and other CAM therapists don't have the power and authority to write medical certificates. [(please correct me if anyone knows any different),]
Salutation Participants open contributions with a greeting	Hi folks
Signing off Participants close contributions	Best, Julie.
Other	Bethany did you have a good holiday?

PROCEDURAL	**Examples**
Problem Describes and/or asks for assistance with a procedural problem (relating to technical issues or other conditions that affect the ability to carry out the task)	With respect,are these sessions supposed to be brief replies to Julie's question or complete essays which, along with study stuff for K221 we're expected to plough through?
Help Provides information intended to help with procedural matters	Then go to this online tutorial, use 'write to conference' to open a new message box (or click 'reply' to another message to continue a thread) and use right click 'paste' to put your message into the box.
Directive Moves in which a participant (normally the tutor) instructs participants how to carry out the task	Think about the choices you have made in relation to your own health or well-being and the interactions you have had with health practitioners. Then look at the case study presented for TMA01 in the assignment booklet (on pages 8 and 9)
Other	

OTHER FIELD-RELATED	**Examples**
Elicitation Any move intended to elicit factual information which is related to the wider educational field but not part of the specified on-topic discussion itself	Can anyone help with this? One of our local practitioners has many hats but one of her labels is homotoxicologist. (This brought many interesting pictures to my mind!) However in brackets the leaflet said "complex homeopathy" as by way of explanation, so what is complex homeopathy and what is homeopathy?

Informing Any move providing factual information which is related to the wider educational field but not part of the specified on-topic discussion itself	Yes complex homeopathy is particular use of combined homeoapthic remedies. It could be described as ujsing homeopathic remedies allopathically.
Other (includes explicit teacher evaluation of student contributions, or student evaluations in same style)	At this point you have hopefully managed to work your way through the first few chapters of Book 1 of the course.

Analysis of data from the first two tutorial conferences was carried out by the project team, and the coding categories were gradually agreed on through discussion of the data. All the text data was then coded by a single researcher, to maximise consistency, with results entered in Excel spreadsheets. Statistical information could be read from the spreadsheets, but to enhance this quantitative data, information was also transferred to summary charts which provided a diagrammatic display of the argumentation across time (ignoring 'social', 'procedural' and 'other field-related' moves). As the extract in Figure 4 illustrates, each claim made in the discussion (which is concerned with whether CAM should be regulated) is listed and numbered along the top, and the moves relating to that claim are shown in the column below, in the order that they occurred in the discussion. New claims (including thesis statements, counterclaims and recommendations) are indicated using capitals, while

Figure 4 Summary chart showing interaction in a conference extract (Naomi 05-4)

	01	02	03	04	05	06	07	08	09	10	11
Participant	Regulation might offer benefits to CAM	Respect of medical profession	Integration within NHS	Improved standards	Improved public status	NHS integration would pay therapists less	Regulation stops cowboy practitioners	NHS does not want CAM integration	Regulation requires scientific approach	Regulation might compromise CAM	CAM could be validated by science
T	THESIS										
T	claim	CLAIM									
T	claim		CLAIM								
T	claim			CLAIM							
T	claim				CLAIM						
x			counter			COUNTER					
x			refute								
x				explain							
x			refute								
a					refute						
a							CLAIM				
a							explain				
a							explain				
m				explain							
m				explain							
m						refute					
m								explain			
m								CLAIM			
m				concede							
m							counter		COUNTER		
T										CLAIM	
e										refute	
e				agree							
e				explain							
j											CLAIM
j											prof.exp
j						concede					

subsequent moves appear in lower case. The participants are indicated by initials in the left-hand column, with T representing the tutor. We can see, for example, that student x disagrees with the tutor's claim 03, and puts forward their own counterclaim 06, which is later challenged by student m. The summary charts enable us to see not only how many moves of each type occurred overall in a particular tutorial conference, but also how they were distributed across the participants (for example, who was making claims, challenging or supporting moves) and across the claims (for example, which claims were reinforced, challenged or simply ignored). The summary charts thus provide a useful way to represent the overall pattern of the argumentation, and also suggest aspects that merit further qualitative analysis.

1.8. Electronic corpus analysis

Electronic search techniques from corpus linguistics were used to help support and quantify our impressions of argumentation-related lexical differences and similarities between students' conference contributions and their assignments. Corpus searches were run under a range of categories. We were interested in the ways in which students advanced claims, so one category of search looked for sequences of the form 'I + verb of mental or verbal process' (or similar) e.g. 'I think (that)...', 'I have found (that)...', 'I am not saying (that)...'.. The processes searched for were partly determined in advance, as hypotheses about plausible linguistic realisations of claim advancement, and partly drawn from the data, when unexpected ways to propose claims were noted.

Other search categories were determined and explored using similar methods. A second category involved markers of modality and hedging devices e.g. use of modal verbs, adjectives or adverbs when introducing claims (for instance 'I think that regulation *probably* can help protect patients'). Another category looked beyond the advancement of claims to references to the process of argumentation itself; here, searches were run for such lexical items as 'discuss*', 'reason*', 'argu*' (to find 'argues', 'argument' etc.), '*agree*' (to find 'agrees', 'disagreement' etc.). The structure of argument was examined by searching for linking adverbials and other ways to connect claims or evidence e.g. 'so', 'then', 'therefore', 'and' (as clause linker), 'because' and so on. This type of search overlapped with the final category: markers of informality and personalisation of comments, limited for practical reasons to searches for personal pronouns, possessive determiners and contractions.

In each search, after manual removal of irrelevant instances, the number of examples found of the search term was noted down. Note was also made of any patterns in the context of these examples, such as predominant use of a word or structure by tutors.

Results

Below we review the results of the tutor and student interviews, the argument analysis framework and the corpus-based analysis.

1.9. Tutor interviews: findings

The interviews with the four tutors are significant in reminding us that each tutor and student group is different. Not only was the level of interaction in the tutorial conferences over the two years markedly different, but the views of the tutors on the purposes of the conferences and their role within them, the status of the tasks 'suggested' by the course team, links between conference discussions and the assignments and the place of argument in conferences and assignments also varied. The findings reported below are based on our interpretation of the answers given to the interview prompts. We have included examples to illustrate the actual wordings used.

All four tutors saw the tutorial conferences as places where students and tutor could discuss, analyse and explore course materials and contribute their own expertise and knowledge. Three of the four also indicated that the conferences were sites for networking or support between students. They all tended to judge the success of conferencing by the student participation rates and thus saw them as disappointing. They ascribed the low rate of active participation to factors such as: student hesitancy; lack of someone to initiate debate; lack of student ownership; and worries over contributing to an academic debate. Tutors were unsure what their role should be in trying to encourage participation, or how to go about it:

> I am sure there is a way that I could do this better and that's, I am interested in finding out, I feel very new to it and very inexperienced about it and I feel as if I have been fumbling around in the dark with it. (Naomi)

Tutors mentioned not knowing whether more active participation would encourage greater student involvement or discourage peer discussion. This is a key issue for tutors and Lucinda mentioned her changes of strategy in response to feedback from students in 2005 and 2006:

> [In 2006] one of the students complained that I wasn't interactive enough and, which made me immediately more interactive, because the thing was I had given up a bit last year …somebody else had said as feedback last year they wanted less input and I thought right the feeling that if it is less driven by me and it becomes more theirs, then perhaps they will feel more that they can use it. So I began in a backed off way this year and I have had feedback, we would like more from you, so I have got more interactive so I suppose it will differ a lot

> depending on the tutor group and you are not going to keep everybody happy. (Lucinda)

The willingness to give greater input if that was what students required was not universal. Tutors were unclear on whether long, short, frequent or infrequent posts were best and how that fitted in with the short amount of time they were actually paid to be online:

> last year there was a student who… said that she was disappointed that she felt the tutor should be kind of giving guidance every Monday sort of thing and that is really unrealistic in terms of what we are being paid for. (Julie)

There were also questions concerning finding the right tone for tutor interventions with a tension emerging between ensuring engagement through a friendly tone while instilling academic rigour. Bethany particularly made mention of the power differential between tutor and students and how she encouraged students to stand up for their own point of view even if it is in opposition to her own views or those put forward in the course materials:

> I ought to be able to take the students telling me I am talking complete rubbish without falling off my throne and chewing off my nails and hiding behind the curtain for heavens sake… [students] need to learn to explore giving reasons and backing those reasons up, acquiring flexibility, being able to change your point of view if evidence is produced that points somewhere else. Being able to hold to your point of view in face of disagreement if you feel that you have the evidence to justify this. (Bethany)

Tutors were also conscious of the differences between students and how they coped with electronic discussion forums. While acknowledging that computer conferencing was more enabling for students overall by allowing participation at a time convenient to the student and without the necessity of travelling to a tutorial, tutors also highlighted that for some the technology and/or their level of confidence could inhibit their participation. Both Bethany and Lucinda spoke of the difficulties some students had in coping with written rather than oral inputs to tutorials; some students seemed hesitant to put their views down in a permanent form: ‘it’s not on paper but there is a permanent record, so they would be hesitant about sticking their necks out’ (Lucinda). There was also a big difference in competence and confidence in using computers:

> the person who has been a care worker for thirty years and decided to do a unit, is going to feel it is not for her because she has not got that level of computer skill, it is not how she communicates. (Lucinda)

Tutors also mentioned the presence of ‘lurkers’, students who read conference messages but never actually contribute to the discussion: ‘you can click on history

and see who has been reading and there are always lurkers who never say anything but obviously read everything' (Naomi). They noted that ways to encourage such students to contribute were hard to find. Naomi focussed on showing students that all contributions were valued, and Julie talked of 'creating a friendly base line... and trying to lead on from other people's ideas'. Lucinda brought out the difficulties that tutors experienced in managing discussions as the skills they had developed in face-to-face situations were not easily transferred to computer-mediated contexts. She gave the example of how it was more difficult to bring in and support less confident students, and much easier for the more articulate students to dominate and thereby unwittingly inhibit others. This was seen as particularly problematic given the Open University's mission of being open to all types of students from whatever background:

> we have got such a broad range of people doing OU right from quite academically minded people to those who are doing this as a first course ever and they haven't done anything since school and they need their confidence nurturing really. (Lucinda)

Two tutors went so far as to suggest that computer conferences be split in two with those less confident students starting with more personal reflections and working towards more academic discussions.

With regard to the function of the tutorial conferences, all four tutors related them directly to the assignments students had to write; they were a forum in which to discuss relevant research and other ideas. Only one tutor, Bethany, talked about discussions of issues wider than the assignment topics. Three of the tutors considered that participation in the tutorial conference discussions was linked with the quality of assignments. It is not possible through this study to establish any causal link. Students who feel confident enough to participate may well also be those most able to produce the type of academic writing that is highly valued, or those who have more time to devote to the course, both through conference participation and in assignment writing. Despite perceiving a link between conference discussions and assignment quality, the tutors were resigned to poor participation in the tutorials. They felt they had little idea about what strategies to employ and were not convinced it would make any difference. All these points are indicative of a need for clear direction and training beyond the basics of how the conference operates, a finding consistent with previous research (Hult et al., 2005; Painter et al., 2003; Salmon, 2004; Thorpe, 2002).

There was some evidence that communication between those designing the course and its teaching and assessment strategy and those working as tutors was not always clear. For example, built into the design of the course was the use of computer conferencing and electronic submission of assignments. One tutor, however, thought that computer access was not mandatory for the course and that this was one reason why not all students were participating in the computer conferences. Another tutor felt that if the teaching strategy were to work then not only was computer access necessary but participation in tutorials should be mandatory

and linked to assessment. There was also confusion over the status of the tasks suggested for tutorials during the first year of the course. The course team designed a number of tasks with the specific aim of helping to reduce the burden of work on tutors during the first year. Some tutors thought they had to implement these tasks, while others saw them as suggestions and then adapted them.

In discussing the purposes of the written assignments, tutors mentioned: responding to the course readings; exploration; thinking; recapping; consolidation and demonstration of learning. They noted that there was an issue of analysis versus description in terms of how students interpreted their assignment tasks. Some of this was ascribed to the actual tasks given. The tutors varied in their opinions about these tasks, with the 2005 and 2006 versions of assignment 1 being a case in point. (The assignment specifications are included in Appendix 8). In 2005, the assignment was a report tied to a case study, while in 2006 it was an essay (Discuss how notions of 'consumerism', 'pluralism' and 'modernity' are linked to the resurgence of CAM) which focused on the same points but without the case study element.

One tutor had very strong views:

> Well I thought TMA 1 last year was dreadful…I consider that particular case study, well it's a joke… However, this year's I thought was very much better… – discuss how notions of consumerism, pluralism and modernity are related to CAM that is a straightforward title but it's a much more theoretical title, you know going away from the situational kind of title to a more straightforward academic title…If the course is going to take into account this sort of sociological background then the first TMA has to grasp the nettle, getting the students to look at those concepts and show that they do understand what they mean. (Bethany)

In contrast, Lucinda described the 2005 assignment as 'exciting', challenging students to 'really become aware of the complexity of the whole issue', whereas the 2006 assignment 'wasn't quite as exciting because it was a matter of regurgitating the coursework. I thought, it was boring to mark and I suspect boring to write'.

The tutors were in agreement over the importance of argument in both the tutorial conferences and in the assignments. TMA04 in 2006 instructed students to 'describe and critically evaluate' and the learning outcomes for the assignment also use the words 'critically evaluate'. This seems to be the concept tutors most often associated with argumentation. Argument and argumentation were not words that they used themselves very readily and Julie commented that for her it denoted confrontation rather than academic debate. This is despite the information given to students (and tutors) in the Assignment Book: 'This [assignment writing] allows you to practise and improve your communication skills, which include the ability to follow a clear line of argument and to persuade other people (in this case, your tutor) that your argument is sound' (K221 Assignment Book 2006, p. 16).

Two tutors in discussing argument specifically mentioned the importance of challenging ideas and the other two noted that challenge was often absent. This accords with some other research into computer conferencing (as discussed in the literature review) which notes the lack of willingness on the part of peers to challenge each other's ideas. Collaborative and reinforcing discourse is more the norm. Bethany talked about the necessity of students learning to evaluate and to express their evaluations in a way that is 'respectful and…positive and not critical'. She also saw it as her job to encourage students to pursue a line of argument, possibly by giving them more places to look for information, but she was also on hand if challenging went a little too far: '…if something was beginning to go a little bit off the rocks or too far down somebody's personal territory and it needed to be – gently but firmly, brought back'. She felt that this required her to monitor her tutorial conferences on a daily basis if possible. This is clearly more than she is contracted to undertake.

In discussing argumentation in relation to assignments, Lucinda highlighted the developmental aspect of student writing:

> …obviously you want to see development of that from the first one [TMA01] to the fourth one so it's more mature, it's a broader argument, it's a better reasoned argument, they are using the references, they are researching more widely and they are developing a really good academic argument by the end of the four TMAs.

Others talked of showing both sides, critical evaluation and original thought. There was also mention of students needing to show that they had read and understood the course materials and of structuring their writing and being clear. Tutors were asked what they did to encourage effective argumentation in assignments. Responses ranged from the very general - pointing out when a student's English isn't very good or there is insufficient referencing, to more focused advice on looking at things from different angles or the need to support points with evidence. In looking at the actual feedback on assignments and relating this to one or two comments from the questionnaire survey of students, it would appear that the more able students appreciated the challenging comments which made them think further and deeper about an issue.

To summarise, the tutor interviews revealed both similarities and differences between the tutors, some of which are also observable in looking at their interventions in the tutorial conferences and their feedback on assignments. Argument and critical evaluation were deemed important in both assignments and in the conferences, but tutors felt unsupported in their efforts to engage students in the computer conference exchanges. They had tried strategies from face-to-face teaching, but would have welcomed others tailored to the new medium so that students could rehearse the ideas that they might include in assignments and learn both to value and to challenge ideas put forward. The tutorial conferences offered an opportunity for students to learn more informally and conveniently, but this was not being used by those

students who could probably most benefit from the additional input from peers and the tutor.

1.10. Student questionnaires and interviews: findings

All four participating tutors in 2006 contacted their students and asked them to participate in an online questionnaire. Twelve students responded out of the 38 in these groups who had submitted TMA04, the assignment which was due around the same time as the questionnaire was made available. The conference that was most active during 2006 was Lucinda's and it was her students who sent most replies to the questionnaire. Lucinda's group was unusual in having more overseas contributors for whom conferencing was the only way they could stay in touch.

According to the responses, most students were occasional or regular contributors to the tutorial conferences, though two said they had only used it once or twice. Levels of enjoyment of tutorial conferences varied with five enjoying tutorial conferences not at all or a little to seven who enjoyed them a lot or quite a lot. Reasons given for enjoyment included the ability to keep in touch and not feel alone, hearing different people's views and exchanging views, the ease of access, the ability to go at one's own pace, and not having to contribute if you didn't want to. On the negative side were remarks about the difficulty of knowing what to contribute and the lack of 'take off' with so few students contributing, while for one student, her dyslexia was a major disabling factor. In relation to arguments or debates on the tutorial conferences, most students saw them as important and noted that they liked to have their views challenged and to have the opportunity to challenge the views of others. This contrasts, however, with the findings of the student interviews and with the analysis in Section 5.3 below on how much challenging was actually taking place. The majority of students felt that the conferences were sites where the ideas from the course materials were reinforced. They also saw them as places where ideas were rehearsed in preparation for their assignments and this was a focus they mostly valued. There were, however, five students who preferred not to focus on the assignments and three who said they hardly ever found the discussion in the tutorial conferences helped with assignment writing. This was a point returned to in the interviews where most students valued the chance to check their understanding before writing their assignments. Some, however, felt the discussions were too unfocused to be of use. A variety of views were also apparent in questions about the role of the tutor. While all valued their tutor's input, three gave qualified agreement to preferring discussions to be mainly between students and two said they did not want more feedback from the tutor during the discussions. This supports the ambiguity around how much to intervene in tutorial conferences expressed by the tutor Lucinda above. With one exception, students were keen to know more about each other, a feeling that was reiterated in some of the interviews.

Six students were available for interview: three from Lucinda's group, two from Julie's group and one from Naomi's group. There was overall agreement on the purposes of

tutorials in general: contact with tutor and other students, finding out about other people's perspectives, mutual support, and discussion of assignments. There was more diversity of opinion about computer-mediated tutorial conferences versus traditional face-to-face tutorials. Some students liked both equally and some preferred face-to-face. The flexibility and lack of travel time were considered positives of computer conferencing. A major disincentive to taking part was the lack of a (timely) response. Some students found it difficult to get used to having to wait a few days before anyone responded to their postings, others complained that they got no response at all, or only from their tutor. Response from a tutor did not necessarily make up for the lack of a response from peers, and in at least two cases this led to students feeling their contributions were not valued. The lack of body language and knowledge of who they were interacting with was clearly problematic for some students. As a result, they spent a lot of time in carefully phrasing their messages so as not to cause offence and also in making sure they were unambiguous. Online interaction was clearly not as spontaneous as talk. There were also technical difficulties for some students in maintaining contact online, or physical/skill problems in typing. Students commented on others in their groups who had lower levels of technical expertise for whom computer conferencing was problematic. Two of the interviewees were not British or living in Britain and found the UK focus of much of the discussion excluded them a little.

The interviewees commented on argument and debate in tutorial conferences and in assignments. There seemed a consensus that evidence was necessary to back up opinions in assignments, but less clarity on argument in tutorials, where the lack of visual signals was seen as inhibiting friendly challenges: 'it is all very anonymous you can be a bit worried about offending people'. However, the benefit of challenges was also noted: 'I think it is useful when you get somebody who perhaps disagrees and makes you look at it from their point of view'. Overall, there was greater emphasis on the positive reinforcement provided by tutorial conferences, which reassured students that they had grasped ideas correctly.

Students had a variety of views on whether or not the tutorial conferences should be compulsory/assessed and how to make the conferencing better. Most students were against forcing people to contribute or assessing their contributions as this was seen as intrusive and creating more pressure. They felt that, as adults, they should be allowed to make their own decisions on contributing. On the other hand, there was acknowledgement that more contributions would probably make the tutorial conferences more interesting and thereby generate more interaction. An alternative strategy was to try and make the conference discussions more motivating: 'it should be sexed up a little bit, spice it up, make it more enticing'. A number of students recognised that this was not an easy thing for tutors to do, as people might be too busy to even look into a tutorial conference. There was clear awareness, for some students, of the power imbalance between tutors and students and some concern either that a particular tutor ignored them, or treated them in a patronising manner while trying to encourage participation. There was also recognition that if more input

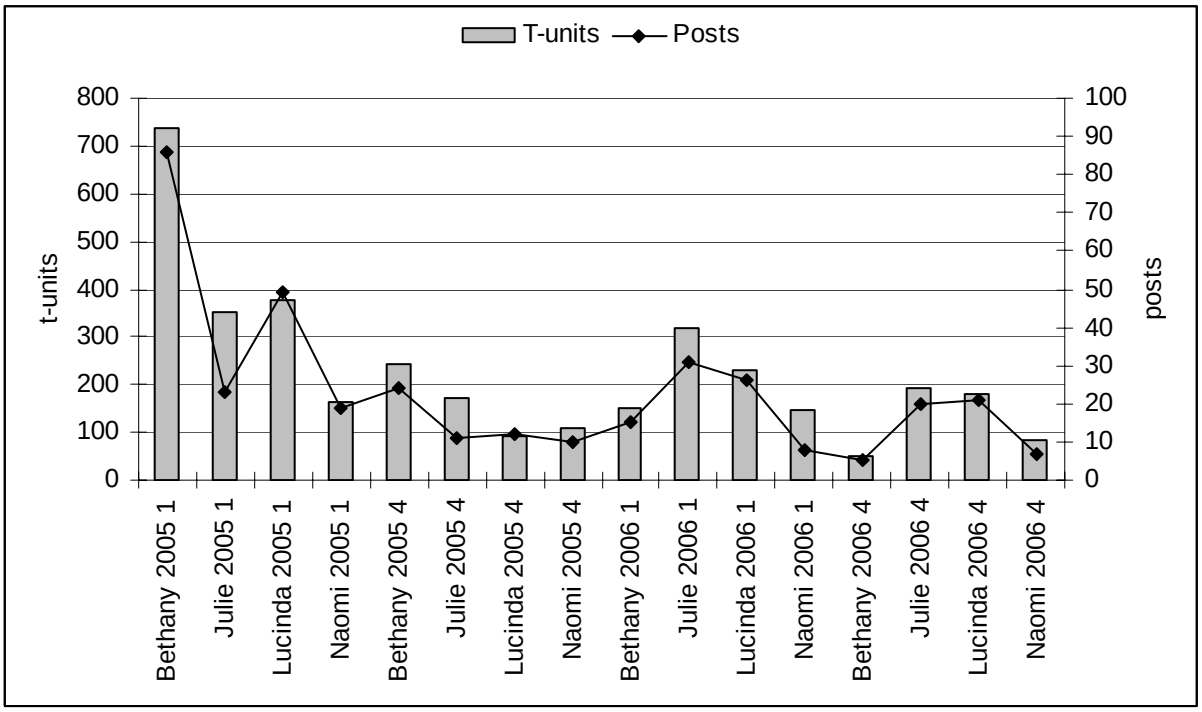
from the tutors was required it would have financial implications. Other ideas with financial implications included having more training/practice sessions on using the conferencing system, pre-course conferences to facilitate students getting to know each other, opportunities for students to post personal information, photographs, and so on. These comments clearly indicate the important support role that tutorials play for some students on distance education courses.

No clear picture arose from the interviews of how to make conferencing more interactive for more students. Indeed, the variety of responses was more noticeable than any consensus. This reinforces the sense gained from the tutor interviews of the difficulty of proposing a model of tutoring in computer conferences that will necessarily engage all students or raise the level of discussion and debate. The one constant that did emerge was that – for the students who responded to the interviews – having a tutor and a group of peers to interact with, or just to observe, was a supportive and valuable feature of this form of distance learning.

1.11. Argument analysis framework: findings

The main purpose of the analytical framework we developed was to investigate in some detail the types and quantities of argumentative moves being employed by students and tutors. However, it also allowed us to compare the overall amount of interaction in each tutorial conference for each tutor each year. Figure 5 below shows the total levels of interaction in each tutorial conference analysed. Information is given for t-units (independent clauses together with other clauses dependent on them) which give a rough indication of the amount of interaction, and for posts which show the number of messages sent. Overall, participation diminished between conferences 1 and 4 in both years. This is most clearly visible in the case of Bethany whose first tutorial conference in 2005 contained approximately 700 posts in comparison to the 250 in the fourth. It is clear from the diagram that the level of participation varies for each tutorial conference and that no clear pattern for individual tutors is apparent.

Figure 5 Amount of interaction in each tutorial conference



In interpreting this variation it needs to be borne in mind that the tasks given by tutors to their tutorial groups varied. In 2005, most tutors used the tasks provided by the course team with very little variation. These were more successful in eliciting on-topic discussion (see Figure 6) than the tutor-chosen tasks used in 6 of the 8 tutorials in 2006. Bethany, for example, retained the 2005 prompt for tutorial 1 in 2006, and obtained proportionately more discussion when compared to the corresponding 2005 tutorial (75% of all t-units in 2006, 54% of all t-units in 2005). Julie, in comparison, chose a new task, and obtained very little participation of any sort. She opened her 2006 tutorial 1 with a range of tasks of different kinds, producing a fair amount of student response, but almost no argumentation (only 17% of all t-units, compared to 61% in 2005). In tutorial 4 she returned to the 2005 task, and obtained more argumentative contribution than in tutorial 1 (the reverse of the usual pattern).

As discussed in section 4.4, moves within each tutorial conference text were classified as discussion, social, procedural, and other field-related moves. Figures 6 and 7 show the relative frequency of these moves, in terms of the proportion of total t-units that fell into each category. Whether organised by tutorial, by year, or by tutor, the figures indicate that on-topic discussion was clearly the most frequent of the four broad categories of move. Of note, however, is that, as indicated in Figure 5 above, interaction in general tails off by the fourth tutorial and overall there was much less interaction in 2006 than in 2005.

Figure 6 Frequency of moves in each category by tutorial conference and by year

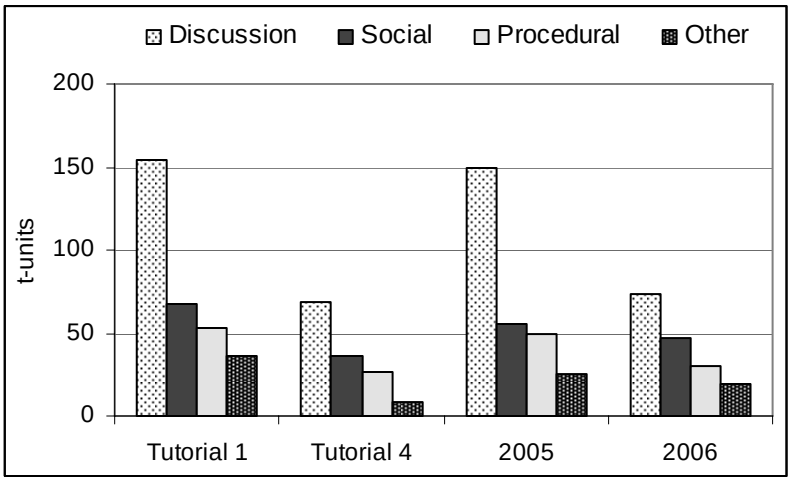
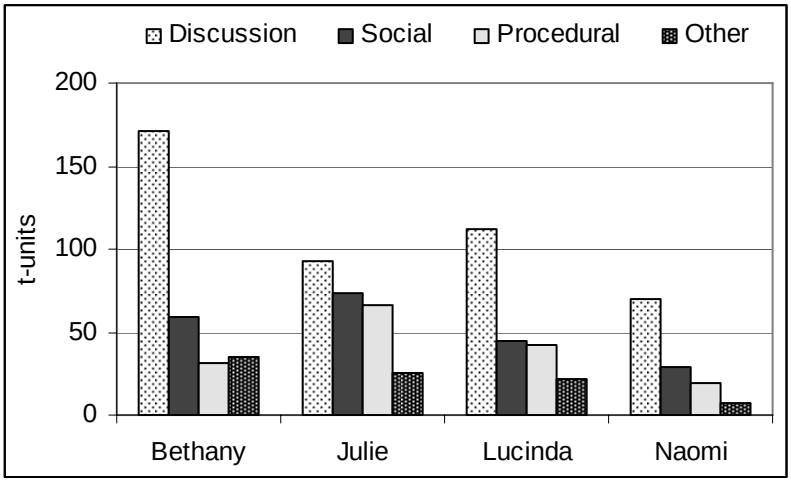


Figure 7 Frequency of moves in each category, by tutor



Both Figure 6 and Figure 7 show that social moves are consistently the next most frequent. However, there is no indication that social moves lead to fewer discussion moves. This contrasts with some of the findings of other researchers reported in Section 2.3.3 above (Kirkpatrick, 2005; Williams, 2002), where social interaction was common and had a negative impact on on-topic discussions. It is also interesting in the light of student questionnaire and interview comments expressing a wish for greater knowledge about the people they were interacting with.

The data from the figures above together with qualitative analysis of the interaction can be summarised for each tutor as follows:

> **Bethany**: In 2005, there was a wide range of student participation in the discussion, with all the students and the tutor making claims, counterclaims and/or challenges. Three of the students were particularly active and Bethany herself contributed substantially to the

argument. In 2006, Bethany was the main participant in the discussion, making more claims and challenges than any student. There were five student contributors to the discussion, of whom two dominated.

Julie: In 2005, Julie did not contribute a great deal to the discussion. Two students dominated the argument, with a small amount of participation from seven others. In 2006, Julie made nearly all the discussion contributions and carried the argument forward. There was a minimal level of 'active' contribution from three students, and seven others participated in the tutorial conferences but did not make or challenge any claims.

Lucinda: In both 2005 and 2006, Lucinda dominated her conferences, in terms of argumentative contribution, more strongly than the other tutors. In 2005, five students participated actively, of whom two were quite dominant. In 2006, nearly all the debate was between Lucinda and a single very active student; there was a little active contribution from three other students; five more were reading the conference messages but did not intervene in the debate.

Naomi: Naomi's conferences were more balanced in terms of contributions from both tutor and students, but were very low in terms of the number of postings. In 2005, nine students made fairly equal active contributions to the debate, with Naomi contributing rather more than any individual student. In 2006, only three students participated actively in the discussion at all (one more was present in the conference) and there was no dominant pattern.

Analysis of the discussion moves forms the core of the following sections. Summary charts such as that illustrated in Figure 4 were compiled for all four tutors across the two tutorial conferences for both years. Below we indicate some of the findings that are emerging from analysis of this data.

1.11.1. Claims and evidence

In Section 4.4, we noted the difficulty of deciding whether or not an informing move is intended by the writer in support of a claim, and our analysis therefore treats all on-topic informing moves as potentially supporting. Figures 8 and 9 show the extent to which the proposer of a claim provides such supporting information within the same message. Potentially supporting moves may be made before or after the claim itself (occasionally in both positions), or there may be no such support at all.

Surprisingly, tutors made fewer claims than students. Variation between tutors was evident: Bethany and Lucinda made 21 claims each while Julie made 12 and Naomi 10. This accords with evidence from the tutor interviews, where Bethany and Lucinda were more overt in their remarks on the importance of argument and particularly challenges. Lucinda made a provocative claim in one tutorial conference:

> In order to achieve stauatory regulation we may need to LOWER our standards to a common denominaor accross all the bodies that register homeopaths (Lucinda 05-4, 81)

which generated a number of linked posts. However, she also noted in her interview that she had feedback which indicated that perhaps she was too dominant in the tutorial conferences.

Figure 8 Supporting information in tutor claims

	Supporting information				
	Before	**After**	**None**	**Total**	
Claim	4	7	28	**39**	**59.1%**
Thesis	0	0	5	**5**	**7.6%**
Recommendation	0	2	5	**7**	**10.6%**
Counter	0	8	7	**15**	**22.7%**
Total	**4**	**17**	**45**	**66**[1]	**100.0%**
	6.1%	**25.8%**	**68.2%**		

[1] Includes two cases where support occurred both before and after a claim.

Figure 9 Supporting information in student claims

	Supporting evidence				
	Before	**After**	**None**	**Total**	
Claim	11	33	20	**64**	**53.3%**
Thesis	0	0	2	**2**	**1.7%**
Recommendation	1	5	9	**15**	**12.5%**
Counter	3	17	19	**39**	**32.5%**
Total	**15**	**55**	**50**	**120**[2]	**100.0%**
	12.5%	**45.8%**	**41.7%**		

[2] Includes one case where support occurred both before and after a claim.

Although tutors made fewer claims than students the distribution of claims, thesis statements, counterclaims and recommendations is similar to that of the students. However, students were on the whole more likely to provide support for claims than tutors: 68.8% of student claims were accompanied by supporting information compared to 28.2% of tutor claims. This did however vary across tutors with Lucinda supporting 10 of her 21 claims whereas Naomi supported 2 of her 10. Tutors were most likely to support a claim when it took the form of a counterclaim. For example, Bethany responded to a student's claim that lay people can be useful on disciplinary panels with the counterclaim that it was important that the regulators of the profession should understand the profession. She supported this with reference to her professional experience: 'Many CAM practitioners have good reason to suspect that the GMC does not' [understand the profession] (Bethany 05-4, 204). In student postings, however, almost twice as many claims of all types were supported. The position of the supporting information also indicated a greater tendency for students to argue inductively, with support provided before the claim, although deductive argument was overall more common.

The quantity of on-topic informing moves is not necessarily indicative of the quality of argumentation, since they include not only integrated moves, where the supporting information is closely linked to the negotiation of claims, but also unintegrated moves where it is unclear whether the original writer intended the material to be interpreted as evidence for any particular claim (see Figure 10). In the example below from Bethany's tutorial conference 1 in 2005, the student starts with a claim about the increasing popularity of CAM. She follows this with a paragraph consisting of information about her own use of CAM, which is not directly linked to the claim, though it might perhaps have been intended as evidence:

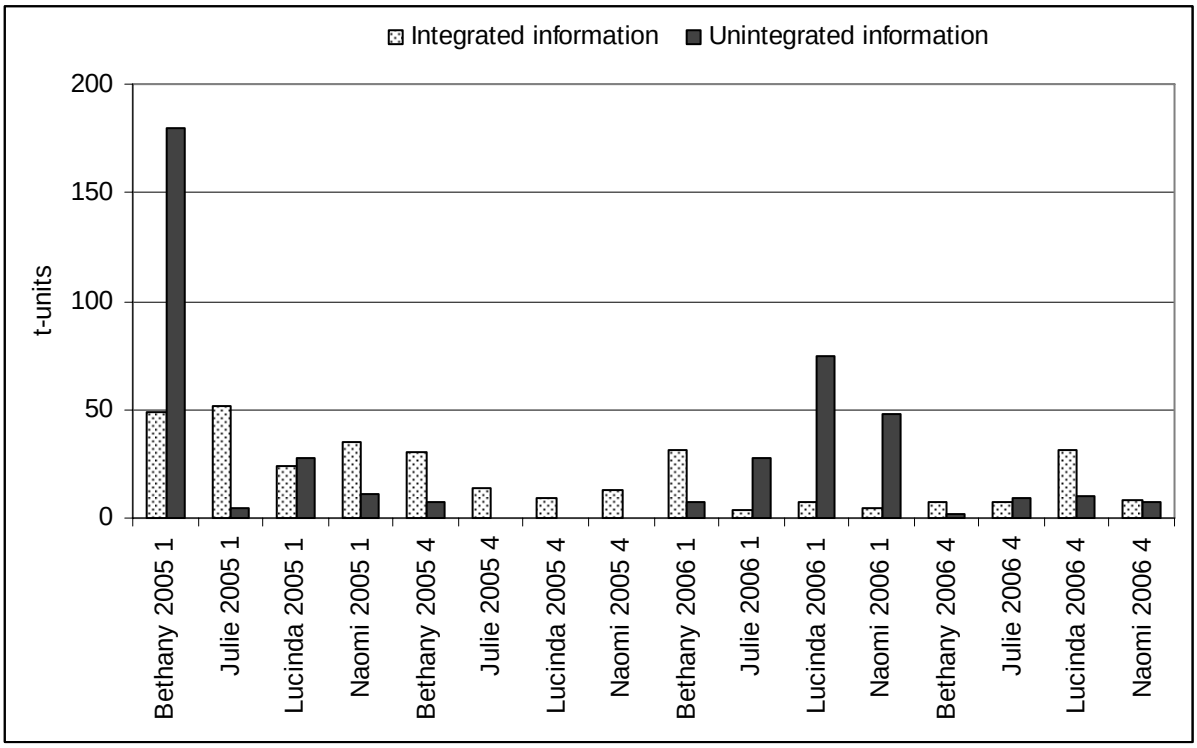
> Regarding the tutorial, I would like to say that I believe that with the rise in the various ethnic groups within our society and the decrease in the amount of trust that medical practitioners hold generally, the importance and popularity of CAMs has undoubtedly increased.
>
> If I have a bad day and am suffering from a headache or stressed out, I don't self-medicate with tablets, but I do undertake a 40 minute programme of self-treatment of Reiki or an hour of meditation...I find it works better, and leaves me feeling far more relaxed than medication. The feel good factor lasts a lot longer also. (Bethany 05-1, 855-59)

Bethany's and Lucinda's tutorial 1s have the highest proportion of unintegrated informing moves, but they are also more active overall compared to the other tutorial 1s. Unintegrated informing moves were more common in all tutorial 1s in both years, suggesting perhaps that the task prompt did not clearly encourage claims and reasoning to be integrated, that skills in integration were developing through the course, or a combination of the two. An example of a task prompt from a tutor that promoted lots of unintegrated information rather than moves directly supporting claims was:

> How do you think someone might go about checking the safetuy of a particular therapis, as well as safety of the therapy? (Bethany 05-1, 175)

which encouraged students to give information type moves such as, ‘The only place I could think of to find out about CAM therapies is the internet’ (Bethany 05-1, 191). Students and tutor were responding to each other in a collaborative fashion, but the nature of the discussion was knowledge building rather than transformative, as discussed by Leitão (2001). There was little challenging of ideas.

Figure 10 Integrated and unintegrated informing moves for each tutorial conference



Almost a quarter of unintegrated informing moves were associated with moves making personal assertions (e.g. ‘The use of CAM in places like France sounds amazing’). Description moves were also commonly unintegrated (e.g. ‘CAM is available at the local college, at concessionary prices, but having experienced various treatments by students, it can vary considerably, depending on who does the treatment’).

Integrated support, on the other hand, often occurred in the form of explanations with explicit causal relationships (e.g. ‘At present it is hard to get reliable information on what CAM is beneficial. This is because CAMs usually treat the person not the disease so they do not promote 'cures' for particular conditions.’), or specific examples of general points (e.g. ‘Has anyone else read the story in Take a Break

about the lady wqho had a lump in her breast, andwouldn't listen to the medics who wanted to perform a relatively minor op for a lumpectomy, instead she trusted the Sia Babba chap … Sadly she died as a result of this. Here is a prime example of "harm".'). Tutorial 1 in 2005 also had noticeable levels of personal experience integrated as support for claims (e.g. 'Maybe the cost of paying for CAM can sometimes be linked with the effectiveness of the therapy. About 13 years ago I paid £20 for a one-off session with a hypnotherapist to stop smoking. I'm pleased to say this was successful and the fact that I had paid this £20 fee was undoudtedly a contributing factor as I didn't want to have wasted this money'). While personal experience was frequently integrated within the argument, this was always true in the case of reference to professional experience.

Julie's tutorial conference 1 in 2005 had the highest level of integrated support for claims. These occurred mostly in the students' postings. Several long chains of argument can be traced; for example, a claim that there was dissatisfaction with the NHS/orthodox medicine was put forward early in the tutorial conference. It was still being discussed towards the end and had led to a chain of 17 moves involving agreement, supporting information and challenges. In terms of argumentation, this conference worked well with claims being supported and challenged by students. There was, however, a large reliance on personal experience as a way of supporting claims. In addition, there was also one dominant student who, while making good points in the discussion, clearly irritated a number of the other students because of his long messages (one of which extended over 66 t-units). This long message led to this response from another student:

> With respect,are these sessions supposed to be brief replies to Julie's question or complete essays which, along with study stuff for K221 we're expected to plough through? (Julie 05-1, 215-216)

One noticeable feature of the discussion was the relationship between agreeing and challenging on the one hand, and the extent to which students provided information that was clearly integrated within the argument. As Figure 11 indicates, integrated informing (support) moves tended to be more frequent when there was more agreeing and challenging. One reason for this may be that students are more likely to engage with a claim which is salient in the discussion, and the more discussion is going on around a claim, the more likely they are to want to express agreement or disagreement. However, the relationship was not simply a reflection of how sustained an argument was, since the same pattern did not occur with unintegrated informing moves. Rather, in challenging and agreeing, students are engaging with the claims of others, and in these circumstances appear more ready to argue actively and support their viewpoint, rather than simply mentioning information with no indication of its relevance. The following student challenge, for instance, casts doubt on the claim that 'CAM must be okay because it is 'Natural':

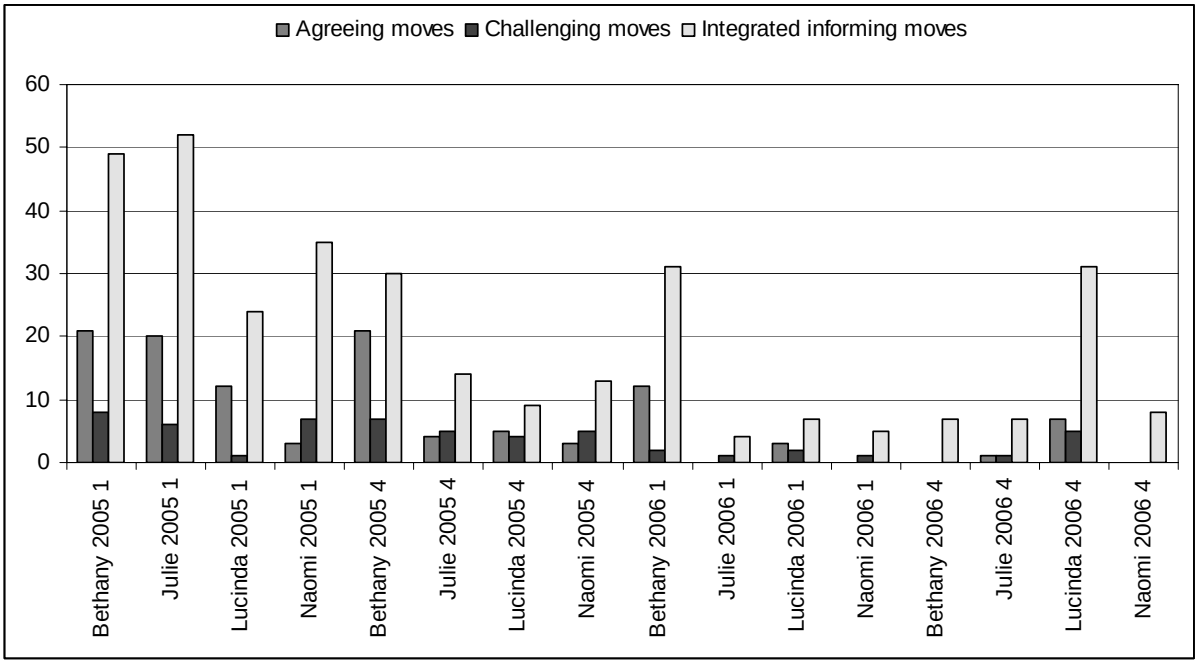
> Where is the evidence? I realise that the general medicine research leaves a lot to be desired but at least there is an attempt at providing proof. Then there are statements such as 'it can't do any harm' when discussing Reiki, but how do you nknow it does no harm, surely in the wrong hands it can. Sorry don't meen to rant. I am interested in what everyone think. (Bethany 05-1, 25-33)

It might perhaps seem less necessary to provide reasons for agreeing with others, yet over a third of all agreeing moves were followed immediately by some kind of supporting information. Here, for example, a student responds to the tutor by providing further evidence to support the claim that the price of medication affects the use of CAM.

> you mention a very valid point. the price of medication and the power of the pharmaceutical industry. people in the South and increasingly in the North do not have the necessary funds to buy expensive medication. Hence CAM flourishes in the South. (Lucinda 06-4, 156-158)

Although the logic is not entirely clear, it is interesting that the student is confident enough to evaluate the tutor's contribution ('a very valid point') and expand on it.

Figure 11 Agreeing, challenging and integrated informing moves for each tutorial conference



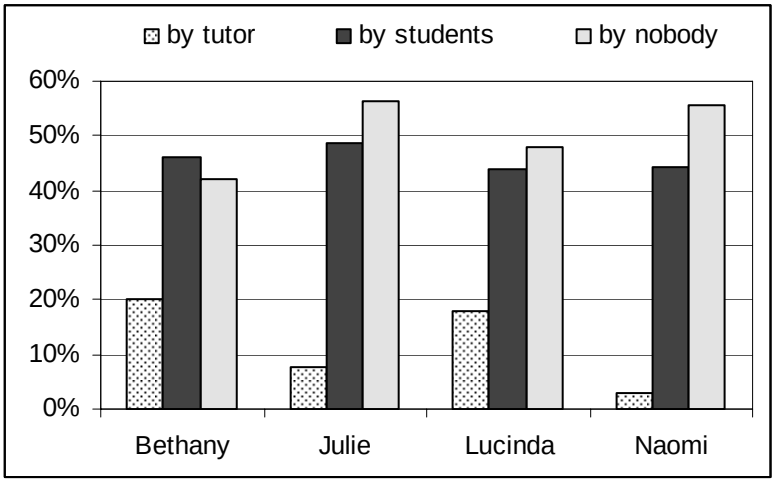
1.11.2. Responses to claims

The summary chart of claims and evidence (Figure 4) gives a picture of argumentation within the tutorial conferences, but to capture the dialogic nature of argumentation we looked at whether and how claims were responded to. Figure 12 shows for each tutor the percentage of claim moves which were responded to by the tutor or by other students, or which elicited no response at all. It is noticeable that students make the most responses and that their rate of response is almost the same across the four different tutors (range 44.0%-48.7%). Tutors, on the other hand show greater variation, with Bethany and Lucinda being most responsive. In groups where the tutor is more responsive, fewer claims go unresponded to. The student interviews suggest that receiving some form of response is important as some students may otherwise feel marginalised. A student in Lucinda's group in 2006, clearly felt disconcerted by a lack of response:

> I think what upset me was most of the others would respond if you wrote anything in and I got no response, so at least at a face-to-face tutorial you would get a response, you know if what you were saying was right or wrong, I mean because nobody wrote back. Then I read what other people had written, but I sort of lost my confidence and I thought I haven't got anything valuable to say so I didn't write anything.

Figure 12 shows that this student's perception, that it was only her postings that did not elicit a response, is not borne out by the evidence. However, it is a clear indicator that for some students it only takes one unacknowledged post to undermine their confidence in a medium with no other feedback mechanisms.

Figure 12 Responses to claims



Two of the ways in which claims can be responded to are through agreements and challenges (including refuting and counterclaiming). Figure 13 shows that in 2005 there was slightly more agreeing than challenging, but that in 2006 there was a

marked decrease in agreeing. This decrease is set against an overall decline in activity in 2006. The higher number of challenging moves relative to agreeing moves accords with the 2006 cohort's positive views on the importance of challenging arguments, as reported in the questionnaire survey.

Figure 13 Agreements and challenges by tutorial and by year

	Tutorial 1	Tutorial 4	2005	2006
Agreeing	64	41	92	13
Challenging	54	50	73	31

Generally, agreeing moves appear to help create a collaborative ethos and often build in naming (e.g. 'I think Abigail has got a point in that regulation in medicine does not stop the ones who want to hurt…'; 'I also like the comment by Chloe about loosing choice and freedom…'). Challenges also often include names, perhaps to make the interaction more personal but less threatening (e.g. 'Lucinda, I'm not too sure about your predictions re. the NHS being in meltdown…'; 'What do you think they are saying, Robert?'). Alternatively, the naming may be a function of the medium and be used to help identify not who, but what is being agreed with or challenged. Challenges, though, can also be made by people on claims which they set up themselves, perhaps in order to explore or undermine them:

> Another issue is that people are turning to CAM as we know in quite big numbers, despite the lack of "scientific evidence." And it seems that much of CAM works. This leads to other issues... Is just qualitative and or "non scientific evidence" or "quasi scientific evidence" good enough..? (Julie 05-4, 187-190)

Claims were examined to see if there were common linguistic features which were associated with chains of argumentation (Figure 14), that is, which made them more or less likely to be responded to. Claims containing markers of epistemic modality (e.g. 'would', 'might', 'probably') accounted for 27% of all claims and were the most likely to be challenged. The use of modality markers, together with hedges which are discussed below, mark the claims as more likely to be open to debate without undermining the person who advanced the claim.

Figure 14 Linguistic features of claims

Claim features	% of total claims	% of contested claims
'Bald' assertion	38	32

Modalised claim	27	35
Personalised claim	26	22
Other	9	11

Claims with no mitigation of any sort (e.g. ‘Many are disatisfied with orthodox medicine in favour of CAM's which are more holistic’), which we have labelled here ‘bald assertions’, were the most common and were also commonly challenged. Claims of this type often stand out, particularly if they are not bolstered by any evidence. They are they easiest type of statement to challenge. Claims which were most closely linked to individuals (e.g. ‘I feel that stat. registration is necessary for invasive/ manipulative therapies’) were less common and slightly less likely to be challenged, perhaps because when they were strongly personalised there was more at stake interpersonally. The category ‘other’ comprised claims expressed as questions (e.g. ‘Should CAM achieve professsional status and SSR, could it, in the future, also fall foul of its own success and through some unfortunate circumstance incur the criticism of the public’) or reported claims which have been explicitly distanced from the writer’s own views (e.g. ‘Recently the Conservative government have announced their plans to bring in a system whereby they contribute to the price of health care if you want to go private’) and were relatively uncommon. Of greater significance than the language used in a claim was whether or not anyone had challenged it. Once a claim was contested, it was more likely to provoke further contestation leading to chains of argumentation consisting of claim, counterclaim and counter-counterclaim.

The argument analysis framework has illustrated that most of the interaction in the computer conferences was on-topic discussion of the tasks set by the tutors, with social moves also proving significant. Around 50% of claims were associated with evidence, but surprisingly this was more common in the case of student claims than tutor claims. There was, therefore, little modelling by tutors of the basic type of argumentation that would be expected in formal written assignments. There was, however, greater use of thesis moves by tutors. Different tutor tasks appeared to be associated with different types of claims and reasoning. Certain tasks resulted in integrated claims and evidence, whereas others led to unintegrated moves where the evidence was not clearly linked to any particular claim. Tutorial 1 in 2005 was successful in terms of having high levels of integrated informing moves often based on personal information, thereby fulfilling the interpersonal needs of students, particularly at the start of a course, alongside the need for reflection and criticality.

1.12. Electronic corpus analysis: findings

Computerised searches of the conference corpus and the essays corpus were carried out on the five areas described in Section 4.5 to give further insight into the type of language used to advance, support, challenge and hedge claims, to show logical links in the argument, and to make discussions more personal or informal.

Analysis of the type of verbs used with the pronoun 'I' to advance claims showed that 'think/thought' was clearly the most common in the tutorial conferences (120 occurrences) followed by 'feel/felt' (45), 'find/found' (24) and 'believe/believed' (24) (e.g. 'I think that the financial cost of the NHS is huge'; 'I dont feel that CAM would be appropriate in most traumas'). The assignments made far less use of personalised claims than the conference discussions with only 'feel' and 'believe' having any frequency. Many more claims were introduced with it-clauses instead (e.g. 'it can be seen that'; 'it could be argued that'; 'it is clear that'; 'it is highly unlikely that'; 'it is worth questioning whether...'). This indicated, as expected, a greater degree of formality and distancing in the writing for assignments than in computer conferencing.

Hedging of claims in both the computer conferences and the assignments was common, with students in particular showing a degree of diffidence about putting forward their ideas in a strong fashion. Students made frequent use of words such as 'may', 'might', 'could', 'perhaps', 'possibly' to convey levels of uncertainty or tentativeness. The frequency of such hedges is greater in assignments, particularly the use of the word 'may' which occurred 151 times in assignments and 69 times in the conferences (e.g. 'statutory regulation for such therapies may not be appropriate'). Tutor claims were generally more strongly expressed with less hedging, the 'bald assertions' discussed in 5.3.2 above.

Analysis of words to do with the process of argumentation was undertaken to shed light on whether students and tutors had a sense that they were involved in a process of debate. Words such as 'discussion', 'point', 'reason', 'view' were indicative of the exchange of views taking place (e.g. 'I agree with the idea of the community being larger for rural areas...'; '…the points about spiritual searching are very valid I think'; 'Here are some mid tutorial thoughts to may be broaden your discussions'). In the conference discussions short, informal terms for points of view seemed to be strongly preferred by student participants. 'Agree/agreement' was the term used most frequently. Words indicating explicit agreement were much more common than disagreement, a finding which supports those from the argument analysis (Sections 5.3.1. and 5.3.2). There was very little explicit expression of personal agreement or disagreement in the assignments. There was also more use of more formal terms relating to the process of argumentation than in the conferences, especially 'argument/argue' and 'theoretical/theories' (e.g. 'Which also backs up my argument as to why CAM should be available on the NHS!'; 'I probably have the same cynical theories as you do').

Analysis of words such as ‘so’, ‘but’, then’, ‘therefore’, ‘thus’ allowed us to compare the types of links made to indicate the structure of an argument in the conferences and assignments. There seems to be a strong preference in the conference data for informal, conversational argument links (e.g. ‘so’, ‘but’) which are less used in the assignments which tend to exhibit a greater range of linking terms of a more formal kind (e.g. ‘therefore’, ‘nevertheless’). This view of the greater informality in conferences was reinforced by the analysis of contracted forms (e.g. ‘I’m, ‘She’d’) and personal pronouns (e.g. ‘I’, ‘he’, ‘we’). A high frequency of ‘I’ was noticeable in the conferences, particularly its common use in contracted forms ‘I’d’, ‘I’m’. There was a high frequency of female pronouns, but this was probably caused by the extensive discussion in tutorial 1 in 2005 of the case study involving a woman called Mrs Bannister and a female Reiki practitioner. In the assignments there were many fewer contractions and much less use of first and second person pronouns (although ‘we’ was quite common as a more formal alternative to ‘I’). There was, however, much more use of third person pronouns, especially female ones, because the assignment, like the first tutorial, required focus on the case study involving two women.

In summary, the corpus analysis has supported our earlier findings regarding the more personalised nature of the argumentation in the computer conferences. However, it has also clearly indicated that students switched between using language more typical of speech in computer conferences to the more traditional and formal registers of academic writing for assignments. Further work remains to be done on both the computer conference data and the assignment data to see whether these features change across time or for different tasks, assignment prompts or tutors.

Conclusions

In this section we bring together our most significant findings in relation to the project's aims. First we consider the nature of argumentation strategies employed by participants in computer conferencing. Then we compare these with the strategies used in formal written assignments. Finally, we consider the strategies used by tutors to encourage and facilitate argumentation in text-based computer conferences. In addition, to the aims outlined we also review the developments in our research methodology.

1.13. Argumentation strategies used in asynchronous text-based computer conferences

Our findings showed that for the majority of students across the CAM course 2005 and 2006 cohorts a major argumentation strategy was to collaboratively construct a particular line of argument by connecting information and experience in order to substantiate a position on an issue. This is evidenced in the number of integrated informing moves contributed by a range of different students in response to a claim. Another key strategy used by the students in our study, and one which is particularly significant in that it contradicts some of the studies discussed in the literature review, was to engage in a range of challenging moves (including refute, counterclaim and concession).

The use of both these strategies reveals how text-based conferencing lends itself to the collective combining of diverse sources of information, experiences and ideas. Students visibly and co-operatively engage in knowledge construction. This sometimes involves conflict. Given the particularly significant connection between countering moves and conceptual change and development (Leitão, 2000; 2001: see section 2.3.1) this finding, in particular, indicates that computer conferencing can play an important role in students' learning.

While these findings hold true for some students and pertain to many of the argument threads, it is by no means the case that all students employed these strategies. Nor is it the case that all argument threads were explored and developed adequately. Indeed, our findings showed that many claims were left hanging. In addition, while many claims and counterclaims were supported by informing moves of various types, students (relatively often) included informing moves that were not directly integrated into the argumentation chains. Our analysis also revealed that there was a dearth of thesis moves indicating that many topics dispersed rather than reached integration or a conclusion (a phenomenon identified by Andriessen, 2006: see section 2.3.2). Furthermore, our findings showed that not all students engage in challenge moves and, indeed, that agreement was a much commoner move used by a greater number of students. This suggests that, although it is possible to create an intellectually challenging forum in which tutors and students both endorse and confront each other, the balance is likely to be on the side of endorsing. This may reflect the

interpersonal risks associated with challenging, particularly in the written medium without the benefit of mitigating face-to-face signals. Tutors and students may need to develop new skills in order to achieve a balance between agreeing and challenging without upsetting the development of the learning community.

1.14. Argumentation strategies developed through conferencing compared to those used in the writing of academic assignments

In general our analysis showed that there were a number of key differences in argumentation strategies across the two contexts of computer conferencing and student assignments and that these differences provide a useful pedagogic resource.

Firstly, and perhaps most significantly, we found (particularly from our corpus searches) that, in a number of ways, argumentation in computer conferencing breaks with some of the discourse conventions associated with written academic argumentation. We found, for example, that claims are often personalised through the explicit use of the authorial 'I' and that there is a general absence of explicit logical links marking the structure of the argument.

Secondly, we found that students within the conferencing environment were content to explore, often simultaneously, a number of different argumentative lines and directions without feeling any need to reach a conclusion. The type of complex choreography found may or may not be the only or most effective way of engaging in debate in the computer-mediated medium but it did contrast strongly with students' overall orientation in constructing their written (single authored) arguments. In their written assignments, students generally used a linear structure to focus their argumentative line. This suggests that the two modes allow complementary approaches to debating an issue (one more 'open' and fluid and one more 'closed' and narrow) and that these differences provide a rich pedagogic resource. In addition, it is important to note, that computer conferencing also has the advantage of creating a record of students' thinking and that this can be used to facilitate the integration of different strands of argument.

Finally, it emerged that in the conferencing many of the integrated informing moves comprise personal/professional experience. This suggests, in line with previous studies by Coffin and Hewings (see section 2.3.5) that the informal nature of computer conferencing may be generating new forms of academic writing in which the use of personal experience or anecdote to substantiate claims replaces the more traditional use of well established disciplinary knowledge. Alternatively, it may be the case that text messages in computer conferencing are creating a new form of academic talk or 'chat'. From either perspective, it is clear that CMC tends to exhibit characteristics of both the spoken and written mode and therefore creates a useful, flexible pedagogic resource that can be exploited in numerous ways.

1.15. Encouraging and facilitating argumentation in text-based computer conferences: tutor strategies

In general, tutors played an important role in facilitating computer-mediated argumentation. They contributed a range of move types which served a number of purposes – from reassuring students that their contribution was valuable to modelling constructive challenge moves to showing (in their thesis moves) how to stand back from the detail of the argument and provide more abstract position statements.

Despite the effectiveness of many of their contributions to the conference, tutors expressed a number of concerns. Of primary significance was the fact that, along with students, they did not always have a clear idea of the purpose of computer conferencing nor a clear understanding of the tasks set by the course team. Nor were they sure how to transfer the skills they had developed in face-to-face situations into an online medium. Perhaps rather surprisingly, they had not considered whether some of the strategies they used in written assignments (such as writing challenging comments to make the student think further and deeper) might in fact translate well into computer conferencing. Tutors found particularly difficult the 'mixed ability' nature of the groups they found themselves tutoring.

In general, tutors' concerns and lack of confidence led to a range of strategies being employed. One strategy was to redesign and adapt the tasks given to them. However, this was not necessarily successful in generating more or better argumentation. Another was to vary the degree of intervention but the effectiveness of this strategy seemed to depend on the particular dynamics of the student group. Retrospectively, one tutor recognized that more negotiation with, and feedback from, the students would be necessary to find the right balance. On reflection (within the tutor interviews), and based on student comments and linguistic analysis, we suggest below factors which may contribute to the effectiveness of tutor contributions.

- The topic chosen and the wording and clarity of the task are crucial in motivating students.
- Weaker, less experienced students need careful support to avoid being inhibited by more articulate, experienced students.
- Students need to be convinced of how conferencing will enhance their learning, their enjoyment of learning and/or success in course assessment.
- The tone employed by the tutor is important.
- The tutor needs to make sure students feel connected to a community.
- Students need to be encouraged to respond to each other. Tutors may be best advised to save their responses for contributions that might otherwise be ignored.

There may be some advantage in restricting the length of conferences (e.g. reducing them from three to one or two weeks). Reduced time might create greater momentum, reduce the time lag between contributions and responses and allow

participants to hold in their heads the main directions of the conference. Equally importantly, it may be a more realistic reflection of time allocated to tutors.

1.16. Methodological issues

In terms of methodology, we have come to realize that our linguistic method is a very promising approach to tracking the overall shape of the argumentation. In particular, it allows us, through the summary charts, to track different types of argumentation, how moves are distributed between participants, and what types of supporting moves are made in relation to claims. The wealth of information it supplies means that the analysis reported here is only the beginning of a deeper investigation of the data.

Further work remains to be done in ensuring the robustness of our move descriptors. We have so far applied our argument analysis framework to only a limited sample of the assignment data, and will continue to develop the analytical framework in order to facilitate comparisons of argumentation across both modes (writing in computer conferences and traditional writing of assignments). In addition, we recognise the need for further qualitative research on both the text and interview/questionnaire data which might provide us with evidence of additional learning including conceptual change and 'belief revision' associated in the literature with argumentation.

Recommendations

In this section, we relate our general conclusions and recommendations to the key areas in which we wish to have an impact.

1.17. Debates concerning the development of argumentation and academic literacy in student learning

Our study suggests that text-based conferencing has an important role to play in developing students' argumentation strategies and understanding of academic discourse and conventions. In view of its hybrid nature, somewhere between informal, spontaneous speech and formal, academic writing, course designers and tutors should aim to take advantage of what each communication mode has to offer – on the one hand, the informal dialogic exchange of opinions and co-construction of knowledge, and on the other, the opportunity for consolidation, reflection and re-positioning.

In order to facilitate students' development in argumentation, academic literacy and student learning, tutors/e-moderators need to have greater awareness of the way argumentation operates in each context and, where appropriate, make this explicit to students. This suggests that there is an important role for professional development which focuses on the pedagogic, not just technical, dimension of conferencing. For example, it would be useful if tutors made students aware of:

- the role played by challenge moves in knowledge construction;

- the way in which many informing moves can be exploited as support for claims rather than remain free-floating, extraneous moves, detached from the overall argumentative thrust.

More generally, it might be useful to make explicit to students how disciplinary discourse varies according to context. That is, while the relatively informal nature of computer conferencing encourages a greater personalisation in the way claims are constructed, and may give greater attention to students' personal and professional experience as support for a claim, it remains the case that in a formally assessed assignment, tutors expect a more impersonal style and the use of explanations located in academic reference works rather than a reliance on personal recounts. This type of knowledge and explicit instruction would help students have confidence in communicating in each medium and would prevent the inappropriate transfer of discourse conventions from one context to another.

1.18. Debates around how best to support student learning in text-based computer conferencing

Based on our findings, particularly our interview data, it is very clear that successful academic development relies on students being willing to exchange ideas freely and openly and that this is partly a consequence of how personally engaged, at ease and confident students feel with one another and their tutor. In particular, it seems that there is a role for the interpersonal and, to some extent, the chat and the frivolity, which in some other studies discussed in the literature review have been regarded as negative influences.

We therefore recommend that opening tasks with a new group should be carefully chosen to provide for personal contact as well as academic interest (particularly given that many students do not take up the opportunity to meet face-to-face). The task should not simply involve a challenging academic topic which might deter students not sufficiently confident to contribute to discussion with relative strangers in written mode, nor should it be academically shallow in case students perceive conferencing as tangential or irrelevant to their study. Ideally, it should integrate an issue relevant to the field with the use of participants' personal and/or professional experience and views.

Based on tutor comments and the recognition that most groups have a range of weaker and stronger or more and less experienced students, and that a number of students engage in debate infrequently (some not at all), it may be necessary to carefully structure a conference so that students move from more personal reflections to more academic discussion. Equally, it may be necessary to sequence discussions across the year to reflect a similar movement. The sequence could also incorporate a step-by-step introduction to academic argumentation and discourse conventions and expectations within the students' disciplinary area. Below is an outline for such an approach relevant to the discipline area of Health and Social Care.

- Introduction to collaborative learning: getting to know each other and learning from each other's experiences and knowledge
- Introduction to academic argumentation: learning how to critique established authorities and published sources
- Developing argumentation strategies i): learning how build an argument drawing on each other's knowledge and experience
- Developing argumentation strategies ii): learning how to make constructive challenges and see different sides of an argument.

Finally, given the relative 'newness' of text-based computer conferencing, researchers and tutors may need to experiment with different strategies in order to explore the full potential of the medium. Similarly, it may be necessary to set different tasks to reflect the different ability levels of the student. More able students, for example, may find it stimulating to take on the role of tracking and maintaining an overview of the discussion.

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Appendices

Appendix 1 Assignment data 2005

	TMA01	TMA02	TMA03	TMA04	Total
Bethany	20	20	18	18	76
Lucinda	10	10	11	9	40
Naomi	18	15	15	13	61
Julie	19	17	17	14	67
Susan	14	14	13	12	53
Samuel	13	13	8	10	44
Marianne	11	10	9	6	36
Maggi	15	14	12	9	50
Tina	9	9	8	9	35
Total	129	122	111	100	462

Appendix 2 Assignment data 2006

	TMA01	TMA02	TMA03	TMA04	Total
Bethany	22	17	17	15	71
Lucinda	24	24	25	22	95
Naomi	15	11	10	11	47
Julie	19	15	16	16	66
Total	80	67	68	64	279

Appendix 3 Tutor interview questions

1. What do you think is the role of conferencing in the CAM course? Overall, do you think it achieves its purpose? Do you think there are any differences between how the conferences worked in the two years you have been a tutor?

2. Can you remember back to Conference 1 and 4 last year? Here are the tasks from then. What do you think the particular purpose of each was? (see appendix) Do you think they achieved their aims?

3. We noticed you provided some different prompts this year compared to last year (show conf data). Can you say how and why you changed them? Do you think they achieved your particular aims?

4. What do you think is the purpose of the writing tasks that students are given in the CAM course? Overall do you think they achieve their purpose?

5. Can you remember back to TMA01 and 4 from last year and also this year's TMA01 and 4. Here are the tasks. You will see that there are some changes across the years. What do you think the particular purposes of these assignments are? (see appendix)

6. Do you think argument/debate (if it hasn't previously been mentioned) plays a role in the CAM course and in the academic study of Health and Social Welfare more broadly?

7. What would you regard as effective argument/debate in conferencing?

8. What would you regard as effective argument/debate in students' written assignments?

9. How do you see your role in conferences where the main purpose is the exchange of views?

10. What do you think you did/do which helps to make the discussion/exchange of ideas more/less effective? (bring out here whether length of discussion message plays a role. And degree of formality/informality. Humour. Interpersonal dimension.)

11. What do you think students did/do which helps to make the discussion/exchange of ideas more/less effective?

12. Show sample of conference interaction where tutor or student seems to be adopting a particular strategy. Ask tutor to comment on this. (see appendix relevant to each tutor)

13. What do you value when you mark students' written work?

14. In particular, what do you think you were looking for when you marked assignments 1 and 4? (across the two years)

15. In the marking criteria in the assignment booklet it says ‘an assignment should communicate arguments, ideas and issues effectively’. What do you do (in terms of tutorial input, feedback etc.) to help student produce an effective argument in their written assignments?

16. Show sample of essay feedback where tutor seems to be adopting a particular strategy. Ask tutor to comment on this. (see appendix relevant to each tutor)

17. Is there anything you would do to change the written essay tasks or the conferencing prompts?

18. On reflection, based on some of the discussion we have had during the interview, do you think conferencing has potential for developing students’ argumentation skills? How/why? (bring out here, in particular, whether they think it has any impact on the quality of argument, reasoning, reflection etc.)

19. Finally, can you see any relationship between what students write in the conference and what they write in their essays? Do you think conferencing has potential for developing students’ writing skills? How/why?

Appendix 4 Student questionnaire

K221 Perspectives on complementary and alternative medicine student questionnaire				
1. Your tutor's name:	Bethany 1, Julie 3, Naomi 1, Lucinda 7			
3. Your gender:	Male	2	Female	10
8. Are you a health practitioner?	Yes	7	No	5
9. If you answered 'yes' to question 6, do you see yourself as	a) mainly orthodox		4	
	b) mainly CAM		1	
	c) both		2	
10. Have you or someone close to you ever used CAM?				
	never	once or twice	occasionally	regularly
	0	1	6	5
11. Do you participate in tutorial discussion via First Class computer conferencing?				
	never	once or twice	occasionally	regularly
	0	2	6	5
12. Do you enjoy using computer conferencing for tutorials?				
	not at all	a little	quite a lot	a lot
	1	4	5	2
Please could you explain why:				
13. Do you think argument/debate is important in discussions on the tutorial conference?				
	not important at all	not very important	moderately important	very important
	0	0	6	9
14. How far do you agree with the following statements about computer conferencing on K221?				

	strongly disagree	slightly disagree	slightly agree	strongly agree
Tutorial conferences help me reflect on different points of view.	1	0	4	7
I enjoy having my views challenged.	0	0	4	8
I enjoy challenging the views of others.	0	1	7	4
Tutorial conferences reinforce course ideas and views.	0	3	4	5
Tutorial conferences are a good place to rehearse ideas in preparation for TMAs.	0	1	6	5
I prefer tutorial discussions to focus on TMAs.	1	4	4	2
I prefer tutorial discussions to take place mainly between students.	5	4	3	0
I value the input of the tutors in tutorial discussions.	0	0	2	10
I would like more feedback from the tutor during tutorial discussions.	0	2	6	4
I like to learn about the background and interests of my fellow students.	0	1	6	4

15. Do you find the discussions on the tutorial conferences help you with writing your assignments?

	never	hardly ever	sometimes	usually
	0	3	8	1

Please could you explain why:

16. Do you think your ability to put forward an argument/point of view is important in writing an essay?

	not important at all	not very important	moderately important	very important
	0	0	0	12

Please could you explain why:

17. Do you find the assignments				
	very easy	moderately easy	moderately difficult	very difficult
	0	2	10	0
Please could you explain why:				

Appendix 5 Student interview questions

1. What do you see as the purpose/s of tutorials (whether F2F or electronic) in OU courses generally?

2. You say that you participate in K221 tutorial conferences once or twice/occasionally/regularly. How does that compare to your participation in face-to-face tutorials? Which do you prefer? [Prompt re regular participation but lack of enjoyment]

3. What are the differences that you notice between tutorials using FirstClass and F2F?

4. What do you think the role of a tutor is in electronic conferencing? Do you think it is similar/different to the role of a tutor in face-to-face discussion?

5. You found that discussions on the tutorial conference hardly ever/sometimes/usually helped you with your TMAs. Tell me a bit more about how they helped/didn't help. Is this similar to F2F tutorial discussions?

6. You said that you thought the ability to put forward an argument/point of view was very important in writing an essay. Did you find it easy to put forward an argument when writing your K221 assignments?

7. Do you try to put forward an argument when you are writing on the tutorial conference?

8. Do you think the tutorial conference works better when people agree/disagree with each other? [Prompt re enjoying being challenged, but not enjoying challenging – if this is what the student has said]

9. What do you find enjoyable or not so enjoyable about electronic tutorials?

10. Would you be in favour of making contributions to electronic tutorials compulsory? Why/why not?

11. What do you think about the idea of assessing contributions to electronic tutorials? How might this be done?

12. Do you have any suggestions about how to improve tutorials using FirstClass?

Appendix 6 Tutor interview questions

1. What do you think is the role of conferencing in the CAM course? Overall, do you think it achieves its purpose? Do you think there are any differences between how the conferences worked in the two years you have been a tutor?

2. Can you remember back to Conference 1 and 4 last year? Here are the tasks from then. What do you think the particular purpose of each was? (see appendix) Do you think they achieved their aims?

3. We noticed you provided some different prompts this year compared to last year (show conf data). Can you say how and why you changed them? Do you think they achieved your particular aims?

4. What do you think is the purpose of the writing tasks that students are given in the CAM course? Overall do you think they achieve their purpose?

5. Can you remember back to TMA01 and 4 from last year and also this year's TMA01 and 4. Here are the tasks. You will see that there are some changes across the years. What do you think the particular purposes of these assignments are? (see appendix)

6. Do you think argument/debate (if it hasn't previously been mentioned) plays a role in the CAM course and in the academic study of Health and Social Welfare more broadly?

7. What would you regard as effective argument/debate in conferencing?

8. What would you regard as effective argument/debate in students' written assignments?

9. How do you see your role in conferences where the main purpose is the exchange of views?

10. What do you think you did/do which helps to make the discussion/exchange of ideas more/less effective? (bring out here whether length of discussion message plays a role. And degree of formality/informality. Humour. Interpersonal dimension.)

11. What do you think students did/do which helps to make the discussion/exchange of ideas more/less effective?

12. Show sample of conference interaction where tutor or student seems to be adopting a particular strategy. Ask tutor to comment on this. (see appendix relevant to each tutor)

13. What do you value when you mark students' written work?

14. In particular, what do you think you were looking for when you marked assignments 1 and 4? (across the two years)

15. In the marking criteria in the assignment booklet it says ‘an assignment should communicate arguments, ideas and issues effectively’. What do you do (in terms of tutorial input, feedback etc.) to help student produce an effective argument in their written assignments?

16. Show sample of essay feedback where tutor seems to be adopting a particular strategy. Ask tutor to comment on this. (see appendix relevant to each tutor)

17. Is there anything you would do to change the written essay tasks or the conferencing prompts?

18. On reflection, based on some of the discussion we have had during the interview, do you think conferencing has potential for developing students’ argumentation skills? How/why? (bring out here, in particular, whether they think it has any impact on the quality of argument, reasoning, reflection etc.)

19. Finally, can you see any relationship between what students write in the conference and what they write in their essays? Do you think conferencing has potential for developing students’ writing skills? How/why?

Appendix 7 Tutorial tasks

Conference 1 Tutorial Task 2005/06

Hi everyone,

Since your first TMA is to write a report on a fictitious visit to Reiki Practitioner, you might find it useful to comment on the following.

What experiences have you had of visiting a CAM practitioner?

What were the factors which led you to choose this particular therapy?

Reflect on whether it was a 'good' or 'bad' experience and why.

This is just to get a discussion going.

Best wishes

Conference 4 Tutorial Task 2005

This fourth tutorial relates to TMA04 that is due on Thursday 18th August. This assignment is designed to let you build a professional profile of a CAM in the UK. This tutorial focuses on regulation and is closely linked to parts of the assignment.

Background

The following quote is drawn from Julie Stone's editorial you may have come across in Learning Guide 18 – Activity 18.1 (the complete extract is available on the course website)

'The pursuit of statutory regulation may be based on a number of assumptions about the perceived benefits that statutory regulation would offer complementary therapies. These may be thought to include:

•~~~~~~~the medical profession's respect, together with a greater willingness to refer patients to complementary therapists;

•~~~~~~~improved prospects of integration within the NHS;

•~~~~~~~the ability to achieve higher standards and greater accountability through a system of statutory registration;

•~~~~~~~enhanced public status.' Stone, 1996

Stone, J., (1996) Regulating complementary medicine: standards not status, Editorial, British Medical Journal, Vol. 312, pp. 1492–3.

Stone poses and explores the following question:

How realistic are these assumptions?

Task

For this tutorial try and respond to the question:

How realistic are the assumed benefits of statutory regulation?

Please keep these initial messages short (100 words or so) so that everyone gets a chance to read them fairly quickly. You might look at one benefit and consider whether it will fulfil its objective, or you might consider whether there might not also be some negative effects. Or you might like to think about the difference between the benefits and losses of statutory regulation and self regulation. It is the former which osteopathy and chiropracty already have? What do they think about it now its happened? It's the latter which homeopathy, acupuncture and herbalism are currently seeking to formalise, with the encouragement of FIM. How do their practitioners feel about it?

As in previous tutorials, don't worry if other people have put up initial messages very similar to yours – the main thing is to share some ideas as a starting point for the discussion. You may then find that reading other group members messages inspires you to. Think of other things so feel free to post them.

Please keep coming back to this tutorial as often as you can, and respond to at least one message. Your responses might be simply 'conversational', as if you were sitting in a tutorial together, or might include references to course materials or outside sources which you feel to be relevant to your comments. [I will be putting up for you in a few days the thoughts of an osteopath about the effects of regulation and some info. about the discussions currently taking place around regulation within the homeopathic profession. I hope you will all feel able to make some contribution , whether its agreeing with others, quoting a source you have found , expressing your own feelings are entering into controversy. Remember this is not in any way a test. Its an opportunity to explore ideas and information as you prepare your fourth assignment.]

You may want to draft your ideas offline – say in Word – then use right click 'copy' to put your message onto your temporary clipboard. ~Then go to this online tutorial, use 'write to conference' to open a new message box (or click 'reply' to another message to continue a thread) and use right click 'paste' to put your message into the box. ~Put a brief title into the subject line (unless continuing a thread, in which case the 'reply' function will put one in automatically) and click send.

Have fun

Appendix 8 Assignment specifications

TMA 01 2005

The following description is of an encounter between a reiki practitioner and a fictional person (Mrs Bannister) who goes to see her. Think carefully about this encounter and write a report on the interactions that took place in the light of your learning throughout Module 1. In particular, your analysis should focus on the context of the interaction: how does the interaction fit into the way that society and health care is changing, along with any ethical considerations for both the provider and the consumer of health care in this situation?

Note: this case study is entirely fictional and has been designed to illustrate issues that are important to all CAM practices. The reiki practitioner described here does not exist, nor is the case study designed to suggest that there are any problems particularly with reiki and how it is practised.

Case study – Mrs Bannister and the reiki practitioner…

Sources of information

This assignment draws on the work you have done throughout Module 1, specifically Chapter 1 on changing perspectives, Chapter 3 on political and historical perspectives and Chapter 4 on ethics in CAM. Remember that Chapter 5 also acted as a summary for many of the issues covered throughout the first module. You should also the various theoretical models that were introduced throughout this module, specifically principles underlying ethical practice in Chapter 4 and the political and social theory that was introduced in Chapters 1 and 3. You may also find several of the articles in the Reader are helpful.

Remember that the more you can relate your analysis of this case study to the theoretical discussions that you have been exposed to throughout Module 1, the higher the marks you will be awarded.

Writing your report

You should divide your report into the sections outlined below, using the headings to structure your work.

In the **introduction** (250 words), briefly describe the interaction(s) that have taken place in the case study and the main issues that you will explore.

In the **findings** section, analyse the case study in response to the following questions.

In what ways does the interaction you have described fit into a scenario of a changing society, for example 'consumerism', 'medical pluralism' or 'late modernity'? (250 words)

From which types of practitioner might Mrs Bannister have sought help for her condition in, say, the early 19th century? How might her choice of therapy have changed since that time? (250 words)

Discuss some of the issues of power that might have been involved in the interaction between Mrs Bannister and the reiki practitioner. (250 words)

What ethical issues do you think might arise from an interaction such as the one in the case study? (250 words)

In the **conclusion** (250 words), briefly sum up the issues you have chosen to discuss and the analysis that has resulted from your findings.

TMA 01 2006

Discuss how notions of 'consumerism', 'pluralism' and 'modernity' are linked to the resurgence of CAM.

Advice for preparing and writing this assignment

The tile of the first assignment is closely linked to the material in the first part of the course. You may already have some ideas about the kinds of things you want to put into your assignment or may be wondering where to start. It is crucial that you read through Section 5 of this booklet that outlines 'the criteria for marking and writing assignments' before you start working on your assignments. The criteria are designed to help students plan and construct their assignments but, as they are also used by tutors in marking assignments, you can use the guidelines to get a sense of what is required from assignments which are awarded high marks.

As the guidance suggests, a good starting place is the title, specifically, identify the 'key concepts' this assignment deals with. In the case of this first assignment there are four key concepts in the title: consumerism; pluralism; modernity and the resurgence of CAM.

Next, be clear about what you are being asked to do with these concepts. In this first assignment, you are being asked to discuss how notions about some of these concept are linked to the resurgence of CAM. Therefore, in your assignment you will need to outline what the notions of these concepts are and how they are linked to the resurgence of CAM. However, you also need to 'discuss' this link – basically, you have to outline evidence that supports and disputes this link.

Finally, make a plan of your assignment to help guide your writing. Some students find it useful to have a checklist of the things that need to go into the assignment as a point from which to start thinking about a plan. You can find more information and advice on writing assignments in Section 4 of this booklet.

Sources of information/research activity

You will find information relevant to this assignment, predominantly, in Chapters 1 and 3 of the main text. In addition, you may want to draw on material you have encountered in the other chapters associated with the first part of the course. You may also want to include references to the reader or material you have viewed or listened to on CD-ROM 1. Remember to reference clearly your information sources.

TMA 04 2005

The title of this assignment is

Building a professional profile of chiropractor therapy in the UK

and it comprises two parts, building from an investigation to a discussion based on the material in Module 4.

Part A – Tender to local PCT

For this part of the assignment you might find it helpful to imagine you are a chiropractor submitting a tender to your local Primary Care Trust (PCT). The PCT is responsible for the provision of health care in the local area and from their budget are looking to resource a range of CAM therapies in the local community. You have been approached as a chiropractor and as part of the bidding process have been asked to write a short piece of **no more than 500 words** which answers the following questions.

Briefly, what is the history and development of chiropractic in the UK?

Who is eligible for registrations as a chiropractor?

What training and ongoing education or core professional development is necessary as a chiropractor?

How is the profession controlled and regulated?

Sources of information

You do not need any prior knowledge of chiropractic or being a chiropractor to complete this part of the assignment. Instead, the answers to the questions posed can be found by investigating the various sources of information that are available

about and for chiropractors in the UK. Remember to reference clearly your information sources.

Part B – Essay

For this part of the assignment you need to write an essay of **no more than 1000 words** which answers the following question.

Discuss the ways in which the organisation of chiropractors in the UK provides safeguards for users of this CAM.

This part of the assignment should take the form of an extended piece of writing, which means that you should avoid using headings, unlike in TMAs 01 to 03. However, you can 'signpost' sections: for example, 'To conclude, …'.

Your introduction should outline briefly how chiropractors are organised and the safeguards that this organisation affords chiropractic users. This information will come from resources you used in Part A of the assignment and, again, you must reference these sources appropriately.

The main bulk of this assignment is a discussion, which should address how the organisation of chiropractors is successful in safeguarding users of this CAM and areas (if you think there are any) where it needs to develop better safeguards for users.

It is worth highlighting that a discussion is different from an argument. In asking you to discuss the link between organisation and safeguards, we want you to present both the positive aspects of this arrangement and the aspects that need development. In contrast, in an argument you would take a particular stance, for instance, 'the organisation of chiropractors ensures users are safeguarded' or 'the organisation of chiropractor fails users'. In an argument you would also have to convince the reader that your stance had more currency than theirs. In a discussion, however, the purpose is to explore the landscape of the issue – both the positive and the negative. Your discussion should draw on the material in Module 4, which explored education, regulation and professionalisation. Your essay should end with a conclusion which assesses the extent to which the safeguards that are in place are adequate, and the extent to which they may need to be refined or developed further to ensure the safety of users of this CAM.

TMA 04 2006

Using homeopathy as an example, describe and critically evaluate the ways in which organisation and regulation of CAM in the UK provides safeguards for users.

Advice for preparing and writing this assignment

This assignment should give a general context of professionalisation of CAM, as well as specific information about the origins and development of homeopathy. You may also want to relate the development and professionalisation of CAM and how that is intertwined with that of orthodox medicine. There is relevant material in Module 4 as well as referring back to Module 1. You may want to explore the implications of different professional pathways organised by different bodies, and how that impacts on safety for CAM users. The major consideration in this essay is the safety of CAM users, and how the organisation of homeopaths provides safeguards against potential problems. There may be issues which are general to orthodox healthcare, homeopathy and other CAMs.

Planning and drafting

Your third assignment was in the form of a report. This fourth assignment returns to the form of a continuous piece of writing as seen in an essay, as in your second assignment. Your essay should follow the normal conventions of beginning with an introduction, followed by the development portion, where you present the information you believe to be relevant and explore the theme of the question, followed by a conclusion where you pull the threads together. As usual, you should complete with a list of references used in your essay, as described in Section 4.4 of this guide.

You may like to introduce your essay by considering what constitutes risks and safeguards in CAM and health professions generally. In particular, you may want to explore issues of registration with a professional body with associated codes of ethics. Specifically, you will need to describe the organisation of homeopathy and how it has developed in the UK.

You will need to include information about who is eligible for registration as a homeopath with which organisational bodies. What training and ongoing education or core professional development is necessary as a homeopath? How is the profession controlled and regulated?

The main bulk of the essay is a discussion addressing how far the organisation of homeopaths is successful in safeguarding users of this CAM and areas (if you think there are any) where it needs to develop better safeguards for users. Your discussion should draw on the material in Module 4, which explored education, regulation and professionalisation.

Your essay should end with a conclusion which assesses the extent to which the safeguards that are in place are adequate, and the extent to which they may need to be refined or developed further to ensure the safety of users of this CAM.

You should also make sure you read the general advice in Sections 4 and 5.

Sources of information / research activities

You will find much of the information you need in Module 4, particularly in Chapter 5. There is information via Routes in the library resource of the course website, and in the CD-ROM material. You may also like to refer back to Module 1, in particular Chapter 4 on ethics and registration issues. You do not need any prior knowledge of homeopathy or to be a homeopath to complete this assignment. Instead, the answers to the questions posed can be found by investigating the various sources of information that are available about and for homeopaths in the UK. In this essay, homeopathy is being used as an example of professionalisation of a CAM with regard to safety issues. Remember to reference clearly your information sources.