

Evaluating the use of synchronous learning in two blended courses

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Residential universities are increasingly integrating online interaction within courses in the form of synchronous online chats, asynchronous online discussions and access to interactive resources. This article evaluates the educational effectiveness of online chats within a Humanities postgraduate course and a final year Commerce course. We consider the roles of course design, group dynamics, and facilitation style in the successful use of online collaboration within primarily face-to-face courses, as well as the potential for online collaboration within a blended course design to facilitate more inclusive learning conversations than are possible with exclusively face-to-face interaction.

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Abstract

Residential universities are increasingly integrating online interaction within courses in the form of synchronous online chats, asynchronous online discussions and access to interactive resources. This article evaluates the educational effectiveness of online chats within a Humanities postgraduate course and a final year Commerce course. We consider the roles of course design, group dynamics, and facilitation style in the successful use of online collaboration within primarily face-to-face courses, as well as the potential for online collaboration within a blended course design to facilitate more inclusive learning conversations than are possible with exclusively face-to-face interaction.

Keywords

campus, case study, collaboration, constructivist, exchange structure analysis, synchronous

Introduction

The current debate in education is no longer whether computers and the Internet should be introduced into curricula but rather how to do so, and how to improve their facilitation (Hamza & Alhalabi 1999). Courses increasingly involve online components, not only in distance education but also at residential universities, which primarily deliver courses through face-to-face lectures and seminars. These online and blended interventions need to be evaluated to ensure that they result in active learning. In order to establish whether real collaboration is taking place the researcher needs appropriate methods of empirical analysis. It is important not to confuse student interaction with collaboration and learning. Collaborative learning involves groups working together in solving problems, and in sharing and clarifying ideas (Kemery 2000). At the most generic level an effective community of inquiry requires an interaction of social presence, cognitive

presence and teaching presence (Garrison & Anderson 2003). According to Garrison and Anderson a community of inquiry signifies a learning community 'where both reflection and discourse are utilized to facilitate the construction of personally meaningful and socially valid knowledge' (p. 21)

This paper attempts to evaluate the effectiveness of chats in two blended learning interventions.

Our main questions are:

- (1) What factors affect student participation in the chats?
- (2) Do the online chats involve the students in learning conversations?
- (3) What are the merits of chat within a blended course design?

Theoretical background

The constructivist approach to learning lays emphasis on interactive tasks and has a base in philosophy, psychology and epistemology (Jonassen 1991, 1994). This approach is predicated on sensitivity toward learners' previous knowledge and the encouragement of 'ownership' and 'voice' in the learning process (Honebein 1996). Decisions about the direction or

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goals of individual or group work are taken by the learner through a process of negotiation with the facilitator (Ewing *et al.* 1998; Nicaise & Crane 1999). The emphasis in constructivism is on creating real-world environments for problem solving.

The objective of the online components of courses considered in this study was to extend the boundaries of the classroom in order to approach an ideal learning situation. Ideal learning can be defined as a situation where 'communicative practice is free from any kind of distortion, any form of coercion and ideology, and does not involve any force, except the force of a better argument' (Habermas 1984. See also Cecez-Kecmanovic & Janson 2000; Cecez-Kecmanovic & Webb 2000). Seen from a constructivist approach, this represents the collaborative construction of knowledge through social negotiation (Jonassen 1994). In this sense we would locate ourselves as social constructivists.

During the pioneering years of online learning synchronous text chat was used by social constructivist educators in text-based virtual environments known as MOOs with a range of learning communities including media researchers (Bruckman & Resnick 1995), literature students (Harris 1996) and language students (Chapelle 1997; Schwienhorst 1998). Polin argues that these environments which were partly constructed by their participants provided 'a rich setting for conversation'. The situated nature of these chats led her to describe them as 'fat chat' (Polin 2000).

Chat becomes more problematic when we consider the disembodied 'thin chat' (Polin 2000) of the chat rooms which are a standard feature of many commercial learning environments. When compared with the affordances for collaborative learning conversations in asynchronous discussion environments (Chong 1998; Hiltz & Turoff 2002), online chats have sometimes been regarded as suitable for community building because of the enhanced sense of shared presence but inappropriate for extended reflective conversation in the absence of agreements concerning process and effective facilitation. (Salmon 2000; Figallo & Rhine 2002). By contrast Mercer (2003) argues that chat 'is a tool that significantly contributes to developing more authentic group collaboration and knowledge building' and Berzenyi (1999) asserts that 'chat is a legitimate medium of communication among colleagues and students engaged in work'. Berzenyi

proposes that students should be taught a classification of 'interlocutor relationships along a continuum of conflict and cooperation' to improve their sensitivity to audience issues (p. 230). This continuum of illocutionary relationships was not taught in the courses considered here; however, it provides another useful lens for understanding the results of our analysis. The range of relationships extends from highly conflictual 'agonistic relationships' to mutually respectful 'empathic relationships' within which 'interlocutors adopt roles of mediation in order to facilitate discussion, draw out ideas, and maintain peace among participants' (p. 234). The intermediate relationships are the hierarchical relationships which are 'characterized by a moderate degree of conflict and by hierarchy among participants' and dialectical relationships which are 'highly interactive with low degrees of conflict and authoritativeness' (p. 233).

Method

The authors started with particular criteria for a suitable method of coding and analysis including:

- (1) the need for a method of content analysis which can be applied across courses in several disciplines (Mason 1992).
- (2) coding could be performed by a researcher who was not a content specialist or a seasoned qualitative researcher.
- (3) the method should be relatively simple to use to ensure intercoder reliability.
- (4) the method must be sufficiently generic to apply to face-to-face and online interaction across different courses.
- (5) a method that was a development of an established approach to discourse analysis.

This study applies Exchange Structure Analysis (ESA), developed by Kneser *et al.* (2001) which is a subset of the far larger DISCOUNT scheme (Pilkington 1999), to analyse the relative roles of students and educators in online learning conversations. ESA can be used to 'identify some of the characteristics of Computer Mediated Communication (CMC) dialogue and its effectiveness for educational interaction', and allows the researcher to 'investigate the inclusiveness of participation and the distribution of participant roles' (Kneser *et al.* 2001, p. 65). ESA was chosen for use in this study because it provides a clear and

strong basis of comparison, both between the cases reported here, and in future comparative research. It is contended that ESA allows a relatively simple coding of online conversation, which can support a rich analysis when used in combination with data from classroom observations and student interviews and surveys (Fig. 1).

The ESA categories defined by Kneser *et al.* (2001) are based on Sinclair and Coulthard (1975) transactional analysis. Kneser *et al.* define an exchange as a combination of 'Initiate' and 'Respond' moves, which together make up a classroom dialogue.

Further refinement to Exchange Structure Analysis comes through the use of a series of 'moves', which define argument roles: challenge, disagree and justify; clarify; feedback; inform; inquire, reason and justify (Pilkington 1999, 2001). For example, a reason move can be any argument that includes a goal, purpose, problem, solution, cause, consequence, condition, support or contradiction (Pilkington 1999).

Further, individuals' preferences for specific moves result in ESA roles: for example, a participant with a strong preference for the challenge move takes the role of critic while one with a strong preference for the reason move takes the role of explainer.

We have also examined student evaluations and interviews to assess students' attitudes towards the online components of their courses.

Analysis

The approach developed here has been used to analyse a number of undergraduate and postgraduate online course components at the University of Cape Town (Cox *et al.* 2002; Carr *et al.* 2004). For the purposes of this study, we have selected two interventions that involve the use of chat (synchronous text conversation) within primarily face-to-face courses. We believe that a comparison between these interventions may reveal a number of key factors, which influence the success of online chats within blended courses.

'Images of Africa' was an Internet-supported postgraduate module on perceptions and misperceptions of Africa offered by the UCT Centre for African Studies. In the second semester of 2000 this course included three chat sessions within a WebCrossing environment. The 'Images' course provided our first dataset for the use of ESA, which was applied by Glenda Cox.

Student	Statement	H	S	O	I	R	RI	RC	RC&I	SA	Move 1	Move 2
France	pref pricing does not necessarily mean relaxing/restructuring IPR's							✓			reason	
Finland	I agree with france							✓			inform	feedback
Botswana	The idea is that it is only relaxed in certain areas					✓					inform	
Finland	It's merely a he mechanism for those less developed countries ,hey bots		✓					✓			inform	inquire
Botswana	The producer does not reap full benefit in 3rd world					✓					inform	feedback
Finland	Is it merely up to the producer or the legislation in place						✓				clarify	

Fig. 1 Example from an ESA coding sheet (extract from an ITB Intellectual Property Rights (IPR) chat).

Table 1. Initiate and respond moves in exchange structure analysis (after Kneser *et al.* 2001)

Initiate (I):	a contribution that anticipates a response and is not predicted from a previous turn
Respond (R):	a contribution that is not initial, does not anticipate a turn and usually completes an exchange
Reinitiating (RI):	a contribution that is a continuation of a current exchange and which anticipates a response, but which was not predicted from an earlier turn and which was not initial. Reinitiation can be negative feedback
Response-complement (RC):	a contribution that can be acknowledgement, feedback or evaluation. Response-complement signals intention to close the exchange, although it can be followed by a new exchange
Stand alone (SA):	contributions in which one participant continues to initiate, and where turns by the same speaker follow each other
Ill-informed turn (II):	a contribution that is an island, with no response to it

Table 2. Types of move in ESA (examples from Images of Africa course, chat 1, discussion of Great Zimbabwe)

Move	Definition	Example from the chats
Challenge	Statements requesting reasoning or fresh thinking	'So-is culture an invention and an illusion? If it is, why do we need a 'real' Great Zimbabwe-why not a replica (like the Lost city)?'
Justify	Reply with evidence or contraindication	'But the net is cheaper and cheaper everyday-there are now booths like phone booths R5 fro 15 min'
Clarify	Questions of clarification	'Do you mean disguising ignorance? Or a more deliberate (if subliminal) mis-representation?
Feedback	Evaluative statements	'I agree that culture is a very contemporary thing for most of us...'
Inform	Description/differentiation	'Cabral talks about the need to overcome tribalism – Ill just look for the exact reference'
Inquire	Questions requesting information	'Is there valid proof that Great Zimbabwe might have been built by Africans?'
Reason	State causal proposition	'Culture is ambiguous because it offers various interpretations, and not a fixed truth.'

Table 3. ESA roles (Source: Pilkington 1999)

Argument role	Anticipated ESA category	Anticipated move category
Explainer	Initiate	Reason
Elaborator	Initiate	Inform
Inquirer	Initiate	Inquire
Critic	Reinitiate	Challenge or disagree and justify
Clarifier	Reinitiate	Clarify
Evaluator	Response-complement	Feedback
Narrator	Stand alone	Inform and reason
Explainer	Respond	Reason
Elaborator	Respond	Inform

Table 4. Courses analysed in this paper

Course name	Year	No. of students	Chats	Lecturer
Images of Africa	2000	10	3	A+B
Trade bargaining: Group 1	2001	21 in two groups	Sample of 8	Peer facilitated

The International Trade Bargaining (ITB) intervention is an innovative blended simulation of a World Trade Organisation bargaining round from the UCT School of Economics. This optional third year Economics module draws heavily on virtual team and community of practice metaphors and involved bargaining groups of up to twelve students representing a range of countries in two scheduled chats per week for most of the second semester of 2001 within WebCT. Thus each student group was involved in over 20

scheduled chats. The ITB simulation provided a further dataset for the use of ESA which was applied by Tony Carr and Andrea Eden. All the ITB coding was checked by a second researcher because of the complexity of this dataset. Issues concerning the application of categories and moves were resolved in partnership with Glenda Cox who coded the 'Images of Africa' chats. The ITB simulation also used online and face-to-face discussions; however, this article focuses on comparing a sample of eight ITB chats with the three Images of Africa chats.

The demographics of UCT's classes are of interest in the context of transformation in South African university education because South African students have varied educational backgrounds. Often students from educationally disadvantaged situations feel silenced in conventional classroom situations, so we are interested in understanding how these students use our online interventions.

Most of the students had little previous experience of online chats. The eight Images of Africa students were from varied backgrounds including a representation of foreign students (two from Europe and one from the US) on a semester study abroad programme. Other local students completed these courses as part of African Studies Honours and Masters degrees. One of the local students was a first language speaker of an African language. Six of the students had no prior experience of using the chat medium. The ITB students were largely South African with a far smaller representation of foreign students, which included students from other African countries. Group A

started with ten members including four female students, one first-language speaker of an African language and three foreign students, but was reduced to nine students when a South African English first-language female student left the course. Group B consisted of 11 students including three female students, two first-language speakers of African languages and three foreign students. Observations were conducted in both courses and student feedback was elicited through surveys (both courses) and interviews (ITB) concerning the student experience of the blended learning interactions. The ITB interviews allowed a more flexible and richer exploration of the experience of twelve students with varied backgrounds and demographic characteristics.

Course 1: 'Images of Africa 2000': interaction through chat sessions

Three lab-based chats were introduced to the Images of Africa course during normal class time to replace face-to-face lectures on the topic of African cities (Great Zimbabwe, Fez in Morocco and the Lost City which is a South African tourist resort). Student participation in these chats was not assessed. The students seemed to use the first chat for social and community forming conversation, mostly ignoring the facilitator. Following Berzenyi (1999), we would suggest that this conversation included clearly empathic illocutionary relationships with a low degree of conflict and hierarchy. During the second chat some of the students used 'private messaging' after the lecturer became more directive in his facilitation of the shared conversation. Attempts by the lecturer and course co-ordinator to control the flow of the third chat resulted in little useful discussion. Role playing across the three chats was limited and students tended to respond and elaborate and not challenge. These observations are consistent with Berzenyi's category of hierarchical illocutionary relationships. While the largely empathic relationships during the first chat encouraged student participation, there was limited scaffolding of student engagement with the subject matter. The increasingly hierarchical relationships in the second and third chats provided overt scaffolding but discouraged student participation.

Participation

Nine students participated in the first chat, contributing 82% of all postings, which suggested a successful transition from a tutor dominated classroom style conversation. In the second chat, eight of the 10 students participated and students made 73% of the postings. Students also took part in 'private messaging'. As a result, the amount of interaction visible via the transcripts decreased and transcript postings were mostly subject related with very little casual conversation. The course co-ordinator from the Centre for African studies facilitated the first half of the third and final chat in a highly directive manner. In the second hour, the usual lecturer for this module involved the students in a focussed conversation, which structured engagement with the lecture topic. The number of postings in the third chat declined as only six students were present and the two facilitators dominated the conversation with 58% of the postings.

Subject

Each turn was coded according to its content:

- subject – discussing the task and related research papers;
- social – social acts such as flirting, joking, and acts aimed at distracting from the subject matter, intentionally or unintentionally
- housekeeping – administrative issues, essay topics and class attendance.

In the first chat, discussion of the subject matter made up 57% of the conversation and 36% of the contributions were coded as 'social'. The possible reasons for high proportion of social interactions include anxiety and unfamiliarity with the new medium. This is reflected in the following exchanges:

Student 1: Hi, this feels like an AA meeting
and

Student 2: ...is anyone else finding it difficult to keep up
with the discussion....

Student 3: YES

Student 4: YES

Student 4: Yes to struggling to keep up

In the second chat, 75% of the conversation consisted of contributions around the subject matter. 'House-keeping' comments accounted 14% of the postings

and only 11% of the conversation involved joking or social banter. The lower incidence of social comments may be largely attributable to student use of private messaging which could not be coded. In the third chat, the conversation was mostly subject orientated at 75%, followed by 19% housekeeping and 6% 'social'. The 'social' category almost disappears as a result of the facilitators dominating the conversation.

Categories and Moves

In the first chat, the lecturer made 63 contributions and took the leading role in the debate. He directed the conversation but did not dominate the exchanges as he attempted to encourage all the students to participate. He 'initiated' more than anyone else (26 times) with the next most vocal participant initiating conversation on 15 occasions. In addition, the lecturer held multiple roles in the conversation. The majority of his postings were 'inform' and 'inquire' moves which implies the ESA roles of 'elaborator' and 'inquirer'. He was also both critic and clarifier when he re-initiated threads of the conversation. Eleven of his turns provided feedback to student contributions.

The highest number of postings by a student was 91. Sixty-one of these postings were 'respond' turns. She mostly made 'Inform' moves giving her the role of elaborator and explainer.

A second student took on a more dominating role. She responded 21 times with a comment that re-initiated conversation. The majority of these re-initiating turns can be categorised as 'Challenge' moves. She critically analysed the conversation while also taking on the role of inquirer. Towards the end of the chat, she argued so forcefully that other students had to intervene to calm the conversation. Most of her peers avoided critical roles.

The same lecturer facilitated the second chat and made 23 more contributions than in the first chat. He was concerned about the social character of the previous chat and became more directive. Consequently, the lecturer 'initiated' discussion 25 times while the most active student initiated new topics on only eight occasions. The lecturer also re-initiated conversation more than the others, challenging but mostly clarifying. He took on typical tutor-like roles by evaluating student statements and introducing and explaining new information within the same turn. The majority of

his turns were 'inform' moves and so he had the role of elaborator. Consequently the roles taken by participants were less dispersed. The shift towards an increasingly directive facilitation style continued in the third chat where the course co-ordinator often spoke to the group and then answered rhetorically posed questions. His contributions were mostly in capitals, referred to in 'netiquette' terms as shouting. He was able to dominate and control almost all exchanges, as illustrated in this extract:

Lecturer: Could we have quiet in the room please
 Lecturer: THINK ABOUT EACH OF THESE
 Lecturer: STARTING WITH ONE
 Lecturer: THEN WRITE IN
 Lecturer: WE'LL TAKE RESPONSES ONE AT A TIME
 Lecturer: AS A RESPONSE COMES IN, EVERYBODY PLEASE
 PAUSE
 Lecturer: AND CONSIDER IT
 Lecturer: LETS TAKE DISCUSSION TO EACH RESPONSE
 BEFORE MOVING ON
 Lecturer: OVER TO YOU, WITH QUESTION 1...

Student feedback

All the chats were observed and informal conversations took place with the students in the computer laboratories after each chat. The students generally enjoyed the chats but they were disappointed to have not met the lecturer face-to-face. Unfortunately only three students completed the voluntary evaluation forms. They stated that the online chats were not integrated sufficiently into the course as a whole, and that there was '...no real direction in the discussions...'

Course 2: ITB Simulation

Most of the scheduled contact time was allocated to peer facilitated, assessed chats for negotiation within bargaining groups responsible for specific areas of trade e.g. intellectual property rights (IPR). Decisions from the chats were then brought to the face-to-face subplenary (tutorial group) meetings for a proceed or reject vote and then to the plenary (whole class) meeting for final debate and voting (Fig. 2). The blending within the chats was intense as most students sat with peers in a computer laboratory and engaged in a parallel strand of face-to-face conversation including short face-to-face meetings, which would report back

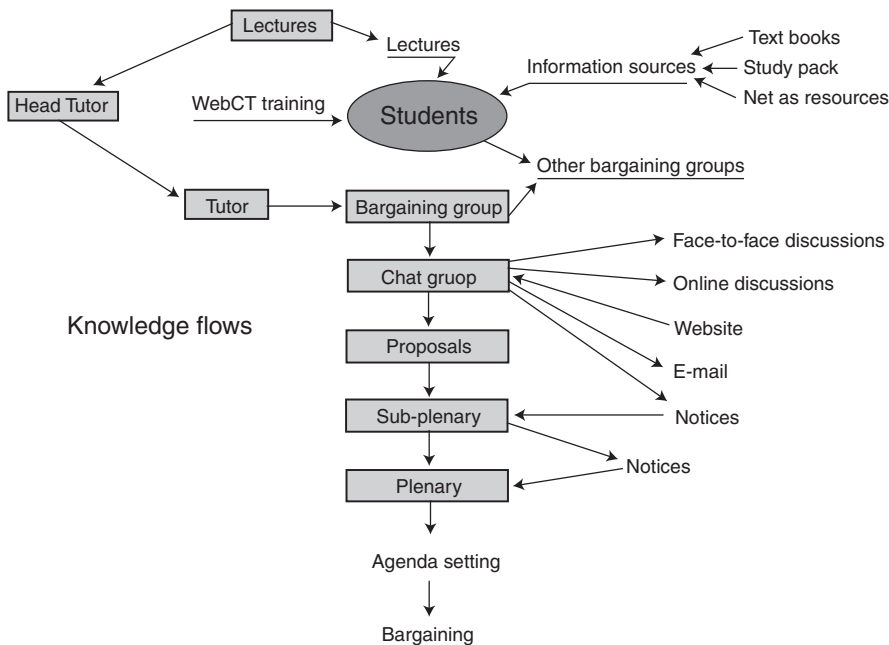


Fig. 2 Knowledge flows in the Trade Bargaining Simulation.

in the chat. When we also consider the pervasive use of private messaging and e-mail it becomes clear that the chats were a sampling of a very rich set of multi-modal interactions.

This analysis relates to the sample of eight Group A chats analysed at different stages of the simulation; however, the detailed description that follows draws on four of these chats. The timing of the chats had a significant influence on student interaction as each phase of the course carried its own initial uncertainties concerning objectives, official procedures and negotiation process. Assessment shaped the chats through the group participation mark and the need to deliver successful motions. The chats from both this group and Group B improved over time in both reflective and facilitative quality; however, the dynamic of Group A seemed more conducive to productive chats.

Participation

Ten students participated in the Group A chats. The absence of an assigned facilitator or initial agreements concerning the process of online bargaining process focussed student attention on housekeeping issues as did the reality of technological problems which constrained participation in some of the chats. The last few chats were remarkably 'productive' as students

rushed to push sometimes poorly considered motions through subplenum and plenary meetings. Peer facilitation also ensured maximum space for student participation; nevertheless, the distribution of student turns was highly skewed. The most prolific participant accounted for 24.29% of the chats sampled. The four most prolific participants accounted for 69.73% of the total turns while the four least vocal students only accounted for 13.39% of turns.

Subject

Agenda-setting chats: In our earliest sample of chat, students initially focussed on housekeeping issues as shown in the following extract:

- | | |
|-----------|---|
| Student 1 | What is going on and do we know who is chairing this chat for today? |
| Student 2 | What's the latest topic under discussion and are there any takers for the chair |
| Student 3 | I see our tutor wondering around!! He will be on now |
| Student 2 | Maybe we should vote |
| Student 4 | Ok lets vote |
| Student 5 | On? |

They agreed on a chair and an opening topic before closing the morning chat. The afternoon chat continued with the agreed topic. Their process for voting within the chat proved inefficient but they succeeded

in discussing some of the complexities of an agenda-setting motion. A week later when they were revisited the group started with some off-topic conversation concerning assessment of the course. The rest of the chat moved towards resolution on two agenda-setting motions.

Bargaining chats: In the early sample of bargaining chat, the group focussed on one bargaining motion until network problems forced a premature end to the chat. Only four students came online for the second sample of bargaining round chat. As students arrived they discussed the poor attendance at plenary sessions and decided on their agenda. Substantive discussion concerning the details of a bargaining motion was at times interrupted (though never derailed) by off-topic social banter. The following extract hints at the dynamic balance of bad humour and focussed debate concerning a trade motion:

- | | |
|-----------|---|
| Student 1 | How do you specify? They've broken the agreement (TRIPS), not necessarily harmed anyone? |
| Student 2 | But set a penalty for a certain time and not a monetary value |
| Student 3 | No m – trade sanctions hurts everyone not just the infringer |
| Student 2 | Dis allow them to trade in that certain product then |
| Student 3 | How about a flogging for government officials who fail to comply |
| Student 1 | The developing world is mounting a pretty big contingent lead by Malaysia and they will veto and large financial penalty, or flogging |

Categories and Moves

The changes in ESA categories for the sample of eight chats suggest a rising level and quality of interaction within Group A as all indicators of response to state-

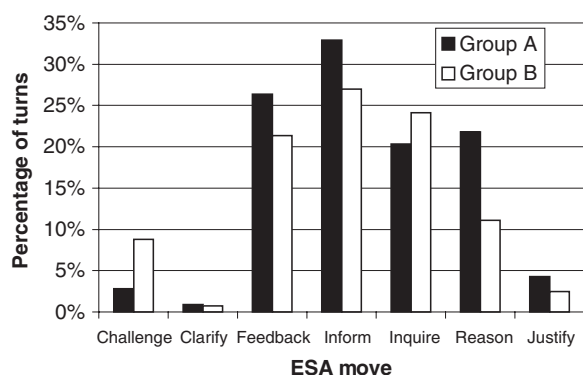


Fig. 3 ESA moves for Groups A and B.

ments by others except Response Complement and Initiate (RCI) increase over the last three chats. Correspondingly, the declining prevalence of Initiate statements suggests that the students were investing the time needed to discuss motions tabled by peers rather than starting rivalling discussions. The rising importance of 'Reason' moves and 'Inquire' moves provides some support for the assertion that the quality of these chats has improved during the course. The results shown in Fig. 3 (below) also suggest that these chats are of a higher conversational quality than was observed in Group B which was plagued by conflict (sometimes to the point of flaming) that impeded the process of negotiation. For all of the eight sampled Group B chats, the percentage of 'Reason' moves was considerably lower than in the corresponding Group A chat. Similar but smaller gaps are observable in the case of the 'Justify' move. Another significant difference is the far higher percentage of 'Challenge' moves in the Group B chats.

The three students who took the largest number of turns within the chats dominated the moves in each group. The 'Challenge' moves are far more evenly distributed in Group A, which suggests greater role flexibility among Group A and may account for the far lower incidence of flaming in this group. Each of the three students who dominated the chats was able to make a significant contribution to most of the roles required for a successful chat. The small number of 'Clarify' moves did, however, suggest a lack of peer facilitation resource.

If we turn to Berzenyi's continuum of illocutionary relationships, it is arguable that the highly conflictual agonistic relationships which developed within Group B crowded out potentially useful contributions by less vocal group members and may have sometimes silenced these students. Much of the remaining interaction in Group B was hierarchical in that power was 'asserted through verbal contests that involve speakers struggling for verbal space and superior performance' (p. 233). By contrast more dialectical relationships characterised by efforts 'to explore an issue and discuss its various viewpoints.' emerged in Group A (p. 233).

Student feedback

Observation data, interviews and the end of course student survey suggest significant differences in orien-

tation to online and face-to-face participation across the class, especially in relation to chat which was generally seen as empowering if sometimes frustrating. Of the 47 students who completed the end of course survey, 35 (74.5%) agreed that chat helped them to participate in the course while only seven students (20%) disagreed with this statement. Most of the students explained their answers in terms of the greater confidence, which they felt in participating in chat than in face-to-face discussions and in the knowledge management and motivational roles of the chats. Student interviews suggest that second language English speakers who were sometimes left behind in a fast moving chat found opportunities for participation which were mostly lacking in the face-to-face sessions.

Discussion and implications

Online chats, or any other form of CMC, should be integrated into the course design otherwise students will not see a need to participate. Beaudin (1999) developed and analysed questionnaires completed by 135 online instructors concerning the challenge of how to keep online discussions on topic. The most important technique for engaging the students was to carefully design the questions addressed in the discussions. If we extrapolate to the broader issue of the teaching and learning models underlying the two interventions, some clear differences emerge. The Images of Africa chats were topic-based interactions led by a lecturer. Students were not involved in any shared task other than a discussion of the stated topics; however, the students in the ITB Simulation were required to act in role as trade negotiators within a complex and highly motivating interplay between competitive and co-operative interaction. In this context, students had to devise a workable process for collaboration if they were to pass any trade deals by the end of the course. Thus, the 'thin chat' of the WebCT chat room started to resemble the 'fat chat' that Polin (2000) observed within MOOs because the conversation was situated within the rich multi-modal reality and intrinsically engaged collaborative activity of the Trade Bargaining Simulation.

Facilitation style and expertise are key influences on student participation. Changes of facilitator between the second and third 'Images' chats and the shift from

a permissive community building style in the first chat towards more didactic approaches in the second and third chats, meant that the style and effectiveness of facilitation varied considerably over the period of the chats. Neither the empathic relationships of the first chat nor the increasingly hierarchical relationships during the last two chats were conducive to the development of a learning community. Clearly the chat facilitators were at the time unfamiliar with the affordances and constraints of chat for learning and teaching. By contrast, the ITB lecturers and tutors only asserted their presence in the face-to-face meetings and allowed leadership and collaborative process to emerge within the chat groups.

The dynamics of each group of online learners has a positive or negative affect on participation. In the ITB simulation we saw how in the absence of strong agreements concerning process or a designated facilitator the agonistic dynamics of a group such as Group B can threaten to sabotage task delivery. In this case, one student who expressed frustration (sometimes to the point of contempt) with his peers was the focal point of open conflict. This risk suggests a need for educator support of peer facilitation.

It is difficult to say unequivocally whether the use of chats represented a move towards an ideal learning situation with students involved in learning conversations. To attempt to answer this question, we explored the distribution of argument roles amongst the students including students responding to each other, initiating new ideas and discussions, challenging, asking questions and also explaining and justifying their viewpoints with supporting evidence.

Generally students in the 'Images' chats avoided taking on critical roles and but tended to state their opinions. However, conventional teaching and learning roles were partially reallocated. Despite the directive style of much of the facilitation students were generally able to take more turns than in a traditional classroom situation. In the ITB chats, students occupied all the argument roles considered in our research. While the chats including critical roles were dominated by three very vocal students, there was still space for a long tail of participation.

If we consider the merits of chat within a blended course design, then the two examples lead us in very different directions. The Images of Africa results

imply that due to the higher proportion of off-topic banter and casual chatter in the chats compared with forums in a similar course, chats might be a more suitable vehicle for the development of social cohesion within the class, than as a place to construct knowledge. However, analysis of the ITB chats suggests that when there are clear learning objectives and even emerging agreements concerning process and peer facilitation, the synchronous environment may be useful both as a space for mobilising group production and for a self-documenting record of the collaboration. In this case, students compensated for the weaknesses of chat with face-to-face communication and e-mail; however, there was a need for effective use of a wider range of tools such as discussion forums and collaborative writing environments to support structured debate and authoring of documents in the semi-virtual bargaining teams. It is difficult to achieve a similar process entirely in chat because more vocal participants who attempt to take the initiative and engage analytically are likely to crowd out contributions by more reticent peers.

Conclusion

The two sets of chats analysed in this paper performed different educational roles within their respective courses and were managed in very different ways. Both interventions represented attempts to improve course communication and learning conversations and both arguably made partly inappropriate use of chat. The Images of Africa chats sacrificed the affordances of chat by focussing increasingly on didactic course delivery while the ITB simulation overrode the constraints of the medium by using chats for detailed negotiation of trade rules. In practice, the successful use of the medium seemed to depend mostly on course design, facilitation style and group dynamics. In the Images of Africa chats, educator choices of facilitation style had a crucial effect on illocutionary relationships, while in the unfacilitated ITB chats these relationships were shaped by the attempts of each group to address issues of peer facilitation and effective process. While the 'Images' intervention was too short to promote the development of online group skills, the improvements in the ITB chats across a whole semester intervention suggest some improvement in student skills. We found that in the ITB in-

tervention chat was useful as a production and documenting space for a student team as well as for social cohesion.

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