Student perceptions of participation opportunities in online synchronous tutorials

H. L. Lim[*,1], and **F. Sudweeks**[2]

[1] Lecturer, The Petroleum Institute, Abu Dhabi, United Arab Emirates
[2] Senior Lecturer, School of Information Technology, Murdoch University, Perth, Western Australia

From a sociocultural constructivist perspective of learning, dialogic interactions between students and tutors support meaning negotiation that leads to knowledge construction. In online educational contexts, interaction between learning parties is largely facilitated by CMC technologies. Most research has focused on asynchronous CMC modes which are held to offer learners an ever-present window for 'speaking'. Less is known about the impact of synchronous CMC modes on participation opportunities in the learning process. Web survey results from two online tutorial groups indicated different perceptions of the availability and use of participation opportunities during chat tutorials. The survey revealed common factors that motivated and inhibited participation, which subsequently presented pedagogical implications for the design of online collaborative learning activities.

Keywords online synchronous interaction; sociocultural constructivism, collaborative group learning

1. Introduction

From a sociocultural constructivist perspective of learning [1], dialogic interactions between students and tutors are crucial for supporting negotiation of meaning that leads to knowledge construction. In online educational contexts, engagement between learning parties is largely facilitated by computer-mediated communication (CMC) technologies such as e-mail, chat rooms and discussion forums. This paper reports survey findings, from a larger comparative case study, on student perceptions of participation opportunities during online synchronous tutorial discussions in an undergraduate course.

Synchronous and asynchronous CMC modes offer different capabilities for facilitating interaction in online learning environments [2]. The asynchronous mode supports delayed-time dialogue through applications such as e-mail and discussion forums. The interactions are usually text-based contributions which could be composed, sent, accessed anytime/anywhere without time and proximity constraints [3]. Most research on educational CMC interaction has focused on the asynchronous mode, which is widely held to offer online learners with an ever-present window for 'speaking' [4] and time for reflection [5-7]. This delayed-time mode can 'expand' time, allowing interactions to be 'stretched out' [8], hence freeing learners from constraints of time and competition for the floor, which tend to be evident in synchronous interactions.

In contrast, the synchronous CMC mode requires communicating parties to be 'present' at the same time for the dialogue to occur through services and applications such as Voice over IP, desktop video conferencing, and Internet Relay Chat. Online synchronous (chat) interactions are mainly manifested as textual messages, composed and sent by parties who are simultaneously logged in chat rooms. Rather than having the facility to order messages in topical or temporal order, as in the case of asynchronous discussion threads, chat messages appear chronologically on-screen with preceding exchanges scrolling up and then off each party's computer screen at a speed corresponding to the pace of the overall conversation [9], offering a potentially permanent record of the proceedings, which is generally not retrievable unless deliberately saved by the user. Some studies have contended that the synchronous CMC mode conveys a sense of communicative presence that reduces *transactional distance* [10] between distant

[*] Corresponding authors: H. L. Lim, hlim@pi.ac.ae, 971-2-5085324, The Petroleum Institute, PO Box 2533, Abu Dhabi, UAE. F. Sudweeks, Sudweeks@murdoch.edu.au, 61-08-93602364, School of Information Technology, Murdoch University, Murdoch, 6150, WA, Australia

learners and enhances socio-emotional aspects of collaborative learning processes [11-14]. Also, the capability of the synchronous mode to 'contract' time could make it particularly appropriate for instructional activities that require interactivity, spontaneity and fast decision-making [15]. Furthermore, the largely text-based chat medium is assumed to filter out visual and social cues [16] enabling participants to have (or perceive to have) equal opportunities for contributing to discussions. However, its synchronicity and conversational characteristics [17] lead to unfavourable comparisons with the asynchronous CMC mode on aspects of time constraint and competition for *turn-allocation* [18] during interaction.

In educational interaction, the literature suggests that the following main factors could affect participation:

- *the text-based chat medium* which displays rapid speed of discussion [13, 19], and multiple concurrent discussion threads in the absence of visual turn-taking cues that could affect interactional coherence and discussion focus [20, 21];
- *design of instructional activity* which includes mandated participation in assessed instructional activities [22], tutor facilitation style [23, 24], and student moderation style [11]; and
- *participant characteristics* which encompass English language proficiency [19], prior experience with the chat medium and its linguistic conventions [15], and gender [11].

Informed by the literature, a case study, conducted in 2005, examined the impact of these factors on participation in collaborative group learning processes from a sociocultural constructivist perspective. This paper reports a subset of findings from this unique case which makes extensive use of educational chat interaction.

2. The case study

The case study was two tutorial groups (G1, G4) engaged in collaborative learning in a series of 11 one-hour online tutorial sessions over a 13-week semester in 2005. The tutorials took place in WebCT chat rooms and were part of a unit of study on computer-mediated work processes, The unit, *Organisational Informatics* (OI), is available to third-year undergraduates at Murdoch University. It adopts a hybrid course delivery design, offering face-to-face lectures and chat tutorials to *internal* and *external* students who, respectively, undergo the course on-campus and via a distance learning mode.

Both tutorial groups were involved in equivalent learning activities covering the same content areas. However, there were some differences in student profile, group size, and tutors (Table 1), which could provide valuable insight into their collaborative online learning processes.

Table 1 Characteristics of tutorial groups 1 and 4

Characteristics	**Group 1**	**Group 4**
Group tutor	- Rachel* (Part-time)	- Fay* (Full-time and unit co-ordinator)
Group size	- 15 students, 1 tutor	- 9 students, 1 tutor, 1 researcher
Nationality	- Majority of international students, minority of Australian students	- Majority of Australian students, minority of international students
English Language proficiency	- Majority of ESL/EFL speakers, minority of native English speakers	- All native English speakers
Gender	- 3 female and 12 male students	- 1 female and 8 male students

*Names in the study are pseudonyms except for Fay who was a tutor and the unit co-ordinator.

The chat tutorials were designed to facilitate students' construction of knowledge through participation and reflection [22]. The weekly tutorials were conducted in a seminar style, with a tutor-facilitator and one or two student presenters moderating the discussion. The presenter role was rotated among all the students in each group. More specifically, the presenter moderated the discussion based on his/her critiques of the week's readings. The tutor facilitator was present throughout the session and evaluated the presenter's performance as well as the extent of participation by other students in the discussion. The other students were expected to participate actively during discussions and evaluate the presenter as part

of a peer assessment of participation with the aid of archived discussion logs. Essentially, the constructivist pedagogical framework of the OI unit was reflected in the tutorial activity that involved critical reviews of readings, dialogic exchange of perspectives, and student reflection on learning.

3. Results

At the end of the semester, a web survey was administered to 23 student respondents from both groups with return rates of 93% (G1) and 89% (G4). The survey covered different aspects of the online learning experience. This paper presents findings on: (a) perceptions of availability and exercise of participation opportunities during tutorial discussions; and (b) factors that motivated and inhibited participation.

3.1 Perception of participation opportunities

Results in Table 2 show that participation opportunities in discussions were perceived to be *present* and *exercised* by most respondents, with greater agreement found in G4.

Table 2 Groups 1 and 4: Presence and use of participation opportunities

		*SA**	*A**	*D**	*SD**	*UJ**
I had plenty of opportunities to participate in the discussion	**G1**	3 (23.1%)	8 (61.5%)	2 (15.4%)	0 (0.0%)	0 (0.0%)
	G4	3 (37.5%)	5 (62.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
I was able to make best use of the opportunities available for participation	**G1**	4 (30.8%)	7 (53.8%)	1 (7.7%)	0 (0.0%)	1 (7.7%)
	G4	0 (0.0%)	7 (87.5%)	1 (12.5%)	0 (0.0%)	0 (0.0%)

*SA = strongly agree; A = Agree; D = Disagree; SD = Strongly disagree; UJ = Unable to judge

Since there were contrary experiences reported in both groups, possible factors affecting participation were further explored and are described in the next section.

3.2 Factors that motivated and inhibited participation

Respondents were asked five sets of questions covering a range of factors motivating and inhibiting participation. Sets 1 to 4 were closed questions that examined factors located from the literature: *roles*, *facilitation style*, *assessment*, and *turn-taking behaviour*. Set 5 comprised open-ended questions that captured other factors stated by respondents as affecting participation during discussions. Even though both groups underwent equivalent learning activities, given the different group profiles, it was not unexpected that certain factors were found to motivate participation within one group more than another.

Essentially, responses to the five sets of questions showed that participation in G4 was largely encouraged by the following factors:

- the *presenter role*, in which all aspects of online communication and management of discussion were regarded as effective;
- the *tutor facilitation style*, which supported the presenter in the management and stimulation of discussion;
- *tutor assessment* of participation, which encouraged more activity; and
- *turn-taking behaviour*, which indicated greater tendencies towards making early and additional contribution s to discussions.

However, participation in G1 was mainly motivated by:

- the *presenter facilitation style*, which stimulated participation and ensured relevance of discussion; and
- *tutor* and *peer assessment* of participation.

In other words, while G1 participation was largely motivated by peer-related factors (facilitation and assessment), G4 participation was mainly encouraged by tutor-related factors (facilitation and assessment) with the greater ease reported in the presenter role attributed to tutor support received by G4 re-

spondents in online communication and management of discussions. These findings may be explained by the extent of learning support provided by the two tutors. Overall, Rachel (G1) was minimally involved in the learning process, whereas Fay (G4) displayed greater efforts to scaffold interactions by clarifying content issues, sharing information and managing discussions. The more intense involvement by the G4 tutor could be due to Fay's roles as tutor and unit coordinator with the accompanying implication that Fay had a higher stake in ensuring the success of the learning process.

Regarding turn-taking behaviour, while G4 respondents were less likely to refrain from making early and additional contributions to discussions, G1 reported a greater tendency to *avoid* making additional contributions when others had expressed similar ideas, preferring to let discussions develop before joining in. Although such turn-taking behaviours by G1 conform to the rules of 'orderly talk' [18] that add to discourse coherence, the avoidance of opportunities to participate implies a reduced involvement in the learning process, which could undermine the unit's pedagogical assumption that active participation in the dialogic sharing of individual understandings supports knowledge building.

Of particular interest are factors *common to both groups* that were found to *motivate and inhibit* participation. A deeper understanding of their combinatory effect could serve a broader purpose of guiding the pedagogical design of collaborative-constructivist group learning activities that considers the impact of the CMC mode on facilitating educational interaction. The common factors of *the synchronous CMC medium*, *the presenter*, and *quality of online interaction*, which emerged from responses to open-ended questions, are discussed below.

The synchronous CMC medium was found to encourage expression of views and provided a novel learning experience generating greater collaborative efforts. However, it also presented difficulties for complete expression of thought attributed to the speed and reduced non-verbal cues characteristic of the text-based chat medium.

> The main factor i think that because it was not face-to-face i felt abit more at ease at putting forward my opinions. The tutorial being online really did help. Gave me more confidence. [Scott]
> At times I found that I had a lot of things to say, but by the time I had thought of how to word my comments appropriately and typed them, the discussion had moved on. This is similar to what would happen in face-to-face communications, but seemed to either occur more often, or become more noticeable when it happened. [Jack]

The presenters' different abilities in facilitating, stimulating participation and ensuring relevance of discussion were found to both motivate and inhibit participation. While participation was encouraged when "tutorial presenters throw questions" (Diane), difficulties were experienced when "the presenter asks questions which are totally unrelevant to the topic" (Wendy).

While the *quality of online interaction* was reported to motivate contribution to discussion when reflecting the presence and acceptance of different perspectives, participation was inhibited when there was dominance of discussion by certain participants that compounded the difficulties of turn-allocation and ensuring the visibility of own contributions in an online environment.

> Well I guess what encouraged me... was that everyone in the tutorial group was open and accepting of other ideas and feelings. They were all willing to listen. [Robin]
> Sometimes I feel that by contributing during a persons presentation of the tutorial, that it will either be overseen, or disrupt the flow of the presentation. [Colin]

4. Conclusion

Given the sociocultural constructivist assumption that interaction supports meaning negotiation that builds new knowledge, availability of opportunities to participate is thus essential to the learning process. Findings of different perceptions of availability and use of participation opportunities during chat tutorials prompted further analyses which identified factors that motivated participation in G4 more than G1. Additionally, factors common to both groups which motivated *and* inhibited participation were found. Since these factors transcend differences in groups and do not exclusively motivate or inhibit participation, it implies that the combinatory effect of these factors should be considered in designing effective online collaborative-constructivist group learning activities that encourage participation and minimize potential sources of frustration over the nature of chat interaction.

References

[1] L. Vygotsky, *Thought and Language*. Cambridge, MA: MIT Press. Revised and edited by A. Kozulin, 1986, 1962.

[2] J. Ngwenya, D. Annand, and E. Wang, "Supporting asynchronous discussions among online learners," in *Theory and Practice of Online learning*, T. Anderson and F. Elloumi, Eds. Canada: Athabasca University, 2004, pp. 319-347.

[3] J. Lapadat, "Written interaction: A key component in online learning," *Journal of Computer-Mediated Communication*, vol. **7**, 2002.

[4] K. Meyer, "Face-to-face versus threaded discussions: the role of time and higher-order thinking," *Journal of Asynchronous Learning Networks*, vol. **7**, pp. 55-65, 2003.

[5] L. Harasim, S. R. Hiltz, L. Teles, and M. Turoff, "Network learning: A paradigm for the twenty-first century," in *Learning Networks: A Field Guide to Teaching and Learning Online*. Cambridge. MA: MIT Press, 1995, pp. 271-278.

[6] P. Pawan, T. Paulus, S. Yalcin, and C. Chang, "Online learning: patterns of engagement and interaction among in-service teachers," *Language Learning and Technology*, vol. **7**, pp. 119-140, 2003.

[7] D. Garrison, T. Anderson, and W. Archer, "Critical inquiry in a text-based environment: Computer conferencing in higher education," *Internet and Higher Education*, vol. **11**, pp. 1-14, 2000.

[8] W. Shumar and K. Renninger, "Introduction: On conceptualizing community," in *Building virtual communities: Learning and change in cyberspace*, K. Renninger and W. Shumar, Eds. New York: Cambridge University Press, 2002, pp. 1-17.

[9] C. Werry, "Linguistic and interactional features of Internet Relay Chat," in *Computer-mediated Communication*, S. Herring, Ed. Philadelphia, USA: John Benjamins Publishing Company, 1996, pp. 47-64.

[10] M. Moore and G. Kearsley, *Distance education: A systems view*. California: Wadsworth, 1996.

[11] C. Chou, "A comparative content analysis of student interaction in synchronous and asynchronous learning networks," presented at 35th Annual Hawaii International Conference on System Sciences, Hawaii, 2002.

[12] L. Duemer, D. Fontenot, K. Gumfory, and M. Kallus, "The use of online synchronous discussion groups to enhance community formation and professional identity development," *The Journal of Interactive Online Learning*, vol. **1**, 2002.

[13] D. Mercer, "Using synchronous communication for online social constructivist learning," presented at 2003 CADE-ACED Conference, St Johns, Newfoundland, 2003.

[14] R. Schwier and S. Balbar, "The interplay of content and community in synchronous and asynchronous communication: Virtual communication in a graduate seminar," *Canadian Journal of Learning and Technology*, vol. **28**, 2002.

[15] K. Murphy and M. Collins, "Communication conventions in instructional electronic chats," *First Monday*, vol. **2**, 1997.

[16] S. Kiesler, J. Siegel, and T. McGuire, "Social psychological aspects of computer-mediated communication," *American Psychologist*, vol. **39**, pp. 1123-1134, 1984.

[17] H. Kortti, "On some similarities between discourse in the IRC and the conventions of spoken English," in *Conversation and Grammar*, 2004, (Spring) ed, 1999.

[18] H. Sacks, E. Schegloff, and G. Jefferson, "A simplest systematics for the organization of turn-taking for conversation," *Language*, vol. **50**, pp. 696-735, 1974.

[19] M. Dykes and R. Schwier, "Content and community redux: Instructor and student Interpretations of online communication in a graduate seminar," *Canadian Journal of Learning and Technology*, vol. **29**, 2003.

[20] S. Herring, "Interactional coherence in CMC," *Journal of Computer Mediated Communication*, vol. 4, 1999.

[21] R. Pilkington and S. Walker, "Facilitating debate in networked learning: Reflecting on online synchronous discussion in higher education," in *Advances in research on networked learning*, vol. **4**, *Computer-Supported Collaborative Learning*, P. Goodyear, S. Banks, V. Hodgson, and D. McConnell, Eds. Massachusetts, USA: Kluwer Academic Publishers, 2004, pp. 67-90.

[22] F. Sudweeks and S. Simoff, "Participation and reflection in virtual workshops," presented at 3rd Western Australian Workshop on Information Systems Research, Perth, Australia, 2000.

[23] G. Cox, T. Carr, and M. Hall, "Evaluating the use of synchronous communication in two blended courses," *Journal of Computer Assisted Learning*, vol. **20**, pp. 183-193, 2004.

[24] C. Kneser, R. Pilkington, and T. Treasure-Jones, "The tutor's role: An investigation of the power of Exchange Structure Analysis to identify different roles in CMC seminars," *International Journal of Artificial Intelligence in Education*, vol. **12**, pp. 63-84, 2001.