F. Sudweeks, H. Hrachovec and C. Ess (eds). Proceedings Cultural Attitudes Towards Communication and Technology 2010, Murdoch University, Australia, 384-393.

COMPUTER-MEDIATED COLLABORATION AND THE TRANSITIONING OF INTERCULTURAL SPACES

WILLIAM MCMICHAEL
University of British Columbia, Canada

Abstract. The following implementation of computer-mediated collaboration aims to help international students improve the quality of their intercultural experiences by applying strategies for synthesizing and applying knowledge obtained through cross-cultural interactions. It does this by engaging learners in computer-mediated collaborative activities that help increase their factual knowledge in areas of individual relevance, develop personally effective retrieval and application frameworks and improve their ability to monitor their own thinking and learning.

1. Introduction

The learning context for the implementation of computer-mediated collaboration described in this prospective study is a second-year university course in field research methodology. Participants are second and third-year exchange students from a Japanese university in the first semester of a two-semester academic year at the University of British Columba. They are at the beginning of their own cross-cultural transition from an essentially monocultural, collectivistic university life in Japan to a multicultural, individualistic life in Canada. For them, at this time, Canada is more an idea than it is a place, a virtual world brought with them from Japan made real only by their physical presence. Some students, however, will never make the transition to real Canada. They will remain in a mid-Pacific dream world where they feel most safe. This implementation is intended primarily to help them feel safe enough to make the most of their intercultural opportunities.

As part of their coursework, in the second week of classes, students undertake a four-week 18-hour field research project that begins with a self-guided site visit to Vancouver's original Japantown, located in Canada's poorest postal code.[1] It is a harsh dose of reality. There are no Japanese there, no children, and very few women. There are homeless men of many shapes and histories. Working in pairs or groups of three, the students interact verbally with the homeless and with local shopkeepers, service

[1] The name "Japantown" commemorates a vibrant community that once existed in the location. The original Japanese-Canadians were evacuated at the outbreak of the Pacific War, ostensibly for national security reasons. Their property was confiscated and sold by the Canadian government to cover the cost of the evacuation. Virtually none returned.

providers and residents, making careful audio, digital and written records of their experiences. The project then continues in online mode where field notes are collated and analyzed collaboratively to produce comprehensive descriptions and narratives of the site visit and themes for further exploration. Groups select a theme for their final report and continue with appropriate primary (e.g. online survey, email and blog discussion) and secondary (e.g. online journal research, internet search) research activities. The format of the final report is a four-page *manga* cartoon, developed online, that presents their learnings in visual and textual modes of communication. The cartoon the participants produce thus becomes part of a larger narrative of their own intercultural transition. The implementation makes use of participant observation, online documentary research, journal writing and microblogging in the collection of data; social networking and discussion forums for data analysis; and multi-media project collaboration for project reporting. It further applies a knowledge representation framework derived by the author from the work of Mohan (1986) that facilitates the co-construction of knowledge by collaborants.

2. Computer Mediated Communication

The efficacy of computer-mediated communication (CMC) as a tool for transitioning Vygotsky's (1962) zones of proximal development[2] has been much studied in the scholarly literature. In the early stages of academic research on CMC, there was a significant epistemological division on the transitioning between off-line (real) and on-line (virtual) collaborative learning. Alavi (1994) argued that computer mediated group decision and support systems enhance collaborative learning effectiveness by facilitating "the construction of emergent knowledge" and supporting "caution and teamwork" (p.172). The locus of control for learning became a contentious issue. The two worlds were seen as independent spaces by some (Beck & Fetherston, 2003; Miller et al, 2001) and mutually constituted by others (Valentine & Holloway, 2001; Warschauer, 1997). As people begin to use information and communication technologies (ICTs) for social networking, entertainment, information gathering and communication in their daily lives, the distinction between what is real and what is virtual has become less contested, perhaps because it seems less relevant to how people live their lives. For whatever reason, recent research has tended to focus more on the need for learning that is radically different from the traditional emphasis on print-based text (Davidson, 2009; Demaray & Brown, 2009; Endicott-Popovsky, 2009; Garland, 2010). The stakes it seems are much higher now than they were only a few years ago. Those who lack technology skills now risk becoming disadvantaged far beyond the labour market in a world of online banking, shopping, blogging, reading, gaming, voting, pirating, scamming, hoaxing and viral marketing.

In the dynamic and volatile technological environment that is now emerging there are both challenges and opportunities for computer-mediated collaborative learning that were not possible before. For example, as educators well know, effective collaborations

[2] i.e. the gap between the amount of knowledge one may obtain by working individually and that by working in collaboration with peers and experts.

result only when all participants are fully engaged in the process. When participants fail to complete their agreed upon assignments or to disappear for stretches at a time, collaboration becomes ineffective. Their behaviour causes a "hole" to emerge in the process that many times can only be repaired through extra endeavour on the part of one or two other members of the group. Furthermore, while CMC offers the possibility for "many-to-many" written communications, the discussion format differs greatly from spoken group discussions in regard to "…turn-taking, interruption, balance, equality, consensus and decision making." (Warschauer, 1997:473). In response, Cummings & Kiesler (2005) argue that success in collaborative learning is possible if it is well coordinated. They write: **"**(what is needed) is coordinating work so that (participants) can effectively use one another's ideas and expertise without frequent face-to-face interaction" (p.704). Participants need opportunities to discuss resources, monitor and review progress in order to work effectively and to sustain an equilibrium in an "ecology of cultures", that encourages participation and avoid the appropriation of one culture by another. As Zhao & Frank (2003) note: "(such an) ecological model (takes) us beyond simply identifying and correlating factors and focus(es) our attention on interactions, activities, processes and practices."

The current study takes the position that by working collaboratively online, learners have opportunities to share resources, construct meaning together, support and encourage each other as well as analyse each other's work in an ecologically and psychologically non-threatening environments. These are safe spaces for open and honest dialogue that at the same time reify how collective human agency can enable people to become more than merely products of their environments, but transformers as well.

3. Collaborative Data Collection

The computer-meditated collaboration described here aims to improve learners' ability to increase their factual knowledge by developing their data collection and collaboration skills through participant observation (primarily informal interviews and direct observation), online documentary research using academic indexes and online journals and microblogging with other members of the research group. Prior to the site visit, learners are provided with essential site information and an intensive orientation to the roles and responsibilities of researchers in intercultural settings. Only those learners who demonstrate their readiness to undertake individual field research are permitted to do so. Other learners are assigned related research tasks. Course time limitations prevent any sort of meaningful longitudinal studies, so in order to intensify the experience, research teams consisting of 2-3 individuals all focus on different aspects of the site. For example, one team might focus on housing, another on food security and another public safety. Informal conversations, observational notes and comments are recorded in visual, audio or text format for later analysis. Online source materials such as government publications, academic journal articles, audio and visual media, newspapers and learner-developed surveys are used to support whatever understandings the research teams are advancing. Academic Indexes such as Academic Search Premier, JSTOR and ScholarGoogle are helpful for locating scholarly articles on a wide range of topics.

Records of field observations are maintained during the site visit using notebooks along with hand-held text messaging, instant messaging and digital audio devices. Learners share their whereabouts and status updates with their co-investigators by sharing brief text updates or micromedia such as photos or audio clips to the research group through such microblogging sites as Twitter, Plurk, Jaiku and identi.ca. This application of microblogging exercises its potential to include opportunistic information sharing in a socially and emotionally connected environment. When the class meets as a whole, the teams collate, elaborate and enhance their field notes. The teacher is an active participant in all group discussions. Figure 1 illustrates how this collaborative process begins as a group brainstorming activity on Google Documents. The expanded microblogs are then shared online with other groups in the course using social networking software. Figure 2 illustrates this process using Ning. Finally the brainstorming and blog responses are combined by each group in a narrative of the site visit, using group-editing software. This document becomes the base document for collaborative online analysis of the data described in the following section.

S1: Things we found

S2: at first, we went to China town, right? There were two styles of window. SF and Chinese style

C: yes

S1: SF style was outside while Chinese was inside window

S2: In Japantown, at first, we went to the Vancouver Buddhist church. Looking at it, in spite of the fact we did not know its history, it was sublime place

S1: There was also First United Church, which is now shelter for homeless people. Beside Oppenheimer Park two women from India distributed some food to poor people.

T: They were "Blue Nuns" from Mother Teresa's organization in Calcutta

S3: Buddhist church has 2 big gates and dirty windows. Some windows were broken.

S2: There were 4 colourful houses and they looked cute. Each of them had a small garden.

Figure 1: Reconstructing field observations from microblogs using Google Documents

Discussion Starter: We can find homeless people easily in both Japan and Canada, such as on the street and in the park. However they have big differences in their attitude. Japanese homeless people are more independent than Canadian one.

Responses
S1: I think Japanese homelessness are more independent than Canadian one, because Japanese homeless people seem to try to make living by themselves

S2: I think so, too. I think Japanese homeless hide in the park or under the river, because they cannot have places to live. However, Canadian homeless can have places to live. They do not have to hide because Canadian government help homeless something to eat or live.

S3: In Japan, I see many homeless people at stations or even at river sides, (usually under bridges), however here in Canada, I do not so many of them at places like that. I think it is because homeless people in Canada are helped by government or volunteer workers.

S2: In Japan, homeless people live in park or riverside. They make houses with cardboard and newspaper. Nobody help them. Opposite to them, in Canada, a lot of churches give foods to homeless people.

S4: I was shocked at the situation of the homeless people. I think many homeless people in Canada are crazy by using drugs. However in Canada, there are many people and places to help them, so I think we have to help those people in Japan actively like Canada.

Figure 2. Blog postings on class Ning site

4. Collaborative Data Analysis

The current implementation utilizes Bernard Mohan's "Knowledge Framework" (1986), to help learners retrieve data in structured and meaningful ways, then code it in order to generate and apply findings. The primary function of the Knowledge Framework is as a guide to the structure of knowledge within various domains. As such it serves well as an online guide for discussion, analysis and review processes.

4.1. RETRIEVAL FRAMEWORK

The framework consists of six “activities” divided into practical and theoretical knowledge categories (Table 1). An activity is considered to be a more precise concept

than "topic" in that "…a topic can be talked about but an activity is a combination of action and theoretical knowledge" (Mohan, 1986, p.42). Activities have other aspects that are especially relevant to the intercultural focus of the current implementation when one considers a social practice, one that has a publicly acknowledged structure and standards, to be an activity.

Table 2 illustrates how the Knowledge Framework was applied to debriefing an event and to the construction of a comprehensive post-event narrative. The Description and Classification sections establish the settings for cross-cultural interactions, Sequence establishes the order of events, Principles the reasons why the events occurred, then Choices and Evaluations to describe the lessons learned from the experience.

Table 3 illustrates how one group applied the framework to the coding of data from the blog in Figure 2 and subsequent construction of a narrative that follows the structure of the framework (Figure 3).

Table 1. Formal statement of the Knowledge Framework. Mohan (1986, p.40)

	Action situation: Practical Existing at a particular time and place	Background Knowledge: Theoretical Universals - timeless	
Description	State of affairs *A* at T_1 *	State of affairs *A* includes or excludes State of Affairs *B*.	Concepts and Classification
Sequence	State of Affairs *A* at T_1 is followed by State of Affairs *B* at T_2.	State *A* is necessary or Sufficient for State *B*.	Principles
Choice	State of Affairs *A* and *B* are alternative futures at T_1.	State of Affairs *A* is preferable to State of Affairs *B*.	Evaluation

Table 2. The Knowledge Framework applied to the debriefing process

	Action situation: Practical Existing at a particular time and place	Background Knowledge: Theoretical Universals - timeless	
Description	Description of setting: location, time, external conditions, etc. during the visit.	Similarity/difference of setting to expectations or lived experiences of researcher	Concepts and Classification

Sequence	Sequence of activities in events that were observed during the site visit	Reasons why activities occurred: cause/effect relationships	Principles
Choice	Good and bad decisions made by subjects and researchers during the visit.	Statement of opinion of observed behaviour and response of researchers	Evaluation

Table 3. The Knowledge Framework applied to coding text for narrative reconstruction (excerpt)

	Practical	Theoretical
(I think) we can find homeless people easily in both Japan and Canada, such as on the street and in the park		Conceptions
However they have big differences in their attitude		Evaluation
(I think) Japanese homeless people are more independent than Canadian one		Evaluation
(I think) Japanese homelessness are more independent than Canadian one, because Japanese homeless people seem to try to make living by themselves	Choice	
(I think) Japanese homeless hide in the park or under the river, because they cannot have places to live		Principles
Canadian homeless can have places to live	Description	
They do not have to hide because Canadian government help homeless something to eat or live		Principles
In Japan, I see many homeless people at stations or even at riversides, (usually under bridges), however here in Canada, I do not so many of them at places like that.	Description	

Last week we visited Japantown in the poor part of Vancouver, but there were no Japanese. They had to move out of here more than 60 years ago because of war but still we could see some Japanese names on the side-walks. Now it has many homeless people. Almost of them were men. There were almost no women and no children. The men were mostly 30 to 50 years old and they looked sad. We thought some of them were on drugs or sick.

Some nuns from Calcutta who were dressed in blue clothes were serving hot dogs and chips to many men. They told us they have been in many cities around the world helping poor people. One man could speak a little Japanese. His name was Rick and he lived in Yokohama for a short time. He said he liked to live in Japantown because the people were nice.

In Kyoto we never saw such a thing. Homeless people live under bridges and in parks. We never see them because they work all day and come back at night. We think they are more independent than homeless people in Van-couver. Vancouver homeless have a place to stay and they are not hungry. They get money from people and they do not hide.

Figure 3: Narrative Reconstruction

5. Evaluation

The process of manga development begins by generating a theme for the comic from the data obtained through coding. The data "must include the perspectives and voices of the people" whom have been included in the study (Strauss & Corbin, 1994:274). Data is selected that involves identifying situations/portions in the collective data that lead to greater understanding of the research team's area of interest. Images in the frames are saved in portable document file (.pdf) format, as photographs or combinations of both. Manga frame templates are available from ComicLife.com that are helpful for story-boarding. Images may be simply dragged onto a frame then lettered. Figure 4 illustrates how text may be rendered in a frame to represent external voice (callouts), internal voice (thought balloons), narrative (rectangles) and sounds.

Findings and conclusions of the group explorations are developed through online collaboration and presented in four-page educational comics (manga), each page containing 4-5 frames that demonstrate what meanings the researchers have inferred from their collected data. The overall structure of the manga cartoon is derived from the Knowledge Framework. The first page describes the setting, page 2 explores sequences and choices, concepts and principles are examined in pages 3 and the final page is an evaluation of the behaviour depicted in the manga.

Figure 4. Sample manga cartoon frame

6. Discussion

> "We may find, in this journey, that our enthusiasm to infuse the educational world with technologies, we have lost something of humanity along the way"
>
> Jacobsen & Goldman (2001, p.109)

Continuous comparison through reflection and revision, a very human activity, is central to the transitioning process described in this paper. The coding process in the development of the final manga requires that, in order to achieve a group consensus, individual participants must contribute, support and evaluate their ideas with the help of their peers. The recursive nature of the blogging and writing activities throughout the implementation, blending person-person interaction with person-technology interaction as they do, helps ensure not only the accessibility but also equality of opportunity for all participants. Working in small groups, learners have opportunities to share resources, construct meaning together, support and encourage each other as well as analyse each other's work in a non-threatening environment. The instructor's job is to help as much as possible co-develop safe learning spaces with the learners and facilitate the flow of communication between those spaces. To that end, bearing in mind the admonition by Jacobsen and Goldman, the currently emerging ICT technologies may prove very helpful.

References

Alavi, M. (1994). Computer-mediated collaborative learning: An empirical evaluation. *MIS Quarterly*, 18(2), 159-174.

Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science*, *9*(3), 75-78.

Beck, N., & Fetherston, T. (2003). The effects of incorporating a word processor into a year three writing program. *Information Technology in Childhood Education Annual*, *2003*(1), 139-161.

Cummings, J. N., & Kiesler, S. (2005). Collaborative research across disciplinary and organizational boundaries. *Social Studies of Science*, *35*(5), 703-722.

Davidson, C. (2009). Young children's engagement with digital texts and literacies in the home: Pressing matters for the teaching of English in the early years of schooling. *English Teaching: Practice and Critique*, *8*(3), 36-54.

Demaray, M. K., & Brown, C. F. (2009). Prevent cyberbullying: Suggestions for parents. *Communique*, *38*(4), 1.

Endicott-Popovsky, B. (2009). Seeking a balance: Online safety for our children. *Teacher Librarian*, *37*(2), 29-34.

Garland, V. E. (2010). Emerging Technology trends and ethical practices for the school principal. *Journal of Educational Technology Systems*, *38*(1), 39-50.

Jacobsen, M., & Goldman, R. (2001). The hand-made's tail: a novel approach to educational technology. In B. Barrell (Ed.) *Technology, Teaching and Learning: Issues in the Integration of Technology*, Calgary, AB: Detselig Enterprises Ltd., 83- 112.

Miller, L.M., Schweingruber, H., & Bradenburg, C.L. (2001). Middle school students' technology practices and preferences: Re-Examining gender differences. *Journal of Educational Multimedia and Hypermedia, 10(2)*, 125-140.

Mykota, D., & Duncan, R. (2007). Learner characteristics as predictors of online social presence. *Canadian Journal of Education / Revue canadienne de l'éducation*, *30*(1), 157-170.

Thomas-Hunt, M. C., Ogden, T. Y., & Neale, M. A. (2003). Who's really sharing? Effects of social and expert status on knowledge exchange within groups. *Management Science*, *49*(4), 464-477

Miller, L.M., Schweingruber, H., & Bradenburg, C.L. (2001). Middle school students' technology practices and preferences: Re-examining gender differences. *Journal of Educational Multimedia and Hypermedia, 10(2)*, 125-140.

Strauss, A. & Corbin, J. (1994). Grounded theory methodology: An overview. In: *Handbook of Qualitative Research* (Denzin, N., K. and Lincoln, Y.,S., Eds.). London: Sage Publications

Valentine, G, & Holloway, S. (2002). Cyberkids? Exploring children's identities and social networks in on-line and off-line worlds. *Annals of the Association of American Geographers*, *92(2)*, 302-319.

Vygotsky, L.S. (1978). *Mind and society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press

Warschauer, M. (1997). Computer-mediated collaborative learning: Theory and practice. *Modern Language Journal Quarterly*, 81(4), 470-481.

Zhao, Y. and Frank, K. A., 2003. An ecological analysis of factors affecting technology use in schools. *American Educational Research Journal*, 40(4): 807-840.