Redesign of the Technology Component of a Japanese Language Course Using a Model of Situated Cognition

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Abstract: This paper first reviews the framework of situated cognition that is intended as the theoretical underpinnings for the redesign of (the technology component of) an undergraduate foreign language course. Secondly, this paper analyses the data from three surveys and two focus groups collected in the course. Based on the findings from the analysis, this paper discusses how a potentially more effective and robust learning environment may be created using situated cognition to guide the redesign of the (technology component of the) course. Specifically, a contextual learning environment, the social aspect of learning, and scaffolding provided at some specially difficult points of learning are explored for creating such an effective and robust learning environment.

Introduction

As an alternative learning model, situated cognition emphasizes the contextual dimension of knowledge. According to this model, a learning activity is “situated in place and time” and that each activity “involves the coming together of particular individuals in a particular setting with particular artifacts, all of which have their own histories, which in turn, affect the way in which the activity is actually played out.” (Hung, 2002; Wells, 2000, p. 61)

One way to provide context for student learning has been exercised in a research project called “Project Decide”, a computer-based simulation course in which video clips, staff/student profiles, and reference documents were embedded to provide the history, the coming-into-being of the things for students to locate areas of their concern in context (Maynes, Mappin, & McIntosh, 1998).

Learning is both social and individual. It is first interpsychological (i.e., interpersonal) and then intrapsychological (i.e., internal) (Lee & Smagorinsky, 2000; John-Steiner & Meehan, 2000). It (learning) is “an operation that initially represents an external activity [which] is reconstructed and begins to occur internally” (Vygotsky, 1978, p. 56). Collaboration in situated cognition is based on this notion of both inter- and intrapsychological. In collaboration, meaning is “a coordinated, synchronous (and asynchronous) activity that is the result of a continued attempt to construct and maintain a shared conception of a problem” (Roschelle & Teasley, 1995, p. 70). Collaborative learning has been proven as an effective learning approach that cultivates learners’ team orientation and results in a higher quality production than non-collaborative learners (Lea, Rogers, & Postmes, 2002).

Still another key element of situated cognition is scaffolding. Hannafin, Land, and Oliver (1999) see scaffolding as the “process through which learning efforts are supported” by various means (p. 131). Scaffolding is provided to learners at the time when their understanding is unstable or incomplete, particularly in the initial stage of their learning in a new domain, and in especially difficult cases (Choi & Hannafin, 1995; Lave & Wenger, 1991). Computer-based technologies have been used successfully for scaffolding student learning, such as the video-based adventures used in the Little Planet Literacy Series that helps kindergarten, grade one and grade two students write books, and the software used by the Institute for Research on Learning to help students explore algebra concepts (Bransford, Brown, & Cooking, 1999). This paper explores how scaffolding, authentic learning tasks, and a contextual learning environment provided to students in an upper-level Japanese language course at specially difficult points of learning could create an effective learning environment.
Data Collection

In consultation with the instructor of an advanced undergraduate Japanese course (Japan401, offered by the Department of Eastern Asian Studies in the Faculty of Arts at the University of Alberta, Canada), four class modules were prepared by faculty at Meiji University in Tokyo, Japan. The course was centered around these four modules with four to five class periods devoted to each module. These class periods were used by the instructor as time to prepare the class for the delivery of lectures from instructors at Meiji University, as time devoted to discussion and review of the lectures once they were delivered, or as time for interaction between Alberta students and the Meiji instructor responsible for the lecture in the current module. The lectures prepared by Meiji University instructors used various Web-based and computer-based technologies involving two-way synchronous or asynchronous communication between the Meiji instructors and the University of Alberta students, or between the Meiji and Alberta students (with their instructors.)

During the course, the University of Alberta students voluntarily participated in three surveys and a focus group, which were administered to investigate the effectiveness of the technology components of the course. The survey asked a variety of questions to examine the effect of technology on student’s understanding, their perception of technology, their overall satisfaction, and their suggestions for future improvement.

Two focus groups, one with students from the University of Alberta and one with faculty from both Meiji and Alberta, centered on the four lecture modules asking for participants’ suggestions for further improvement of the (technology component of) the course. In the student focus group, conducted towards the end of the semester, seven of the eleven students enrolled in the class participated. In the faculty focus group, participants included three faculty members from Meiji University in Tokyo, Japan and the University of Alberta instructor responsible for Japan401. The focus groups were audio recorded and transcribed. The following section analyzes the data collected from the focus groups and surveys.

Data Analysis

Students felt that their interaction with the Meiji instructors and their students in a live video-conference provided them with an excellent opportunity to practice listening and speaking even though they were not able to understand everything said to them in Japanese, the sole language of instruction and communication. Although some of the students felt a bit frustrated with their inability to comprehend much of what transpired in the video conference due to the pace of the interactions and the unfamiliar vocabulary, in every survey as well as in the focus group most students reported that they would participate in a live video-conference again.

Students were also positive about email communication with instructors and students. They felt that their email interaction with Meiji University students was not only a good way to practice writing Japanese, it was also a way to engage in a more comprehensive discussion as well as an exchange ideas and information. They felt that the downside was that they were not given adequate preparation, specific enough topics, nor enough time to communicate in-depth with their Meiji counterparts. However, most indicated a strong willingness to participate in such email exchanges again, if given the opportunity. This willingness to participate in future video-conferences and email exchanges is a strong indication of the students’ affirmation of this technology and their overall positive reaction to this type of course delivery.

In the faculty focus group, where the discussion centered more on the future possibilities rather than past efforts, it was suggested that the use of technology should be guided by appropriate pedagogy. Members of the faculty focus group view technology to as a tool, which in itself does not necessarily make things happen. They felt that only guided by a way of effectively using a theory of learning, could this tool assume its potential (Carr, Jonassen, Litzinger, and Marra, 1998; Kearsley, 1999).

The faculty focus group also felt that learning in context was necessitated suggesting that more print materials and more time be provided before each live video session and email interaction. Specifically, student preparation in terms of print materials and preparation time before each synchronous and asynchronous session would enable students to gain some background knowledge and thus locate what was to be learned in context (Brown & Duguid, 1991; Jonassen, 1997).

Part of the faculty focus group discussion dealt with the social aspect of learning. Faculty members suggested that Meiji and Alberta students work in pairs on a similar project. This would foster the students’ collaborative work through their individual contribution to the completion of the project (Jaworski, 2000; Littleton & Hakkinen, 1999).
Incorporating Situated Cognition Elements in the Course

Contextual information allows learners to relate particular individuals/things to specific activities/events. It thus sets the stage, provides the mindset that will help learners/students to better understand events, and/or items of concern, and things to be dealt with (Brown, Collins, & Duguid, 1991; Hannafin et. al, 1999; Jonassen, 1996; Lave & Wenger, 1991). In Japan 401, contextual information might be provided in the form of print materials, video clips, and other materials that are closely related to the session topic. It might also include the related materials found by the students on the Internet. Specifically, if the topic of a live video-conference session is on contemporary Japanese culture, for example on the use of cellular phones in Japan, the students could be provided with one or two related articles and/or video clips to peruse before the session. They might also be encouraged to find related resources on the Internet. With this type of preparation beforehand, students would have a better idea of contemporary Japanese culture (i.e., mobile phone use in Japan) when they come to the session. They should, for example, be more familiar with terminology. They might also have a better idea as what the talk is about, have some questions to ask, and be prepared to discuss some similarities and/or differences between the use of mobile phones in Japan and Canada. Furthermore, the topic could be carried into their email session in which Alberta students and Meiji students discuss mutual interests or concerns in more depth. Learning/understanding in such an environment may be consequently more effective and robust.

Collaborative work, another key element of situated cognition that can be incorporated into Japan 401, enables members of a collaborative team to work together towards a common goal/project. As faculty suggested, students can be assigned to work in pairs for assignments and learning activities. In fact, the students from Meiji and Alberta were working together in email sessions, in an unstructured way. Usually, an Alberta student would ask her/his Meiji counterpart questions via email, and the Meiji student would then respond to those questions through email. To make such communication (collaboration) more targeted and geared to what the students want to know and discuss, students could be assigned to work in pairs on a specific project and present it in class. For example, during the mobile phone module, the (Alberta and Meiji) students could, through email interactions, prepare a live video-conference session in pairs, i.e., discussing print materials, video clips, online resources on mobile phone use in Japan. After the session, the pair might continue their work on mobile phone use in Japan. Their final product could even be a live video-conference presentation on (a specific point of) mobile phone use in Japan. The pair could co-present during the live video-conference, from different locations – Meiji and Alberta. The presentation could be televised live with people at both ends watching and participating – in the form of asking questions, discussing points of interest, etc. during the presentation. Learning through such coordinated, synchronous (and asynchronous) activity is thus a process from interpersonal/interpsychological to internal/ intrapsychological and the quality of the product can be higher than that from non-collaborative work (Lea, Rogers, & Postmes, 2002; Lee & Smagorinsky, 2000, John-Steiner & Meehan, 2000; Roschelle & Teasley, 1995).

Although working in pairs enables students to contribute, from their respective perspectives, to the completion of the final product, it is sometimes the case (particularly at the initial stages of their learning/collaboration) that students feel difficulty adapting to the learning activities. Sometimes, they alternate their attention and/or learning activities, or they may make “cursory and/or inappropriate” comments due to their lack of “solid, objective understanding” of the Japanese language (faculty focus group transcripts). As such, the quality of learning may be compromised. At this juncture, the instructor, i.e., the subject matter expert, should jump in and provide scaffolding/support. Scaffolding can be in different formats (but giving a straight answer is not one of them). One way is to ask the students to further clarify the ideas they are presenting. This may help student reexamine what they are presenting, making their presentation more clear. Another way of scaffolding is to ask the students questions that may also lead them back to focus on things that need to be done, or that might provide clarification to certain issues, and help them to be able to explore the topic in more depth. A third advantage of scaffolding is to direct students to related resources (either print or electronic resources) that may provide clues to their questions, or help them clarify things. Still another may be to provide some examples of how other teams have done similar work before. The purpose is to initiate the students into the learning activities and to help them carry on at some critical moment of their learning. As the students progress toward working more independently and collaboratively, support and guidance from the instructor are gradually phased out. Scaffolding can be provided by instructors (subject matter experts), by more experienced peers in collaboration team and/or during class presentation/discussion, or by verbal, audio, and/or video items embedded in the learning activities such as in the live video-conferences and email communication sessions.
Conclusion

Context, collaboration, and scaffolding are three key components of situated cognition. Based on the analyses of data collected from Japan401, the technology component of the course was instrumental in creating an effective learning environment. By incorporating the three elements of situated cognition into the design and development of Japan401, we argue that a (potentially) more effective and robust (Japanese language) learning environment than it is currently can be created. This, however, can only be tested through practice, and, of course, through the cooperation and collaboration of students and instructors.

Reference


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