Challenge of Developing and Implementing Multimedia Courseware for a Japanese Language Program

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ABSTRACT
This paper discusses issues surrounding the development and implementation of Computer-Assisted Language Learning (CALL) at the curriculum- and program-levels. The Japanese program at the University of Alberta has introduced CALL courseware in language courses including those with multiple sections. An evaluation was conducted at the initial implementation stage to measure the success of the project. The results of the evaluation indicated that students and instructors were positive towards the curriculum reform through the implementation of CALL technologies. However, several issues also arose during the integration process. We found that the seamless integration of technologies was difficult to achieve, especially in dealing with a language like Japanese which requires additional software to display and input the idiographic characters. Our experience also underscores the importance of student support in the implementation stage. Special consideration should be taken to achieve a good “fit” between pedagogy and technology. Moreover, each instructor’s understanding and sharing of his or her view of the CALL integrated instruction was found to be vital for a program-level CALL implementation. The University of Alberta case serves as an example and benchmark for others planning to conduct a similar project.

KEYWORDS
CALL, Japanese as Second Language, Curriculum Reform, Multimedia Courseware

INTRODUCTION
The last decade has seen a significant development in the area of Computer-Assisted Language Learning (CALL), especially in dealing with a non-Indo-European language like Japanese which has ideographic characters. Many Japanese teachers have been implementing CALL in their individual courses and have ex-
perienced success in improving their course materials and students’ language skills (e.g., Arizumi & Arizumi, 2002; Kabata & Yang, 2002; Nagata, 2002). However, there have been few, if any, examples of large-scale implementation of CALL at the curriculum- or program-level. This paper reports a case in which CALL courseware has been incorporated into the Japanese program at the University of Alberta, thus highlighting the factors that are vital for successful implementation of a project of this kind.

In the Japanese program at the University of Alberta, a convergence of several events, including the introduction of new textbooks, improved multimedia facilities, and the building of new computer labs brought about an opportunity for the curriculum reform. With this reform came the realization that CALL must be adapted in a systematic fashion and be driven by pedagogical considerations and also that any curriculum reform involving the integration of CALL must maintain the same or even higher quality of teaching.

In this paper, we address some of the issues we have encountered in our development and implementation of CALL in the Japanese program. How could we achieve a seamless integration of technology? What needed to be taken into consideration in order to achieve a good “fit” between pedagogy and technology? How could we, as a project team, facilitate the change to ensure successful implementation in multisection courses? Our discussion here centers around the results of a survey and focus group, conducted through two semesters in the 2001-02 academic year, the instructors’ observations on the effects of the implementation of CALL courseware on students’ learning, and how instructors perceived the changes in the teaching environment. In the following section, we will briefly describe the CALL materials we implemented and summarize students’ and instructors’ feedback obtained from an evaluation study. We will then discuss the issues that arose. While some of the issues have been dealt with since the time of the survey, others still remain to be resolved.

THE JAPANESE CALL COURSEWARE

The multimedia courseware used in our program consists of WebCT, Wimba voice conferencing, and NJstar. These three technologies were selected to meet the pedagogical goals of the Japanese program. The WebCT course management system provides tools for developing and delivering content and assessments over the Web. It is a viable courseware platform because it is centrally supported by the University of Alberta’s computing and network services department. Moreover, its Web-based interface allows maximum accessibility on and off campus. Through the WebCT homepage, shown in Figure 1, students have access to the course syllabus, announcements, class notes, answer keys, and detailed schedules for quizzes and assignments.

The homepage also has links to external resources such as online dictionaries and Japanese Web sites. The main components, however, are quizzes and assignments. Quiz questions are based on the content covered in each lesson or chapter and are given in various formats, including multiple choice, matching, and short
answer. Some of the quizzes are for self-study, and others are graded. The number of trials, quiz duration allowed, and the availability of feedback are set to meet the pedagogical goal for each quiz.

Figure 1
WebCT Homepage for the Japanese Program

The Wimba package, incorporated as a supplementary communication tool, contains an asynchronous forum where voice messages are recorded and posted publicly; thus, the sharing of oral exercises among all the students is possible. The embedding of Wimba in WebCT facilitates instructors’ management of the course and gives students access to all of their course components in one location. Students use Wimba for specific assignments designed to suit their levels of proficiency in Japanese. With its functions for recording, playing back, and posting voice messages, Wimba is used to give oral-reading tests to beginning-level students (see Figure 2).

For more advanced-level students, Wimba is also used for extemporaneous speech practice, such as phone messages and short presentations. Instructors provide feedback by using the ‘reply’ function of Wimba, either in a text format or orally.

The NJstar software, used for displaying and inputting East Asian languages including Japanese, works as a plug in and therefore can be used in conjunction with WebCT. Students use the program to view Japanese characters in Netscape and to input Japanese characters in some short answer questions and some composition
assignments. It should be noted that we have replaced NJstar by Global IME because of the greater compatibility of the latter with Internet Explorer. This change was necessary because the version of WebCT supported by the university does not properly display Japanese fonts in the current version of Netscape Navigator.

Figure 2
Wimba Oral-reading Tests

EVALUATION STUDY
An evaluation study was conducted during the 2001-02 academic year. Students from the first-year Japanese language courses (Japanese 101 and 102) and the third-year Japanese language courses (Japanese 301 and 302) were the main participants in this project. Japanese 101 and Japanese 102 are multisection courses taught in coordination by four different instructors, whereas Japanese 301 and Japanese 302 are taught as single sections.

Both quantitative and qualitative data were collected in order to examine how students and instructors perceived the Japanese courseware. Towards the end of both the first and second semesters, students were asked, on a voluntary and anonymous basis, to complete survey questionnaires. In addition, focus group discussions were organized to solicit more detailed opinions about each of the three technologies used, namely, WebCT, Wimba, and NJstar. Instructors were also asked for their comments about this new course format.
**Student Feedback**

Figure 3 summarizes the results of the survey given at the end of the second semester.

Figure 3
Student Survey Responses

**Japanese 102 (n = 37)**

- **More detailed course content**
- **Direct interaction with instructor**
- **Regular and active participation**

**Japanese 302 (n = 14)**

- **More detailed course content**
- **Direct interaction with instructor**
- **Regular and active participation**
Overall, the students’ responses were positive. The majority of the students in Japanese 302 felt that the courseware helped them cover the course content in more detail (64%), that they were able to interact more directly with the instructor (43%), and that they participated more regularly and actively in the course because of the courseware (71%). To a lesser degree, students in Japanese 102 also felt the courseware helped them cover the course content in more detail (57%). However, they did not think that the courseware enhanced their participation in the class (18%), nor did they feel that it helped them interact with the instructor (13%). This difference is, in fact, quite similar to what is found to differ between a multisection course and a single-section course in general. In a single-section course like Japanese 301 and 302, the instructor is solely responsible for the content of the WebCT materials and is therefore able to make adjustments whenever necessary. On the other hand, in multisection/multi-instructor courses like Japanese 101 and 102, such adjustments are harder to make, and the content has to be kept rather general. Further development and improvement of the WebCT materials is required to reduce this gap.

The comments students wrote during the study indicated their overall positive impressions about the courseware. Many students felt that the courseware “forces you to keep on schedule” and therefore “helps us prepare for exams and homework.” They felt the courseware was especially useful in improving their listening and speaking skills. One student wrote “[the courseware is] interactive, [and it] allows one to practice more on speaking and listening.” Taking online quizzes was perceived as especially helpful in improving students’ language skills, because it “forces [them] to learn” and was “good for a quick review.” Recognition quizzes for kanji (nonphonetic-based script) and hiragana/katakana (phonetic-based scripts) were also useful for students.

Both levels of students felt that Wimba not only helped improve their pronunciation, but also enhanced the use of class time by allowing them to work on the oral-reading assignments online. One student stated in the focus group that s/he “really liked the Wimba, [because] it’s kind of like one-on-one but gives you the freedom of doing it on your own time.” Specifically, they said they liked Wimba because of (a) the “time freedom,” (b) the fact that “it’s not as nerve racking as speaking in class,” and (c) the individual feedback they can get, which is not otherwise possible in classes with 20 or more people. Students also liked Wimba because, compared to an audio tape recording, Wimba allowed them to repeat the recording as often as they wanted, and much more quickly and easily than a traditional tape recorder.

Some students, however, expressed some dissatisfaction. Many of the complaints were related to the technical problems (i.e., computer crashes) caused by the combined use of Wimba, WebCT, and NJstar. The number of problems was reduced over time because students became familiar with a workaround—opening NJstar before opening a Web browser. Workload was another concern for some students. For example, they felt that online assignments were time consuming and difficult to complete on time. Some students also expressed their frustration
with the limitations of computerized quizzes; computers can accept only the exact strings for answers, and any diversions result in wrong answers.

**Instructor Observations**

Although the technical problems posed challenges to instructors and students alike, the instructors’ overall reactions to the Japanese courseware were extremely favorable. One instructor who taught both Japanese 101 and 102 stated

> Given the nature of the materials and the limited number of classroom hours available to us, I believe that WebCT has been an invaluable learning tool. *It has enabled us to strike a better balance in the classroom and has provided students with an opportunity to develop and practice their language skills in a directed setting outside the classroom.* Although there have been some glitches, I feel that the more comfortable we [and our students] become with the system and its capabilities, the more we can begin to take advantage of this powerful tool. In some ways I think we have only begun to tap the possibilities for using WebCT in our language classes.” [emphasis added]

As pointed out in this comment, one of the significant merits of the integration of courseware for instructors lies in the fact that classroom time can be used more effectively. By using *Wimba*, for example, we were able to let students submit their oral-reading assignment online instead of using precious classroom time. At the same time, students could practice and replay their recording as many times as they liked; they were sometimes observed spending more than an hour on a one-minute-long oral-reading assignment, offering solid evidence that *Wimba* provides a useful tool for those who want to improve their pronunciation or speaking skills.

**ISSUES**

The goal of the evaluation study was to identify both what we achieved and what improvements were needed. In this section, we focus on the latter. Specifically, we will discuss (a) in-/compatibility of technologies, (b) student support, (c) intersection of technology and pedagogy, and (d) the coordination of multisection courses. While the issues of in-/compatibility of technologies and intersection of technology and pedagogy have been addressed and improved since the evaluation study, the coordination of multisection courses remains to be resolved.

**In-/compatibility of Technologies**

The three technologies—*WebCT*, *Wimba*, and *NJstar*—were selected at the initial stage of this project with the expectation that they would work seamlessly to meet the pedagogical goals of the Japanese program. The integration of the three technologies, however, was only partially successful. Computer crashes caused by the incompatibility of certain combinations of these technologies became a
major source of frustration for students. First, despite its user friendliness, *Wimba* was not always reliable because it runs on Java scripts and Java applets. If a web browser was not configured properly, *Wimba* would freeze and crash the whole system. Students and instructors soon discovered that *Wimba* generally works better with *Internet Explorer*. However, there was then another technical problem that complicated the situation: *NJstar* works better with *Netscape* than *Explorer* and could also cause crashes when *Wimba* was launched. Numerous tests were undertaken, but the problem was not resolved before the end of the study. Extra instruction on the courseware was added to help students wade through the steps to avoid computer crashes (e.g., using *Explorer* for *Wimba* and *Netscape* for quizzes, launching *NJstar* before opening a browser but closing it down before entering *Wimba*, etc.). Even though students became accustomed to following these steps, it was an unpleasant and cumbersome experience for them.

As mentioned above, *NJstar* has since been replaced by *Global IME*, which works better with *Explorer*. While this change reduces the problems related to computer crashes, it introduces another: the problem of rapid advancement of technology affecting the selection of CALL in courses. For example, while we expect to use the language components within WindowsXP to display and input Japanese in the near future, another technological configuration will need to be tested for the updated version of the courseware if WindowsXP is to be used. At present, the computing and network services department is not ready to allow us to activate the Japanese language function of Windows XP because it interferes with their system restore process. Thus, while constant technological advancement may solve the incompatibility problem, such advancement will also demand more human resources to find creative and reliable solutions.

**Student Support**

Our experience with the present project underscores the importance of continuous student support. Since CALL courseware requires students to have sufficient computer skills to become successful learners (e.g., Barrette, 2001), it is vital to ensure that students overcome whatever technical problems they may face. In our project, we provided various types of assistance and support throughout all the courses in an attempt to facilitate students’ use of the Japanese courseware. We held an orientation session in the lab at the beginning of the first term and again at the beginning of the second term. While the lab orientation was very effective and useful for each class, it was far from sufficient to keep the implementation process flawless. Although the majority of students in our courses used computers regularly and had no problems with basic computer skills, they often encountered incompatibility problems, as discussed above, while the courses were in progress.

A large-scale implementation project like this one cannot be realized without a support network (e.g., having students help each other or having a lab tutor available for technical issues). It was necessary, and in fact quite effective, to discuss some of the common problems and solutions in class. Some responsibilities for student support inevitably fall on instructors’ shoulders when CALL courseware
is implemented. For example, if the computer crashes while students are working on a marked quiz, students need to contact the instructors to reset the trials allowed on that quiz so that they can take it again. Moreover, students sometimes face technical, but language-related issues. For example, students need to learn the key sequences that may be specific to the program they are using, such as double consonants つ as in きっと kitto ‘a little’ or glides や, ゆ, and よ as in ちょうど choudo ‘just’ in hiragana, and some katakana words like ティー tii ‘tea’ and ウォール wooru ‘wall’ as in Wall Street. Instructors should visit the computer lab regularly and keep themselves informed about the current issues raised in the lab. Keeping close communication with the lab technicians and tutors is also helpful because they may be able to assist students with even some language-specific problems, if they are informed in advance. It may be advisable to set a lab schedule, either regularly or ad hoc, for students to resolve technical issues quickly so they can focus on their learning of Japanese. Needless to say, having a strongly and expertly staffed language resource center is vital for a successful implementation of a curriculum incorporating CALL courseware or, for that matter, any new technology.

**Intersection of Technology and Pedagogy**

One of the pedagogical merits of using the courseware was the increase of authentic interactions students can have with course content as well as with instructors and other students. In our project, we used the quiz tool extensively to help students assess their own performance. The results of the evaluation study suggested the importance of considering both the strength and limitations of computerized quizzes. For example, drill-and-practice types of questions are suitable in a computerized environment since they typically allow finite sets of answers, which is useful to facilitate students’ mastery of verb conjugations and vocabulary items. However, questions that require creative language output, such as more open-ended responses to an utterance or the use of appropriate expressions in a given situation, may be problematic because they often allow for a variety of answers in terms of combinations of hiragana and kanji characters or choice of vocabulary. We suggest that multiple-choice or matching questions may be the best solution in many cases as far as they meet the instructional purpose of the questions. If the questions require students to type in their answers, specific instructions should be given so that only a small set of answers is possible. In any case, when designing quizzes, instructors should be very careful in selecting question types and formats.

Kanji exercises were also found to require special consideration. The online quizzes can only be used for recognition, but not for character writing. Recognition exercises and quizzes may help improve students’ reading skills but not necessarily their writing skills. In fact, some students said that the computer made it “too easy” so they missed the opportunity to learn the writing of characters properly. They preferred to take the quiz on paper so they could practice their writing. Moreover, for beginning learners, using a language program (NJstar) is a double-
edged sword; it helps students become familiar with the complex kanji characters, but it eliminates the opportunity to develop handwriting skills. The design of the CALL courseware, therefore, must take into account the effect of technology and incorporate learning activities that achieve specific language-skill objectives.

Special attention should also be paid to the way feedback is provided. A simple “right” or “wrong” response may not be sufficient since students would not know why they are wrong. In the course evaluation, students explicitly expressed the need to have good feedback in the online quizzes to make them a really effective learning tool. Students also appreciated the one-on-one oral feedback they received from the instructors for the Wimba assignments. However, the workload for the instructor would dramatically increase if they were to meet students’ demands all the time. It is important to keep a good balance between instructors’ workload and pedagogical benefits when technology seems to offer unlimited possibilities for interaction.

Students’ workload should be taken into consideration in developing CALL courseware. In the University of Alberta Japanese program, the in-class lecture hours have been reduced from 5 to 4 hours a week to free up enough time for students to spend on the CALL courseware. The reduction of lecture hours can potentially serve two purposes. On the one hand, it provides at least a partial solution to the problem that teaching faculty in a language-teaching program have long experienced: language courses have traditionally been offered 5 hours a week, instead of the normal 3 hours a week for the majority of university courses. On the other hand, with careful designing and planning, CALL courseware can provide students with effective learning tools. We have already seen that Wimba assignments were perceived as extremely useful by many students. Thus, a successful implementation of CALL courseware can provide students with effective learning tools. We have already seen that Wimba assignments were perceived as extremely useful by many students. Thus, a successful implementation of CALL courseware is expected to allow teaching staff to spend reduced in-class teaching time more effectively while attaining the same or an even higher level of language proficiency.

At the same time, a decision as to how much material should be given as CALL-based assignments requires careful planning. One might argue that not all the quizzes need to be marked and should, therefore, provide as many self-study questions as possible. However, we have observed that students tend to spend much less time on, or do not even attempt, questions that they know will not affect their grades. Marked quizzes are taken more seriously, and many students try multiple times until they achieve the highest possible scores. We suggest that online marked quizzes can serve as an incentive for them to learn at their own pace and to take full ownership of their learning.

Coordination of Multisection Courses—Remaining Issues

The design and coordination of a multisection course is not a simple task. The complexity of such an endeavor increases when the technology dimension is added, as we observed in our project. Since the use of technology inevitably affects teaching methods, greater efforts and cooperation are needed from all instructors to avoid potential conflict between CALL-integrated instruction and one’s own approach
and beliefs about teaching. In particular, the introduction of CALL courseware brings a shift from a teacher-oriented to a more student-centered teaching/learning experience. In a traditional teacher-centered approach, instructors know each student’s progress first hand, whereas in CALL-integrated teaching, students are left with more responsibility for their own progress, and instructors may choose only to ‘monitor’ their performance. Whether or not every instructor shares such a view becomes a central issue when multiple sections are meant to be delivered in unison.

Training was to be an essential factor for successful implementation of CALL materials, as argued in previous studies such as those by Zammit (1992) and Faseyitan, Libii, and Hirschbuhl (1996). In our project, we planned instructor training as part of the integration strategy to solicit instructors’ buy-in and to bring their skills up to the level of the CALL technologies used in these courses. One instructor was not really interested in incorporating CALL courseware in her section and was therefore not motivated to learn the new technology at all. This instructor was also worried about the change CALL would bring to students’ learning style and was not comfortable about having less control over students’ completion of assignments. For large courses with multiple sections requiring a unified curriculum and approach, resistance and/or unwillingness to collaborate by even one instructor can be a great impediment to the success of the project. If the other instructors had not been willing to take on the extra workload necessary to keep the course updated, the coordination of the course content, teaching approach, and the on-going revision to the course would have suffered.

As more and more research demonstrates the pedagogical benefits associated with CALL (e.g., Chapelle & Jamieson, 1986; Warschauer & Healey, 1998), instructors should be the driving force for implementing CALL in their courses and should, therefore, develop the skill and ability to cope with technological advancement applicable in this field. However, as Lam (2000) observes, instructor training should go beyond the simple ‘how-to’ of technology and focus on how technology can be effectively integrated into the curriculum. In integrating CALL in a large course with multiple sections, it is also essential to inform all the instructors, involve them in the planning process, address pedagogical issues, and highlight the benefits for both instructors and students.

At the same time, student evaluation provides insight necessary to achieve successful implementation of CALL materials either at the course level or at the program level. Only by obtaining students’ feedback, can instructors get a sense of accomplishment and encouragement for their continuous efforts. Moreover, based on evaluation results, the success of a CALL-integrated course can be measured objectively, and decisions can be made as to whether or not other courses should move in the same direction.

CONCLUSIONS

CALL has brought and will continue to bring changes to the way language courses are conducted. With the implementation of the CALL courseware in our Japanese program, we have learned that the process and the product are equally important.
Careful selection and smooth integration of tools for optimal pedagogical benefits also determine, at least in part, the success of the integration of the CALL courseware. It is a never-ending process that needs to continue as technology advances: new tools will emerge and new solutions will be sought. Of equal importance is a balance between pedagogical goals and technical demands. Otherwise, what seems to be ideal pedagogically may spell disaster because of technical shortfalls. Moreover, instructors who share a multisection course need to coordinate their efforts. Such collaboration requires strategic planning, including buy-ins by instructors, agreed-upon teaching approaches, training, and support. An encouraging sign is that the results from our student evaluation and instructor observations seemed to indicate that the integration process with the courseware product has brought meaningful and positive changes to the curriculum. We believe that only through instructors’ creative and innovative contributions can technology shine in language teaching.

**NOTES**

1 Survey results indicated that 51.4 % of the Japanese 102 students and 35.7% of the Japanese 302 students had been Internet users for more than 5 years. Further, 27% of the Japanese 102 students and 42% of the Japanese 302 students answered that they used the Internet for more than 16 hours per week before they registered for the Japanese courses.

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