CALL: Can a teacher do it alone?

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Pre-discussion paper

1. Definitions

CALL – Computer Assisted (Aided) Language Learning

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In the following I will refer to CALL, specifically CALL for EFL/ESL (English as a Foreign Language/English as a Second Language), but I suspect that everything would also apply to CAL in general with only a few relatively insignificant adjustments needed for the specific content. Also my comments will refer to the situation in Japan because that is the only country about which I have relatively accurate data. Again, I think that most of my comments will generalize.

2. Introduction

One of the recent trends in language education has been the tendency for more and more of the textbooks and materials, both print and electronic, to be written by a large team working for a publisher. Such study materials require specialists, including programmers, editors, materials writers, and art and music directors, all working together under a project director, who may or may not be an educator. This makes the project expensive, which in turn requires that the educational objectives be as broad as possible in order that the course can be sold to the largest number of students and teachers. This, almost by definition, means that the materials will not exactly match the goals for any individual teacher's class. Frequently only a small amount of the content of commercial CALL materials will be included in the goals for a specific course. The remainder of the content will be things the students have already studied, things that they do not need to study, or things that the curriculum designer plans to include in later courses. For other possible types of CALL programs (role plays, games, etc), the commercial product will probably include activities that are not a planned part of the course.

For example, I teach first year nursing students. A needs analysis showed that, in the first year required courses, they need to learn the basic English related to nursing theory and practice. They need to prepare themselves for reading academic papers about nursing, papers that they will need to understand in order to complete their fourth year research projects. They do not need the language that is used by nurses when working with English-speaking patients, which is what is covered in most nursing English courses. They definitely do not need, or I should say can not afford to spend the time, to study the content that appears in most general English CALL courses: shopping, visiting friends, paying rent, or going to a restaurant, for example.

For the record, printed materials are similar to the electronic courseware. The books are designed to sell as many copies as possible, not to present the material that students in a particular class need. In the past ten years or so, the large publishers have been rapidly buying out the smaller companies so that now there are only a few remaining and they have large advertising budgets aimed at convincing students, teachers and administrators that their non-specific materials are what the students need. These same companies are now beginning to publish large budget, well-advertised electronic study materials that contain the same broad contents.

If we turn to the web, the situation is no better. There are numerous websites with EFL/ESL materials. The Kelly brothers' site at http://www.aitech.ac.jp/~iteslj/index.html and Dave Sperling's site at http://www.pacificnet.net/~sperling/ are excellent sites that contain huge amounts of useful material, but they are even more general in content than CD courseware. There is a large amount of material there to support the broad, fuzzy goals of commercial materials, but little for a course designed to meet specific goals.

3. Potential solutions

There are a number of possible solutions to this problem. Some of them are outlined below and hopefully additional ideas will develop during the discussion.

3.1. Ignore the needs analysis. This is probably the most common solution. Many young teachers, fresh from graduate school, now believe that a needs analysis is simply the result of asking the students what they want to learn. This was apparently caused by Nunan (1988) and his followers. This position contrasts with the traditional gathering of information from a wide variety of sources and then determining using it to determine specific goals for the class (Dubin & Olshtain, 1986; Benesch, 1996, Ferris & Tagg, 1996). Teachers who adopt the Nunan definition tend to accept whatever the publishers include as being appropriate course goals.

3.2. Use portions of the commercial material. This is another time honored and popular solution: the teacher pre-selects the portions of the material that the students will be expected to complete. This solution, however, has a number of related problems.

3.2.1 First it involves a lot of the teacher's valuable time. The course goals must be determined and then commercial materials must be screened and compared. In Japan, and I assume the rest of the world, language teachers have more hours in class than any other teachers of any other subject. In Japanese universities this is related to the student/teacher ratio (S/T ratio). Lecture classes often have 100 or more students. Thus, a teacher who has a work load of three 90-minute lectures a week will have an S/T ratio of 300 to 1. Most language teachers believe that 10 students constitute an appropriate class size. This means that, in order to have equivalent S/T ratios, the language teacher would have to have 30 classes a week. Usually a compromise is reached and language teachers have two to three times as many classes as other teachers but the class size is limited to 40 to 80 students.

3.2.2 A second major problem with this solution involves cost and the question of copyright. CALL materials are expensive and asking the students, or the school, to buy the materials so that only a small portion of them can be used will not ingratiate the teacher to the administrators or the students. Copying only the appropriate portions is a copyright violation that may trigger legal proceedings. Also in the case of CALL materials it may not be technically feasible to extract portions of the program.

3.3. Build the materials to fit the results of the needs analysis.

This is the option that holds the most potential for student learning, but it can also be the most difficult and time consuming. The materials can be prepared to support, supplement or replace classroom activities. The materials can be used and distributed on various types of disks such as floppies, MO, ZIP or CD, by LAN, or over the WWW. The question is can a teacher do such developmental work alone, considering their work load, preparation, classes, administrative duties, research, in-service training, and the like. There is also the problem of many teachers having a non-technical education and background, so the learning curve for the tools might be steep and long.

As a preliminary to the discussion, this possibility can be broken down into two approaches the teacher might use. One is to utilize available tools, freeware, shareware, and commercial products that are designed to make the development process easier, quicker, and more transparent. The second is to learn to program in an appropriate language and design materials from scratch. Each of these possibilities is introduced below.

3.3.1 Utilize available tools.

There are many things that are available for free or at little cost which will allow the individual teacher to apply CALL to specific classes. For example, writing courses can be improved by using programs such as MS Word, which is preloaded on many computers, or any of the numerous freeware word processors. Reading courses can utilize websites to tailor the content to the students needs and interests. E-mail can be used, with or without mailing list software, to allow communication between students or between teacher and students.

The use of email and a website is discussed in a New York Times newspaper article (Mar 14, 2001) by Rebecca Weiner. In this case on a day when school was cancelled because of snow, a high school history teacher posted questions on the class website and then emailed the students, inviting them to conduct research and answer the questions. Out of 112 students, 15 completed this extra credit project. This project also highlights the possibility of students doing independent research utilizing web-based sources. Also there are many free or inexpensive study sites that offer non-academic courses in various subjects. An example of such a site is Smart Planet http://www.smartplantet.com/learn.asp, which offers more than 650 courses.

CALL with quizzes and exercises is now extremely easy to prepare. For example, the free-to-educators software Hot Potatoes, available at http://web.unic.ca/hrd/halfbaked/, includes six applications that allow the user to quickly produced web-based multiple-choice, short-answer, jumbled-sentence, crossword, matching/ordering, and gap filling exercises.

Another possibility is to use a web page authoring program such as Microsoft Front Page or any of the other freeware, shareware, or commercial programs of the same type. These programs allow the teacher to quickly build a class website that might contain such things as additional readings, references, or links to related websites.

3.3.2. Build Materials from Scratch

The more ambitious and technically inclined teacher might decide to build the materials from scratch. However, there are a number of decisions that must be made before actually beginning.

3.3.2.1. What language to use

I first learned to program in 1959 when, as an engineering student, I was required to learn FORTRAN. Later I worked other languages that are no longer in general use and then taught myself BASIC in 1972. I have also studied C and C++, which both have very steep learning curves, and I am now in late phases of learning Visual Basic. For about ten years, I was heavily involved in developing, designing, programming, and maintaining CALL programs at Trident College in Nagoya, Japan. Our language of choice was BASIC, because it was easy to program and was the best for handling string data. See Adamson (1997) for additional details. Based on this experience, I would recommend Visual Basic as the language for most development projects. However opinions vary and this topic may arise during the discussion.

3.3.2.2.Reusability and Modularity

As with all good programming, some thought should be given to designing the programs so that they can be used in future projects. This will minimize the overall amount of programming time that the teacher must devote to CALL projects. For example, I am currently working on the design of a program which will present a 20 chapter novel to the

students and will have a built-in English-to-Japanese dictionary that will display the definition by clicking on the unknown word. The novel is now given to the students in book form. The program is being designed so that other written materials with their own dictionaries can be plugged into the program, creating a new study program. It is also being designed so that the reader can access other study materials, exercises, and quizzes. These will be contained in the program as data that can be changed when the novel is changed.

3.3.2.3. Modularity

Programs by the individual teachers should be designed as groups of independent modules rather than as complete packages. The individual modules can be designed, programmed, tested, and then given to the students without having to wait for the complete package. Once a sufficient number of modules are available, the teacher could build a simple interface that would allow the students to select the modules from a menu or a window. Visual Basic is ideally suited for this form of programming, which allows the modules to come online as soon as they are ready

3.3.2.4. Scheduling the adoptions of the programs

A teacher trainer once suggested to me that a good habit to get into would be to look at the results of each week's teaching and determine which exercise or activity was the least effective. This would then be discarded and a replacement written during the following week. One new activity a week is not an unbearable workload and will, within a year or two, result in a huge improvement in the teacher's performance. An individual teacher could such plan their CALL development along these lines. The project can be broken down into minimally sized modules that can function independently which are produced on a fairly regular schedule. A college teacher, for example, might plan to finish one module during each semester and one during each of the summer and winder vacation periods. This would result in four additional modules each year, and a completed project within just a few years.

3.3.2.5. Size

Based on my personal experience (Adamson, 1997), I would estimate that most programs could be broken down into modules containing only a few hundred lines of author-generated programming. This is especially true of Visual Basic, where the software does much of the programming.

3.3.2.6. Mode of delivery

The two most obvious possibilities here are the WWW or a LAN and CD-ROMs. CALL materials could be uploaded to a school's website and thus be available to all. The programs could be recorded on CD-ROM, a process that can now be done cheaply and easily by the individual, and sold or given to the students.

3.3.2.7. Program feel

'Program feel' refers to the users reaction to the medium, not the message. While advanced adult students might be more than satisfied by pages of black type on a white background, there are many cases where this would not be acceptable. Many younger students have grown up in a culture where they spend large amounts of time playing with their family computers and their GameBoys. The programs that they play with are likely to become the standards by which they judge the academic programs that we require them to use. If we expect our students to willingly spend time with our programs, we need to take the characteristics of these game programs into consideration.

3.3.2.8. Possible activities and content

This is something that I hope we explore during the discussion. The activities and content for CALL programs is limited only by the creativity of the authors, so brainstorming and input from a variety of people should generate some ideas that would fit some teacher's courses. What types of activities can be included in programs simple enough to be programmed by individual teachers? Determining this will be one of the primary goals of the discussion.

For example, at a general level natural language processing is quite difficult and not very accurate, putting it well beyond the capabilities of the individual teacher. However, if the range of possibilities is reduced sufficiently, it becomes possible to handle things with brute force methods. For example, if the student is given a list of words that can be dragged-and-dropped to form sentences, it is possible to write simple programs that respond appropriately to anything the student writes. You just make a table (actually a tree to reduce storage requirements) of all possible sentences and then link the sentence to the response that you want the computer to give. Many years ago, I wrote a demonstration program like this that allowed the student to move two people back-and-forth between two rooms and to open and close the door. The students were also able to ask the computer questions about where the people were. If I remember correctly, the entire program, including all the graphic and linguistic data, was only about 150 lines.

Visual Basic makes it easy to include multimodal information. Digital cameras and recorders are now inexpensive and a source of both pictures and sound, but what can we do with them? One obvious use would be to give the student oral instructions on how to drag-and-drop objects on the screen, giving individual students extensive possibilities for automating the listening process.

4. Conclusion

From the above, it appears that it is possible for individual teachers to prepare CALL, or CAL, materials that are directly related to the goals of their classes. While the programs may not reach the sophistication of commercial programs, they can be designed at a level

that will hold and maintain the students' interest while they are working with the program.

In the on-line discussion, I hope that we will further explore the limitations and conditions relevant to CALL/CAL design by individuals and to suggest possible directions in which the design of such programs might proceed.

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Post Discussion Summary

Lawrie Hunter began the discussion by suggesting that the design of any task work, including CALL, should begin with a consideration of the 'learning scenario', i.e., learner, task, resources, and choice of expressive mode. He went on to explain that he and a colleague had provided web-based support for a course they had developed on critical thing but the students proved to be too busy or not sufficiently interested enough to use the material. He then said that a CALL writing course which he has developed, a HyperCard authoring course using "contained" real-life tasks covering description, classification, sequence and cause-effect genres, has become more structured over the four year period of development. He ended by again stressing that design should begin with the learning scenario, which he describes here as what the learner wants and how the materials support or distract from that.

The lack of student use of online supporting materials appears to be a major problem and is also described by Ozden (below). While this potentially an important point, until

contrastive data is available on actual student usage of CALL and non-CALL supporting materials, no conclusions can be drawn. This may be related to a general lack of student interest in supporting material, rather than being a CALL problem.

Next, Nick Kearney reported that his school in Spain receives a number of students who have purchased then given up on CALL courses. This situation generates less pressure on the school to use computers. He then makes two comments on points from the discussion paper. The first is that for ESP (English for Special Purposes) courses the teachers are not expected to provide content; the students frequently provide this as they are normally experts in the field. The teacher's job is to concentrate on facilitating the process of learning to communicate. The second point is that he believes the students do not compare CALLware to gameware, because their CALLware is focused on communication. Exercises and controlled practice is given to the students through teacher prepared materials using authoring software. He ends with the statement that he believes that "teachers can do it alone."

In the next message, Charles Adamson supported Nick's comment about students knowing more about the content than the teachers with details from his situation in teaching nursing English. He also briefly described a CALL program which he is working on that will provide the student with dictionary entries for all words in the program. He then restated that in his experience, contrary to Nick's observations, Japanese students do make a comparison of CALLware with the slick commercial game programs.

The observed differences between the students may be related to cultural factors. After all the students, Spanish and Japanese, are far away from each other both physically and culturally.

At this point in the discussion it was obvious that few people on the list who were interested in CALL, which appears to have a different set of problems from CAL for content subjects. Depending on the methodology adapted, CALL uses the computer to present examples of the language, to present explanations of the language, to drill, and to provide situations for the student to use the language. An informal survey of student usage leads me to believe that most CALL involves one of two situations: [1]individual students working alone and [2] small groups working under the direction of a teacher. The most frequent activity seems to be the completion of teacher generated exercises that have been prepared using authoring software.

If presentations at conferences such as the recent JALTCALL 2001 conference held at Kanto Gakuen University in Japan are any indication, only a few teachers are requiring their students to use chat sites. Many teachers report that chat sites are overwhelming for students because they bring the students' lack of linguistic ability to the fore. This seems to contrast strongly with CAL in content areas where teachers seem to be mostly interested in getting students to participate in online discussions or the teachers use websites to provide student access to things like course notes, administrative information, and supplemental materials. For example, in one department at Miyagi University all

students are required to purchase a laptop computer and many of the administrative and class related materials are online. The students also receive a CD-ROM containing class notes, readings, and other materials for many of their classes. However, the language courses do not use the computers at all.

M. Yasar Ozden stated that he is looking for ways to enhance courses through the web. For the last two years, he has been placing his lecture notes on a website and setting up chat and forum opportunities, but he does not feel that it has been very effect. He has been disappointed by the small number of students who access the materials. This echoes the situation described by Hunter (above).

Charles Adamson suggests that, when planning a course, the reasons for using CAL or CALL (CAL/L)should be clarified. If there is a strong need for CAL/L, then he suggests using grading to encourage student participation in the CAL/L aspects of the class.

Chan Su Ling also points out the need to consider the reasons for using CAL/L. He sees the main benefit as being the facilitation of communication and discussion among the students who are physically not able to meet in face-to-face groups. He offers two suggestions for encouraging students to use chat and forums:

[1] Have a government official or a renowned lecturer from another university participate in the online discussions.

[2] Set up some sort of collaboration between the students and those in other universities or countries.

Steve Mahaley offers some suggestions for the effective use of online discussion which he discovered as a result of the non-graded online courses he teaches.

[1] Introduce the course online.

[2] Put course notes on discussion boards.

[3] Create topic-specific discussion boards with learning goals and dates attached.

[4] Organize students into teams with a discussion board for each team.

[5] Teach the students the appropriate use of discussion boards.

[6] Keep chat focused and prepare answers to FAQs in advance.

[7] Make team contracts specifying who will be doing what and require all team members to sign it.

Arthur M Recesso is also interested in online discussion among students. He conducts weekly online discussions in relation to a masters degree course. He posts a reading and

questions a week in advance of the discussion. Students are required to react to the questions and respond to at least one other student's comments. He is now experimenting with a new format of assigning one or two students to be discussion leaders for an assigned topic.

Conclusion

It quickly became apparent that there is little interest among list members in CALL. However, there was interest in CAL and particularly in developing more effective methods for holding student discussions online.

At the beginning of the discussion, a list of five questions was offered for consideration. Although no one responded directly to the questions, the following answers are based on the discussion.

Question 1: Are there creative ways to use the computer lab?

Most respondents were interested in CAL and taught students who were not physically present in a single classroom during the time they were using computers. Thus there was a large amount of interest in promoting student discussion over the Internet. CALL students, on the other hand, are frequently working together in a Computer Lab under the supervision of a teacher on materials that tend to be exercises or projects.

Question 2: What materials might be appropriate and for what reasons?

It appeared that all the respondents felt that discussion was the most important aspect of CAL and that they were searching for ways of doing this more effectively. There was no mention of the commerical software which is typical of CALL nor of the teacher generated exercises that appear in many CALL classrooms. Many respondents talked of placing class notes, administrative information, and supplemental materials online.

Question 3: Is it possible to adapt CALL/CAL materials in ways that are parallel to adapting a textbook?

This question was not addressed at all. This was apparently because the respondents were involved in CAL where this problem does not seem to exist.

Question 4: What are the problems and possible solutions to the question of potentially having two methodologies (the teacher's and whatever is used in the CALL materials) in a single class?

Again this question was not addressed. Apparently CAL teachers do not have this problem as they concentrate their use of the computer on facilitating discussions and

presenting materials. They do not use them for teaching, drilling and activities as is common in CALL.

Question 5: How does the teacher organize the class to promote the most effective learning?

The only answers to this question that were offered addressed the problems of increasing participation in online discussions. Apparently few non-language teachers are actually using software to teach, drill, or exercise the students.

While this discussion did little toward developing a deeper understanding of CALL, it did develop some useful and interesting ideas for CAL-based online discussions and presentation of materials.