DOCUMENT RESUME

ED 381 017 FL 022 866

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TITLE A History of Commitment in CALL.
PUB DATE 13 Jul 94
NOTE 11p.; Paper presented at a conference on Computers in Applied Linguistics (Ames, IA, July 13, 1994).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Change Strategies; Classroom Techniques; *Computer Assisted Instruction; *Computer Software; Costs; *Educational Change; Educational History; *Information Technology; *Instructional Design; Instructional Materials; Second Language Instruction; *Second Languages; Teacher Attitudes; Teacher Role; Technological Advancement

ABSTRACT

The evolution of computer-assisted language learning (CALL) is examined, focusing on what has changed and what has not changed much during that time. A variety of changes are noted: the development of multimedia capabilities, color, animation, and technical improvement of audio and video quality; availability of databases, better fit between computer "tools" and instruction; emphasis on grammar, vocabulary, and reading to support and enable instruction rather than as the content of instruction; improved techniques for drills and tutorials; and packaging of instruction. Some elements of CALL that have either not changed much or have come full circle are the challenge of engaging teachers in the technology, costs of advancing technology, and resulting problems in access to the technology. (MSE)

Computers in Applied Linguistics Conference

Ames, Iowa July 13, 1994

A History of Commitment in CALL

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There has undoubtedly been progress in CALL, though it has been made slowly, after many iterations. We have gone round and round on some issues, many times over in some cases. In others, change has occurred and has moved CALL ahead.

What's changed? The computers themselves have changed. They are faster, littler, lighter, cheaper, have more storage, are more common, and can input and output audio and video on a scale as never before. The creation of character sets for our languages has nearly been accomplished. The ability to scan and then edit a picture or text easily into a computer file has been accomplished. We can now hear a text file spoken to us.

What hasn't changed? Many of the areas of interest haven't changed. Look through the literature. In the 70s, 80s , and 90s there have been articles on programming, authoring systems, whether computers could teach, evaluation, group vs individual work, lab vs classroom, individual learning preferences, how to handle student errors, and issues of design and methodological frameworks.

Thinking about history, Judy Collins' singing of "The Circle Game" comes to mind...

> The seasons, they go round and round, the painted ponies go up and down, we're captive on a carousel of time. We can't return, we can only look behind from where we came, and go round and round and round in the circle game...

Those who agree with a circular view might cite changes in computers themselves. With the advent of computer-based instruction on the 60s and 70s, the computers used were mainframes and minicomputers. These, of course, had the advantages of centralized storage allowing easy lesson distribution as well as record keeping, but had a major disadvantage of being extremely expensive, thus widely restricting their popular use. Since the 80s, microcomputers, being comparatively inexpensive, have made the purchase of a computer possible for both schools and individuals. In terms of computer-based instruction, it was great that more people had access, but a down side in terms of management came with needing one disc for each machine and difficulty in collecting data. In the 90's we are seeing microcomputer labs networked. Once again with central storage of data, I wonder, have we returned, or have we changed?

As we take a look at CALL today and CALL in 1984, 1974, and 1964 how has it changed? Let me, as Frank Otto did, talk about now and then, and occasionally project into our future.

Certainly, the introduction of multimedia is the most apparent change. What's multi? Visual, audio, lexicons, data bases, and exercise types. Working with PLATO in the late 70s and early 80s required giving lots of demos. The display on the terminals was orange and I remember someone wanting a green dot on the screen--this was impossible. I remember also that I thought this person was out of touch with the technology; now I think I was out of touch with his vision. Today we not only have color, we have beautiful animation, great stills, and videos of real language use in real life places. The incorporation of stills and video has been a remarkable contribution in improving the authenticity and contextualization of CALL materials. This has greatly increased interest in and development of CALL lessons focusing on culture as well as encouraging development of both content based lessons and task based lessons.

The use of audio was available on some systems in the late 70s. This was terrific for language instruction and was used in a variety of listening comprehension exercise types such as identifying tones, dictation, and following directions. So it's not so much the existence of audio but the availability of audio that has changed. Today, audio capability--for both record and playback--has become relatively commonplace--well certainly playback, if not record. In terms of language focus, I think language in context, culture, and listening comprehension have seen the most impressive development, with the areas of sociolinguistics, paralinguistics, and pragmatics awaiting development.

While I have seen quite a few multimedia lessons advertise speaking, speaking activities remain essentially stunted in their growth. Lessons do allow for voice recording and self comparison just as language labs have done for many years. One enhancement is displaying acoustic waveforms, and amplitude and pitch contours of the speaker in comparison to a model which is interesting, I think, but of questionable pedagogical value. Role playing a part in a dialogue is probably more pedagogically desirable, but until the area of voice recognition develops considerably, the use of speaking, as it exists today, is more of an aid to listening comprehension than to the development of pronunciation and fluency.

Another change is the availability of databases and the closer fit that has developed between "tools" and instruction. While spell checks, grammar rules, cultural notes, thesauruses, and dictionaries are relatively common place in today's lessons, they were built-in parts of earlier lessons. This is a terrific addition to the breadth of any CALL lesson. This can be seen most clearly in the ways teachers and students are cooperating in the uses of concordances, word processors, and electronic communication. Formerly used by researchers to count, and communicate, and by us all to type in a new fashion, today these are also used as tools of instruction. Concordances bring examples of natural text for grammar and usage examples. Word processors aid in the process of composition. E-mail allows for activities such as world-wide simulations. Discussion groups invite language use in a more communicative way than we can contrive in our classrooms. The internet allows students rapid search, retrieval, and incorporation of documents. Incorporation of tools into CALL, like development in areas such as register and intention, is an area in which I expect much change in the coming decade.

Grammar, vocabulary, and reading dominated early CALL as the focus of instruction. Their roles have changed. Today, reading is more often an enabling skill and grammar and vocabulary are often available as help options rather than as the main content of the lesson. Where exercises are available is as an option off a video clip of a story or simulation. In some cases grammar and vocabulary exercises are required, in exploratory type lessons, available.

These exercises often use the tutorial or drill methodology. Both of these methodologies have been used, in name at least, extensively in CALL. The purpose of tutorials--presenting information and then guiding students--seems, historically, to have been difficult to accomplish in CALL. Certainly in English as a second language, if a student could understand the language in the presentation segment, I've wondered whether he or she would have need for the lesson.

Drills, as we know, provide practice. To me, the beauty of a drill is in its record keeping. Each item requires identification such as use, meaning, or structure, as well as some index of difficulty. Student performance on each item should be tracked for cueing purposes and retirement, as well as reports.

Drills and tutorials got a bad reputation that I think is somewhat undeserved. There were, and are, allot of lessons that are labeled "tutorial" or "drill," that are bad, but I look at these as impostors. In the 80s development on microcomputers inhibited the record keeping function necessary for successful implementation of these methodologies. With networked microcomputers, I'm looking forward to a much better batch of drills and tutorials in the next decade.

Tests...not much development in using pretest/posttests to manage instruction which, again I think, was a result of a lack of a central location for

data storage as well as a movement to learner controlled lessons. In the area of computerized testing, the major development is the computer adaptive test in which items are selected for individual administration based on parameters such as item difficulty, item discrimination, and guessing. Such administrations reduce the number of items needed to estimate an individual's ability in a given domain and since everybody gets a different test, copying is reduced. An intriguing issue with computer adaptive tests has been using a model which requires unidimensionality of the domain as an assumption and whether that is derived statistically or logically. Also, with heightened interest in performance based testing and test validity, it seems only a matter of time before a merger with multimedia.

Let's return to databases...Access to these databases from within a segment of a lesson has, I think, expanded the definition of interaction. I think the meaning of "interaction" has broadened since the incorporation of "multimedia." To me, an earlier definition of interaction included keeping the student on task by requiring the student to process some information and demonstrate that processing. I think that interaction has become increasingly based on clicking rather than typing. This results in a natural emphasis on receptive rather than productive skills. And that, I think, is what we see in CALL with increased development in listening comprehension and culture.

I don't mean to imply that interaction in which a student makes a decision and clicks on an option is in any way inferior, but I do wonder about reading lessons in which the only interaction is clicking on a word or quitting.I worry that interactive sometimes only means that the student can click on cultural notes or a lexicon within a lesson. I worry that interactive video is called interactive because the student can start and stop a video, or jump to some

segment of it, or that a student can watch a dialogue and then click to see the script of that dialog, and that's all the "interaction" there is.

Related to interaction in which the student is processing some information is how the computer program processes and responds to student input. This area called "answer judging" has not changed much over the years. In early discussions of CALL it was thought critical to not only be able to determine whether a student's response was correct or incorrect, but also to attempt to determine a student's misconception if his or her response was incorrect. This area is still thought, by many, to be a distinguishing feature between pedagogically sound courseware and that which is not well done. Just as the fact that answer judging is considered important has not changed in CALL's history, so is the fact that it is too infrequently a part of CALL lessons. This is an area that has not seen enough change.

Another thing about CALL that has changed is the "packaging" of lessons. For one thing, the "methodologies," if you will, of drill, tutorial, game, simulation, and test have remained the same, and the skills of reading, writing, listening, and speaking, have stayed the same. Whereas in the past we had individual lessons focusing on single areas, today we have an increase in the number of integrative packages, in which, for example a simulation branches to a number of other activities. Changes such as this reflect not only more powerful computers and larger storage devices, but they also mirror, I think, the shift in language teaching approaches over the years, away from a skill based curriculum and toward an integrative, theme or task based curriculum. Many of these packages make extensive use of record-keeping providing completion information as well as error analysis.

The notion of packaged CALL, if you will, brings up, to my mind, several issues. First, who makes them? Usually, a team makes them. Throughout our history it seems that there have been two kinds of development projects, those done by individuals and those done by teams. For anybody who has developed CALL lessons and that's probably most of us here, it comes as no surprise that more often than not, the team product is considerably better than the individual's. People who work on teams know this, and they even form bigger teams. You heard of the LLAMA consortium mentioned Monday--a group working on CALL development who all come from teams to start with. Individuals need to start forming teams!

One sort of dangerous thing about the packages, from an institutional standpoint, I think, is that the lab director or language teacher doesn't need to find a whole bunch of software. These packages give the idea that everything the language student might need is contained within, which isn't necessarily true. Moreover, the package perspective "frees" the lab director or teacher from integrating the computer experience into the students' curriculum.

The issue of getting all the teachers in a program to understand what materials are available for their students, then encouraging their students to use these materials, and then working this into their classes just hasn't been accomplished over the years. Combating this problem has to occur on the front lines but that does not mean training can't occur elsewhere. I think we must create more technically aware teachers. And the place to start is not after we hire them, but while they are in school. In our MA programs, in our teacher certification programs, in our elementary and secondary education programs we must offer, if not require, courses in CALL for our future language teachers.

Packaged CALL brings to mind two other issues--cost and access. Who can afford these lessons? Who has the equipment to run them?

One change that microcomputers brought about is that schools were able to afford computers. But as has been brought up repeatedly people don't realize the cost of buying software and maintaining a computer facility. It is our responsibility to collaborate with administrators in devising a budget that will not only account for initial capital expenditures but for continued software purchases.

The problem of equipment is not new. It reflects that life long problem of the haves and the have nots. In the 60s and 70s it was the universities that had the mainframe computers so that for example when I would give PLATO demos and display the audio capability, people would ask where they could get this, and I'd say you can't; this just works on PLATO. In the 80s, it appeared, ever so briefly, that microcomputers would remedy this problem. However, in the 90s with multimedia, we see the same situation repeated. Universities develop beautiful materials and show it at conferences and the local teacher asks how he or she can get it, and we say, "Do you have computers with xyz components" and the teacher says no. End of story?

What we see here is a gap. With our CALL projects we work very carefully on the design, development, and programming. We evaluate. We present. We disseminate. But we do not implement.

In Jim Pusak and Sue Otto's plenary, they talked about finding out what is important at your institution (or to your dean) and then slant your project in that direction. We all have talked about academic administrators as if it is an us/them relationship. But at my institution, and I would bet at many of yours, we

might be at a point of convergence. I work at a state university. What's a hot topic at my school? How are we serving the state?

How can we make use of such an agenda? Let's take CALL to school. Let's form a partnership with our elementary and secondary schools for improving language instruction. Let's include our local schools in our grants so that they get computers with video cards, and cd-rom, and video disc players and other equipment to add to those labs of Apple IIs that Moms and Dads saved grocery store bills to buy. Let's include our schools in our research--this will not only include pedagogical research but also an increased pool of data for studies such as acquisition research. An agenda such as this, which includes service, extra mural funding, and research should enhance any young professor's bid for tenure! Yesterday, we heard Donna Mydlarski tell us that this cooperative alliance served her project well in the early 80s. Well, it's time has come again.

So, with all this said, what else hasn't changed? Commitment. The commitment of many of you whom I have seen here and at other conferences, or in articles in the literature, or in advertisements for your products. Many of us have found in CALL a worthy enterprise. As there is much still to be done, let us work on our projects, with quality and implementation in mind. Let us make lessons that not only teach us, as in demonstration or research, but teach language learners. Let us, through our dedication and demonstration, intrigue others, who can be trained in the past to move forward. Maybe repetition can not be avoided, but maybe we can make our circle bigger .