Computers for EFL in Developing Countries: Problem and Solutions

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Editor's Note
We have had requests for articles intended for members who are beginning their experience with the applications of technology to language teaching. We also wanted to expose our readers to issues that are of concern to the educational communities in developing countries.

ABSTRACT: The use of computers in developing countries is quite novel. The aim of this article is to discuss problems related to the use of computers in developing countries and propose solutions. EFL teachers and students in these countries are encouraged to use computers in the educational system because they are cost effective. It is hoped that once familiar with course authoring systems (CAS), EFL teachers will develop software programs adapted to their own social environment for the benefit of their students.

KEYWORDS: developing countries, hands-on experience, cost effectiveness, bewilderment, computer expertise, computer literacy, CALL, computer drills, communicatively meaningful, courseware, workshops, feedback, purchase, course authoring, software programs, awards.

We are living in an age of technology, and teachers of English as a Foreign Language (EFL) must avail themselves of instructional innovation based on new kinds of equipment such as microcomputers. If at first the educational use of computers met with hesitation, reticence or skepticism, now microcomputers are widely used in European and American schools. Some teachers of English who already have hands-on experience with computers can develop their own courseware. But for the EFL instructor, working in a developing country, the benefits of the microcomputer raise a series of problems which need to be addressed.

The aim of this paper is to (1) examine some of the problems related to the use of computers in TEFL in a developing country and propose solutions; (2)
encourage African teachers to find out about computer-assisted language learning (CALL) through reading journals, talking with experts and attending workshops; and (3) encourage teachers to learn to adapt and create software.

Even more acutely than American teachers in the past, teachers of English as a Foreign Language in a developing country are bewildered by the following questions: should they embark on using computers in their classes even though their students may lack basic materials such as books or pencils? If they cannot provide students with basic materials, how can they justify buying a computer that costs the price of a thousand books? Does the literary background of teachers of English provide them with sufficient expertise in the use of computers?

These questions do not represent an exhaustive list of the problems inherent in the use of computers in a developing country. Even though there is no easy solution to the problems listed above, I think that it is still worth trying to use microcomputers in TEFL in a developing country. In language learning tasks, they can help students improve their reading and writing skills. In the future, with the advent of new technologies, computers will help develop listening and speaking skills as well. However, no matter how attractive computers are, their introduction into our language programs will create many problems. The question is: how can we solve some of the problems?

The Financial Problem

The feasibility of purchasing and maintaining expensive equipment is a problem for any institution in a developing country. It is true that we, in the developing nation, are facing a very difficult financial crisis and that buying computers seems to be a luxury. However, I candidly continue to think that it is a necessity and that we have to make some sacrifices to purchase at least one or two computers for every department, including the different language departments.

The concern about the prohibitive prices of computers can be partially alleviated if we use more imaginative ways of raising funds that will enable us to purchase microcomputers for our schools. For example, students in the English department could give theatrical representations which generate the funds necessary to buy a microcomputer. Another possibility is to set up an English Department Computer Literacy Fund to sensitize and encourage people to give donations. Local vendors competing for a share of the market may be persuaded to donate computers as they have done on a wide scale in Europe, Japan and the USA.

Right after books and other vital pedagogical materials, computers should be on the list of our priority needs in education. We should not attempt to make books and computers mutually exclusive. In fact, books and computers are complementary, and my interest in computers resides only in their capacity to
enhance the learner’s motivation to learn. In our cooperation with developed
countries in the West, we should ask them to help us help our administrators and
educators to achieve computer literacy. Research has shown that computer-
assisted instruction (CAI) is a highly cost effective way of strengthening
instruction. Levin (1988, 60) has compared the cost effectiveness of CAI. His
findings are as follows:

On the basis of a cost effectiveness criterion, it was found
that CAI was ranked below peer tutoring, but considerably
above adult tutoring, longer school days, and smaller class sizes.

As we see, computers do not devour our budget as we tend to believe. Assuming
that efforts to obtain computers are successful, the next problem is that of
training teachers in how to use them.

The Training Problem
The problem of training instructors to use microcomputers should be at the core
of any CALL program. We cannot downplay the challenges facing the language
teacher who is learning to use microcomputers for the first time. As Lockard,
Abrams, and Wesley (1987,viii) point out,

...compared to any of the previous technologies introduced into
the schools, computers require vastly more teacher training to be
used effectively. One simply cannot place a microcomputer in the
classroom, pat the teacher on the head, and leave expecting
miracles to occur. Computer literacy has become a catchword of
the 80's, despite its lack of a commonly accepted definition.
Clearly teachers need to gain computer knowledge and skills
before they can help their students toward the same goal.

Computers are clearly different from earlier teaching devices such as radios or
tape recorders. As a result, teachers need to receive some basic training in CALL
before they start using computers in their classes. The use of microcomputers in
TEFL is quite novel in most developing countries. Nevertheless, I feel that, if
motivated and informed about the pedagogical advantages of using computers
in reading and writing, most language teachers will gladly use microcomputers
in their classes, and some will eventually develop courseware. Seminars and
workshops can help to train teachers who, in turn, will teach their students how
to use computers. Learning to use a computer will be a considerable
undertaking, but the time spent should be rewarding for TEFL professionals as
they advance in computer expertise. The best period for training might prove to
be the summer vacation when teachers are free for two or three months. Marty (1982, 4) has warned language teachers by saying: "In fact, I would advise language teachers not to become involved in computerized instruction unless they can find the 50 or so hours that are necessary to acquire the needed basic training."

Computer literacy is now a problem just because we have failed to integrate the use of computers into the curriculum of the different courses taught at the universities. And as long as we do not integrate computer utilization, computer illiteracy will persist. Language teachers need not understand, for example, why and how a computer performs complex tasks with tremendous rapidity. They need only to have some hands-on introduction to microcomputers and enough information about how computers work to carry out their pedagogical tasks. Very good teaching programs exist today; they are a vast improvement over the first computer drill and practice programs which were so mechanical and demotivating in nature that people sarcastically referred to them as "drill and kill" programs. With computers available and a training program in place, we may still find some instructors who refuse to take advantage of these new devices simply because they fear that they will not be able to master them. This may be particularly true in developing countries where there has been, in the past, far less access to pedagogical innovation and technology.

The Psychological Problem
Some teachers of English in developing countries may fear science and technology and not believe in their ability to use microcomputers. We can help them gain self-confidence and alleviate this fear of technology by emphasizing that a microcomputer is just a tool, one that can be used to reinforce what has been taught or teach a unit of learning. Such a unit may be designed either by the teacher or by someone else specializing in software program development. If we manage to train teachers to use computers, we must realize that the changes which follow will alter significantly the relationship between teacher and student.

The Pedagogical Problem
In Africa, we have very large classes of 40 to 50 students. In such a large classroom, the teacher can use TV monitors visible to all if there is only one computer available for a whole department. Pedagogical effectiveness is a very complex issue because the use of computers in a language class brings about some changes in the interactions among students and the teacher.

The change related to learning habits
Most of the time, students in Third World countries are used to rote learning. The use of microcomputers can greatly affect teaching and learning
habits because, once acquainted with microcomputers, students can develop skills on their own, depending on the extent of their creativity, instead of learning by rote.

**The change related to student-teacher interactions**

Students in Third World countries also have the habit of relying too much on the teacher as the sole source of knowledge. The use of computers can drastically affect the traditional relationships between students and teachers. When using computers, learners often get the impression that tasks are fun. They become so involved with games and each other that they may not need the constant help of the teacher. Teachers should not be surprised when students end up knowing more about how to use computers than they do. One reason for this phenomenon is that computers are a very good incentive to learn because they can provide learners with instantaneous feedback. Computers draw learners’ attention to the learning process and give them the opportunity to pace themselves. The boundless possibilities computers offer to their users, the motivation these same possibilities create, and the attraction they inspire in the users seems amazing.

In spite of their potential to motivate students, computers should not be imposed on students or even teachers at any cost. Administrators should be sensitive to teachers’ fears of computers and try to overcome their fears. Assessing teachers’ and students’ attitudes towards computers before and after the equipment is introduced is very important to the success of any CALL implementation program because teachers and students are vital elements in the teaching/learning process.

We have outlined a series of problems related to the introduction of computers into the EFL instructional environment. It is time now to look at some of the advantages which these changes offer.

**Using CALL for Feedback and Reinforcement**

Computers and students engage in a dynamic interaction that promotes learning and provides interactive feedback about student responses. For example, Pusack (1983, 55) presents in some detail five categories of answer-processing: non-evaluation, right/wrong evaluation, pattern markup, error anticipation and parsing.

1. In non-evaluation, the computer does not make any comment nor give any feedback to the student.
2. In right/wrong evaluation the computer tells the student whether the answer is correct by comparing it with a known answer.
3. In pattern markup, the computer makes a non-syntactic comparison of the student’s answer with a known correct answer, looking for matching patterns, inversions of characters, extra characters, missing words and so on. Well-known exercises such as DASHER (Pusack 1982a) and PLATO (Hart 1981; Marty 1981) fall into this category of answer-processing. According to Pusack (1983, 60),
Both PLATO and DASHER offer a means of creating drill materials in many foreign languages without reference to any categories of grammatical analysis. They can even be used by instructors who prefer not to discuss grammar in formal ways, either because such explanations are thought to be counterproductive, or because they prefer to remain within the target language, even during the drill interaction.

4. In error anticipation, cues, correct responses and anticipated wrong answers are available in the computer. When there is a mismatch between the student’s answer and the correct answer in the computer, the student’s answer is still compared with a list of known wrong answers. This gives the student the illusion of interaction.

5. Finally, in parsing, grammatical systems are automatized in the answer processing step. An error analysis of syntax and morphology is actually available and the student’s response is parsed in order to detect false or absent material.

**Using CALL to Engender Communication Among Student Users**

Microcomputers have extraordinary interactive capabilities. It is possible to use microcomputers for pair work and group work and to create communicative activities and simulation/games that will spark student spoken interactions. Cook (1988) discusses the extent to which computers can handle language through exercises such as *Escape from Utopia* (Cook 1984a), *Station* (Cook 1985c), and *Shannon’s game* (Cook 1985b). These exercises are meaningful, communicative and interactive, and they can be done individually or by groups of students.

In *Escape from Utopia* (Cook 1984a), students attempt to escape undetected from the city of Utopia within 24 hours. Students can decide to go to any place of the city, while making sure they avoid a patrolling police agent. They move around the map by typing commands into the computer indicating the directions in which they want to go. It is a problem-solving exercise. Students either reach their destination (a restaurant, a hotel or a railway station,) or are caught by the police. Students engage in a meaningful dialogue with the computer.

In *Shannon’s game* (Cook, 1985b), the computer shows a sentence and asks the student to find the word the grammatical definition of which has already been given. The student has to guess whether it is a pronoun, an auxiliary or a content word. Then the computer attempts to match the student response with its own and gives some feedback. The game uses syntactic parsing.

In *Station* (Cook, 1985c), students have dialogues with a local railway station, inquiring about when trains leave, and from what platform, how much
the tickets cost, and so on. The only problem is that students have to use a stock of vocabulary understandable to the computer if they want to have a meaningful dialogue. No matter how communicative and interactive these programs appear to be, we should not be over-optimistic and forget that the teacher is irreplaceable. That is why Cook (1988, 270) cautiously reminds us that,

Communicative teaching depends upon people interacting with each other; the programs have substituted a computer for one of the participants involved. Thus, while they certainly allow communicative techniques to be used for self-instruction, hitherto scarcely possible through other means, they at best provide a poor substitute for the fellow student or the living teacher. They do not extend communicative techniques; they replicate them in another medium.

Since teachers of English in developing countries are not likely to be familiar with the use of computers, how should they go about developing their own software programs?

Course Authoring System (CAS): A Reasonable Short Term Goal for EFL Teachers in Developing Countries

Teachers of English as a Foreign Language in developing countries can be helped to design and develop computer-assisted instruction without having to learn a programming language. Knowledge of authoring languages (e.g., PC PILOT) can be used to create CALL lessons. Lockard, Abrams and Wesley (1987, 303) outline the focus of PILOT as follows:

As originally implemented, PILOT consists of only eight commands, which provide those capabilities minimally necessary for creation of drill or tutorial CAI. To keep things very simple, most commands consist of only one letter, followed by a colon as the basic syntax. Here are the critical commands and their meanings:

T: (display text)
A: (accept user answer)
M: (match user answer to listed alternative)
C: (calculate)
J: (jump to a specified place in the program)
E: (end)

In addition, a section of a program can be marked or identified by the use of a label, which consists of an asterisk followed by a name, e.g. *Loop.
As we see, it is much easier for a beginner to learn an authoring language like PILOT than sophisticated programming languages such as Pascal, FORTRAN and COBOL.

Important as the advantages which we have just outlined may seem, the most significant value of computers may lie in the opportunity for teachers to author their own courseware. Teachers may thus become creators, rather than simply consumers, of this new teaching material.

They can use authoring systems and practice course authoring by entering information into the prepared computer, which will be transformed into a lesson. In other words, the commands are built into the program and teachers merely enter the material they wish, transferring their storyboards to the computer. Through course authoring systems (CAS), teachers can use their own natural language in communicating with the computer and develop intricate and sophisticated lessons. In short, CAS enables teachers to be the authors and designers of their own computer-assisted lessons.

Once adept in CALL, teachers of English in developing countries and their students will have their creativity liberated and they can begin to create programs suited to the African environment and to good pedagogical practices. Marty (1982:2) cautions that "computerized materials can be successful only to the extent that they are based on a method of teaching which has proved successful in the classroom."

This means that when developing or using their own culture specific software programs, EFL teachers should make sure that these programs take into account the learners and their characteristics, have precise objectives, help evaluate learners in the process of learning, and give feedback in light of learners' performance. Programs should be pedagogically sound; that is, drills and exercises contained in the programs should be communicatively meaningful and related to students' interest and desires. The use of the computer should not cloud their pedagogical purpose. They should also always bear in mind that some students may be color blind, hard of hearing, or simply unable to shift out of the pencil and paper mode of learning.

**Toward A New Technology: Computer-Controlled Videodiscs**

Our teaching profession is an ever changing field, adapting itself to and using new discoveries in science and technology. Computer-controlled videodiscs have pushed one step further the use of technology in language classes. They are a breakthrough insofar as they tend to play a more important role in areas long reserved for slides, films, audio tapes, videotapes, and film strips. In the years to come, our colleagues of the North will start using interactive videodiscs—a medium that can supply both visual and auditory modelling—to reflect real life situations in a language class.
Conclusion

The advantages of computers for language instructors outside of Africa has been evident for some time. Developing countries need to recognize not only the value of the new technology, but also the significance of mastering the skills necessary to adapt it to instructional contexts which may differ considerably from what we find outside of Africa.

Teachers of English should develop their own courseware, adapting software programs to the realities of the African social environment, and making their customs and traditions known. By creating their own courseware, like those who have already invented and developed software programs in the West, teachers of English in developing countries will play their part in world culture and technology, for the development and benefit of TEFL in general, and of their students in particular. If for any reason we choose not to use computers in our EFL classes in Third World countries, the gap separating EFL teachers of the North and EFL teachers of the South will become much wider. Finally, awards by African teachers associations should be instituted to encourage instructors to upgrade their computer skills and develop courseware adapted to their socio-cultural realities.

References


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