

COMPUTER APPLICATIONS TO LANGUAGE

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INTRODUCTION

In recent years, two trends have caught the imagination of language teachers. One is the growing emphasis on **Communication** (on using language for purposes methods getting the right answer and pleasing the teacher). Communicative teaching concentrates on genuine exchange of information, on games and other self-rewarding activities, and on lively simulations of real and interesting encounters. The second trend is **Computer-Assisted Instruction**, which takes a piece of equipment whose IQ is exactly zero and puts it at the service of the human mind.

Computers are now playing an active role in education process. In the 60's experiments with computers indicated their value as educational tools. But in the 60's computers were expensive, difficult to use, and vaguely threatening to many educators.

Things have changed. Computers in classrooms are not only less frightening, they are more and more in demand, and at all levels of education from universities to elementary schools. The current concern is not whether to use computers in classrooms, but how to use them in classrooms.

Because of the rapid development and spread of the computer, there are a few people whose lives have not been affected by it, at least indirectly. Everyday we hear about new uses of the computer. Students are using small, programmable pocket calculators that they can carry to class and certainly computers will continue to be used more and more, in business, industry, education and home.

An important use of computers is in education. It is called Computer-Assisted Instruction (CAI). It is becoming more and more popular at all levels of education from preschool to university.

"What are you teaching your students and why?" Chris Harrison (1983) begins a recent paper with this question and goes on to examine a number of computer simulations in English Teaching.

This question provides a suitable starting point for an outline of computer-assisted learning (CAL) development of over the last fifteen years. Typically the students were given control over ecological systems or industrial

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processes and planned a series of experiments or trials in the process of gaining a clear understanding of the scientific concepts involved. Evolving in parallel with this aim was that of a more detailed understanding of the processes of science through an examination of (largely mathematical) models (Lewis and Harris 1980). Examination of models was a natural activity for those concerned with the teaching of economics, and gaming was taken up by both economists and geographers (Watson, 1984).

To return to the original questions: "What are you teaching your students and why?" we may a "How?" taking the premise that our students learn English in order to build up their communicative abilities, we may need to place more emphasis on fluency than accuracy activities, on interaction between students rather than on one-way teacher-student traffic. We need to allow the students to take risks without being threatened by penalties, to cooperate rather than compete, to introduce the unexpected and to take the initiative. By giving the "Information Role" to a computer, and by the teacher taking on the analyst and planner roles, we can provide for all of these needs in a student-centered setting" (Lewins, 1986, 59)

COMPUTERS AND LANGUAGE TEACHING:

Most advantages of using computers in education becomes advantages for students. For example, students profit when teachers can pay closer attention to their work; students also profit when they can work quickly through material they are already familiar with and more slowly with new material. In both situations, the student must prove his ability with the material, but is able to pace himself through it rather than relying on a generalized pace set for an entire class.

The past decade has seen a growth of interest in, on the one hand, more communicative methodologies, and on the other, the importance of informal "acquisition-rich" learning environments. As a result teachers are more than ever aware of the anomaly of the classroom situation where large numbers of the learners are the responsibility of one teacher, where it is likely that activities for the whole class or large groups will predominate, and where the opportunity for effective communication is less frequently achieved than it should be. Consequently teachers have tended to become more conversant with classroom management techniques which focus on group or pair-work, role play and simulation, and which increase the total amount of time that the individual participates in the work of the class. It is also not surprising that during this period of reappraisal, many "fringe" methodologies have flourished, with their guarantees of success and communication, of humanistic development and naturalistic progress.

But computers also provide benefits for students beyond those realized by teachers. The computer provides a mechanism for involving them more closely with material being learned, thus providing a higher level of the motivation. The computer also provides stimulation in the form of graphics, animation, color, and sound. A very important advantage is that the computer provides a means for tutoring individual students at their own speed.

Because the objective is to apply language skills to learning content, tests should be given on the content rather than on the language. Tests used by the authors include true-false, fill-in-the-blanks, multiple choice, and short answer items as well as problems whose solutions require flowcharts or programs. An examination should be used to test students every two lessons.

Perhaps we can finally begin to exploit fully the powerful language-teaching resources that computer technology has made available. A note of caution is nevertheless in order. Technology must not dictate educational goals and methods. A clear understanding and sympathy for the principles of second language learning are much more important than computer expertise. Computer-assisted instruction will certainly fail unless it is designed and implemented by the people who have the central interests of foreign language teaching at heart—the teachers.

WORD PROCESSING: The word-processor is an invention which must surely be considered the greatest boon to anyone who has to prepare and store large amounts of textual information. A word processor may take the form of a dedicated machine or a program which enables virtually any computer to function as a word-processor. Word-processor is a program which enables correction and retyping the whole pages.

SPEECH SYNTHESIS and ANALYSIS: At first glance this would seem to be the obvious area of interest to the language teacher but speech synthesis and analysis are still in the Stone Age. Although it is possible to produce an electronic voice which is indistinguishable from a natural human voice, it costs a small fortune.

Speech synthesis is, however, invaluable for the handicapped. It is possible to synthesize human speech on a microcomputer which can be controlled by someone with minimal muscular power. The BBC TV **Horizon** program, **Finding a Voice** (First broadcast January 1982), showed a spastic, devoid of the power of coherent speech, using a voice synthesizer may be used to transform written instructions into sound in order to assist the blind (Vincent, 1981). The synthetic voice sounds peculiar, but much better than no voice at all.

MACHINE TRANSLATION: The idea of using computers to translate language is not particularly new. For many years both linguists and computer scientists have dreamed of fully automatic translation by computer. The European Community is taking machine translation seriously and has invested heavily in the development of SYSTRAN (Van Slype, 1979), an elaborate automatic translation package on a mainframe computer. Budding professional translators may breathe a sigh of relief to learn that such packages still require considerable intervention by an operator with a knowledge of the relevant languages, their aim being to increase the translator's output rather than to take over the whole job. The reliability of such packages depends very much on the nature of the texts to be processed, and there is no indication so far that human translators will become dispensable at least not for many years to come.

AUTOMATIC DICTIONARY: Automatic dictionaries are a much more modest undertaking for modern computers (Gootschalckx, 1982).

Siemens' Long established TEAM (Brinkmann and Tanke, 1975) and the BBC's EURODICAUTOM (Snell, 1979) are two wellknown examples of dictionary packages on mainframe computers. It is unlikely that the average teacher will have access to a database of this size, but it is feasible to set up a small automatic dictionary on a microcomputer, for example a glossary of terms relating to a specialist area of terminology, a set text or course book.

The main advantage of properly constructed automatic dictionaries is that they can be constantly reviewed and updated as required. Even dictionaries in book form are usually compiled with the aid of a computer nowadays. This makes the business of organisation and cross-referencing a much easier task.

LITERARY and LINGUISTIC ANALYSIS: An area of work which is typical of mainframe computer applications to language is literary and linguistic research. Packages like COCOA (Hockey and Marriot, 1979), which has been around since the early 1960s, EYEBALL and the more recent Oxford Concordance Program (OCP) have been designed primarily as tools for the researcher. In addition the researcher has access to large computer data banks of material, for example the Long-established LOB Corpus at the University of Lancaster or the bigger COBUILD corpus created by John Sinclair at the University of Birmingham.

Although the microcomputer is at present incapable, say, of producing a complete concordance to the plays of Shakespeare, it can certainly produce word frequency counts of poems and short stories and demonstrate to the students the possible applications of electronic wizardry to stylistic analysis (Davies, 1985). Teachers who are more concerned with the practical aspects of language teaching will appreciate the value of concordance packages in checking the frequency and intervals of repetition of lexical items in course books and in the production of dictionaries, where contexts are essential elements.

It is important, however, that those who are more concerned with words than numbers should at least be aware of the enormous opportunities which are offered (Bailey, 1982).

CONCLUSION:

The emergence of computer on the educational scene is neither surprising nor to be feared while the computer has unquestionably enormous potential as an educational aid, providing new learning opportunities. It is clear that in many respects it cannot compete with the teacher. Computer and teacher should not be seen as rivals but as complements to each other. The partnership is based to vary from subject to subject and from one educational establishment to another, according to the availability of machines and programs, teachers' attitudes, and many other factors, but there seems to be little doubt that it can promote learning and enhance courses both in the sciences and in the humanities...

To conclude, this writing has looked at a range of uses of the computer in language teaching and has shown it is at present utilizing only some of the possibilities. Typical existing programs concentrate on a limited area of language and are incompatible with most contemporary teaching models. It is hoped that this discussion will on the one hand spur on those involved with the communications and humanistics models to start thinking how computers might be useful to them, and on the other hand provoke those involved with computers to develop techniques to exploit the unused potential and to make them more usable by teachers. Without such a bridge language teaching will turn into a meaningless activity, providing programs that no one actually wants to use about aspects of language that few people consider important.

We are clearly entering an exciting era, although not without a certain amount of fair and trembling. Machiavelli expressed our situation well:

There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain if its success, than to take the lead in the introduction of a new order of things.

(The Prince, IV)

If there is a message running through this writing, it is that we (language teachers) must take the lead. We who understand best what it means to teach and learn a language will have to make it clear what we want, and what we don't want, from the software people. We must not allow our ignorance or timidity of technology to cause us to sell out our principles or beliefs about what is good and right and sensible in our profession. If we say nothing the computer people will give us what they think we want, or what is easy to program, or what they have always done. This is the time for the language teaching profession to make a principled statement about "what ought to be done".

I'd like to conclude this writing with Chomsky's quotation:

The ability to construct for oneself an abstract grammar of underlying principles is a unique human endowment, a fundamental characteristic of human intelligence. It is the task of the teacher to construct the conditions under which this natural human ability will be put to use. (Noam Chomsky, 1969; 13)

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