

CAI: YES OR NO?

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Anyone involved in teaching administrative or technical writing is likely at some point to consider the question of whether to use computers in the classroom. The question asked here--"CAI: Yes or no?"--can probably be answered best by "Well, it all depends."

What does it depend on? First of all, it depends on our objectives as teachers of writing. Some general objectives may be assumed: the development of self-confidence, independence, the ability to communicate clearly, correctly, concisely and considerately. The specific objectives are ones in answer to the question "What do I want my students to get from this lesson?" Second, it depends on the ability of teachers to recognize their objectives and to evaluate honestly the success of the methods they use to meet these objectives. Third, it depends on the ability of the hardware and the available software to meet both the general and the specific objectives.

This paper will examine some of the criteria for assessing the value of computers and of software as tool and as tutor¹ in meeting these objectives for teaching writing at the post-secondary level.

The Computer as Tool

One of the objectives of using the computer to teach writing is to develop the ability to compose at the computer to take advantage of the convenience of text moving and correction that most word processing packages offer. There are other reasons for developing the ability to compose at the computer: for example, many offices now have micro-computers; students in their jobs on graduation may well have access to this very handy writing instrument. Any word processing package used should obviously require little or no effort to set margins, line spacing, and so on. It should have word wrap-around so that whole or hyphenated words appear at the end and at the beginning of lines. It should, for convenience, have an 80-column screen. These are, of course, very obvious requirements. Having a program (Wordstar, for example) that allows the material before and after the page break to appear as part of the "screenful" at the time the page break is made is a real advantage to the writer. Those programs that move automatically to the top of a blank screen when a page break is made (MultiMate, for example) are very frustrating to the writer. Ease of inserting, deleting and moving material is also important, since one objective of teaching writing is to encourage students both to edit carefully and

to make global revision in their work. Students who do not see the need for global revision in handwritten work, it should be noted, won't see the need for it just because they use the computer to compose.

And that leads to the importance of recognizing one's objectives in using the computer to assist in teaching. Consider the following assignment.

Insert your disks. When the "AO>" prompt appears, type ws and return. Then type l b: and return. Delete your old assignment file by pressing control y; type #3 and return. Open a new file by typing d and then typing #4 and return. Then type your name on the first line, return, then type Assignment 4 on the next line. Return 3 times.

You are the administrative assistant for the manager in charge of customer relations in your company. You have received a complaint from a customer about the treatment she received when she tried to return a defective woinkle to the store where she purchased it. She has given you details of the product, the date of purchase, the name of the employee to whom she took the defective woinkle, and so on. It is your job to write a letter to her, apologizing and making what amends you can.

This assignment is obviously just that--it offers instructions for the formatting, but makes no attempt to give any instruction in the writing process involved in solving the problem. There is nothing wrong with this passage as an assignment--as long as it is recognized that no teaching is being done. The objectives here, it is hoped, are simply to give the student the method for deleting an old file and opening a new one and then to provide practice in using the methods already discussed for writing such a letter.

With a minimum of instruction on operating the computer, students can use a word processing package effectively as a tool for composition, editing, and revision--as long as they know how to compose, edit, and revise.

The Computer as Tutor

This is the function many people envision for the computer in CAI. The computer can be an effective tutor--given the appropriate software and the appropriate uses made of it.

It is said that 98 percent of the so-called educational software is garbage and that the other 2 percent varies from just adequate to excellent. When one takes into account the amount of time spent to produce even the worst software, these figures reflect either a serious obsession with expediency rather than quality in preparing the programs, or else a serious ignorance of what is required for producing pedagogically sound software.

What qualities are evident in excellent educational software? Generally, one should look for programs which offer most of the following characteristics:

1. Appropriate interaction with the user--that is, immediate response to the user's answers.
2. Branching in response to the user's responses.
3. Some user control over what s/he is doing--over which exercise to choose, where to begin in it, where to move to next in the exercise, when to leave the exercise.
4. Complete units of limited length.
5. Teacher ability easily to alter the text, or at least to add to it, to accommodate individual or class needs.
6. Inclusion of information necessary truly to assist in instruction in the particular topic under consideration and to help students learn to recognize specific problems and errors in their own work.

Many "programmed" workbooks offer some similar advantages to students, but some of these qualities are ones which cannot be duplicated by pencil-and-paper exercises.

Interaction

Programmed workbooks offer the correct answer to questions posed. There is no chance to comment on the correctness of the student's answer, however, or to offer appropriate cues and clues to help the student arrive at the correct response. A good interactive program can do both those things. It is important that the responses provided for all students--and especially those at the post-secondary level--be appropriate. Such extravagances as "You're a brain!" in response to a correct answer at the third attempt are distracting at best and demeaning at worst. The advantages of good immediate feedback to a student's answers are unquestionable, however.

A good program may offer clues in response to an incorrect answer through such questions as "What word signals the need for parallel structure in this sentence?" The clues help provide further instruction: by definition an aim of CAI.

Programs may contain built-in instructions to move to instructional passages whenever a selected number of incorrect responses have been made. The tutorial parts may be ones already covered by the student, or they may be further explanation of the information to be learned, provided in the hope that expressing the information in a variety of ways will assist the student to understand it.

Appropriate immediate feedback to students' responses, then, along with clues presented to help the student as well as opportunities to review the points to be learned all help to provide good interaction with the user.

Branching

The ability to move automatically to a review of the material to be learned if errors were consistently made has already been discussed. The program should also offer the opportunity to move ahead to new work or to a test of the topic(s) under consideration if a certain number of correct responses have been made. Requiring a student to continue to work on exercises on topics already understood is likely to be harmful rather than beneficial.

Some sophisticated programs automatically move the user to a review of only the material which applies to the error which is being made consistently. Obviously, there are important benefits to be found in moving directly to needed review or to new work. Students using workbooks may choose to move on or back, but they must exercise their own judgement about when to do this, since there is no suggestion in most workbooks about appropriate times to leave what they are working on.

User Control

Although some programs offer automatic movement to appropriate material, good programs should also offer opportunities to the user to move at will from one exercise to another, to move directly to a desired exercise, to move to the desired point within the exercise, and to leave it at will. Students can close a workbook. They can turn a page. Similar opportunities are demonstrably beneficial in computer programs (Stevens).

Small Units

Small, manageable chunks of work to be done provide chances for students to take advantage of short periods of free time to work on problem areas or assignments. Students are more likely to do the work when it is presented in small units, too! If longer periods of time are available, obviously, additional units can be covered if desired.

Adaptability

The fact that alternate text, exercises, and tests can be inserted can increase the usefulness of a program a great deal. Students requiring much practice or instruction can become very bored with a

limited number of exercises or the same non-helpful text. Such adaptability can offer the teacher opportunities to add text and exercises appropriate to an individual student's or class's needs.

Instructional Text

The term "computer-assisted instruction" was deliberately chosen instead of the term "computer-assisted language learning". Many objectors to computers in education complain--with justice--about the drill-and-kill exercises that abound. Drills can be helpful. But they should be presented with instruction in the topic which the student needs to learn. The teacher may (and usually should) offer verbal instruction in the point to be learned as well. However, the computer program is much more helpful if instructional text is included before, during, or after the exercise--that is, if it is easily available somewhere for the student to refer to. The teacher is, of course, always an additional resource: even excellent computer programs don't allow the conscientious teacher to sit down to read a good mystery in class.

Inclusion of information to help students to learn to recognize specific problems and errors in their own work is an essential part of any instructional text. The clues mentioned earlier as responses to incorrect answers help remind students of what they are to look for. This characteristic of good programs is not often found. It is often suggested that such programs as Writer's Workbench (originally developed as a tool for secretaries to use in editing their work), and Thinktank and Promptdoc (programs designed to help organize materials into coherent reports) can be very useful to novice writers. Such programs should be used very carefully in the teaching of writing. If writers don't know how to correct the errors that "grammar checkers" detect, the program is not very helpful. If students become dependent on such programs to detect their errors and then find in the workplace that the program is NOT available to them, the quality of their writing is not likely to be good. The organizing and planning programs are useful to skilled writers who know how to classify and categorize the materials they are using, but they present no help to students who don't. Teachers must be responsible in their use of such programs and provide their students with necessary instruction.

Many programs meant for other purposes can, with ingenuity, be used very effectively in teaching. A good typing program, for example, which offers the user a chance to move to desired exercises and to change words and text can be very helpful to students needing practice in both typing and in spelling: a "hit list" of spelling errors can be incorporated into typing exercises. In such cases, the lack of instructional text may not be a problem.

Conclusion

The computer can assist instruction, both as a tool and as a tutor. The most useful word processing packages are easy to use in learning to compose and revise. Good educational programs offer appropriate interaction, branching, user control, small units, adaptability, and instructional text which includes information necessary for students to learn to recognize specific problems and errors in their own work.

If appropriate use is made of the computer and if the programs used meet most of the criteria outlined, then yes, the computer can truly assist instruction.

ENDNOTES

1. Robert P. Taylor refers to the uses of the computer in the school as "tutor, tool, tutee".

REFERENCES

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