

New Flexibility in Curriculum Development through Word Processing

Computer technology makes it possible to develop, test, and refine instructional materials in the classrooms where they will be used.

Many educators and educational publishers view the computer as an elaborate teaching machine that can provide programmed instruction and drill and practice on materials printed in textbooks. While this approach aligns software with standard texts and lessons, it may do so at the expense of instructional excellence. The approach is likely to compound the problems in a curriculum already organized around feeding facts to students.

The virtue of many textbooks is their organization, sequencing, and standard methods for presentation, study, and testing. Textbooks help burdened teachers in much the same way that TV dinners help burdened homemakers. But no thoughtful educator approves of a completely textbook-oriented curriculum any more than a good cook serves only TV dinners. The problems of textbooks lie in

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their overspecialization and lack of aesthetic sensitivity and intellectual organization.

Computing Language Arts

Probably 70 percent of schooling, particularly in grades 1-6, is spent in language arts: learning to speak, listen, write, and read. Can software be written so computer technology can help meet language arts and other curriculum objectives meaningfully, beyond merely reinforcing limited technical skills or providing remedial instruction? If so, the computer will find a meaningful place in the mainstream of the elementary and secondary curriculum.

The critical questions are: how can

we write a language arts curriculum in a machine format and have it come out more relevant than basal readers and other English textbooks? How many programmers will it take? How can they understand the dynamics of the classroom, or understand the students who will be using the machines? What will be the role of the teacher and of the learner?

Fortunately, educators do not need to depend upon new programs to create computer-based curriculums. The most flexible program for teaching reading and writing skills and for helping educators design, store, and publish curriculums already exists. In fact, it is used in many schools. That program is word processing, and in word processing (and data base management) we are likely to find the organizing axle around which the spokes of an integrated and expressive curriculum will evolve.

Data Base of Personalized Stories

Two curriculum development projects in the U.S. Department of Education Basic Skills Program used word processing to develop an integrated language arts program. In one project, writers of children's literature and specialists in arts-in-education and content areas used the word processor to store and print stories written to integrate and develop students' literary taste, enjoyment of learning, content knowledge, problem-solving, and communication skills.

Some stories were programmed so that students appeared by name as the story characters in the text. The students could then print the stories, enabling individuals, reading groups, and whole classes to read science, social studies, literature, and creative writing concepts while reading about themselves and their real or imagined experiences.

When students read stories designed to motivate their thinking, feeling, and imaginations, they were inspired to write creatively. Students typed their stories, poems, and thoughts directly into the word processor, or a teacher, secretary, or volunteer did it for them. Once the work was inserted, students looked at their drafts, either in hard copy or on the screen, and revised them. The final copies were then printed, closing the circle from reading to writing and back to reading. This application of computer technology whereby student writing can be stored, revised, edited, and finally printed may prove to have a profound impact on conventional education in the next decade.

Part of the success of these Basic Skills Program materials is due to their personalization: everyone likes to see his or her name in print. Another more significant reason for their success is that the stories are exceptionally well written. Three factors in the design process account for this. First, the authors are writers of children's literature and not writers of textbooks. Second, they are in residence in the classroom, consulting, teaching, observing, and interacting; thus, class-

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room events help to structure their design. Third, writers use the computer to revise and print the text in response to and with the help of students and teachers. The computer makes it easy to revise stories, field-test them, and revise them again if necessary. For the first time, we have the technology and methodology for a self-refining process of creating and implementing curriculum.

The Computer as a Literate Pen Pal

In another computer-assisted basic skills project, the word processor was used to help develop creative writing skills. A perennial difficulty in instructing composition and creative writing has been establishing a nonjudgmental interested audience for students. With this problem in mind, students in grades 6 to 8 were asked to name the school's new word processor. They chose the name HAM, for "Hot Air Machine."

After the students named HAM, the writer in residence wrote letters "from HAM" to help develop HAM's literary personality. HAM loved to write and read poetry, journals, and stories, was curious about science and history, and enjoyed storing, reinforcing, and printing students' creative writing.

HAM's letters were designed to motivate and model writing activities. HAM became a literate and literary pen pal for hundreds of students, and his nonjudgmental interest in students' self-expression and his "tireless efforts" to print student writing provided essential ingredients for a successful writing program.

Computers Can Change Curriculum Design

These two storytelling and creative writing projects demonstrate how computer technology can enable curriculum developers to work in residence in the classroom, creating, field-testing, and revising instructional materials and lesson plans to suit the needs of students and teachers. The only limitation on quality is the experience and sensitivity of the developers and users.

Many people have predicted that the high cost of computer programming will further centralize curriculum development. When word processing is used as a basis of curriculum design, however, expensive programming is not required. Creating materials directly on the word processor enables educators to adapt them to particular district, school, or class objectives, and to focus on the cognitive, affective, and aesthetic qualities of the materials. As an alternative to centralized, textbook-based curriculum, word processing as a curriculum design tool enables developers to initiate and implement a flexible, self-refining process.

In many industries computers have changed product design by changing the design process; they have also changed the methods of production. So too in education, computers can change the process of curriculum design and the method of distributing and printing curriculums. If we grasp the design, distribution, and publication capabilities inherent in applying computers to education, we can effect a radical redesign in materials and procedures in our schools. □

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