

The Urgent Need for Curriculum-Integrated Microcomputer Software

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Sorry, folks, we can't wait. We aren't unsympathetic toward software vendors and their problems of copyright infringement. We'd like to be patient until they've solved the problem of how to provide good quality, affordable software and still make a profit. But we can't wait. We applaud the unselfish efforts of local and regional user groups, but we recognize that most software produced and shared in this way ends up stored randomly on many disks and is accessible only to those who are computer-oriented. We know that eventually these programs will be available to the rest of us. But we can't wait.

The word is out. On main street, on the farm, in the home, and even in schools everyone knows that the fantastic power of the computer is now available. In spite of tight money, funding agencies are buying microcomputers for schools. Overworked teachers are doing a conscientious job of teaching the basics of BASIC to the privileged few who qualify. Every school has its computer enthusiasts. They carry around their boxes of diskettes, exchange games and programming tips, and speak a strange language that is largely unintelligible to the masses. But that's not enough! Affecting the education of ten, twenty, or even fifty percent of our students by the computer just isn't enough. Even if *we* thought it was, the public knows better. We just can't wait.

If we as teachers are going to realize the potential of the computer in education, we are going to have to ensure that its power and versatility are available to complement the existing curriculum. Some futurists predict that the computer will, to a large extent, replace the teacher. Others first want to rewrite the curriculum in a way that exploits the power of the new technology more fully. Unfortunately, even if these alternatives *were* feasible (and they do not seem to be, at least in the foreseeable future), we can't wait. A viable first step toward incorporating the computer with all its power into the existing curriculum is available to us now. What is needed are short programs that will help us to do a better job of meeting the day-to-day needs that confront every classroom teacher. Most of us could use help in presenting "tough" concepts: a tutorial for the student who has been absent, a rerun for the student who "didn't get it," even enrichment for the student who is "marking time." Such help is, or soon will be, available.

Realizing that we can't wait, the Iowa Microcomputer Curriculum Project (a Title IV-C funded project) has taken the first steps toward solving the problem:

- a) obtaining appropriate software
- b) adapting it to the existing curriculum
- c) making it available to all teachers
- d) ensuring that the cost remains nominal.

The IMCP's first task was to define relatively small instructional modules (most programs currently available cover too much material). This we've accomplished. The second and much larger task is to accumulate and disseminate appropriate programs for each of these modules. This we've begun.

Recognizing the magnitude of the task for all levels of all parts of the curriculum, the IMCP decided to begin with the curricula for Algebra I, Algebra II, and geometry. For each course, a two-dimensional matrix identifies relatively small instructional modules. Figure 1 shows part of the matrix for Algebra I.

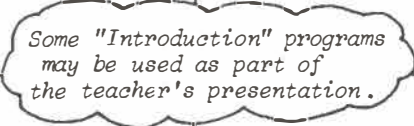
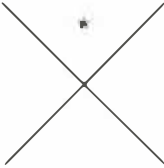
ALBEGRA 1	Concept Development Stages		
	Introduction (I)	Skill Building (S)	Application (A)
1 Simplifying numerical expressions (order of operations including parenthesis)			
2 Variables; evaluation of algebraic expressions and solving simple equations by replacement			
3 Translating word phrases and sentences into the symbols of algebra:	Disk AI-1 Translating Simple Word Phrases (Introduction) G. Carey		
a) relatively simple			
b) more complex	Disk AI-1 Translating Complex Word Phrases (Introduction)	Disk AI-1 Translating Complex Word Phrases (Skill Building)	

Figure 1

*A program is being written or is in the evaluation process for all cells with the "X."

There are 147 cells in the Algebra I matrix, 225 in the matrix for Algebra II, and 162 cells for geometry. The project currently has programs that are written or are being written for nearly 15 percent of these cells. These programs are written by teachers, for teachers, to be used with or by their students. Even though the programs that are currently available have been evaluated extensively and have been revised, they aren't perfect! We accept the fact that no program is ever the best it could be. We believe that these programs are a good beginning and that each succeeding revision will be better. Our goal is to get good instructional software into the hands of teachers now.

We can't wait for perfection. Only the programs that we can use now can help our present students. These programs will also give us a chance to explore the classroom management and instructional dynamics dimensions of integrating the micro into the instructional process.

Phase II of the Iowa Microcomputer Curriculum Project will use the same basic project design to provide microcomputer software to supplement the mathematics curriculum for Grades 5 to 8. Planning has begun for expansion into the physical and social sciences. Though time lines are indefinite, IMCP has made a definite commitment to the total K-12 curriculum. That commitment will be fulfilled as rapidly as human and financial resources make it possible.

At present, there are approximately 40 authors who have contributed programs for evaluation and distribution through the Iowa Microcomputer Curriculum Project. We need many more! Currently, we are committed to handling only programs written for APPLE II DOS 3.3¹ and TRS-80 Model III². By September 1982, we hope to be able to accommodate program users and authors of both the Pet (disk)³ and Atari (disk)⁴. Contributing authors receive appropriate authorship credits and other benefits. Further information can be received by writing IMCP or by subscribing to the *Micros in Mathematics Quarterly* (\$3.00 - U.S., \$3.50 - Canada) available from IMCP, Price Laboratory School, Cedar Falls, Iowa 50613.

¹TM Apple, Inc.

³TM Commodore Business Machines

²TM Tandy, Corp.

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