## Reflections

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love to do the interesting stuff, but who has the time?" It's a reason teachers frequently give to ignore Logo. The claim is they don't have the time to teach Logo, *and* cover the standard curriculum. The assumption seems to be that Logo and the math curriculum are disjoint sets, or perhaps more accurately, the skills needed for Logo diverge too greatly from the curriculum to be covered.

Only serving to justify the reluctant teacher's decision not to use it are the researchers who report that instruction in Logo fails to produce measurable differences in children (See two recent research summaries in The Computing Teacher, Dec-Jan, 86-87, p. 22). Many of these same teachers then go to math conferences looking for ideas to enliven their teaching. Unfortunately too many of them lose their recharge when they get back to their classrooms.

What Seymour Papert had in mind was to give people a vision of what mathematics education can be. And it's *that* vision that gets me out of bed in the morning. But I also realize that trying to implement that vision with too much idealism is asking for problems and provoking resistance and that is certainly not what Papert had in mind. I have learned to take small steps towards that vision by sharing with people activities that children find meaningful and interesting and that teach the stuff of the normal curriculum. Examples are included in the activities section elsewhere in this newsletter.

Because so much of the Logo literature is devoted to discussing and justifying underlying philosophy, too few teachers have become convinced on a practical level that Logo can be a useful and versatile tool for teaching mathematics. It's time we spent less energy defending the language and concentrated instead on developing and sharing effective techniques for using it to teach mathematics. It is my hope that CLIME will foster such a spirit and I am looking forward to the challenge. ◊

## From the Editor

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experience setting up goals, procedures, and materials to enable the practice of the tenets of Logo pedagogy to a standard math class, with or without computers.

Here are some additional issues of importance that require discussion.

1) How do we optimize the classrooms in which we use Logo to enhance the teaching of Mathematics? Do we need to examine the most effective ways to operate in a laboratory setting? How does teacher control of the class fare under such circumstances? Are there adequate materials, and if not, what form should they take, and who will prepare them?

2) What are effective ways to teach with a few computers in the otherwise standard math classroom? What are the advantages and drawbacks of the single computer and classroom sized monitor employed as a "dynamic blackboard"? And is student hands-on necessary? What is the difference between students being able to *write* a simple program on the one hand, and being able to *understand* a more complex program in a class participation or "demonstration" environment?

2) To what extent do efforts to use Logo to enhance math teaching interfere with meeting standard curricular requirements?

3) As mathematics teachers, do we expect our colleagues who are responsible for teaching Logo at elementary or middle school levels to teach our future students particular knowledge or skills? Should we be providing guidance as to content and expected proficiency levels?

4) As mathematics teachers, do we feel there should be, in addition to standard Logo primitives, tool procedures constituting a core mathematical microworld, a common foundation, as it were, upon which to build?

We hope for and invite members' ideas for future issues. ◊

## Reviews

***Douglas H. Clements and Michael T. Battista:* Why Logo for Learning Mathematics? Logo Based Geometry.**
*Logo Exchange, Feb. 1987*

The authors are engaged in a three year National Science Foundation program titled, "*The Development of a Logo-based Elementary School Geometry Curriculum*". The program's first year examines deficiencies in current curricula, finding among other things little student opportunity for geometric problem solving or spatial thinking, and student perception of classroom roles as primarily passive with little verbal or exploratory interaction with classmates. The first year will also review research in elementary geometry, and develop a new curriculum containing a strong component of Logo based activities supporting the curricular objectives and emphasizing explicit connections between computer activities and other mathematical work.

The second year will see piloting, evaluation, and revision. The third year will be devoted to wider field testing, final revisions, and dissemination of the program .

The authors welcome suggestions and activities found effective by other workers. Write to:
Logo-Based Geometry Project
Kent State University
118 White Hall
Kent, Ohio 44242

***Cynthia Solomon:* Computer Environments for Children; A Reflection on Theories of Learning and Education.** *1986 MIT Press, Cambridge, MA 02142,*

This is a book that should be read by anyone interested in mathematics and computer education. Solomon takes a close look at four educators who were pioneers in the field. This is the history of how the contributions of Patrick Suppes, Tom Dwyer, Seymour Papert, and Robert Davis evoked different computer cultures. All but Dwyer, who was more of a