Logo Revisited


In my "Logo Frightens Me" editorial in the December-January 1983-84 issue of The Computing Teacher I expressed fear both that Logo was being oversold and that it would not reach its potential. Recently I was invited to speak at the West Coast Logo Conference in Los Angeles. This was the first "pure" Logo conference that I have ever attended. The conference reassured me on some points, but left others still open. Participants in the conference exhibited considerable enthusiasm for Logo, but this seemed to be tempered with restraint and realization that Logo was not "the" answer to all computer-related questions. Indeed, many of the conference participants seemed somewhat conservative in their approaches to bringing Logo into education.

The West Coast Logo Conference had over 800 attendees and an impressive list of speakers which was nearly a "Who's Who" in Logo. Certainly enough of the top leadership was represented to adequately reflect the past, present and near future of Logo.

The vendor exhibits gave proof of the commercial progress of Logo. There are a number of competing versions of Logo, and new ones are coming to market. There are many Logo books, and there are large quantities of Logo activity cards, worksheets, teacher's materials and other aids to using Logo in an instructional setting. Many of these materials were developed by teachers; they seem to adequately represent appropriate philosophies of Logo instruction and use.

One of the keynote speakers, David Thornburg, demonstrated some of the capabilities of Logo on a relatively modern and fast microcomputer. He spoke of the potential of compiled versions of Logo which run many times as fast as the interpreted versions currently in wide use. He discussed some of the potentials of artificial intelligence that can be realized on newer machines making use of compiled versions of Logo. Thornburg gave a convincing argument that Logo was an appropriate computer environment and programming language to use from grade school through graduate school.

Seymour Papert talked about several of his research and development group's latest projects. He was most excited about a new version of Logo that includes a word processor. The conventional Logo and the word processor interact with each other. Thus, one can easily have a Logo procedure be applied to a text file one is creating, or a text file can be executed as a Logo procedure. Papert also mentioned a music project, a "colors" project that would make millions of different colors available to Logo users, and a turtle kit project. It is clear that he is enthusiastic about the future of Logo.

Thornburg, Papert and others at the conference aptly demonstrated that Logo is a growing computer environment with tremendous potential. But will this potential be realized?

One of my parts of the program was a panel discussion on the topic of teacher training for Logo. I was the first panelist to present, and so I had the opportunity to set the tone of the panel. I decided to take a somewhat pessimistic view-partly in order to stimulate discussion. I began by displaying the following diagram.
The three vertices of the triangle represent three major thrusts of teacher education for working in a Logo environment. The underlying philosophy of Logo is Discovery-Based Education and Individualization. But both of these existed long before Logo. Almost all elementary school teachers individualize to a small group level (for example, dividing the class into three reading groups or perhaps two levels of math groups). Some elementary school teachers use discovery-based methods in parts of their math, science or social studies teaching. However, the overall nature of the elementary school curriculum and classroom makes discovery-based learning and individualization difficult.

Problem solving has received considerable attention in recent years, but was a major educational issue long before Logo. Some elementary school teachers place major emphasis on problem solving, especially in the math curriculum. However, probably the majority place their main emphasis on lower-order skills.

The diagram helps make the task of teacher education for Logo clearer. Most of the early adopters of Logo were teachers who believed strongly in and practiced discovery-based education and individualization. They saw Logo as an excellent vehicle for implementation of these ideas. They required little teacher training in these areas.

Most early adopters of Logo had good problem solving skills and were devoted to teaching problem solving. Little inservice education was required to prepare them to teach it. They enjoyed the Logo problem solving environment.

Thus, the major inservice education required for early adopters of Logo was to help them learn the hardware and software of Logo. For many, relatively little instruction was needed, since they enjoyed the freedom of discovering new things for themselves. Also, they liked to try out their new knowledge with students, often creating lesson plans in "real time."

Contrast that with the teacher training needed to bring the more typical elementary school teacher up to speed for teaching in a Logo environment. Now a three-part approach to inservice is needed. The teachers need to learn about discovery-based learning and individualization. They need to learn about problem solving. They need to learn Logo hardware and software. Moreover, in doing all of this they need considerable hand holding, since they are more timid than those who came before.
My conclusion from the above analysis is that the amount of inservice education required to bring the typical elementary school teacher up to speed in a Logo environment exceeds both the typical school district's resources and the typical teacher's time that can be devoted to inservice. Moreover, if this amount of resource and time were available for inservice education, there would be better ways to use it. For example, the teachers could learn to teach process writing in a word processing environment.

I expected that my presentation of the above ideas would be met with boos and cat calls. Surprise! In essence, the other members of the panel agreed with the conclusions of my presentation! They agreed that Logo is not for all teachers.

The implications of this agreement, however, are somewhat discouraging.

At the elementary school level, it says either that Logo is made available on a hit-and-miss basis, depending on the whims of individual teachers, or that Logo is presented mainly by a Logo teacher who deals with all of the students who are to work with Logo. In either case one cannot integrate Logo into the regular curriculum or have the regular curriculum make use of the learning opportunities presented by Logo.

This is not good. If Logo is as important as its proponents claim, we want all students to have Logo opportunities; we don't want Logo to be restricted in its use. It should be viewed as a general purpose tool, to be integrated into the total curriculum and used whenever students and/or teachers deem it appropriate.

The problem is that our preservice and inservice teacher training system is not equal to the types of changes being brought about by computers and other technology. The typical teacher cannot adequately keep up with the changes that are necessary if students are to receive a high quality, modern education.

One obvious solution is to reduce the current workload on teachers and have them spend more time studying and trying out new ideas. This would increase the cost of education. But it would increase the quality of education. And, incidentally, it would create more jobs.

I draw three conclusions from my Logo conference experience. First, good Logo instructional materials are available and more are being developed, so it is becoming much easier for teachers to make instructional use of Logo. Second, many Logo leaders take the position that Logo is not for all teachers; they tend to resist requiring Logo for all students or as a tool to be used by all students throughout the curriculum. Third, the potential for Logo is continuing to grow through improvements in software, hardware, and supportive materials. Whether this potential can be realized depends heavily on our inservice education program and the adaptability of teachers. It is a considerable challenge.