Foreword

Yesterday Michael Murphy drove his wheel chair into the MIT Media Technology Laboratory. Michael's first appearance in Sylvia Weir's book describes his medical condition -- quadraplegic cerebral palsy -- and the frustrated helplessness expressed by the director of the school for the handicapped where he encountered Logo (back in the days before microcomputers had made Logo commonplace). The staff of the school believed that Michael's intelligence was much higher than average. But this intelligence was trapped in a body that could not manipulate objects and could talk only with the greatest difficulty. The school had not been able to liberate it. Michael Murphy was seen as one of their toughest cases. "If you can do something with him," the director said, "then I'll take you seriously."

Weir movingly describes how Logo became the catalyst in a process that "untrapped" Michael Murphy's intelligence. He is now a successful university student, and his visit to MIT yesterday was on business as a member of a committee concerned with providing access to computers for handicapped people. We are not dealing here with abstract debates about the significance of a change in test scores. This is for real.

But what can one anecdotal case study -- or even a hundred -- prove? Certainly not that Logo has a magical power to educate the handicapped or anyone else. Quite the contrary. The story of Michael Murphy is presented more in the spirit of showing how hard and complex a task it is to create effective learning environments than as a promise of an easy panacea. Ten hours a week working at the computer over a period of years went into producing the turn around in Michael Murphy's academic situation. No quick cure! Moreover, his development was special in many ways. It was shaped by personal relationships with MIT researchers -- with whom he spent as much time as he did with computers -- and by the school's social setting -- which allowed him to become a teacher of his fellow students. These circumstances played a role that cannot be measured in the development of his sense of himself and in the liberation of his trapped intelligence.

No, the story of Michael Murphy does not support any claim that computers or Logo will in themselves change how anyone learns. But such technocentric claims are not serious and have nothing to do with what I, or Sylvia Weir, see as the educational role of Logo. The most serious claims about Logo have to do with how it becomes a thread in the weave of an individual's life. To understand deeply what happened to Michael Murphy, we need to think sensitively about his inner life, to look at his personal relationships, and to take account of his social context. We also need to ask ourselves some hard theoretical questions about the nature of learning.

There is no doubt that a Logo experience can touch the psychic lives of many children who, for one reason or another, have not known the feeling of success in school. There is also no doubt that many factors contribute to this process, and that we are only just beginning to understand a few of them. Cases like Michael Murphy exhibit one of these factors in a very pure and powerful form: empowerment of the most elemental kind. Put yourself, if you can, in the place of someone who has never made any physical thing, someone who has never made a mud pie or a drawing or an arrangement of flowers. Suppose also that your ability to speak is so restricted by severe dysarthria that you have never made a speech or even told a story. Then imagine what this machine can mean to you. You can draw on its screen. You can make texts out of words and keep them in your private space, no longer subjected to the favors and the scrutiny of a scribe. I don't think you can imagine these things. But you can grasp enough to know that an encounter with this machine could be the beginnings of profound change in your sense of who you are and of how you might shape your life.

A severely physically handicapped child shows us the extreme of a phenomenon that can take on more subtle but nevertheless deadly forms. Many children whose fingers have the dexterity to wield a pencil still do not learn to use it to write, to calculate, or to draw in more than the most rudimentary fashion. Why? And how could a computer help?

An important theme of Logo research is the idea that individuals can -- and in some cases must -- follow very different learning paths. I like the analogy with left-handedness. Forcing children to conform did serious damage until educators came to understand that poetry written with the left hand is just as good. I think that forcing intellectual style is possibly much more damaging than forcing handedness, and that many children are crippled by mismatch with the intellectual style of the curriculum. The metaphor of "trapped intelligence" applies here in full force.

Liberation of left-handed learners only needed recognition by teachers. Much of Sylvia Weir's book is a plea for recognition of the wider problem. Her prime example of mismatched learners is the category of

spatial thinkers -- children who can achieve a high quality of intellectual work when they are allowed to use more spatial ways of thinking than are permitted either by the curriculum or by the classroom methods of contemporary schools. Her case studies show Logo as a flexible instrument that can be picked up differently by different people. They provide persuasive evidence that there is a problem and that we have the elements of a solution.

But in this case, recognition is not enough. Left-handed children come provided with a working hand ready to acquire competence. While children with different intellects also come with brains ready to work in their own way, our culture does not necessarily have the intellectual frames for them to use. This book describes what can happen when Logo is used as a supple medium that can nourish more styles than is possible with pencil and paper. It draws attention to a massive need to reinvent new curricula, new methodologies of teaching, and new kinds of tests so we can support these many and varied intellectual styles.

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