

Moving Beyond Computer Literacy

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What brand? How many? Which software? How to train teachers? How to assure sex equity? To most of us with responsibilities for influencing the lives of school children, these are the "important issues" about computers in schools. We have had insufficient time and experience to look beyond to the ultimately more significant issues that relate to child development, pedagogy, and our fundamental beliefs as educators.

Seymour Papert began to address some of these concerns in his seminal work, *Mindstorms: Children, Computers, and Powerful Ideas*. A new book, *The Second Self: Computers and the Human Spirit*¹ by Sherry Turkle, an MIT psychologist and sociologist, now moves us to the next step. She helps us view what is happening around us through the eyes and feelings of both the first generation of children growing up with computers and of our own peers who have acquired computers. Most important, she provides us with insights into some of our own reactions as this "anti-technology technology" begins to make subtle inroads into our consciousness and culture.

Based on ethnographic research and interviews with 400 children and adults, *The Second Self* evokes a "critical re-examination of what each of us takes for granted about the computer"

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and provokes an "attitude of healthy skepticism toward any who propose simple scenarios about the impact of the computer on society." The author focuses not on the tool or "instrumental" computer but rather on the "subjective" computer—the machine as it enters into social life and psychological development, the computer as it affects the way we think, especially the way we think about ourselves."

The book's three sections examine the present from a different perspective and provide indicators of the subjective impact of the computer. The first part follows the present generation of children growing up with computers from preschool through adolescence. While the latter two sections may be of general interest to those who have yet to get involved with this new technology, the chapters about children should be read by all who care about today's educational processes as well as tomorrow's. Drawing on concepts from Piaget and Erikson, Turkle uses children's relationships with computers to "provide a new window onto developmental processes."

... the child's passage from what I call a "metaphysical" to a "mastery" stage is made transparent through the child's relationship with the computer when interest shifts sharply from philosophizing to "winning." The relationship with the computer reveals more than developmental sequence: it is also a projective screen for different personality styles. Second, the computer, because of its interactivity, its "animation" (the fact that it speaks, plays, wins, "knows" things) and the possibilities it offers for working with issues of control

and mastery, actually *enters into* both cognitive and emotional development. It offers a medium for growth, and in certain cases, a place for "getting stuck."

Children working with computers provide Turkle with a microcosm for exploring larger issues. One of these, the different ways that males and females deal with science and technology, is popularly conceived as a "sex equity" issue. We call for policies that provide girls and boys with identical access to computers in schools out of a belief that technology will be important in the world they will inhabit. We have little sense, though, of what that importance may be. Turkle suggests ways to organize our thinking about it with her metaphors of "hard" and "soft" styles of mastery. Similar to the right and left brain dichotomy, this provides a way to see differences as matters of style rather than gender distinctions. Her hope:

... teaching people about computers should not be the imposition of a standard curriculum; introductory experiences with computers can be tailored to the individual's preferred style of interaction.

In the book's second part, Turkle observes what has been happening with adults who own personal computers, especially when the importance of the machine shifts from what it *does* to how it makes them *feel*. They describe the computer as a machine "that lets you see yourself differently, as in control, as smart enough to do science," as more fully participant in the future." If you visit schools where teachers and staff have been allowed



to master this technology and adapt it to their own purposes, you can hear these same feelings echoed. A sense of empowerment, control, and satisfaction comes from the personal nature of their interaction with the machine.

The third part of *The Second Self* may be provocative to some, but should be evocative to all. It uses the computer as a "new mirror" to raise questions about who we are psychologically and culturally as well as who we may become. Noting how we increasingly exchange metaphors—referring to computers in human terms (they "think," "win," "talk," "learn") and to ourselves in computer terms (we "program" or "reprogram" ourselves, "debug" our thinking, "crash" after a party)—Turkle raises questions about "the human spirit in a computer culture." When science is hard at work trying to develop "artificial intelligence," some of the oldest philosophical issues of free will and the uniqueness of humanity return.

We may be at one of those unique windows in time when new forces that are beginning to affect the school and the culture around us are still visible. To the next generation that grows up in that culture, they will be invisible. It

behooves those who are preparing that generation to become aware of those forces, whether or not we believe we can do anything about them. *The Second Self: Computers and the Human Spirit* provides a challenging way to begin. □

¹Because Sherry Turkle will be speaking at the 1985 ASCD annual conference (Chicago, March 23–26), a comment should be made about her style of communication. This is one of those books whose introduction and appendices (one on a Sociology of Sciences of Mind and the other on Children's Psychological Discourse) are every bit as interesting and valuable as the main body of the book itself. She has an open, personal style of writing in which she shares her intentions, methods, surprise findings, and conclusions within a logical structure that moves the reader's developing understanding along with hers. We can look forward to an interesting session in Chicago.

References

- Papert, Seymour. *Mindstorms: Children, Computers and Powerful Ideas*. New York: Basic Books, 1980.
- Turkle, Sherry. *The Second Self: Computers and the Human Spirit*. New York: Simon and Shuster, 1984.

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