FOOL'S GOLD:
A Critical Look at Computers in Childhood

Edited by
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Alliance for Childhood

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Introduction

THIS REPORT GREW OUT OF A FEBRUARY 1999 gathering in Spring Valley, New York — the founding of the U.S. branch of the Alliance for Childhood. The Alliance is an international effort of educators, physicians, and others who are deeply concerned about the plight of children today, and who believe that only by working together in a broad-based partnership of individuals and organizations can they make a significant difference in the lives of children.

These are our fundamental beliefs and concerns:

- Childhood is a critical phase of life and must be protected to be fully experienced. It should not be hurried.

- Each child deserves deep respect as an individual. Each needs help in developing his or her own unique capacities and in finding ways to weave them into a healthy social fabric.

- Children today are under tremendous stress and suffer increasingly from illnesses such as allergies and asthma, hyperactive disorders, depression, and autism. This stress must be alleviated.

A follow-up meeting of the Alliance's partners and friends with expertise in the field of children and computers raised further, more specific concerns. They suspected that the benefits of computers for preschool and elementary school children were being vastly overstated. They felt also that the costs — in terms of money spent, loss of creative, hands-on educational opportunities, and damage to children's physical and emotional health — were not being accurately reported. They decided to research and document the facts and to publish the results. This report is the fruit of that effort.

During the past year a number of individuals have worked hard to prepare this report, in particular Colleen Cordes, former reporter on science and technology policy for the *Chronicle of Higher Education*, and Edward Miller, former editor of the *Harvard Education Letter*. We are extremely grateful to them and those who contributed to the report for the excellent work they have done.

In this report we focus on children in early childhood and elementary education, for the data seem clear that computers offer few advantages in these years. There is still much work to be done on the question of how to introduce computers safely and effectively for older students. We welcome an opportunity to work with other concerned groups and individuals on these questions.

This report will be distributed widely in the hope that an open and spirited conversation will result. Democracies thrive when social change is accompanied by public debate in which all points of view are explored. In this case, it has been so widely assumed that computers are essential in childhood that there has been almost no public debate. We hope this report will stimulate conversation and lead to healthier and more considered policies on computer use in childhood.

Joan Almon, U.S. Coordinator
Alliance for Childhood

Executive Summary

COMPUTERS ARE RESHAPING CHILDREN'S LIVES, at home and at school, in profound and unexpected ways. Common sense suggests that we consider the potential harm, as well as the promised benefits, of this change.

Computers pose serious health hazards to children. The risks include repetitive stress injuries, eyestrain, obesity, social isolation, and, for some, long-term physical, emotional, or intellectual developmental damage. Our children, the Surgeon General warns, are the most sedentary generation ever. Will they thrive spending even more time staring at screens?

Children need stronger personal bonds with caring adults. Yet powerful technologies are distracting children and adults from each other.

Children also need time for active, physical play; hands-on lessons of all kinds, especially in the arts; and direct experience of the natural world. Research shows these are not frills but are essential for healthy child development. Yet many schools have cut already minimal offerings in these areas to shift time and money to expensive, unproven technology.

The emphasis on technology is diverting us from the urgent social and educational needs of low-income children. M.I.T. Professor Sherry Turkle has asked: "Are we using computer technology not because it teaches best but because we have lost the political will to fund education adequately?"

Let's examine the claims about computers and children more closely:

Do computers really motivate children to learn faster and better?

Children must start learning on computers as early as possible, we are told, to get a jump-start on success. But 30 years of research on educational technology has produced just one clear link between computers and children's learning. Drill-and-practice programs appear to improve scores modestly — though not as much or as cheaply as one-on-one tutoring — on some standardized tests in narrow skill areas, notes Larry Cuban of Stanford University. "Other than that," says Cuban, former president of the American Educational Research Association, "there is no clear, commanding body of evidence that students' sustained use of multimedia machines, the Internet, word processing, spreadsheets, and other popular applications has any impact on academic achievement."

What is good for adults and older students is often inappropriate for youngsters. The sheer power of information technologies may actually hamper young children's intellectual growth. Face-to-face conversation with more competent language users, for example, is the one constant factor in studies of how children become expert speakers, readers, and writers. Time for real talk with parents and teachers is critical. Similarly, academic success requires focused attention, listening, and persistence.

The computer — like the TV — can be a mesmerizing babysitter. But many children,

overwhelmed by the volume of data and flashy special effects of the World Wide Web and much software, have trouble focusing on any one task. And a new study from the American Association of University Women Educational Foundation casts doubt on the claim that computers automatically motivate learning. Many girls, it found, are bored by computers. And many boys seem more interested in violence and video games than educational software.

Must five-year-olds be trained on computers today to get the high-paying jobs of tomorrow?

For a relatively small number of children with certain disabilities, technology offers benefits. But for the majority, computers pose health hazards and potentially serious developmental problems. Of particular concern is the growing incidence of disabling repetitive stress injuries among students who began using computers in childhood.

The technology in schools today will be obsolete long before five-year-olds graduate. Creativity and imagination are prerequisites for innovative thinking, which will never be obsolete in the workplace. Yet a heavy diet of ready-made computer images and programmed toys appears to stunt imaginative thinking. Teachers report that children in our electronic society are becoming alarmingly deficient in generating their own images and ideas.

Do computers really "connect" children to the world?

Too often, what computers actually connect children to are trivial games, inappropriate adult material, and aggressive advertising. They can also isolate children, emotionally and physically, from direct experience of the natural world. The "distance" education they promote is the opposite of what all children, and especially children at risk, need most — close relationships with caring adults.

Research shows that strengthening bonds between teachers, students, and families is a powerful remedy for troubled students and struggling schools. Overemphasizing technology can weaken those bonds. The National Science Board reported in 1998 that prolonged exposure to computing environments may create "individuals incapable of dealing with the messiness of reality, the needs of community building, and the demands of personal commitments."

In the early grades, children need live lessons that engage their hands, hearts, bodies, and minds — not computer simulations. Even in high school, where the benefits of computers are more clear, too few technology classes emphasize the ethics or dangers of online research and communication. Too few help students develop the critical skills to make independent judgments about the potential for the Internet — or any other technology — to have negative as well as positive social consequences.

Those who place their faith in technology to solve the problems of education should look more deeply into the needs of children. The renewal of education requires personal attention to students from good teachers and active parents, strongly supported by their communities. It requires commitment to developmentally appropriate education and attention to the full range of children's real low-tech needs — physical, emotional, and social, as well as cognitive.