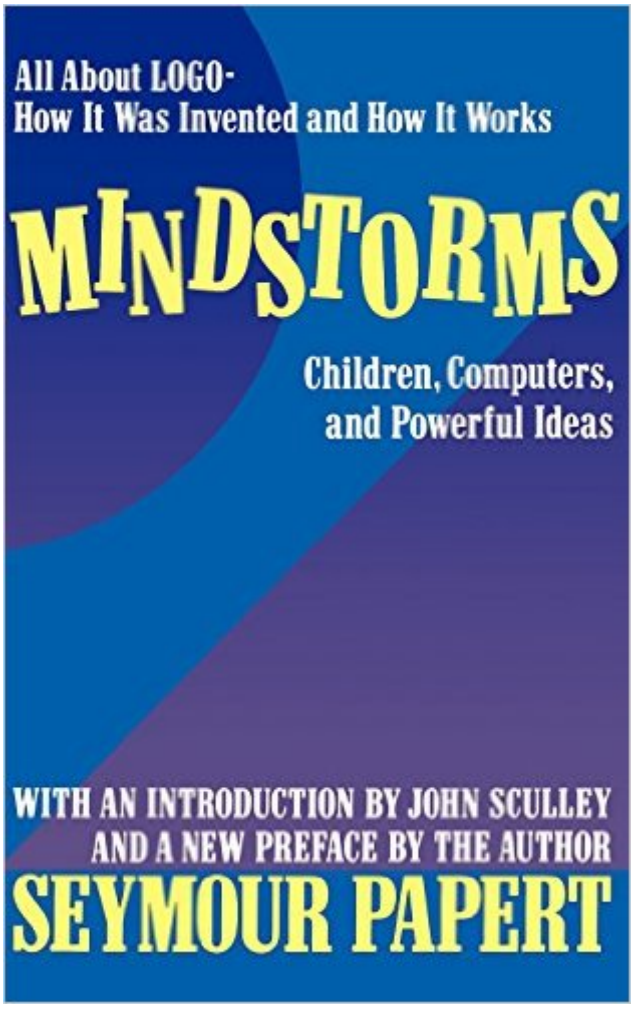
Mindstorms: Children, Computers, And Powerful Ideas



Synopsis

Mindstorms has two central themes: that children can learn to use computers in a masterful way and that learning to use computers can change the way they learn everything else. Even outside the classroom, Papert had a vision that the computer could be used just as casually and as personally for a diversity of purposes throughout a personâ ™s entire life. Seymour Papert makes the point that in classrooms saturated with technology there is actually more socialization and that the technology often contributes to greater interaction among students and among students and instructors.

Book Information

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Customer Reviews

This is the best book I have ever read on how to assist people to learn for themselves. Papert began his work by collaborating with Jean Piaget, and then applied those perspectives in a self-programming language designed to help children learn math and physics.Papert explains Piaget’s work and provides case studies of how the programming language, LOGO, can help. He provides a wonderful contrasting explanation of the weaknesses of how math and physics are usually taught in schools.I learned quite a few things from this that I did not know before. People are very good at developing theories about why things work the way they do. I knew that these theories are almost always wrong. What I did not realize is that if you give the person a way to test their theory, the person will keep devising new theories until they hit on one that works. What is usually missing in education is the means to allow that testing to occur.An especially imaginative part of this book were the discussions of how to create theory testing solutions that are much simpler and

easier to apply than any school problem you ever saw in these subjects. Papert works from a very fundamental and deep understanding of math and physics to reach the heart of the most useful thought processes for applying these subjects. It is thrilling to read about what you have known for many years, and to suddenly see it in a totally different and improved perspective.Another benefit I got from this book were plenty of ideas for how to help my teenage daughter with her math. She is very verbal, and Papert points out that math seldom teaches a vocabulary for talking about math. As a result, she memorizes a lot and gets dissociated from the subject.

This book provides an introduction to Papert's thinking concerning the learning and teaching of math. Prior to developing the LOGO language described in this book, Papert worked closely with Piaget in Switzerland for 5 years. While in Switzerland, Papert observed many of Piaget's experiments with children and the development of their understanding of mathematical concepts. Following Piaget, Papert believed that the math learning that the child comes to know best and that stays with the child always comes from experience and cognition, not from explicit teaching or rote practice. He noted, however, that there were certain mathematical concepts that children should come to know, but that they wouldn't ordinarily learn from experience alone because they might not come across these ideas in ordinary life. This is why he invented the programming language LOGO--a toy that children could play with, experiment with, manipulate, and through doing so, gradually come to call their own the mathematical concepts needed for their games.To make LOGO attractive to kids, he included a "turtle" as the central figure of the language. The turtle carried a pen that could be used to trace the turtle's movement through the play area or on a computer screen. The challenge was for kids to write programs in LOGO that would instruct the turtle how to move and when to use the pen so that it would draw shapes in the forms that they wanted. When the turtle didn't make the shapes they wanted, they were instructed to "be the turtle," in order to understand the turtle's perspective, and to figure out how they needed to adjust their programs.

This is a book that anyone interested in present-day education of children everywhere should find time to read. For a few weeks, in the summer of 2001, I introduced teenagers in the W. E. B. DuBois Scholars' Program, held on the campus of Princeton University, to the Logo computer programming language invented by the author of this book, MIT professor, Seymour Papert. A leader in the DuBois program sought me out to congratulate me and quoted the students as having repeated over and over that they were ecstatic about what they were learning in my class and that it alone was worth their live-in participation. Indeed, I saw the glow in their eyes and a strong desire to be

explorers with Turtle Graphics. Ditto for when I joined fellow volunteers from the MIT Alumni Club of New York City to employ Lego to guide the learning of robotics at Hunter College Elementary School for gifted students in upper Manhattan.There is something engaging about the constructivist learning philosophy advocated in Professor Papert's books, beginning with the first edition of this book, [1980]. The open secret was that these students directed their collaboration with the computer in their own journey to discover knowledge and this book explains the confluence of ideas from science, mathematics and modeling that brings about this immersion. When a child can learn, in one week, how recursion works in mathematics, a topic normally taught in graduate courses in computer science, someone has donated a gift!The challenge to teachers looking for traditional instructions for students in this setting is that this approach is relatively rule-agnostic and that makes some people feel uncomfortable.

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