SEYMOUR PAPERT
SECOND EDITION
and Powerful Ideas
Children, Computers, MINDSTORMS
In the past, the computer was used to help people think, but today, it is used to enhance thinking and change patterns of access to knowledge. The two ways in which computers might affect the way people think and learn should not be confused. The computer is both an education tool and a teaching machine.

The book looks at the question of what will be done with people who are educated. The computer is a teaching tool, but it is not a teaching machine. Children are not educated in the same way that people will be able to do with their computer.

The main idea of the book is that the computer will produce a rash of computer-oriented machines that will catch the eyes of every living room or every breast pocket. The appearance of every living room of every breast pocket. The appearance of every computer is small and inexpensive enough to take its place in the home and rapidly the public has come to accept the reality of the fact: computers have changed dramatically. The very fact that computer-oriented people can hardly anyone expected computers to affect ordinary people. The rapid growth of computers is not a matter of choice or of a special group. The computer can be used to affect every individual.
Introduction

about the fact that this should happen. Programming a computer is seen in the proper perspective, there is nothing very surprising in becoming quite proficient at programming. Once proficient
I shall describe learning paths that have led hundreds of children
intelligent model building.

depth from science to mathematics, and from the art of

deploy programming tools that can cross traditional barriers. The

I mean making the computer teach the child. One might say the

In many schools today, the phrase "computer-assisted instruction"
direction.

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.

The image does not go beyond: It goes in the opposite

school does no beyond: It goes in the opposite
small develop here goes far beyond what is common in today's
order to say that the image of a child's relationship with a computer

which words are expected to be deployed.

We must consider the image of children of the future
resemble each other in their computer competence. But the

Why the book is devoted to building up images of the role of
other world of instruction.
Introduction

We can quickly see that these assumptions are based on too little research and that most cannot even be clearly stated. However, our assumptions about children's learning are based on assumptions about human abilities. It is essential that we develop an understanding of how human abilities are affected by the environment.

In this book, we present methods to understand and improve the learning process. These methods are based on a deep understanding of human abilities and the environment in which they are learned. We begin with a discussion of the role of the environment in the learning process.

In years past, it was common to teach children in a way that emphasized rote memorization. However, we now recognize that this approach is not effective. Children learn best when they are engaged and motivated.

We begin by discussing the role of the teacher in the learning process. We then explore the role of the student in the learning process. Finally, we discuss the role of the environment in the learning process.

We conclude by providing some practical tips for teachers and parents on how to create a positive learning environment for children. We hope that this book will help you to understand and improve the learning process for all children.
Introduction

Fortunately, it is sufficient to break the self-perpetuating cycle of intellectual isolation from the world outside by observing the children of other cultures who are exposed to different educational systems. One can see that there is no one method of teaching that is effective in all situations; different methods are required for different environments. For instance, in a classroom setting, the teacher is the primary authority figure, while in a more informal setting, such as a playground, the children themselves may be more influential. The key is to find a balance between structure and flexibility that will allow the children to learn effectively in a variety of contexts.

In conclusion, the development of educational programs should be guided by the principles of adaptability and responsiveness. The curriculum should be flexible enough to accommodate the needs of individual students and the demands of the environment. At the same time, there should be a clear focus on the core competencies that are necessary for success in life. This will require a commitment to continuous improvement and a willingness to learn from the experiences of others. Only then can we hope to create educational systems that are truly effective and meaningful for all students.
Introduction

When I first think of the book "MINDSTORMS" and the ideas it contains, I realize that it is not about how "speaking mathematics" can be taught, or how to help young learners to make a little effort—or even to change the way we think about education. Rather, it is about the process of invention, of "devising-to-learn-with", and the potential to apply this method to any subject. The book is a guide to educational development, illustrating how to think in a creative, constructive manner. It is not about "speaking mathematics", but about the potential for educational development.

The central role of this book is to show how to think about mathematics. It is not about "speaking mathematics", but about the process of invention, of "devising-to-learn-with", and the potential to apply this method to any subject. The book is a guide to educational development, illustrating how to think in a creative, constructive manner. It is not about "speaking mathematics", but about the potential for educational development.
Introduction
Introduction

My vision of a new kind of learning environment centers on the concept of "learning partnerships." I believe that success in education is not just about the acquisition of knowledge but also about the development of personal relationships and the creation of a community of learners. This vision of education is built on the foundation of collaboration, where students and educators work together to create meaningful learning experiences.

The importance of these learning partnerships cannot be overstated. They provide a framework for personal growth and development, where students are encouraged to take ownership of their learning and to develop critical thinking and problem-solving skills. Through these partnerships, educators can help students make connections between their own experiences and the material they are learning, fostering a deeper understanding of the subject matter.

In this new educational model, the role of technology is not just to augment traditional learning methods but to be an integral part of the learning process. Technology can be used to facilitate collaboration, provide access to a vast array of resources, and personalize learning experiences. It can also help in the management of classroom activities, tracking student progress, and assessing learning outcomes.

From a practical standpoint, implementing these learning partnerships requires a shift in the way schools are structured. Teachers must be trained to work collaboratively, and the curriculum must be designed to support this type of learning environment. Resources are needed for technology integration, professional development for educators, and support for students and families.

In conclusion, the future of education lies in the creation of learning partnerships that leverage the power of technology to foster a more engaging, inclusive, and effective learning experience. This vision requires the active participation of all stakeholders, including policymakers, educators, parents, and students. By working together, we can create a more equitable and effective educational system that prepares students for the challenges of the 21st century.

MINDSTORMS
ed by the surrounding culture.

and abound there, most saliently the models and metaphors suggested
other builders, children appropriate to their own age materials. They
not mean that they are built from nothing. On the contrary, like
features native to the landscape rather than teachable by a teacher does
these are built by the learner rather than taught by a teacher does
their own intellectual structures. But to say that intellectual struc-
tures are impressed by the way of looking at children as the active builders of
impressed by his way of looking at children as the active builders of
sprouts, center for Constructive Epistemology in Geneva, came away
sprouts, center for Constructive Epistemology in Geneva, came away
invention, and the way I was working with Piaget in 1964, after five years at
invention, and the way I was working with Piaget in 1964, after five years at

The powerful image of child as epistemologist caught my imagination.
not even shared by most adults.

not even shared by most adults.

about thinking turns the child into an epistemologist, an exper-

about thinking turns the child into an epistemologist, an exper-

thinking, how they transform the thinking. Thinking
thinking, how they transform the thinking. Thinking

computer how to think, children embark on an exploration about
computer how to think, children embark on an exploration about

computer, and in teaching the computer. And in teaching the
computer, and in teaching the

the relationship is reversed: The child, even at preschool age, is in
the relationship is reversed: The child, even at preschool age, is in

The child programming the child, in the LOGO environment
The child programming the child, in the LOGO environment

developmental work that promotes flexibility and disperses information.
developmental work that promotes flexibility and disperses information.

down through their heads, to provide exercises in appropriate use-
down through their heads, to provide exercises in appropriate use-

come into contact with computers the computer is used to call-chil-
come into contact with computers the computer is used to call-chil-

IN MOST CONTEMPORARY EDUCATIONAL SITUATIONS WHERE CHILDREN

 Cultures and Computers

Chapter 1

MINDSTORMS