Children need computers, says Papert, Logo inventor

By Edward Wang

Professor Seymour A. Papert, inventor of the computer learning language Logo, defined the use of computers by children Wednesday at a Cambridge Forum lecture titled "Are Computers Bad for Children?"

"No," he answered. "Anything can be bad, even food. For example, children can overeat, but we don't say food is bad for children."

Whether the computer controls the child, or the child controls the computer, is of major importance, Papert said. "Too often, when used in school, the computer is in charge" and usually leads the instructional program, he said. "In this case, the computer is programming the child.

The child, instead, should be allowed to experiment with the computer's power. Papert said. Papert has performed extensive research on computer education, and designed Logo to achieve the goal.

One of the features of Logo is "turtle graphics." Papert said. It allows a child to move an image of a turtle by typing commands for distance and direction. The turtle follows the specified path and draws pictures on the terminal screen.

First-graders were allowed to "play with the computer" during demonstrations of Logo at local elementary schools, Papert said. They learned, for example, that drawing a figure with four sides of equal length and angles of 90 degrees produced a square, he said.

Mathematics education is "one of the most damaging aspects of school," he said. "Math is taught, in school, as a dead language." Children learn, by experimentation, he claimed, and should be given the opportunity to discover mathematics.

First-graders using Logo were able to take charge of the computer, to get a "sense of empowerment," to have a positive learning experience, and to learn mathematical concepts usually not taught until years later, Papert said.

Some common fears of computers are that they stimulate only logical thinking and cause anti-social behavior, Papert said. He attempted to dispel the fears by telling of an experience he had with two fourth graders in New York.

One student was a ballet dancer, and the other a "math wiz," he said. The ballet dancer wanted to write a computer program that would produce moving shapes of different colors, yet lacked the ability to precisely define his ideas. The mathematically talented student, on the other hand, lacked artistic vision, Papert continued.

The completion of the program was possible only when the two students collaborated, he said. The students had used the computer for artistic and mathematical purposes. The computer also brought the two students together and encouraged them to communicate. "The computer was a catalyst for communication," Papert said.

The use of computers will lead to a restructuring of education, Papert predicted. The current student to computer ratio, however, is 200 to one -- too few computers per child for significant computer education, he said.

Papert's goal is that every child have an own computer, he said. "It's a credible national goal. It's in bounds of many social programs and it will add only one or two percent to the present cost of education."

Home computers will continue to represent a serious problem until the goal is met, Papert warned. "They aggravate the gap between the have's, and the have not's," he said.

It is important that people demand much higher quality of education, Papert said, and to acknowledge that children are capable of mastering computers if given the opportunity. "Computers are not a little extra; they represent a potential for radical changes in education."