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Computers transform schools

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What will the school of the future be like?

More of the learning that has traditionally taken place in the school building down the street will take place in the home.

This will be possible primarily because of home computers. But school buildings themselves will have more computers, too. Teachers will learn to use them increasingly for cognitive instruction — the kind of factual learning that a machine can handle — thereby freeing themselves for the more rewarding and challenging aspects of a broad-based liberal arts education.

These and other predictions were discussed recently at a three-day conference in Dallas, US, that brought together educators, librarians, and representatives of high-tech industries.

Keeping ahead in the world, several of the speakers agreed, will mean building an education system in which students learn to work with machines in "person-tool partnership".

Robots will take over ever-greater numbers of jobs that they can be programmed to master. Students, on the other hand,

will have to develop skills to complement the robot's work: analysis, problem recognition, decision-making, and adapting to unusual situations.

According to Christopher Dede, a futurologist with the University of Houston, Texas, "Every part of the curriculum involving standardized response will be eliminated, piece by piece, from our definition of intelligence. The liberal arts will become the foundation of the skill needed for the new economy".

Perhaps the least difficult part of tomorrow's education system will be teaching students to work with computers.

Students who are now in school and those who will follow will already be accustomed to learning from a screen, because of the pervasiveness of television, says Billy Reagan, superintendent of the Houston public schools.

The challenge to educators, says Reagan, will be to adapt to an increasingly "visual" education process.

According to Reagan, shrinking attention spans and the ease with which students relate to computer software that teaches and entertains have caused his colleagues to coin a new word: "edutainment". It illustrates how the line between entertainment and education will continue to blur, even as the boundaries between home and school crumble.

Other examples of how technology is reshaping education abounded at the conference. An Illinois district of 2,500 students

and six schools will begin a national demonstration project to explore the advantages of having a computer in each classroom.

The project, partly funded with grants from IBM (US electronic firm) and the US federal government, is designed to cut down on the teacher's paper work while fostering communication with the principal's office, the district office, and other schools. And, adds Illinois school administrator Arvid Nelson, having a computer in each classroom will allow the teacher to integrate its use into everybody lessons more efficiently.

Another innovative project uses computers to teach higher-order thinking skills to elementary school students with reading difficulties. The programme developed by Stanley Pogrow of the University of Arizona, introduces students who are falling behind to such concepts as generating hypotheses and changing assumptions.

According to Pogrow, using computers works because "it's through visual images that kids learn today". Testing after one year of the programme showed the average student jumped 15 percentile points in reading. He says teachers working with the programme also learn new ways of teaching basic skills.

"It's my belief," says Pogrow, echoing a basic theme at the conference, "that the major challenge for educators will be to make kids smarter for an age when machines will do the routine work".