Editor's Note: The guest editor for this issue highlighting trends in the Far East is Dr. Mei-Yan Lu, Associate Professor of Instructional Technology at San Jose State University. Dr. Lu has assembled articles dealing with Japan and Singapore, two countries making progressive national efforts in instructional technology.

Dr. Rowena Santiago recently returned from a year's exchange with Yasuda Women's University in Japan. Her article reflects first-hand knowledge of the impact of governmental policies on the computerization of school classrooms in Japan. Drs. Barry Sponder and Robert Hilgenfeld work as Senior Lecturers at Nanyang Technological University in Singapore. They summarize both local research and national policy to enhance instruction through multimedia applications in the classroom.

Two future ETR&D issues will provide specific area focus reports for the Middle East and Scandinavia. Potential contributors are invited to forward articles or reviews to the guest editor for their area of interest:

The Middle East: Dr. Karen Murphy, EHRD, Texas A&M University, College Station, TX 77843-3256.

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Japan: Meeting the Challenge of Computers in Education

by Rowena S. Santiago

In 1985, the Japanese Ministry of Education presented its national strategy on the use of computers in education with its publication of Educational Use of Microcomputers in Japan: National Strategy (Monbusho, 1985). The document provided the rationale for the utilization of computers in schools, discussed the role of computers at various school levels, and identified necessary conditions to promote computer use in education.

As in other developed countries, the need to integrate computers in the Japanese educational system is a response to the computer's increased role in society and the greater exposure of youth to new technology. The Ministry's National Strategy paper acknowledged the need for change, including change in the teacher-pupil relationship, and was reflective of its view on the role of education in Japanese society: to transmit cultural heritage, to keep up with modern changes, and to prepare the Japanese citizenry to shape their society of the future. The role of computers in education was to support the attainment of these goals by supplementing educational functions and improving the instructional capabilities of teachers.
Three patterns of computer utilization were identified: teaching with computers, teaching about computers, and using computers for school-related work. Also identified were three conditions that needed to be met in order to promote the utilization of computers: the distribution of computer equipment to schools, the design and development of educational software that meets given standards, and the incorporation of computer training as part of teacher training in higher education. The following sections discuss how these conditions are being met in Japan.

Computer Distribution

The distribution of computer hardware is one condition that is being met with a relatively high degree of success in Japanese education.* As shown in Figure 1, the distribution of computers in Japanese schools increased significantly between 1983 and 1991.

For upper and middle high schools, the average number of computers per school has remained higher, at 41 and 13 computers per school, respectively, than that of elementary schools, at 4 computers per school. The number of computers per elementary school could increase in the near future as the number of elementary schools decreases due to a projected decline in population of that age range. Special education schools have an average of 5 computers per school.

Most (71%) of the computers used in Japanese schools are 16-bit personal computers, although 19% of the schools have already moved to 32-bit personal computers. Japanese companies, particularly NEC and Fujitsu, are still the main distributors of personal computers in Japan, in both the business and educational sectors (Cassagne & Iiyoshi, 1992). A small but significant percentage of the market is held by Apple Macintosh and IBM and other DOS-based computer manufacturers.

In addition to using computers in computer labs, Japanese schools install computers in special subject rooms (e.g., science rooms, vocational education rooms) and faculty rooms. It is interesting to note that the percentage of schools with computers installed in faculty rooms (67%) is nearly double the percentage of schools that have computer labs (35%).

*Percentages and figures were based on March 1992 statistics provided by the Center for Educational Computing, Tokyo, Japan. Figures were rounded to the nearest unit.