Editor's Note: The three articles in this International Review, drawn from countries nearly spanning the globe, suggest the breadth of interest in the field of educational technology. Each reports from the perspective of a particular country—China, Turkey, and Sweden—but each comments upon ongoing trends with worldwide applicability. For Li and Lin, the trends are in computer-assisted instruction in the vast country of China, which are considerably more advanced than many outsiders may have supposed. For Tandogan, the trends are in educational research in developing countries, a complex area typified by his experience in Turkey. For Pettersson, the trends are in visual education, which, in Sweden as well as other countries, are cause for concern.

Besides describing trends, the first two articles suggest strategies to improve future efforts. Emerging from these reviews is the picture of a multifaceted field making worldwide progress in fits and starts, sometimes rapidly but more often with difficulty, giving cause for both optimism and concern.

CAI in China: An Overview of the Fourth National Conference of the Chinese Association of Computer-Based Education

by Zhongmin Li and Zhao Lin

The Fourth National Conference of the Chinese Association of Computer-Based Education was held in Tian Jin, the People's Republic of China, 1990. The meeting lasted for two and one-half days and consisted of a general session, concurrent sessions, informal discussion sessions, and software exchange sessions.

Although we were unable to attend the conference in person, we recently obtained the proceedings of the conference.* This article provides an assessment of China's CAI research and application through an analysis of the proceedings. The purposes of this article are (1) to provide an overview of China's current CAI research and development; (2) to describe the projects which either represent the state-of-the-art CAI research or solve a typical CAI application problem facing a developing nation; and (3) to point out problems in China's CAI effort.

*The authors extend their thanks to Professor Wan Jia-Ru of the East China Normal University for providing the proceedings.
There are 132 papers included in the proceedings of the Fourth Annual Conference, 45% more than presented at the Third National Conference (91 papers) held two years ago. Table 1 shows our classification of the papers and brief statistics. Although many papers address issues in more than one category, we made the classification based on the primary focus category of each paper.

**CAI APPLICATIONS: LARGER IS BETTER**

The application category covers both computer-assisted instruction (CAI) and computer-managed instruction (CMI). The official term used in China is computer-based education (CBE), which covers both CAI and CMI.* A paper is classified as "application" if it describes a specific courseware product or prototype in a specific subject matter area. Some prototype systems with research features are classified as applications because the nature of research is merely to apply the techniques already developed to a specific subject matter area. Some prototype systems with research features are classified as applications because the nature of research is merely to apply the techniques already developed to a specific subject matter.

There are two unique characteristics of the papers in this category. First, a majority of the applications were developed in institutes of higher education. Second, most of the application disciplines are science and engineering, such as math, physics, chemistry, computer science, etc.; English language instruction is the only application in the humanities.

The two characteristics reflect the current status of availability and accessibility of computers in China: computers are only popular in higher education, and teachers in science and engineering departments are the first to use computers. Few secondary and elementary schools can afford a computer lab for instructional purposes. Since the early generation of computers in China could only process English language, it is not surprising that CAI applications were developed to teach English.

The computers on which the courseware was developed range from minicomputers (VAX™) to personal computers, including Apple II™ or compatible, IBM PC™ or compatible, and the Chinese Learning Computer, a computer with Chinese character input/output capability and computation power comparable to the Apple II. The IBM PC compatible predominates, largely because it is one of the two low-cost computers (the other is the Chinese Learning Computer) that China is capable of manufacturing.

About 35% of the papers mention that the systems display information in Chinese. The techniques used include computer graphics, Chinese character fonts, or Chinese character generation cards installed in PC compatibles. No paper specifically mentions the capability of accepting Chinese characters as input to the system, which is surprising, given that computers with such capability have existed since 1986.

The quality of the systems varies. Many are small-scale prototypes. The primary focus was to explore the possible application of CAI in

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*In this paper, we use the western term, CAI, to mean all aspects of computer applications in education.