Computer-aided learning
Education wired for the individual

NRC scientists are approaching their goal for a viable and cost-effective computer-aided learning system for Canadian users.

A young child sits in front of a television-like display terminal. Several different pictures flash on a screen, one of them representing the solution to a problem expressed to the child by a voice simulator. The child touches the appropriate picture on the screen, relaying to the computer that he or she understood and assimilated the lesson. The computer then takes the initiative to advance the lesson. Suppose, however, the wrong answer is registered; the computer then decides whether to let the child repeat the problem, provide remedial instruction, or take the child back to a lower-level course.

While the child is being instructed by this computer, in another part of the country, a much more sophisticated scenario is taking place. A nuclear engineer is interacting with a similar type of computer facility, learning the operations of a nuclear power plant using computer simulations which represent all the normal everyday operations, plus problems of serious or minor nature which could arise. A particular skill or function may be drilled as many times as required without affecting the operations or jeopardizing the safety of the real power plant.

At the National Research Council, a group of scientists in the Division of Electrical Engineering are working to make these scenarios a reality, and are approaching their goal for a viable and cost-effective computer-aided learning (CAL) system for Canadian users. According to project coordinator, Jack Brahan, their program, which has been in effect since 1969, involves the development of computer facilities, software (system control programs), special display units such as "intelligent" terminals, and a special "high-level" language for authoring courses. "Another important function," states Brahan, "is our support of industry in the development of CAL competence by technology transfer and day-to-day interaction.

"The NRC CAL program is centered on a PDP-10 computer located at the Ottawa laboratories which serves several educational institutes around the country in a cooperative research effort," continues Brahan. "While NRC's main contribution is the development of software and hard-

This NRC-designed terminal, built by Lektromedia Ltd., uses a combination of recorded sound, color slides, and a cathode ray tube with a touch sensitive overlay. The multimedia learning center, controlled by a central computer, can be used in a variety of learning situations with adults, children or infants.

Ce terminal conçu par le CNRC et construit par Lektromedia Ltd. travaille avec des bandes sonores préenregistrées, des diapositives en couleur et un écran cathodique doublé d'une plaquette réagissant au toucher. Ce centre didactique informatisé polyvalent peut être utilisé pour enseigner à des adultes et à des enfants de tous âges.

Bruce Kane, NRC/CNRC