INTERACTIVE AUDIOVISUAL LEARNING
SESSION CHAIR'S OVERVIEW

Steven D. Reich, M.D.
University of Massachusetts Medical Center
Worcester, MA 01605

ABSTRACT

Interactive AudioVisual Learning (IAVL) is a dynamic branch of computer-assisted instruction that integrates the interactive potential of a computer with the added dimensions of sight and sound. With the advent of low cost computers, interfaces to a variety of audiovisual devices, and authoring systems, more and more people in the health sciences are exploring the role of this new technology in teaching. Because IAVL is flexible in terms of instructional design, it can be used in the education and training of patients, physicians, and other health science professionals. The number of applications of this technology is growing, and IAVL has the potential to become a major educational tool.

IAVL integrates computing and television or some other audiovisual medium. Several other names have been used including Participatory Audiovisual Learning (PAL), Interactive Video (I/V), and Computer-Assisted Video Instruction (CAVI). No matter what the name, the principle remains the same. A computer is linked through an appropriate interface to some sort of audiovisual device such as a videocassette recorder, a videodisc player, or a random access slide projector with audiotape. The computer controls the video sequencing under software control. Different monitor configurations are possible. Some systems use a monitor (or screen) for the video (or slide) presentation, and a separate monitor for computer text and graphics. Other systems use one monitor and either switch control of the screen back and forth between the computer and video device or combine both video and computer output into one composite picture. Some videodisc players have onboard microprocessors so that program control is built into the system and an external computer is not needed.

One of the earliest applications of IAVL in the training of health science professionals was that of Computer/Videodisc Cardiopulmonary Resuscitation by David Hon. This system uses adult and child plastic models that have transducers installed. The effectiveness of the trainee's efforts can be monitored by the computer and appropriate comments and suggestions made by a prerecorded instructor. Major advantages of the system are that instruction is consistent and a trainee can get immediate feedback on his/her performance without the aid of a human instructor being present.

Scattered foci of interest in IAVL have developed in medical schools for the training of students and residents. Generally, physicians or medical educators with an interest in computers have seen the potential of IAVL and have authored lessons in their area of expertise. James Gilbert, for example, is using IAVL in an anesthesia training program. Students and residents can be assured of exposure to a variety of clinical anesthetic situations even though actual cases are not available. The interactive nature of the lesson allows the student to make decisions which are then evaluated so any necessary remediation can be given immediately. Since lesson development must precede lesson evaluation, it is too early to assess the impact of IAVL lessons.

Patient education is another area where IAVL lessons can provide information and make sure that it is understood. Lawrence Wheeler and colleagues have produced educational material on nutrition for patients with diabetes. Using IAVL allows basic instructional material to be presented by the computer, so that health professional time can be used to solve unusual problems. Preliminary results of their study indicate that patients exposed to the IAVL lesson have higher levels of nutritional knowledge and skills than those taught in the conventional manner.

The production of lessons in IAVL format is highly dependent upon content specialists. Most health science professionals who qualify as content specialists have not discovered IAVL, so in order to increase the number of lessons produced, it might be possible to use students. These students would study a topic in depth and put the lesson together under the guidance of an expert. L. George Van Son has developed a method called VEDOPAPER that could be modified as a source for IAVL lessons.

Usually IAVL formats use pre-recorded video segments. A novel approach to teaching about small group interactions has been reported by Ayers and Haight. A television camera records a group interaction, and after the interaction the group reviews the videotape that is under computer control. Questions about each individual's reaction are posed by the computer and each person responds using a numeric code and keypad input. The computer can then tally the responses and report back to the group in text or graphic form.

IAVL is in its formative years. Most of what is being produced is the translation of more traditional approaches to education. However, innovative uses of IAVL are beginning to appear, suggesting that the full potential of IAVL will be even greater than currently realized.