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ABSTRACT

This paper provides an idea of how to improve computer-assisted instruction effectiveness by incorporating teachers' images and voices into computers. Efforts to increase students' motivations by improving computer-assisted instruction feedback systems through the use of arcade-style video games and animation have proven to be ineffective and distracting. In contrast, students seem to be highly motivated when the computer praises them for correct responses. A recent review of the literature reveals that praise is effective when it is delivered contingently, focuses on student accomplishment, provides information to students about their competence, is related to problem solving, shows spontaneity and variety, and is task-relevant; whereas ineffective praise rewards mere participation, gives no information to students about their status, attributes success to ability alone, is delivered inconsistently and unsystematically, and gives low achievers less praise or over-praises them for working hard rather than for accomplishment. Computerized teacher's praise seems to meet most criteria of effective praise and eliminates the occurrence of ineffective praise. Since dual-sensory instruction can now be realized through the use of inexpensive personal computers, human images and voices can be introduced onto the software in order to personalize instruction, ask questions, provide background knowledge, and become an audible expert system. (Contains 12 references.) (ALF)

Computerized Teachers' Praise: Incorporating Teachers' Images and Voices

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Introduction

Computer-Assisted Instruction (CAI) is rapidly entering our classrooms. The adoption and successful implementation of CAI in elementary schools depend on three major factors: (1) adequate hardware resources; (2) well trained teachers; (3) good software (Cox, Rhodes, & Hall, 1988; Khan, 1989). With more powerful and less expensive computers being manufactured each year, hardware environment has been improved greatly for the last decade. Now many elementary schools have computer laboratories capable of offering one computer for each student of a class. With concern of teacher computer-literacy, many states now sponsor computer workshops to uplift the teacher's abilities in using computers efficiently. Also, college students who pursue a teaching career are taking more computer-related courses than before. Regarding software, new products designed for different subject areas and different grades keep rushing into the market. While the quantity of CAI grows rapidly, the quality of CAI seems to improve slowly.

There are three levels of CAI: 1) practice and drill, 2) tutorial, and 3) dialogue (Saracho, 1982). Although representing the simplest level of sophistication, drill and practice still dominates CAI activities. Drill and practice is indispensable for children to acquire basic skills. Drill and practice involves repetitiously learning the same skills over and over again so that finally the student gains a sense of mastery. But, repetitious learning tends to become boring. Thus, students must be motivated highly. Using computers as reinforcers to motivate students toward

mastering basic skills has been found to be successful for a short-term period. However, as the novelty of computers faded away, students' motivations decreased (Goodwin, Goodwin, Nansel, & Helm, 1986).

Effort has been invested in increasing students' motivations by improving the characteristics of CAI feedback system. Some softwares use arcade-style video games to reinforce CAI behaviors, in which, students are awarded to play a video game after they answer a certain number of questions correctly. Some use animation to attract children. For example, the student is cued to match pictures; if the student is correct, a box flashes around the correct response and a clown pops out from behind the box. In another example, the student is asked to balance numbered boxes on a balance beam by matching the numbers displayed on the opposite side. A bear will dance on the screen if the student response correctly. Feedbacks like these are ineffective. Children tend to be drawn to, but later distracted by the animation. In one study by Trieschmann (1990), the student became bored and annoyed with the clown and they wanted to work on their next problem, and got irritated waiting for the bear to finish his dance.

Despite these ineffective feedbacks, researchers found some feedback that reinforced students' CAI behavior successfully. Students tend to be highly motivated when computers praise them after answering a question correctly. Children liked it the best that the computer told them "very good" when they solved a problem correctly (Hativa, 1989). Later this reinforcement was improved to

be personal. For instance, if Mary solved a problem correctly, the computer would display "good job, Mary, you answered 90% of the questions correctly" (Ross, et al., 1988). However, Hativa (1989) found that although students were highly motivated when computers praised their accomplishment, they said that they still preferred their teachers to computers. The purpose of this paper is to provide an idea of how to improve CAI effectiveness by incorporating teachers' images and voices into computers.

Praise

A review of recent literature indicates that praise can be effective or ineffective. Effective praise is that which is delivered contingently, focuses on student accomplishment, provides information to students about their competence, is related to problem solving, shows spontaneity and variety, and is task-relevant. Ineffective praise is that which rewards mere participation without consideration of performance processes or outcomes, gives no information to students about their status, attributes success to ability alone, is delivered inconsistently and unsystematically, and gives low achievers less praise or over-praise them for "working hard" rather than accomplishment (Emmer, et al., 1989; Good & Brophy, 1990).

Computerized teachers' praise seems to meet most criteria of effective praise and eliminate the occurrence of ineffective praise. The computer can be programmed to always praise consistently and systematically no matter the child is a low

achiever or a high achiever and no matter the child is a boy or a girl. The computer can be programmed to deliver praise contingently, spontaneously, and in variety. Also, the computer can be programmed to praise task-related, problem solving and criterion-related behaviors, and only after the child makes some accomplishment. Furthermore the CAI continuously assesses each student's progress and adjusts the level of difficulty of drill exercises to match the student's current ability (Saracho, 1982). Thus, computers can be programmed to praise according to each student's level of ability instead of praising her or his ability.

Discussion

Over 90% of our daily communication is accomplished by voice. The sense of audition is one of the most essential media in learning. However, CAI has grown up as a mono-sensory form of instructional technology. It suffers, in comparison, because it cannot appeal to the imagination of viewer (Gull, 1985). Since dual-sensory instruction can now be realized through the use of inexpensive personal computers (Hertzler, 1979), the CAI program may be raised from the drill and practice level to tutorial and dialogue level by introducing human images and voices. In audible CAI, the teacher's voice may personalize instruction. Teachers may ask questions on the computer screen. If the student needs more background knowledge, the teacher's voice can lead the student to an audible expert system and finally, the student can acquire all necessary knowledge to answer the question correctly.

Enthusiastic and knowledgeable teachers are the key to the successful use of CAI in education. If applied appropriately, incorporating teachers' images and voices may have great influence in computer education. Researchers should start to investigate how and in what areas human images and voices can or can not improving our current CAI system.

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