

DOCUMENT RESUME

ED 434 432

EC 307 430

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TITLE An Example of Teacher-Made Software.
PUB DATE 1999-00-00
NOTE 5p.; Paper Presented at the Annual Conference of the American Association on Mental Retardation (123rd, New Orleans, LA, May 24-28, 1999).
PUB TYPE Reports - Descriptive (141) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Computer Assisted Instruction; *Computer Software; Daily Living Skills; Individual Instruction; Instructional Design; Learning Strategies; *Moderate Mental Retardation; *Multimedia Instruction; Multimedia Materials; *Outcomes of Education; Secondary Education

ABSTRACT

This paper describes the rationale and development of a teacher-made software program, instructional design features of the program, and student reaction to the program. The software was created for one student with moderate mental retardation to enable him to practice reading, writing, and reciting personal information. The program, "Your Personal Information," was created with an authoring program called Macromedia Director. The program provided the student with text, full on-demand audio support, multiple choice questions, and a practice-by-memory option. The authored lesson consisted of several screens of information: a title screen that included the goal and objectives of the lesson, five screens that used a consistent design to present the student's address, date of birth, phone number, social security number, and school lunch number, five screens each with a multiple choice question, and one screen for a practice-by-memory option. In addition, several screens of feedback or remediation were available. The program also included real pictures associated with the student's life to support the information on-screen. The student responded favorably to the program, and the individualized nature of the computer program enhanced student motivation and resulted in improved ability to read, write, and recite personal information. (CR)

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An Example of Teacher-Made Software

John D. Foshay

Abstract

This paper describes: the rationale and development of a teacher-made software program; instructional design features of the program; and student reaction to the program. The software was created for one student with moderate mental retardation to practice reading, writing, and reciting, his address, date of birth, phone number, social security number, and school lunch number.

The 1997 amendments to the Individuals with Disabilities Education Act (IDEA) mandate that all students with an Individualized Education Program (IEP) be considered for assistive technology. The legal definition of assistive technology devices is "any item, piece of equipment or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities" (20 U. S. C., Chapter 33, Section 1401(25)). Depending on the needs of the student, this broad range of solutions includes adapted spoons, multiplication tables, systematic teaching procedures, calculators, tape recorders, laptop computers, and interactive multimedia systems (Blackhurst, 1997). The interpretation of the language in IDEA allows assistive technologies to serve as adaptations, modifications, and accommodations to promote access to and participation in both educational and community settings (Chambers, 1997). This suggested that educators can now consider multimedia software, including customized teacher-made programs, as assistive technologies and add them to the IEP.

Creating interactive software no longer requires the knowledge of sophisticated programming languages. Rather by using "authoring" programs, teachers can develop their own computer-based instruction. Typical multimedia authoring software packages found in schools, like Microsoft's PowerPoint, Wagner's Hyperstudio, or Claris' Hypercard, can

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provide teachers with the necessary tools to create computer-based lessons. In particular, teachers can author individualized lessons for students with mental retardation.

While using authoring programs, teachers control the lesson's content, media, and interactivity. Using the authoring program's tools, teachers can create highly personalized tutorials, lessons, or practice opportunities. To this extent, this paper describes one example of teacher-made software called "Your Personal Information" created with an authoring program called Macromedia Director. "Your Personal Information" was created for a student named Dale, an 18 year old student with moderate mental retardation, who was studying to read, write, and recite his personal information. Before the program's development, Dale practiced his address, date of birth, phone number, social security number, and school lunch number by traditional means such as filling out applications, through teacher-directed questioning, and by writing the information from memory. The software program was developed to provide Dale with another motivating opportunity to practice his personal information.

The study of your personal information is a normal, functional skill that is useful in many aspects of adult daily life including filling out job applications and supplying information during doctor's visits. Since your personal information is unique it matches the ability of multimedia authoring programs to individualize instruction. The program provided Dale with text, full on-demand audio support, multiple choice questions, and a practice-by-memory option.

The authored lesson consisted of several screens of information: a title screen that included the goal and objectives of the lesson; five screens that used a consistent design to present Dale's address, date of birth, phone number, social security number, and school lunch; five screens each with a multiple choice question; and one screen for the practice-by-memory option. In addition, several screens of feedback or remediation were available for the correct and incorrect multiple choice items. On each screen that presented a piece of personal information, in identical locations, Dale's teacher had placed three buttons. When

clicked, the first button provided audio support by reading the on-screen text. For example, if Dale activated the audio button on the date of birth screen he would hear his teacher's voice reciting "Dale, your date of birth is January 1, 1971." The other two buttons on the screen were forward and backward arrows to aid navigation through the various screens of information. In addition, the software contained menus to assist navigation.

The program contained two additional features. First, real pictures associated with Dale's life were used to support the information on-screen. For example, the address screen contained a picture of Dale's home and the lunch number screen displayed a picture of Dale going through the line in the cafeteria to support the text. Graphics were used to support the other pieces of personal information on their respective screens. For example, the date of birth screen presented an illustration of a birthday cake and the phone number screen contained a clip art drawing of a phone. A second significant attribute of the program was the practice-by-memory option. This option gave Dale an opportunity to type in his personal information from memory. When he was finished entering his personal information, either Dale or his teacher could click on a "save" button that transformed Dale's typing into a separate text file. Dale's teacher could collect and evaluate performance data by opening the text file in a standard word processor for review and assessment.

Although Dale's teacher benefited from this assessment device, Dale also responded favorably to the program. Initially, he was surprised to see himself and his home on screen and expressed excitement over studying his personal information this way. Clearly the individualized nature of the computer program motivated Dale. Dale also was surprised to hear his teacher's voice come out of the computer to read the personal information. Dale's teacher liked these features because they increased Dale's independence in studying the information. Over the course of one school year, in conjunction with traditional practice opportunities, Dale improved his ability to read, write, and recite his personal information.

In summary, teacher-made software can create meaningful, highly individualized lessons including the study of a student's address, date of birth, phone number, social

security number and school lunch number. Through multimedia authoring, meaningful graphics and sounds can assist in the learning of information. Teacher-made lessons may also provide a motivating supplement to traditional instructional techniques.

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