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ABSTRACT

A Language Experience Approach (LEA) to reading is based on the premise that a child's thinking naturally leads to talking, writing, and eventually reading. Information technologies offer powerful support for learning, but teachers and parents must learn to use these technologies effectively. Three types of computer applications that are appropriate for an LEA program are Hypertext, multimedia creation programs, and CD-ROM. Because computers can be combined with other media systems, they provide motivational and dynamic tools that can foster a child's expressive and reflective skills. However, computer technologies are only as effective as a child's willingness to embrace them and an adult's enthusiasm for using them at home and in the classroom. Two figures and one table illustrate the capabilities of computer uses in LEA approaches. (Contains 11 references.) (SLD)

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COMPUTER ASSISTED READING INSTRUCTION: NEW TOOLS FOR NEW EXPERIENCES

Barry Sponder

INTRODUCTION

Children often interpret their experiences through oral and written activities that reflect their thoughts and emotions about the world as they encounter it. A child's innate capacity to develop and use language is evident in the long journey from birth to literacy, and studies indicate that using life experiences for early reading lessons can facilitate literacy development (Reeves & Kazelskis, 1990; Kavale & Schreiner, 1978; Cramer, 1971; Nessel & Jones, 1985). For example, the Language Experience Approach (LEA) to reading is a well-researched strategy that encourages children to dictate stories, or to recollect experiences, and then read their own words aloud (Lee & Van Allen, 1963; Stauffer, 1970). With the aid of parents and teachers, young children can capture their excitement and wonder in print while developing important literacy skills. Language experience reading activities are suitable when children start to verbalize their ideas, feelings and actions, and the LEA methodology is widely recommended to support almost any formal reading program (Morrow, 1993). Although the basic techniques of LEA have undergone only modest adjustments, the learning environment outside of school has been transformed by powerful information technologies that have created new opportunities for recording, reading and listening to children's narratives.

THE AUTOBIOGRAPHY OF A PRE-READER

A Language Experience Approach to reading is based upon the premise that a child's thinking will naturally lead to talking, writing and eventually to reading (Stouffer, 1970). These early exercises in language development are primarily autobiographical since children filter everything through their own egocentric reality and it is obvious that they are almost always talking about themselves and their lives.

An LEA activity is particularly effective after a memorable experience such as a trip to the zoo, a playful encounter with a friend or a visit to a new place in the neighborhood. The dictated story is dependent upon the environment, the child's perception of the experience, his or her interaction with an adult, and the adult's ability to faithfully record the child's words. Adults play an important role in the process because they ask questions to elicit the details, descriptions and perceptions of the experience.

THE EVOLUTION OF THE ENVIRONMENT

Over the past decade the growth and evolution of technologies such as the telephone, television, videotape and computer have significantly impacted children's lives while giving them tools to enhance their visual and auditory senses. For example, the proliferation of VCR technology has made thousands of films and videos available for viewing at almost any location. Children can watch the same videotape dozens of times and using a remote control unit they can freeze a frame on the screen, replay a favorite scene or view it in slow motion. Many children have access to a camcorder enabling them to make their own tapes and immediately watch the videos on television. Children are also likely to be the subject of their parents' own home videos. The television set itself can be used to play sophisticated arcade games, to paint pictures or even to display photographs, slides or multimedia programs. Students can receive homework assistance over the television through teletext or they can use the TV as part of a karaoke system that provides background atmosphere as they sing their favorite songs. In sum, children now have many opportunities to use exciting and sophisticated technologies that were not available just a few years ago.

No other innovation, however, has made a greater impact on the environment than the computer. Computers make it possible to integrate different technologies while enhancing their capabilities and making them easier to use. Computers have become an indispensable but almost transparent part of our lives and we seldom realize how much we depend upon them. The availability of personal computers in the home has helped many children to become computer literate at an early age, often before they enter primary school. With the proper configuration computers can be used for developing, editing and viewing movies and videos. With additional enhancements they can display millions of colors, speak in a synthesized voice or even respond to human speech. In fact, computers are capable of fashioning a *virtual reality* that convincingly simulates the physical world.

For children, these marvelous innovations are as wonderful and magical, or as normal and natural, as the rest of the world. Adults, unfortunately, are often less enthusiastic than children about trying new inventions.

NEW TOOLS FOR NEW EXPERIENCES

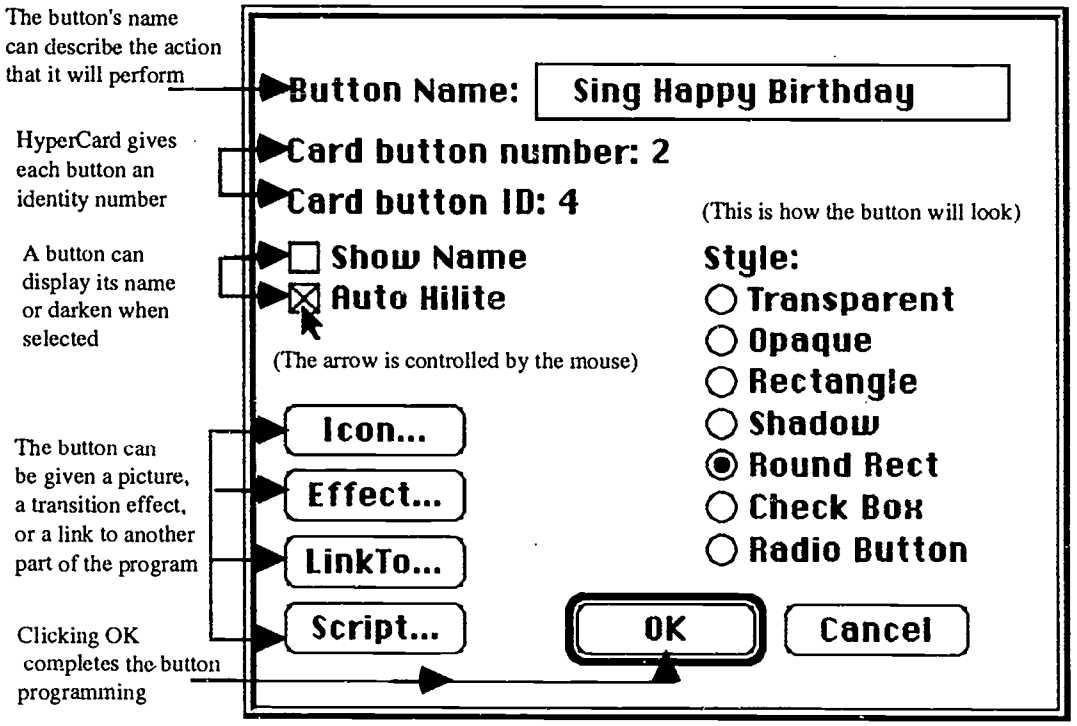
Although information technologies offer powerful support for learning their educational role should not be taken for granted. Parents and educators must also learn how to use these technologies or risk losing touch with children who are more familiar with sophisticated learning systems than their teachers.

Three types of computer applications which are appropriate for an LEA program are as follows:

1. Hypertext

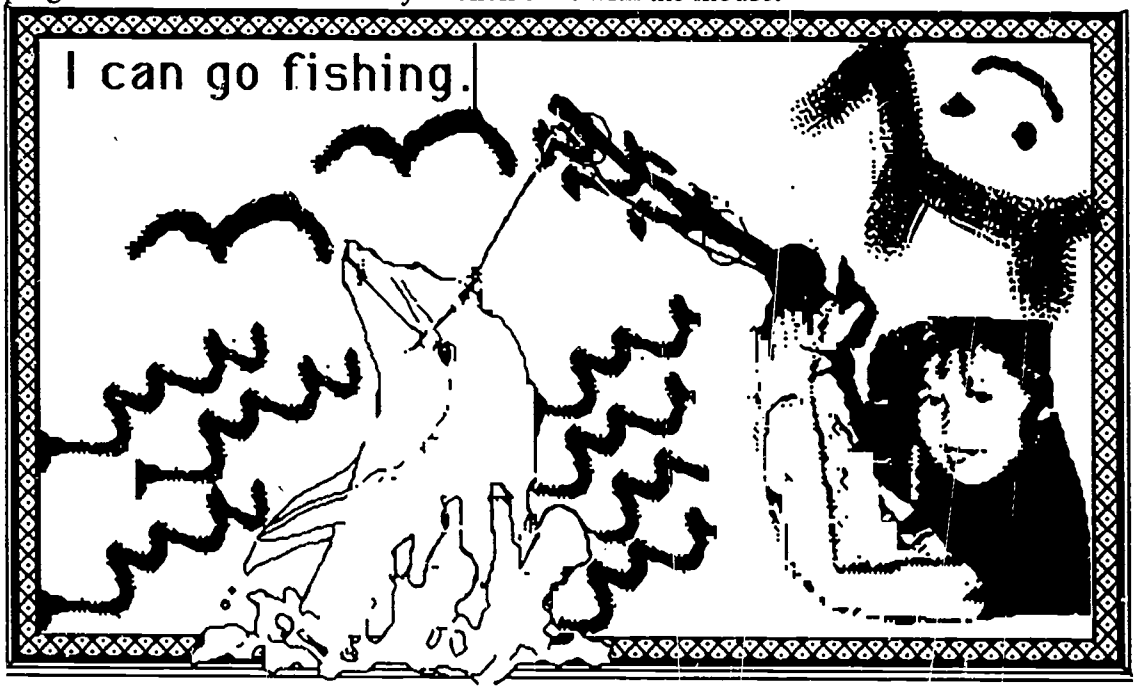
Hypertext applications such as HyperCard (Macintosh), Hyperstudio (Macintosh), Linkway (MSDOS) and Toolbook (MSDOS), are simple but powerful tools that enable non-expert users to develop complex and powerful computer documents. Hypertext programs are good for creating multimedia, the simultaneous use of more than one media system such as audio, video, graphics, animation, movies and video. Hypertext programming languages resemble simple English sentences and developing a multimedia production is often no more difficult than clicking on a box or circle to indicate one choice or another (see Figure 1).

Figure 1. Some programming choices available in HyperCard.



Many teachers are using Hypertext applications in their classrooms. Paul S. is a pre-school teacher who, as a novice user, relied upon the program to help students to learn to read. As part of an LEA activity Paul wrote down his students' stories and then typed them into a HyperCard stack (document) on the computer. Next, he had the children draw pictures to illustrate their stories which he then transferred (scanned) to the computer program. Finally, Paul combined the words and pictures to produce an animated story (see Figure 2).

Figure 2. A page from a student's story created with the HyperCard computer program. The fish moves when you click on it with the mouse.



He used the stories as part of the class reading lessons helping to create a supportive atmosphere for learning. Parents were also excited about the LEA HyperCard stories and repeatedly asked for demonstrations (Sponder, 1990).

2. Multimedia Creation Programs

While Hypertext applications are easy to program for multimedia, there are products which are designed to help children to quickly develop their own multimedia presentations without any programming at all. An application such as *Kid Works 2* (Macintosh, MSDOS) allows children (or adults) to produce stunning and sophisticated multimedia. Using Kids Works 2 a child can paint with more colors than a box of crayons and produce beautiful visuals to accompany his or her stories. Children can record their voice to accompany the text or hear their story read back to them in the synthesized voice of the computer. Moreover, the story and its accompanying pictures can be printed out in the traditional book format.

3. CD-ROM

Multimedia programs are also available on CD-ROM that contain a range of activities that introduce, develop and reinforce reading skills. For example, *Word Tales* is a CD-ROM that focuses upon spelling in a fanciful and motivating way. *Alphabet Blocks* gives children practice with letter names and sounds while keeping them entertained. *Just Grandma and Me* is a CD-ROM that offers an interactive story that can be read at many different levels.

WHERE DOES THE COMPUTER FIT IN THE OVERALL READING PROGRAM?

While certainly not an educational panacea, the computer has an important role to play in any reading program. Because computers can be combined with other media systems they provide motivational and dynamic tools that can foster a child's expressive and reflective skills. Since reading is an act of communication it makes sense that students should have access to the most modern communication systems that are available.

On a cautionary note, there is little evidence that an illuminated computer screen is an acceptable full-time substitute for the printed page. Computers force people to adjust their reading behavior and physical posture to accommodate the computer screen. Because books and printed materials are often read by people in various contorted positions it is questionable if children can and should sit still in front of a glowing monitor for a very long time.

CONCLUSION

Although computers and multimedia make it possible to use new tools for a Language Experience Approach to reading, these technologies are only as effective as a child's wil' ıgness to embrace them and an adult's enthusiasm for using them at home and in the classroom. While the environment outside of school provides children with many fascinating and technologically-based learning experiences, formal reading programs do not always take full advanage of these opportunities. Educators are urged to invest the time to learn how to use computer-based writing and recording systems so that they can use these tools to support their own reading programs.

Table 1 A summary of the computer's changing capabilities.

Capability	The Pre-1980 Environment	The Current Environment	The Personal Computer
Speech synthesis (Computer-generated speech)	•Found in some telephone services •Available in a few toys	•Found in many phone services, at the MRT sales booth and in products such as cars, ovens and alarm clocks •Many talking toys	•Available for most PCs •Some computers can *read* a child's story aloud •A child's voice can be recorded and played back on the computer
Voice recognition (Machine responds to a vocal command)	•Available only in science fiction movies	•Available but not widely used as yet	•Available for most PCs •Most advanced use is on the Macintosh
Sound (The ability to record, reproduce and use sound)	•Tape recorders recorded sounds from other sources such as radio, TV., tapes and records	•Recording possible in many formats •Walkman-craze •Synthesized musical keyboards	•Impressive record and playback capabilities. •Sound effects capability •Midi interface combines music and computers
Video (The ability to record and manipulate video images)	Not widely available for consumers.	•Pre-recorded videos, vcrs and cameras everywhere •Videos can be viewed repeatedly •Video games •Home videos as news	•Editing and playback capabilities on most PCs. •Video-style computer games widely available
Color (The ability to use and manipulate color)	•Traditional modes of color-drawing & painting. •Color tv, slides and home movies	•Improved color products in every sphere •Color videotape, photos & painting on the tv set	•Some computers can show millions of colors •Superior color graphics & projection capabilities
Writing (The ability to record, store and transmit written documents)	•Typewriter, paper and pencil, mail, telegraph, teletype, teletext. •Some phone-based transmission possible but not widely available to consumers.	•Writing now includes computers, tv, fax phone, celluar phones e-mail, film, graphics, sound, pictures, teletext and animation	•Many ways to write and combine color, graphics, movies and sound •Word processing in many languages •Sophisticated word, idea & document processors
Animation (Creating and recording)	•Flip charts, movies	•Easy animation creation with computers	•Many simple animation tools available for kids
Converging Technologies (The ability to connect one technology with another)	•Able to record audio from radio, records and tv •T.V. stations broadcast movies	•Many technologies converge •Smart cards •Fax •Video phones •Too many to list	•With computers we can work at home and print newspapers, make movies, send documents over the phone, edit movies photos & record music
Movies (The ability to record and manipulate moving images)	•8 mm home movies	•Video has replaced film •Low-cost editing film and video capabilities	•Movies and multimedia can be viewed on tv and on the computer •Easy to edit movies
Learner Control (The ability to manipulate technologies)	•The on/off switch	•Remote control units standard •Videos can be viewed dozens of times •Edit video & sounds	•The user has control over most computer-based tools •Graphical user interface •Powerful & easy to use
Interactivity (Capability to interact and affect the media)	•The passive learner •Teaching machines with limited branching	•Many interactive games •Interactive technologies •Polling	•Computers permit the development and use of interactive multimedia

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