



By Melinda Hernandez

Subject: Reading

Grade Level: Prekindergarten through Grade 2 (Ages 3–7)

Technology: Electronic storybooks

Standards: NETS 1. (See <http://cnets.iste.org> for more information on the NETS project.)

Electronic Versus Paper

Do Children Learn from Stories on the Computer?

Many educators believe that children should be read to from a very young age. But does the reading have to be done by an adult to be effective? While working with young students, Melanie Fernandez began studying their reactions to and learning from electronic storybooks. The electronic books held students' attention, and students retained more information from the electronic versions of the stories.

I have always been impressed with the quality of the Living Books published and developed by Random House and Brøderbund. The stories chosen for this series are familiar ones that most children enjoy. With the added components of voice, animation, and interactivity, the Living Books are a delightful way for children to enjoy stories.

Reading stories to children has long been considered to be a predictor of their later success in reading. When stories are read to young children, preschoolers begin to understand simple story elements. They see that stories have a beginning, a middle, and an end. They are exposed to sentence structure and new vocabulary. They are engaged in many schema-building activities that will enable them to learn more quickly. Unfortunately, many children begin their formal schooling experience without the benefit of storybook reading in their homes. They come to us "story deficient," positioning them—in the continuum of emergent literacy—behind those children who have been read to by their caregivers since infancy.

Background

While I was completing my doctoral work, my responsibilities included supervising elementary education interns in a rural professional development school. As I observed the interns and the children with whom they were working, it was obvious that many of these students could be characterized as "story deficient." Because the county where the school was located did not test children in kindergarten through second grade, no standardized test

scores were available to examine. However, I could see that these children needed a great deal of experience with storybooks of all sorts before they could begin to become successful readers. Stories were being read to them but not nearly in the volume that was needed. I thought that the electronic storybook might serve to provide some of the elements derived from a traditional reading experience. I wanted to compare the literacy event—the single storybook experience—to see if the computer alternative could be beneficial. This school had a wealth of technology, so all of the children were computer literate to some degree.

Researching Electronic Storybooks

I asked all the kindergarten teachers if they were interested in having their students participate in my research. If their teachers agreed, all of these children then were invited to join in the study. I was warned that my permission slips might not be returned in great numbers, because similar communications often did not make their way back to school. I felt fortunate to receive 50 positive replies. I chose the first 40 children (20 boys and 20 girls).

The Study

I chose the stories *Little Monster at School* by Mercer Mayer and *The Berenstain Bears Get in a Fight* by Jan and Stan Berenstain. These stories had comparable readability and interest levels. Each child was read one of the stories and received the other from the computer. After each story, the student was asked to respond to a number of questions about various story ele-

ments. The stories and treatments were counterbalanced.

Two PTA mothers helped with this study. One served as the “escort.” She walked children to and from the conference room in the media center where the readings took place. Each child was told he or she would be asked to talk about the story after hearing it. I read individually to each child. Because all of the children knew how to point and click a mouse, minimal introduction was needed for the computer story. The second PTA mom was in charge of the data collection. She asked each student to retell the story and the retellings were audio taped for later analysis. Students were also given a pictorial multiple-choice test about each story’s elements and were asked to draw events in the beginning, middle, and end of the story. That was followed by open-ended questions about why they liked the story and whether they had any experiences similar to the characters’ in the story. This instrument was examined with qualitative methods. Finally, children were asked which story they preferred.

Results

The qualitative data showed that boys responded more often to the electronic versions of the stories. Yet, they showed by their preferences that the human-read story was their first choice. At first, this finding proved puzzling. Why would boys find the electronic stories more worthy of response yet choose a human-read story as their favorite? Could it be that the electronic story, with all of its movement and zany antics, incited more reaction and stimulated thought while the nurturing element of the human-read story fulfilled a more important need for 5- and 6-year-olds? Without further study, we can only theorize why the children in this study responded this way.

The statistically significant differences concerning mode of story delivery (either computer- or human-read)

from the quantitative analysis appeared in only three of eight comparisons. One significance was found—because of the small sample size—using a *p* value of .10. The number and strength of the statistical differences were not profound.

However, the evidence of few significant findings is good news. During the time I was developing this study, I saw children experiencing electronic stories. These students appeared to randomly click on items on the screen, diverting their attention from the text more and more with each animated action. In fact, during the story retelling exercise, one child told me that he didn’t remember anything about the electronic story. Thus, I expected that the human-read story experience would far surpass the electronic story delivery, which I had hoped would be at least half as effective in terms of literacy learning as the human-read story. As it turned out, the electronic story experience was essentially equivalent to the human-read experience with regard to the literacy learning. With all but three of the comparisons showing no significant difference for mode of story delivery, teachers and parents can be assured that electronic stories are indeed beneficial. Further, teachers can use electronic stories to expose children to a greater number of stories and enhance the possibility for improved literacy. Also, the value of electronic books in terms of children’s exposure to repeated readings cannot be ignored.

The potential for electronic stories, however, has yet to be adequately explored. Storybook reading by adults to children within our society is commonplace. Our culture and language are rich with positive references to reading stories from books in the traditional sense. Therefore, this form of story delivery can be expected to affect children’s performance when comparing assessments of human-read and computer-read experiences.

Conclusion

It has been seen from this study that the electronic storybook is one tool that can yield similar, if not in some cases the same, outcomes as those generated by the human-read story. This is not to say that the human reader can be replaced totally by an electronic version of a story. The mediation by the adult reader in terms of discussion and expansion of the text remains a pivotal element of reading aloud. Furthermore, the human contact, the physical and emotional closeness, offered by a human reader cannot be replicated by a computer. But, as seen by this research, the electronic story does provide some of the elements derived from a traditional book-reading experience. Time spent with electronic stories can give children some building blocks to aid their acquisition of literacy.

Electronic texts have extraordinary potential for children. The software is very well done, in that the stories chosen for this medium are, for the most part, written by well-known children’s authors. The illustrations are copied directly into electronic format to maintain the beauty of the original art. Software designers then animate the stories and add all sorts of opportunities for interaction with the program by the child. Pleasant voices of both children and adults are used to read the stories. Words on the screen can be accessed repeatedly through a click of the mouse. The computer becomes a tireless storyteller. Children can see, hear, and interact with a story over and over again without the least hint of complaint from the reader.

So, do children learn from stories on the computer? Yes! ■

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