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Integrating Technology to Enhance Reading Comprehension

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Integrating Technology to Enhance Reading Comprehension

Abstract
This literature review explores whether or not using technology enhances the students reading comprehension of material. Studies in this review are in support of using computers for children when it comes to learning comprehension skills. Among the list of software, Accelerated Reader is one that is used frequently for testing what students remember after they have finished a book giving them immediate feedback. This review also is in agreement with the use of using computers for children to learn at their own pace. It provides the children with a sense of achievement that they learned it on their own, yet the computer is still guiding them in the right direction like a tutor or teacher would.
Integrating Technology to Enhance Reading Comprehension

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Abstract

This literature review explores whether or not using technology enhances the students reading comprehension of material. Studies in this review are in support of using computers for children when it comes to learning comprehension skills. Among the list of software, Accelerated Reader is one that is used frequently for testing what students remember after they have finished a book giving them immediate feedback. This review also is in agreement with the use of using computers for children to learn at their own pace. It provides the children with a sense of achievement that they learned it on their own, yet the computer is still guiding them in the right direction like a tutor or teacher would.
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Reading, writing, and arithmetic are the three big content areas society thinks about when it comes to education so that one can be successful in life. Most school districts put these three content areas at the top of their priority lists. "Reading is essential for success beyond the classroom walls" (Lang, McCarty, Norman and Upchurch, 1999). The main question is what can an educator do to help students succeed in the skills of reading and master what they need to know in order to be successful in life?

This review of literature will analyze different resources that can be used to help students succeed within their education. "Over forty percent of fourth graders performed below basic on the National Assessment of Educational Progress (NAEP), that is they did not demonstrate understanding of the fourth grade level texts" (Lang, McCarty, Norman and Upchurch, 1999). Based on the research completed by Lang and colleagues of the NAEP, the test provides educators with feedback, which they can use to improve the students, standardized test scores.

Technology opens many doors of opportunity for students, so they can learn at different levels and rates within the same learning environment. Children learn differently. This is why educators need to try new things to help every child succeed in school. Computers are a big part of society and many children seem to know how to use them efficiently. Why not let the child use a computer application to learn and raise his or her reading levels? "From the instruction of basic skills to the production of multimedia presentations and projects, computers are proving useful in a variety of practical and creative uses" (Kim, & Kamil, 2001, p.2). The Accelerated Reader software application is one of many programs that offer online testing of thousands of books from which the child chooses. In addition, the software provides the learner with
immediate feedback on levels of success. “In cases, many hours or even days may intervene between a child’s response and the teacher’s reinforcement, even though it could be demonstrated that, unless explicit mediation behavior has been set up, the lapse of only a few seconds between response and reinforcement destroys most of the effect” (Spencer, 1991 p. 4). This research supports the view that immediate feedback is beneficial for students to achieve rather than a delayed response from instructors by waiting for their paper to be returned.

Using technology in a classroom has its benefits. The teachers who decide to integrate technology for the purpose of instruction are providing immediate feedback to the learners. This gives the students a sense of intrinsic motivation, which may promote learning. According to Spencer, providing immediate feedback gives the greatest impact on the learners. He also mentioned that a lapse of only a small amount of time could destroy the effect of the reinforcement given to a situation (Spencer, 1991). On the negative side, the immediate feedback could hurt the students’ confidence levels when they only see the result without an explanation. Seeing just a score may destroy the students’ self esteem resulting in the students “shutting down” and refusing to learn new information. So, as educators look at the use of technology within their classrooms, they need to take into account the different learning styles learners possess.

This literature review focuses on two questions:

1. Is there a direct connection with learning how to read and comprehend what is read by using only the computer?

2. What are some things or programs that can be used to help with reading skills?
Along with the above questions, this review covers the different uses of technology, which may increase the language arts skills needed to be successful. This review will include the aspects of learning from and with computers, the use of Accelerated Reader to produce readers, and whether or not the use of technology will increase comprehension skills.
Methodology

The author of this paper decided to use the Internet, a database of ERIC documents, journal articles from Heartland Area Education Agency, and personal interviews regarding building reading comprehension skills using technology. The method of searching for the articles included going on the Internet to the Heartland Area Education Agency web page and using of the search engine of Yahoo. The author used concepts such as reading comprehension with the use of technology, technology usage in education, and reading comprehension.

After receiving the ERIC documents and downloading the information off the World Wide Web, the author looked at the creditability of the authorship by investigating the publisher to see if it was a creditable resource and considering the date when it was published. This researcher was looking for information that was relevant within today’s educational settings. Another aspect of reviewing the information found was that the author did not select the articles that endorsed a certain product by providing only positive information about the product. Using biased information based on endorsed products may not provide a balanced view of the topic.

The criteria applied to the sources were that they had to be from a creditable source with statistics and related to the topic or reading. The sources also had to present information, which may benefit the problems a learner may have. Looking for individuals with knowledge of the topic in this review, the author decided to interview the principal of his school by asking him about the district’s focus on reading. This researcher also wanted to know what his district was looking for when it came to reading. The district’s web page was also used as a resource to provide the district’s goals on reading.
Analysis and Discussion

Teachers often wonder if the use of a computer will benefit their students' learning and engage the students in their higher-order thinking skills. The research has described benefits of using technology in the classroom. These benefits include, "increasing student achievement; improving higher-order thinking skills and problem solving abilities; enhancing student motivation, engagement, and job preparation; and improving students' ability to work collaboratively" (White, Ringstaff, Kelly, 2002). For a long time teachers have placed students into groups to work. Now, by including technology in those groups, students are encouraged to work and communicate to produce a final product, therefore teaching each other and holding each other accountable for his/her own learning. When students are engaged in these areas, learning is taking place.

Learning with the use of computers is another way to enhance or teach reading skills to students. "Learning from computers occurs when the technology functions essentially as a tutor, structuring the learning process for the students" (White, Ringstaff, Kelly, 2002). Incorporating computers this way, a teacher really is mapping out the information for the child that needs to be learning and assist the student in staying focused and on target. Another perspective is that, "students learn with technology when they are in a more active role. In this case students use technology as a tool for problem-solving" (White, Ringstaff, Kelly, 2002). Incorporating technology for education this way may promote the use of necessary skills to achieve in reading and other areas of education.

Interactive computer programs are another way to accommodate different learning styles. Incorporating interactive computer programs into instruction gives students choices of what is to
happen, thus giving the child a sense that his or her learning may be created by himself/herself, not the teacher. The students are focused on what is being sent to them. Using technology this way could be a reason why studies have shown an increase in comprehension of the material being presented (Fountaine, 2000, p.5).

Computers offer different features to enhance comprehension. The technology provides content in a way that the learner can understand. Some students tend to be visual or auditory learners. Through the use of technology, educators can provide the materials needed to meet the needs of each individual learner. Some forms of computer materials include: PowerPoint slides, voice, and video. The software provides different learning situations that are provided with the use of technology creating an environment of which traditional text cannot (Kim & Kamil, 2001). “Using computers to teach reading enables developing readers to learn at their own pace. Early readers are actively using computer programs today to help them build grammar and vocabulary. Reading assessment programs help teachers ensure their students are comprehending material and moving forward at an appropriate pace” (Pittner, & Coit, 2000, p.1). Reading comprehension software can enhance comprehension levels of children and give them a sense of accomplishment that they are achieving success on their own.

Accelerated Reader is one example of a software application that was designed as a reading comprehension assessment tool to be used within a classroom (Topping, n.d). Accelerated Reader provides tests online for the students to take after they finish reading a particular book. It “is a learning information system that enables freestanding computer-assisted assessment of student comprehension of real books” (Topping, n.d). This software application tests the student’s comprehension of the books he or she reads, and then generates a report for
the teacher and student providing them with immediate feedback on how well the students did. Accelerated Reader has thousands of book titles as part of the online testing system.

Accelerated Reader has received mixed reviews among teachers. Many do not support its use. One negative aspect related to the use of Accelerated Reader is how the students are only reading the book to get something in return in the form of a prize. “This creates a Skinnerian system of literacy learning that poses the threat of extinction once the rewards are withdrawn” (Biggers, 2001,p72). Society today uses the “I will do it but, what’s in it for me” attitude. As a result, teachers may be worried students will not read when the rewards are gone. On the positive side of the program, “if teachers use the tool as feedback on the progress of kids, that is very useful” (Chenoweth, 2001,p.48). In order for this program to be used for evaluation and helping with the growth of students, teachers need to use it as an evaluation tool to push the students to work up to their potential and not work only for rewards from the program.

Linking technology to the development of reading has some researchers disagreeing on the outcomes. In Shelbyville, TN, at Thomas Intermediate School the students and teachers have noticed a great deal of success between the students’ reading scores and the comprehension after the use of computer software designed to boost the skills for reading (Pittner & Coit, 2000 p. 1). Conversely, a study that was done using the Iowa Test of Basic Skills with third and fourth grade students showed that there was not enough difference in scores between the pre and post test to show that technology had impacted an increase in comprehension (Tillman 1995). This study supports the researchers who disagree with the use of technology to foster students’ comprehension skills.
Ferguson (2001) found that the Emergent Dictation Assessment supported the use of technology for comprehension. Her paper discussed how she conducted a study where students took a test at the beginning of the year and again four months later after using computer images to help with reading comprehension. The results of her study showed a tremendous growth in the student's phonetic awareness. "In September, thirty six percent of the students demonstrated evidence of understanding some of the reading and writing connection" (Ferguson, 2001, p.36). The results of the test four months later showed that the students understood the text by a 50% increase in their scores. Ferguson concluded that these increases within a four-month period were excellent.

Another example of technology facilitating reading is the use of animation cues to instill the meaning of unfamiliar words. Higgins and Hess (1999) provided feedback from a test where they took 22 randomly selected children, one set of children was given only cues to solve the word and the other set of children was given cues and vocabulary instruction on the computer. "Those children who received supplemental instruction in conjunction with the animated cues scored significantly higher on a six item vocabulary post-test that children who only received the animated cues" (Higgins & Hess, 1999, p31). A good teaching strategy would be to take the reading lessons or stories and create a program the students can use on the computer. This may help with the comprehension of material for students.

The use of closed-captioning on the television programs can increase the focus of the students on the subject’s material being presented over the television screen. A group of fourth to sixth graders in 1995 watched instructional videos augmented by closed captioning text. The results "showed that the closed-captioned video resulted in significantly better comprehension
than the written text provided to the control group and that, furthermore, slower closed-caption produced better results than faster passed captions" (Fountaine, 2000, p.4). Having the students use closed-captioning will provide them with text to read as they hear the words stated, which accommodates different learning styles.
Conclusion and Recommendations

Boosting reading and math scores are among the list of priorities proposed for the Des Moines Independent School District (Des Moines Public School, 2002). Incorporating the use of technology can have a positive impact on the students and could help motivate them for learning. Selected studies have shown both the negative and positive results from using technology in the classroom. Through the author’s experience in the classroom, if he lets a child use the computer he finds the child is engaged so much more than using many of the traditional methods.

This author recommends a few things teachers or educators should do in the room regarding technology:

1. **Accelerated Reader** is a program that the students should use to get them engaged in reading and to enjoy their books.
2. **Accelerated Reader** provides immediate feedback to let the student know his or her results without the delay typically evident in teacher feedback.
3. Using computers to enhance reading lets the child learn at his or her ability without the embarrassment of their ability
References


