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ABSTRACT

This paper takes a look at some recent studies on utilization of technical tools, primarily personal computers and software, for improving fifth-grade students' reading comprehension. Specifically, the paper asks what benefits an educator can expect students to derive from closed-captioning and computer-assisted reading comprehension products. It reviews the relevant literature on closed-captioning video, on computer assisted instruction, and on computer assisted assessment, and discusses each technological tool in turn. The paper finds that: closed-captioning appears to hold some benefit for students' reading comprehension, particularly when it is paced appropriately to the learners; studies on computer-assisted instruction are yielding mixed to positive comprehension results; and computerized comprehension assessment tools offer flexibility and autonomy to the student and management tools to the teacher. It concludes that it appears that a coincidental aspect of all of these methods is that they are utilizing multiple modalities and allowing for self-directed study. (NKA)

Technical Advances and Fifth Grade Reading Comprehension

Do Students Benefit?

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Introduction

"Can I use the computer?"

This was a familiar refrain I heard from students last school year during which I substitute taught. Not knowing the full purpose and being leery of using the equipment in the absence of the "regular" teacher, I normally declined. But it quickly became evident to me that these students were eager to perform reading comprehension "quizzers" on the PC so they could move on and read their next book. "This is great!" I would think to myself. "These kids are eager to read!"

Reading comprehension is critical to success in academia and in the workplace. And it is one of the core subjects now receiving elevated scrutiny … particularly in California with its burgeoning non-native population.

With the availability and affordability of technical tools, particularly computers, proliferating, the question begs, "What benefits can be obtained by utilizing technical advances in the classroom?"

This paper takes a brief look at some recent studies on utilization of technical tools, primarily personal computers and software, for improving fifth grade students' reading comprehension.

Statement of the Problem

Can students' reading comprehension improved by utilizing technological tools? What benefits can an educator expect students to derive from closed-captioning and computer assisted reading comprehension products?

Literature Review

There is a variety of applications of technology to reading comprehension. This review addresses closed-captioning, computer assisted instruction and computer assisted assessment.

Closed-Captioning

One of the more mundane, but apparently useful applications, is closed-captioning. In 1995, 158 fourth, fifth and sixth grade students were assigned to rapid pace closed-captioned video, slow-pace closed caption video or provided written text material (Meyer, 1995). 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-captions produced better results than faster paced captioning. As a caveat, it was noted that the students may have found the closed-captioned treatments to be more novel and, therefore, paid closer attention. Nevertheless, the results were significant, indicating closed-captioned curriculum has potential to elevate comprehension. As an aside, it was even noted that most televisions today contain closed-captioning capability and that parents could help the students by enabling it in the home.

Computer Assisted Instruction

A more prevalent topic of discussion is computer-assisted instruction. Several studies have shown these programs to be beneficial, producing significant improvement in students' reading comprehension.

In one instance, a study found that significantly higher reading comprehension was achieved using computer narratives that provided interactive manipulatives with CD-ROM (Greenlee-Moore, 1994). Interestingly, the benefit was significant only when the students were reading longer and more difficult narratives. But the author states, nonetheless, that the results mean, "Teachers should explore the use of interactive computer technology to facilitate comprehension..." (p. 12).

Other studies have produced similar results.

However, it seems that there is also plenty of evidence showing no significant benefit from computer assisted comprehension instruction. And other studies show mixed results with variations from significant improvements to insignificant differences when looking at multiple grade levels, for instance (Gourgey 1984).

It is interesting to note, however, that studies showing significant benefit from computer assisted training, as well as those showing no significant benefit, frequently mentioned the positive attitudinal effects on students. One study found no statistically significant differences in reading comprehension between computer assisted and non-computer assisted groups but did find that the computer assisted group's positive attitude seemed more definite (Tillman, 1995). The same study then offers the thought that the attitudinal improvement could produce better reading comprehension as an incidental benefit. Another anecdotal comment came from a study finding significant benefit from computer-assisted instruction ... "Typically, children were overheard laughing out loud as they read from the screen or making such comments as 'I've been waiting to read this one.'" (Greenlee-Moore, 1994, p. 13).

Computer Assisted Assessment

Another outgrowth of technology and reading comprehension is the proliferation of programs that pair "real" books with computer-based comprehension assessment. The Accelerated Reader is one such program (www.readingonline.org) and "is a learning information system that enables freestanding computer-assisted assessment of student comprehension of 'real' books." (http://www.readingonline.org/critical/topping/rolarD.html). In other words, students read one of approximately 25000 books in hard-copy form and then take a comprehension quiz on a PC.

In addition to allowing students the autonomy to take comprehension quizzes independent of their teacher, the teacher benefits from management tools embedded into the program. Student progress is tracked and reportable from this system, presumably saving the teacher more time.

Summary

Technology is permeating the classroom. Above, three aspects of technology, closed-captioned video, computer assisted instruction, computer assisted assessment, are discussed. Closed-captioning appears to hold some benefit for students' reading comprehension, particularly when it is paced appropriately to the learners. Studies on computer-assisted instruction are yielding mixed to positive comprehension results. Computerized comprehension assessment tools offer flexibility and autonomy to the student and management tools to the teacher. All appear to produce positive attitudinal results in students.

It would appear that a coincidental aspect of all of these methods is that they are utilizing multiple modalities and allowing for self-directed study ... both proven to enhance student learning.

Implications

"Can I use the computer?"

Any educator should *welcome* that question as it carries with it the desire to progress and learn. It does not matter that some will say there is no direct benefit from computer assisted instruction or assessment. It *does* matter that the student is engaged, willing, and even eager to perform in reading comprehension activities.

Teachers today face a harder road than their predecessors. Societal changes have made it more difficult to effectively *teach*. Student interest is critical to stemming that tide and making

inroads. I, for one, will embrace computer assisted instruction and assessment … not as a replacement for traditional instruction, but as a supplement to it.

Teaching is a very personal vocation and one could take the computerized aspect too far … decreasing the teacher's personal knowledge of the students and, ultimately, the teacher's ability to connect with them. So, in my opinion, while computerized education is a good thing, it should be used thoughtfully … lest the novelty be lost and the students' drive to perform, lessened.

Certainly, more study is needed in an attempt to determine whether computer assisted instruction truly elevates reading comprehension or whether there are merely the coincidental benefits flowing from novelty and the use of multiple modalities.

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