Computer-Assisted Word Recognition Learning

Why Is This Strategy Useful?

Extensive literature suggests that word recognition is an important aspect of reading development, necessary for the fluent, automatic reading of text. Despite the importance of word identification, many young children have weak sight-word vocabularies, leading to poor reading scores on statewide achievement tests and putting them at risk for academic failure. One way to provide direct instruction and repeated practice regarding those skills is via computer. A small body of research indicates positive effects of reading training on a computer. Computer-assisted instruction also saves time and resources for tutors.

Description of Strategy

In computer-assisted word recognition learning, students are exposed to a training word list and reading passages on a computer. The training word list is presented in a textbox on the display screen, and the computer provides the pronunciation of each word via headphones. Students see the printed word and hear it spoken, and then press the space bar to receive the next word. The presentation of stimuli is offset, such that the auditory component follows 1 second after the visual presentation of the word. The visual word stays on the display until the student depresses the space bar. In this approach, a computer allows the student to see and hear a word pronounced concurrently.

Research Evidence

At least one randomized controlled trail supports this strategy. The study was conducted on 66 third-grade students in an urban central New York elementary school. Students were evaluated on a training word list, generalization word list, and reading passages. Students were randomly assigned to one of three groups: (a) computer-assisted, (b) tutor-assisted, or (c) a control group, in which students practiced word lists independently. The groups did not differ in age or in the distributions of males/females, race, classroom, or socioeconomic status. Further, the groups did not differ at pretest in reading fluency or word recognition. Results indicated that students practicing alone did not improve fluency. However, findings showed statistically significant effects of both tutor- and computer-assistance on reading speed and accuracy on the trained list and reading fluency on some passages. Students who received word recognition training via a computer performed as well as students who received individualized tutoring.

Sample Studies Supporting This Strategy


The effects of tutor- or computer-assisted word recognition were assessed in a sample of third-grade children. At pretest, students’ reading accuracy and fluency were evaluated on a training word list, generalization word list, and reading passages. Students were then randomly assigned to one of three group conditions—control (students practiced word lists alone), tutor-assisted, and computer-assisted—and given three training sessions. Results indicated that students practicing alone did not improve fluency, whereas both tutor- and computer-assisted groups significantly improved reading speed and accuracy on the trained list and reading.
fluency on some passages. Students who received word recognition training via a computer performed as well as students who received individualized tutoring. Importantly, the computer-assisted instruction required little teacher time or supervision.

**Sample Activity**

(Source: [http://www.kidsource.com/kidsource/content2/guidelines.computers.html](http://www.kidsource.com/kidsource/content2/guidelines.computers.html))

### Guidelines for Computers and Reading

1. Computer instruction in reading should focus on meaning and stress reading comprehension.
   - Learners should have opportunities to work with whole, meaningful texts. Programs that offer learners a chance to process large chunks of related text, rather than bits and pieces of unrelated language fragments, allow students to use and extend what they know about reading comprehension.
   - Learners should have opportunities to work with word-recognition programs that stress the use of word meanings in conjunction with phonics and structural analysis. Care must be taken to make sure that, when programs feature the study of individual words and phrases, they are offered within a contextual framework that helps them make sense to the learner. Assessment programs for teachers should also be provided in meaningful context.
   - Learners should have the opportunities to apply the skills being taught in some meaningful way. Programs that deny the learner an opportunity to make use of what is being “taught” are merely assessment tools and do little to further the learner’s growth.
   - Learners should have the opportunity to work with computer materials that use content and language that are within the range of their conceptual development. Tasks should be challenging but not frustrating. Student interests, previous experiences, and purpose play a role in determining whether a computer task is comprehensible and worthwhile.

2. Computer instruction in reading should foster active involvement and stimulate thinking.
   - Learners should have opportunities to discuss the purpose of the computer task or program as well as its nature. They should be aware not only of what they are supposed to do but also of why doing it is important.
   - Learners should have opportunities to make decisions that control or influence the computer task. Programs that build in opportunities for students to make choices and test predictions help them learn to think and act on their own rather than merely react to someone else’s thinking.
   - Learners should have opportunities to monitor their own learning. Tasks that offer students opportunities to self-check and correct their own errors support the development of independent learners.

3. Computer instruction in reading should support and extend students’ knowledge of text structures.
   - Learners should have opportunities to encounter a wide variety of text structures upon which to apply and refine their comprehension skill. A variety of narrative and expository structures should be provided. Commercially prepared, teacher-authored, and student-authored materials also should be included. Reading instruction can take place through all kinds of computer-based materials, not merely those designated specifically for that purpose.
• Learners should have opportunities to experiment with text in creative ways to suit their purposes. When students reorganize a story or an informational piece on the computer, they are employing and strengthening what they know about the structure of texts.

4. Computer instruction in reading should make use of content from a wide range of subject areas.

• Learners should have opportunities to use the computer as a means of applying reading strategies to all areas of the curriculum. Programs related to science, social studies, and math require the use of strategies for reading comprehension.

• Unless students are being helped to use what they know about reading comprehension under these circumstances, they are not progressing as competent readers.

• Learners should have opportunities to use the computer in conjunction with other modes of instruction. The computer should not operate as a separate and isolated means of learning. Its use should be integrated with that of books and other learning materials. Students need to think of the computer as one additional means of sharing and retrieving information and practicing skills in interesting and meaningful ways.

5. Computer instruction in reading should link reading and writing.

• Learners should have opportunities to create text with the computer for sharing and use by others.

• When students enter information into the computer for someone else to retrieve and use, they must compose with the reader in mind. This frequently involves making explicit use of what they know about what makes a text comprehensible. Revision and proofreading strategies clearly involve the combined application or reading and writing skills.

**Additional Resources**