

Computer-Assisted Instruction and Reading

What Is Computer-Assisted Instruction?

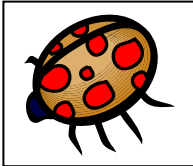
“Computer-assisted instruction” (CAI) refers to instruction or remediation presented on a computer. Many educational computer programs are available online and from computer stores and textbook companies. They enhance teacher instruction in several ways.

Computer programs are interactive and can illustrate a concept through attractive animation, sound, and demonstration. They allow students to progress at their own pace and work individually or problem solve in a group. Computers provide immediate feedback, letting students know whether their answer is correct. If the answer is not correct, the program shows students how to correctly answer the question. Computers offer a different type of activity and a change of pace from teacher-led or group instruction.

Computer-assisted instruction improves instruction for students with disabilities because students receive immediate feedback and do not continue to practice the wrong skills. Computers capture the students’ attention because the programs are interactive and engage the students’ spirit of competitiveness to increase their scores. Also, computer-assisted instruction moves at the students’ pace and usually does not move ahead until they have mastered the skill. Programs provide differentiated lessons to challenge students who are at risk, average, or gifted.*

What Does CAI Look Like for Reading?

Reading computer programs demonstrate concepts, instruct, and remediate student errors and misunderstandings from preschool through college. Some programs help students learn basic sight word and phonics skills; others develop and enhance reading comprehension skills through increased fluency, word prediction, and story prediction. Programs may use reading activities as a community service project (<http://www.readtofeed.org/>) or as competition among students to read books (Accelerated Reader). The U.S. Department of Education has a site that helps parents determine whether their child’s early reading program is a good one:

r		
m	_ug	
b		

Words are spoken aloud by the computer and the program will not allow the student to place the wrong letter in the word. Students hear, see, and take action to learn phonics. <http://www.starfall.com>

* The programs cited in this discussion are based on research; however, it is not the purpose of this report to evaluate the rigor of the research supporting the programs themselves.

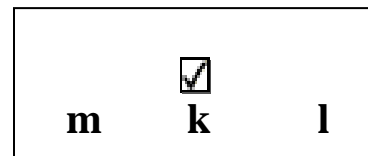
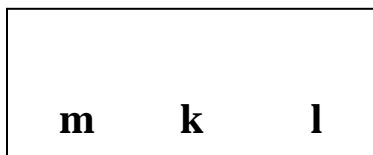
<http://www.ed.gov/parents/read/resources/goodprogram.html>). Computers may be used individually or in groups in a cooperative learning environment where students can discuss concept as they learn them.

Below is an example of a computerized program as the student sees it. The program may be used for instruction or assessment. The student uses the mouse to click the best word of the three presented for each blank to complete the sentence so that it makes sense. If this activity is used for instruction, the program gives positive feedback for correct answers or shows the student which answers are wrong and then gives the correct choice. The program may speak the sentence with the wrong word and ask the student to choose another word of the three, or it may highlight the correct choice and speak the correct sentence. If the program is used for assessment, no remediation is given; the program just scores the sentence.

Example of a Computerized Activity		
First Screen		
Bobby _____ up the flute and began to _____ into it to make _____.		
ran	look	music
picked	jump	picture
tossed	blow	play
Second Screen		
Bobby <u>picked</u> up the flute and began to <u>blow</u> into it to make <u>play</u> .		
ran	look	music
picked	jump	picture
tossed	blow	play
Third Screen		
Bobby <u>picked</u> up the flute and began to <u>blow</u> into it to make <u>play</u> .		
		music
		picture
		play

One program that teaches phonics and reading skills to all ages of students continually monitors a student's speed and accuracy as the student works through each lesson (Autoskills; <http://www.autoskill.com/>). The teacher sets an accuracy goal in the program for the student—the number of sounds or words per minute that the student must master. At the most basic level, the student, using headphones, hears the sound of the letter and then chooses which of three letters presented has that sound. For example, the program

makes the sound of the letter k as this screen appears. The student uses the mouse to choose the correct letter. If the student makes the correct choice, a checkmark appears over the correct letter. If the choice is incorrect, an X appears over the correct letter. In either case, the program then quickly moves to the next letter.



The program gives the student 50 sounds and measures the amount of time the student takes to identify them. The number of sounds the student correctly identifies divided by the number of minutes is the measure of correct sounds per minute. The program graphs the information for the student and then prints a copy of the student's errors for the teacher. When the student reaches the goal the teacher has set, the program moves the student up to the next skill level. When the student has mastered the phonics, he or she will see word games and puzzles, a maze for comprehension, and a library with stories and comprehension questions. Programs such as this one are used for at-risk students and students with disabilities in middle and high school and with adults to improve reading skills.

How Is CAI Implemented?

Teachers should review the computer program or the online activity or game to understand the context of the lessons and determine which ones fit the needs of their students and how they may enhance instruction.

- Can this program supplement the lesson, give basic skills practice, or be used as an educational reward for students?
- Is the material presented so that students will remain interested yet not lose valuable instruction time trying to figure out how to operate the program? Does the program waste time with too much animation?
- Is the program at the correct level for the class or the individual student?

Teachers should also review all Web sites and links immediately before directing students to them. Web addresses and links frequently change and become inactive. Students might become frustrated when links are no longer available.

Reading programs are beneficial to reading instruction because they allow students to learn at their own pace; teach phonics with sound, student interaction, and immediate feedback; and allow students to read animated books. Some programs read stories that students write on the computer. Students may be scheduled for instructional or remedial time with the computer. The computer program may also be a station in a classroom learning center or used as a reward for positive behavior or work completion.

References and Resources

<http://www.autoskill.com/> — A helping hand for literacy, this is the home site for the Autoskills computer program, which is beneficial for students who are at risk or have a reading disability and for ESL students.

<http://www.bcps.org/offices/lis/models/tips/readingpage/motivation.html> — This Baltimore County (Maryland) Board of Education Web site has activities, booklists, author lists, lesson plans, and more.

http://dir.yahoo.com/Business_and_Economy/Business_to_Business/Education/By_Subject/Reading_and_Writing/Teaching_and_Learning_Aids/ — This site presents lists of programs. Some are free and some require purchase of a program.

<http://disney.go.com/disneyhand/learning/readingtogether/> — This site encourages parents and their children to read entertaining stories together. The site offers downloadable reading tips and a colorful idea book and bookmarks.

http://www.education-world.com/a_curr/curr183.shtml — Education World's Online Book Incentive program provides online quizzes to test students' comprehension of books they have read. Students choose library books from an online list, read them, and then take the quiz. The material is appropriate for K–8 students.

<http://www.house.gov/fattah/education/funandrec.htm> – Pennsylvania's Congressman Fattah's Web site offers literacy information.

<http://www.kcw.org/reprek6.htm> — This site has links for parents and educators of students in grades pre-K to 6.

<http://www.netn.net/14113.htm> — This site has many interesting science, early education, activity, and organization links for elementary school teachers and for parents of elementary school children. Some of the sites are free and some charge a fee for their materials.

<http://www.starfall.com> — This site offers phonics instruction and books that the computer reads aloud with the student.

