

Subject Area: Mathematics

Grade Level(s): K-12

Title of Instructional Method, Strategy, or Approach: Computer-Assisted Instruction

Description of each Instructional Method, Strategy, or Approach: Computer-assisted

instruction refers to presenting information through the use of a computer. Computer programs used for instruction can be found online, at computer stores, or through textbook companies. Studies have shown that thoughtfully designed computer programs can improve problem solving and critical thinking skills. The computer programs used in this instruction are interactive and show concepts through animation, sound, and fun games.

Computer-assisted instructions allow students to find a method of learning mathematics through their own method and they can progress at their own pace. As the students solve problems, they instantly know whether or not their answer is correct. If the student responds with an incorrect answer, the student is immediately notified on how to correctly solve the problem. Rather than just providing the answer, many of the computer games show how to work through the problem to obtain the correct answer. Many of the computer games even give praise for correct answers such as “*Way to Go*” or “*Good Job*”. The computer programs can also keep track of the student’s pace and keep track of the student’s errors.

Many of the computer assisted instruction instruments for mathematics are games. The games are designed to help the students learn math in a fun and entertaining way. This type of instruction gives a visual demonstration and better explanation of how to understand mathematics.

Not only do these programs help students learn math strategies, they also help parents and teachers learn to navigate through the programs themselves and incorporate them into lessons. Some programs include just written instructions for parents and teachers while some include detailed power point presentations to assist in learning about the programs.

References in APA format:

1. Tuttle, H.G. (2007, March). Making math work: educators can turn to technology to help their students grasp difficult math concepts. *Technology and Learning*, 27, Retrieved August 26, 2007, from <http://www.techlearning.com/publications.jhtml>
2. The Access Center. *Computer-assisted instruction and mathematics* Retrieved August 23, 2007, from http://www.k8accesscenter.org/training_resources/computeraided_math.asp
3. (1998). *Math rock [computer software]*. (1998). The Learning Company.

“How-To” Information—What will make this work in the classroom? What would a teacher need to know to implement this Instructional Method, Strategy, or

Approach? “When students use different technologies in the classroom, they will become engaged in meaningful learning that helps them move from abstract ideas to hands-on applications. Students can ‘see’ math concepts and manipulate those concepts quickly through technology” (Tuttle, 2007). Grade level and individual needs will determine what type of computer-assisted instruction is needed. The teacher will need to evaluate what needs to be taught to the students when deciding what computer program to use. Reviewing the computer activity or online game will allow the teacher to know if it is something that can be helpful with the students in the classroom.

Frequently reviewing all Web sites used in the classroom will eliminate links that are no longer available or inappropriate. Web addresses change and links do not always

work; it is important to make sure the sites/games are working before letting the students on their own to complete the game or activity. This will keep the activity on the proposed time schedule for the class period.

Using computer-assisted instruction in the classroom can be done in many different ways. The first possibility would be to work as a class using a projector device. After finding an appropriate website or computer program and reviewing it thoroughly, the teacher would instruct the class on how to use it. As a class the students would work through the problems or activity together. The teacher would want to provide many examples to help ensure understanding of the program. This would allow the students to see a physical example of the program.

Another approach to using computer-assisted instruction would be to allow the students to work at the computers in small groups. In order to use this approach, the students must have been previously introduced to the program or activity. All students would have to participate at the computer. The teacher could set a timer in order for students to rotate turns. To ensure the program or activity has been completed, the students should provide printouts of their work completed. If printouts are not available, the teacher should check on each group's progress. It is important for the teacher to be readily available in case problems occur.

A third possible approach for computer-assisted instruction would be to allow students to work on the program or activity individually. If resources are available, a computer lab would be an ideal environment for this instruction. This approach allows the student to work independently without the help of others. Working independently will allow the student to gain knowledge about mathematics and confidence to solve

problems. To ensure the program or activity has been completed, the student should provide a printout of his/her work completed. If a printout is not available, the teacher should check on each individual's progress. It is important for the teacher to be readily available in case problems occur.

In order for computer-assisted instruction to be successful in the classroom, many components are needed. Time is a valuable component to allow the teacher to be knowledgeable of the program or activity. It is also important for the teacher to take the time to implement and teach the program or activity to the students. Cooperation among teachers and students will also encourage success with this teaching strategy. Teachers have to be understanding of the students pace and progress. With all these components, computer-assisted instruction can be a success in your classroom.

Implications for Practice/Other Considerations: The classroom environment determines how your class will work (groups or individually). Teachers will have to evaluate the instruction and modify it to fit their classroom. Teachers need to make sure that the program or activity aligns with the current curriculum being taught. This instruction can be modified to fit any classroom and can still be very successful. Also, this type of practice can be used as a reward in the classroom; many students enjoy working/playing on the computer. Furthermore, computer-assisted instruction should never take the place of actual instruction; it is to be used to supplement lesson plans.

Additional Links (for further information): <http://www.figurethis.org/index.html>
www.coolmath4kids.com/

EIU Candidate Names: Jacqueline Farrel, Adam Hunhoff, Katie Yeager, Janelle Hanke, Lori Funneman-Mette, and Nicholas Lopez