Using Technology to Teach Academic Skills

What is the evidence base?

A strong level of evidence based on a high quality meta-analysis of 38 studies including 22 between group designs, 16 single subject designs.

With whom was it implemented?

- A total of 1,491 participants were included
- Students with
  - Learning disabilities
  - Traumatic brain injuries
  - Down syndrome
  - Intellectual disability
- Ages ranged from 12 – 22 years old
- Male (21 studies included samples that were predominately male); Female (3 studies had samples that were predominately female)
  - 14 studies did not report gender
- Ethnicity
  - None reported

What is the practice?

Technology can be defined in many ways:

- Computer-based instruction (CBI) is when computers or associated technology are used to improve students’ skills, knowledge, or academic performance (Okolo et al., 1993)
- Computer-assisted instruction (CAI) includes software designed to provide instruction and practice for meeting specific learning objectives or goals with drill-and-practice or tutorial instruction (Kulik & Kulik, 1987; Posgrow, 1990)
- Computer-enriched instruction (CEI) is the utilization of computer technology to augment instruction and includes usage of the computer as a calculating tool, a programming tool, and to conduct simulations (Kulik & Kulik, 1987)
- Computer-managed instruction (CMI), also referred to as integrated learning system (ILS), is used to describe the application of computer technology and extensive software programs designed to present sequential instruction to students over extended periods of time while maintaining records of student progress (Kulik, 2003, May)
How has the practice been implemented?

- The largest percentage of studies were teaching reading (n=14), mathematics (n=7), writing (n=5), health topics (n=2), and other topics such as active student engagement and emotional recognition (n=11)

Where has it been implemented?

- Special education classrooms (high school, n=23; middle school, n=5)
- Special schools (private or residential, n=4)
- Unspecified settings (n=7)

Where is the best place to find out how to do this practice?

Due to the program and software specificity of the included articles, no research to practice lesson plan starters could be developed for this practice.

How does this practice relate to Common Core Standards?

- Presentation of Knowledge and Ideas (Anchor Standards for Speaking and Listening, Grade 9 - 12)
  - Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations
- Production and Distribution of Writing (Anchor Standards for Writing, Grade 9 - 12)
  - Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others
- Research to Build Present Knowledge (Anchor Standards for Writing, Grade 9 - 12)
  - Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation
  - Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism

How does this practice relate to the State’s Career Cluster Initiative: Essential Knowledge and Skills?

- Complete required training, education, and certification to prepare for employment in a particular career field (Academic Foundations)
  - Identify training, education and certification requirements for occupational choice.
- Demonstrate language arts knowledge and skills required to pursue the full range of post-secondary education and career opportunities (Academic Foundations)
References used to establish this evidence base:


Additional References:


