

Technology-Supported Writing Instruction

Using technology to support instruction in writing is undeniably important in the digital age. It is also a key evidence-based method for supporting struggling writers. But which technologies support which components of writing instruction? This fact sheet provides an overview of the various types of writing tools.

About Technology-Supported Writing

Using technology to support instruction in writing is undeniably important in the digital age. It is also a key evidence-based method for supporting struggling writers (Graham & Perin, 2006). But which technologies support which components of writing instruction? This fact sheet summarizes the larger work, *Supporting Struggling Writers Using Technology: Evidence-Based Instruction and Decision-Making*, by Peterson-Karlan and Parette (2007), and it provides an overview of the various types of writing tools.

Technological support can advance all phases of writing—planning, transcribing, and revising. For learners who struggle with any or all of these aspects, technology can enable and liberate thoughts from mechanics and free up the expression of ideas. In fact, research shows that technology-supported writing not only enables skills but also teaches them at the same time, so that users grow their understanding of mechanics, spelling, organizing, and so on when they write with technology tools.

Technology also creates new forms of writing. Technology provides new sources for and means of obtaining information (e.g., the Internet, search engines, blogs, and texting) and enables sharing, editing, and collaboration among writers, teachers, and peers. New electronic genres and multimedia forms involve a

combination of media, including print, hyperlinks, still images, video, and sound.

Writing In the Adult Education Classroom

Adult educators teach all kinds of writing. In any one class, an instructor may provide help with letters to elected officials, spelling instruction, vocabulary development, journal writing, and publishing adult student voices on a blog. Learners, meanwhile, are trying to orchestrate the many aspects of writing for various purposes. Analyzing which writing component to focus on at what time requires skill, reflection, and practice—from instructors and learners alike.

Whether learners have access to computers in the classroom, in a lab, or only outside of the program, technology can help provide scaffolds and supports throughout the writing process. Even if learners are preparing for a paper-and-pencil essay test such as the current GED Language Arts Test, writing with technology will surely figure into their academic and vocational futures. Helping them become familiar with, and productive in using, the technologies that best suit their needs is an important service. At minimum, programs should insist that *all* learners be familiar with keyboarding. Keypads and keyboard interfaces are ubiquitous in American culture, from ATM's to cell phones to grocery store registers, and all workers encounter them in the workplace. There is a variety of online, free keyboarding tutorials that offer practice that can be found through a simple Internet search.

Consider the types of technology supports outlined below for various writing instruction tasks and learning needs. Remember, technology is not a substitute for a comprehensive writing curriculum; these tools should be integrated as scaffolds and supports. And, as with all technologies, learners need direct instruction and guided practice in the use of the tools so that they facilitate productivity rather than cause frustration.

The Research

Peterson-Karlan and Parette (2007) conducted a literature review of the research supporting writing development for struggling K-12 students. Their findings echo Graham and Perin in *Writing Next* (2007) and in *What We Know, What We Still Need to Know* (2007), who find that technology to support struggling writers is a critical, evidence-based instructional strategy.

Peterson-Karlan and Parette go further, looking at the research base of particular types of technology tools developed to support particular writing components. They refer the reader to www.TechMatrix.org, an on-line database of research and technology products reviewed for their design and accessibility features. Search the keywords below for reviewed products, research, and resources related to these tools.

Strategies for Technology Use

Planning and Organization. Research emphasizes that struggling students of all ages do not plan and organize their writing successfully. Prompt learners to consider appropriate vocabulary, related ideas and topics, genre-specific text-structures, possible outlines, and arguments. Provide opportunities to practice reflecting on and organizing these thoughts in advance of starting the assignment. To support planning, try the following:

- **Electronic mapping, outlining, and draft templates**, especially those that are genre-specific and that contain embedded content prompts and procedure cues, help structure a pre-writing brainstorm, and capture thoughts for later reflection. Many adult learners have not learned with visual advance organizers and need specific instruction in how to use them. After students are familiar with the strategy, the tools themselves are easy for even computer novices to manipulate.
- **Portable and Internet-based reference tools**, such as electronic dictionaries, spell checkers, reading pens, and translators can help students find, learn, and use the appropriate content vocabulary in their writing. Use online, free reference tools in the program, and encourage students to purchase these inexpensive study tools.

Transcribing. The many sub-skills within transcription have been described as a “juggling act” (Berninger, 1999) in which the writer must juggle (a) planning what to say and how to say it, (b) selecting words and sentence and discourse structures, (c) producing text, and (d) monitoring what has been written with what is about to be written while revising. Handwriting and spelling skill limitations interfere with the ability of beginning, developing, and struggling writers to translate oral language in memory (text generation) into written language on paper (text production). Learners with disabilities or those who struggle with any one of these sub-skills often experience frustration and demotivation toward the writing process. Several technology tools can support learners in acquiring these skills.

- **Word processors** allow for manipulation and rearrangement of digital text; with built-in spelling and grammar checkers, the use of word processors for writing in the workplace is increasingly expected.
- **Word prediction and cueing** use the logic of linguistics to predict the most reasonable next words to a typed beginning. The words can then be selected from a list, thus minimizing spelling effort and keystrokes. (Most cell phones have a version of this in the texting function.) These programs work simultaneously with word processors, often functioning instead of the built-in spell checker. Consider using word prediction with text-to-speech output for students with persistent spelling difficulties or with physical impairments that limit typing.
- **Speech recognition** systems turn the spoken word into digital text. The process of correcting and cleaning up that transcription has been likened to the language experience approach (Silver-Pacuilla, 2007). Consider trying speech recognition with learners who are unable to type successfully, whose spelling is debilitating to the writing process, or whose thoughts run faster than their ability to write.

Editing and revising. The final major phase of the writing process involves several more skills. Editing, or proofreading, involves detecting and correcting errors

of spelling, punctuation, capitalization, and grammar to improve written accuracy. Revising is improving the organization of ideas, the clarity of the composition, and the supporting details, and considering the audience. Two types of technologies address the challenges presented by the editing and revising process:

- **Spell checker** use should be taught strategically so that users understand the reasons for possible errors and learn strategies to choose a correct word out of the provided list; use those programs with text-to-speech output and phonemic prediction to improve word list offerings.
- **Text-to-speech** enables learners to have their compositions read back to them. As in the language experience approach, they can then pay attention to the sound of the language to catch wording, phrasing, punctuation, and grammatical errors.

References

Berninger, V. W. (1999). Coordinating transcription and text generation in working memory during com-

posing: Automatic and constructive processes. *Learning Disability Quarterly*, 22(2), 99-112.

Graham, S., & Perin, D. (2006). *Writing next: Effective strategies to improve writing of adolescents in middle and high schools*. Available at <http://www.all4ed.org/publications/WritingNext/index.html>.

Graham, S., & Perin, D. (2007). *What we know, what we still need to know: Teaching adolescents to write*. *Scientific Studies of Reading*, 11(4), 313-335.

Peterson-Karlan, G., & Parette, H. P. (2007). *Supporting struggling writers using technology: Evidence-based instruction and decision-making*. Available at http://www.techmatrix.org/resources/tech_support_writing.pdf.

Silver-Pacuilla, H. (2007). Assistive technology and adult literacy: Access and benefits. *Annual Review of Adult Learning and Literacy*, Vol. 7, pp. 93-136. Cambridge, MA: National Center for the Study of Adult Learning and Literacy.

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