

Chapter 41

Technology Toolbox for the K–12 Literacy Teacher

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ABSTRACT

This chapter reviews assistive technology solutions to literacy teaching challenges in the classroom, current trends with literacy and technology, available open source, commercial, and mobile literacy technology tools, and how to select the proper tools in the classroom to create a valuable toolbox of literacy-based technology tools to advance literacy goals in K-12 schools. Because these technologies are always evolving, we provide decision rules for selecting new tools to teach literacy.

INTRODUCTION

Today's literacy teacher has a wealth of technology-based tools available to help students. Unfortunately, most teachers are unaware of these resources or are overwhelmed by the sheer number of tools available. Technological solutions to teaching reading and writing need not be prohibitively expensive, and the field is not really changing too quickly to monitor. This chapter will guide teachers in the creation of a "Technology Toolbox for Literacy" by providing examples of free open source tools, commercial tools, and mobile applications that allow for a practical

application of technology in literacy education. Because these technologies are ever changing, the tools listed in this chapter show more of a snapshot of tools available today; however, the rules we are using to determine whether or not they are useful withstand the test of time. This chapter will also discuss how to best decide which tools to use at an individual and classroom level.

TECHNOLOGY IN THE SERVICE OF K-12 LITERACY INSTRUCTION

Technology can allow teachers to target literacy strategies that can be used with students of all ages, particularly related to the literacy goals outlined

DOI: 10.4018/978-1-4666-4502-8.ch041

in the Common Core State Standards (CCSS) for English Language Arts. In fact, the CCSS specifically address the use of such strategies in literacy instruction in their statement on promoting high expectations for all students. Technology can provide additional supports and services for all students including those with disabilities, through Universal Design for Learning (UDL) and “assistive technology devices and services to ensure access to the general education curriculum and the Common Core State Standards,” (CCSS, 2011a).

In terms of teaching reading, one of the most important technological advancements in the last decade has been the emergence of digital text. When text is available in a digital format, it can be provided to all students in whatever format best meets their needs including Braille, large print, audio and most importantly, text that can be read aloud and easily manipulated to embed reading scaffolds. The use of digital text introduces a host of possibilities for strengthening literacy instruction and supporting struggling readers in the challenging task of reading for understanding in multiple genres, and for diverse purposes (Strangman & Dalton, 2005). Many of these possibilities have come from the development of several text reading tools that read text aloud while highlighting words as they are read, allowing students to follow along and take in words in both an auditory and visual manner.

These technologies have the potential to support struggling readers in both a compensatory fashion, providing access to text (Edyburn, 2002a, 2002b, 2003), and a remedial fashion, helping students learn how to read with understanding (Rose & Dalton, 2002; Rose & Meyer, 2002). Jonathan Stroud’s *Bartimaeus Trilogy* (Stroud, 2003) is an example of the benefits of digital text as the author has made use of the interactive digital features of the kindle or other e-reader to tell a story. In this book, the main character, Bartimaeus, makes clever asides to the reader that are set as end notes, which can be accessed by touching the superscript number next to the words

on the screen. The development of these reading tools and proliferation of digital text has happened quickly. When discussing the use of e-readers in the classroom with elementary teachers, Zipke found that most of the teachers were in awe of the access to books provided by an e-reader and the number of titles available digitally (Zipke, 2012). Digital text can help teachers with vocabulary instruction, teaching students to analyze text, and ensuring all instructional materials are accessible.

Vocabulary Instruction

The CCSS standards for teaching vocabulary “focus on understanding words and phrases, their relationships, and their nuances and on acquiring new vocabulary, particularly general academic and domain-specific words and phrases” (Common Core State Standards Initiative, 2011b, p. 8), for example using electronic books (eBooks i.e. kindle, nook, iPad [tablets]) to learn vocabulary.

Several text reading tools such as Read and Write Gold, Kurzweil 3000, NOOK Study, Blio, and several others have dictionary capabilities where students can select a word and have it defined, with many having the ability to read the definition aloud. Using text to speech with digital text offers greater potential to learning vocabulary, so far as it provides students with auditor cues to aid semantic retrieval that is unavailable when working with printed text alone (Strangman & Dalton, 2005). This option helps students better understand what they are reading while also improving their vocabulary.

Analyzing Text

One of the most exciting possibilities for teaching with digital text is the ability for teachers to place messages to the reader as they read. The CCSS standards require students to be able to “determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas” (Common Core State

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