Chapter 12
Communication Technology Integration in the Content Areas for Students with High-Incidence Disabilities:
A Case Study of One School System

Anna S. Evmenova
George Mason University, USA

Michael M. Behrmann
George Mason University, USA

ABSTRACT

A myriad of assistive/instructional technologies are available for students with high-incidence disabilities (Learning Disabilities/Emotional/Behavioral Disorders), but which do teachers actually use to teach content? This case study examines the current assistive technology implementation by teachers working with students with learning disabilities and emotional/behavioral disorders. Through the chapter, one can learn about top technologies used in elementary, middle, and high school settings in language arts, math, science, and social studies, as well as discover creative and innovative ways to use assistive and instructional devices/programs in content coursework.

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INTRODUCTION

The fascinating world of communication technologies grows rapidly. Each day new devices and programs are developed to help students with disabilities overcome many of their challenges. Assistive (AT) and instructional (IT) technology tools contribute to the academic improvements for students with high-incidence disabilities, specifically learning disabilities (LD) and emotional/behavioral disorders (E/BD). The effects of technology for students with learning disabilities and emotional/behavioral disorders were examined in all content areas including reading (e.g., Hall, Hughes, & Filbert, 2000; Wise, Ring, & Olson, 2000), writing (e.g., Higgins & Raskind, 2004, Lewis, Ashton, Haapa, Kieley, & Fielden, 1999, MacArthur, 1998; Williams, 2002), math (e.g., Bley & Thornton, 2001; Bryant, Bryant, & Hammill, 2000; Irish, 2002; Kelly, 2003) as well as science and social studies (e.g., Ferretti, MacArthur, & Okolo, 2001; French, McBee, Harmon, & Swoboda, 2003; Quintana, Reiser, Davis, Krajcil, Fretz, Duncam, et al., 2004). While a majority of these studies demonstrates the positive impact of assistive and instructional technology on improved performance by students with high-incidence disabilities, the research on the actual status of technology use to support students with learning disabilities and emotional/behavioral disorders seems to be limited and inconclusive (Edyburn, 2006; Dalton & Roush, 2010).

BACKGROUND

The emphasis of the major educational legislation has been on providing full access and active participation of students with disabilities in the general education curriculum. Both the No Child Left `Behind Act (NCLB, 2001) and the Individuals with Disabilities Education Improvement Act (IDEIA, 2004) mandate that all students should receive content-based instruction and make progress in academics (Browder, Flowers, Ahlgrim-Delzell, Karvonen, Spooner, & Algozzine, 2004; Dymond & Orelove, 2001). These regulations are even more substantive due to the increasing numbers of students with high-incidence disabilities being served in general education settings (Edyburn, 2006). Technology has a great potential to provide the supports needed to accomplish tasks in all content areas (Forgraves, 2002; Quenneville, 2001).

In the last two decades numerous studies have demonstrated the impact of different devices and software programs that were found to be effective to foster academic success and independence of students with learning difficulties (Bryant, Bryant, & Raskind, 1998; Gardner, Wissick, Schwender, & Canter, 2003; Lenker, Scherer, Fuhrer, Jutai, & DeRuyter, 2005). Technology is able to compensate for many deficit areas associated with learning disabilities and emotional/behavioral disorders diagnoses. Thus, some students may reread or skip lines in oral reading, constantly losing their place on the page. Such a low-technology tool as an index card or a highlighting bar will aid poor readers through reading line by line. Students having difficulties decoding words, substituting or omitting letters, words, and phrases spend too much time figuring out each word, losing much of the content. To spare the effort and boost comprehension, text-to-speech technology works by translating text into speech, thus providing auditory input of information (Lewis, 1998).

Assistive Technology for Writing

Text-to-speech programs with and without on-screen highlighting of the spoken words has enabled students with reading difficulties to demonstrate better results in word recognition, reading comprehension, and retention (Allinder, Dunse, Brunken, & Obermiller-Krolikowski, 2001; Hecker, Bums, Elkind, Elkind, & Katz, 2002; Lewandowski & Montali, 1996; Wise, Ring, & Olson, 2000). Being able to hear the text relieves the burden of decoding allowing