

Chapter 3

Assistive Technology as Instructional Supports for Response to Intervention

Mary G. Curtis

The University of Texas at Brownsville, USA

ABSTRACT

This chapter examines current technology that may be used to enhance the learning process. Although technology changes rapidly on a near-daily basis, the hardware and software discussed here are currently available and being used to assist teachers in their presentations and to assist students in their learning. Assistive technology provides a unique manner in which to give students instructional supports in the classroom. From introducing new concepts to providing interactive repetition to alternative modes of assessment, technology has changed the modern-day classroom. Middle school and high school teachers clearly focus on their specific content area, but they may have trouble assisting students who exhibit learning problems. The technology in this chapter has been chosen specifically to satisfy that purpose.

INTRODUCTION

For most educators, the term *assistive technology* (AT) conjures images of daily living supports, such as wheelchairs, Braille writers, and large-screen computer monitors. However, the majority of students in special education do not need these types of supports. Rather, students experiencing information-processing problems from learning disabilities, Autism, Asperger's, Down Syndrome, and numerous other conditions need instruction-based supports. Identifying suitable instructional supports is much more difficult and time consuming than finding the appropriate size or style of wheelchair or computer monitor.

Additionally, teachers often say that they use technology to teach, but this seldom means anything more than presenting a lesson via a projector or utilizing computer programs as rewards. Choosing to teach a lesson on a whiteboard instead of an overhead projector is not an example of implementing assistive technology, nor is it an instructional support. Instructional supports change a lesson's presentation through videos or animation or change the student's interaction through tactile engagement. Also, instructional supports format student assessments in different ways to help meet the different learning styles of students.

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This chapter will review AT tools as instructional supports and as a viable means to implement Response to Intervention (RTI). The National Association of State Directors of Special Education (as cited in Batsche et al., 2005) defined RTI as “the practice of providing high quality instruction and intervention matched to student need, monitoring progress frequently to make decisions about changes in instruction, and applying student response data to instructional decisions” (p. 3).

The programs and products discussed in this chapter are intended to help broaden teachers’ repertoires of strategies and interventions. This discussion is not an endorsement for these programs over others not listed. The information provided is based on both personal experience and publishers’ descriptions. This chapter is intended to guide teachers in the direction of available technology in order to help them make informed decisions and create engaging lessons that meet the diverse needs found in all classrooms.

Though most states require elementary school teachers to take one or two courses on including students with special needs in general classrooms along with their child development courses, middle and high school teachers seeking certification usually receive training only in their content area and basic pedagogy. Thus, predictably, many teachers in the upper grade levels struggle with RTI when making decisions about alternative instruction. Furthermore, as teachers struggle with middle school and high school behaviors typical of American teenagers, identifying older students at risk for school failure and students with special needs not yet identified becomes even more challenging.

Using technology, teachers can provide a variety of alternative interventions that target specific skill areas, such as reading, writing, and organizational skills. The No Child Left Behind (NCLB, 2002) Act, the Elementary and Secondary Education Act (ESEA, 1965), and the Individuals with Disabilities Education Act (IDEA, 2004) address instructional supports and specialized instruction in inclusive general education classrooms. Using technology to enhance instructional design can improve students’ learning (Mayer, 2009). Boyle et al. (2003) saw improved learning in high school content areas when students with mild learning disabilities used audio textbooks over traditional textbooks. In this study, Boyle et al. compared the effects of audio textbooks alone vs. audio textbooks plus a note-taking strategy vs. traditional textbooks alone. Both audio textbook groups had significant gains in comprehension over the students using just the traditional textbook. Although the note-taking strategy was not a factor in the learning, the audio textbooks were invaluable. When reading acquisition is not the goal, audio textbooks offer an effective strategy for teaching content courses.

Basham and Gardner (2010) recommended an ecological approach to RTI using AT to overcome barriers and to open up participation to all students. An ecological approach examines the students’ needs in different environments and in relation to the instructional supports and AT in use. Using performance-based data, teachers can problem solve for specific solutions to student needs. AT has been utilized effectively for opening up the physical environment. For example, wheelchairs and walkers allow students with disabilities to move freely in school environments. However, AT has been underutilized with students with mild disabilities (Edyburn, 2006). For instance, students with mild language delays are often left on their own. In elementary school, they start out nearly at the level of their peers, but by middle school, students with mild unidentified disabilities fall behind their peers in vocabulary acquisition and reading comprehension skills. It is not until these students are actually failing that a teacher may suggest a referral, an assessment, or an intervention, let alone an intervention based in AT. An ecological approach opens up instruction in all levels of RTI—Tier 1 (whole-class instruction), Tier 2 (small group instruction), and Tier 3 (intense individual instruction)—through data collection of learning patterns and analysis of assessment results. To accomplish this, teachers need to make a paradigm shift in their thinking, expanding AT from the physical environment to instructional design.

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