Chapter 9
A Guide to Assistive Technology for Teachers in Special Education

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ABSTRACT

Everyone has the right to learn and to succeed in education. For people with certain disabilities, learning can be a challenging task, and proper use of certain assistive technologies can significantly ease the challenge, and help the learners to succeed. For teachers in special education, knowing existing assistive technology is an important step towards the proper use of those technologies and success in special education. This chapter provides a guide for teachers about assistive technology and its uses in special education. Assistive technology for people with learning difficulties, assistive technology for the visually impaired, and assistive technology for people with hearing difficulties will be discussed. Since online learning and the Internet are becoming trends in distance education, this chapter will focus on assistive technologies for Web-based distance learning, including assistive technologies for better human-computer interaction. Selecting more appropriate assistive technology for a given learner with a certain learning disability, among many choices, will be discussed.

INTRODUCTION

Education is important for everyone including those with certain disabilities. In practice, learners with certain disabilities face more challenges and difficulties than others. To succeed in education, those learners must overcome the challenges and difficulties they are facing.

In addition to their own great courage and help from families, friends, and the society at large, effective and efficient use of assistive technology and devices is very important for learners with special needs to overcome those challenges

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and difficulties, and to succeed in education. In some cases, appropriate assistive technology can make hard learning tasks become easier; while in other cases, assistive technology can even make the impossible become a reality.

There are many different types of disabilities, and some of them have no or little effect on learning. The assistive technology referred to in this chapter is for disabilities that have significant effects on learning. Those disabilities are mostly perception, cognition, and presentation or expression related, as learning essentially involves tasks of perception, cognition, and presentation.

Perception Related Disabilities

Perception related disabilities include vision disabilities and hearing disabilities. These two types of disabilities have obvious effects on learning. For example, people with vision impairment will have difficulties reading, or cannot read at all, while learners with hearing impairment will not be able to listen to lectures in classroom, or will have great difficulties listening.

Cognition Related Disabilities

Cognition related disabilities include disabilities that affect memory and comprehension. Such disabilities may be caused physically or psychologically. For example, damage to part of the brain may result in difficulties for someone to memorize things. Regardless the cause, the effect is the same: with such disabilities, it is hard for someone to remember, to comprehend things, and to plan (LoPresti, Bodine & Lewis, 2008).

Presentation Related Disabilities

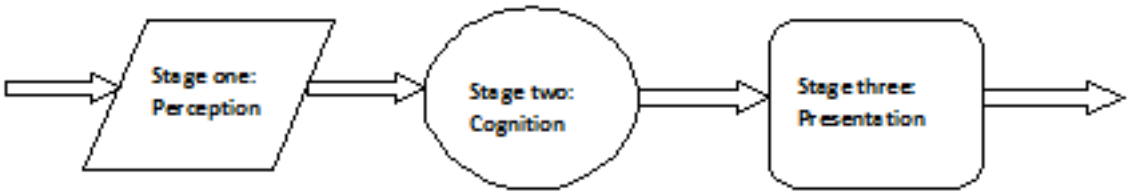
Presentation related disabilities include disabilities that affect one's ability to speak, to write and/or to use keyboard and mouse to interact with computers. In the process of learning, it is important for learners to express or present their ideas, thoughts, questions and answers to their teachers or peers for collaboration, help, exchange of knowledge, and assessment. In any given learning environment, learners with certain presentation related disabilities must be given some way to express. Traditionally, for learners who can't speak, hand language is often used, but that only gives those learners the ability to express to others who can understand the same hand language, not to the general public. Fortunately, the advancement of assistive technology has made it possible for those learners to speak to the general public, as we shall see later in the chapter.

If we depict learning as a three-stage process shown in Figure 1, then problems at any stage will hinder the entire learning process. That is why we have put learning-related disabilities into three categories as discussed above.

For teachers in special education it is important to know about different types of disabilities and available assistive technology for each type of disabilities.

In the rest of the chapter, we will provide some details about assistive technology, including systems and devices, currently available on the

Figure 1. Learning as a three-stage process



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