Chapter 12

Assistive Technology to Help Students With Disabilities

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ABSTRACT

This chapter reviews some of the low-tech as well as the high-tech devices available for a wide variety of students with special learning needs. A history of assistive technology devices is explored and defined. Assistive technology has increased in use in recent decades due to accessibility of computers and the digital age. Digital devices such as hand held scanners, online learning environments, and digital resources have changed the educational experiences for students with special needs and disabilities. In response, teacher in-service programs and ongoing professional development programs need to be involved to understand and develop appropriate 21st-century learning opportunities and curricula. Future trends, such as virtual reality (VR) environments, allow opportunities for safe, effective learning. To assist in understanding and choosing the appropriate devices, multiple resources, such as global and national organizations, and online resources are provided.

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INTRODUCTION

The field of Assistive Technology (AT) over the past three decades has been growing by leaps and bounds from slides, filmstrips, and overhead projectors to current 21st-century technologies, such as 3D simulations and virtual reality (VR). Both low-tech to high-tech devices are used consistently to assist students with a wide variety of learning challenges. This chapter focuses on some of the recent developments in teaching aids/technology devices in the remediation and assistance of students with disabilities.

Low to high tech devices will be explored to provide insight into creating learning environments for students with disabilities. Future directions in this realm will investigate the rapid change of technology and the implications for students with disabilities. Areas, such as artificial intelligence (AI), virtual reality, (VR) and simulated environments will be described. Also, the continual need for quality professional development in training for the general education classroom teacher as well as for the special education is addressed. For example, specialists and classrooms teachers will need to collaborate and consult with each other to maximize the use of assistive technology devices to assist in the student’s growth, development, and in promoting a productive learning environment.

Chapter Outline

1. What is Assistive Technology?
2. The History of Assistive Technology Devices
3. Why Use Assistive Technology Devices?
4. The Digital Generations and 21st Century Learning
5. Teacher Education and Professional Development
6. Trends and Resources
7. Assistive Technology Content Areas Mathematics and Reading
8. Expressive Language and Writing
9. Future Directions

What is Assistive Technology?

Assistive technology is an umbrella term, and the International Classification of Functioning, Disability, and Health (ICF) defines assistive products and technology as any product, instrument, equipment or technology adapted or specially designed for improving the functioning of a person with a disability (Ellis, 2016). The definition of Assistive Technology can vary slightly around the world. According to the United States U.S. Department of Education, IDEA 1998, revised in 2004, the description of an assistive technology device is “any item, piece of equipment, or product
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