

# Chapter 24

## Supporting Early Childhood Outcomes through Assistive Technology

**Diane Plunkett**

*University of Kansas, USA*

**Rashida Banerjee**

*University of Northern Colorado, USA*

**Eva Horn**

*University of Kansas, USA*

### **ABSTRACT**

*Assistive technology (AT) makes it possible for young children with disabilities to learn, play, and build relationships. By improving their mobility, communication, and access to their environment, AT allows children with disabilities more freedom and independence. The purpose of this chapter is to guide early childhood professionals with examples and recommendations for the integration of AT in natural environments to meet early childhood outcomes for children up to the age of five. This chapter is organized in three sections. Section 1 briefly discusses the legal background in early childhood services as it applies to AT. Section 2 describes the framework for meeting young children's needs for AT within the context of early childhood outcomes. Section 3 presents the application of AT in meeting recommended family outcomes. The Additional Readings section to this chapter offers relevant articles and research reports in the area of early childhood and AT.*

### **INTRODUCTION**

Assistive technology is a universal avenue for assisting all children to engage with their environment and meet developmental milestones. However, this requires early childhood professionals to reflect

on their practices, approaches, and perspectives to support all children to achieve their outcomes, and for the families to support their children's development and learning. Historically, guides to the utilization of AT have addressed specific developmental domains. For example, if a child had a delay in the area of social-communication performance the solutions focused on that particular

DOI: 10.4018/978-1-61520-817-3.ch024

domain. Similarly, if a child experienced a delay in mobility, then a mobility device was provided as the answer. Once early childhood professionals embrace assistive technology (AT), allowing a child with disabilities to meet comprehensive developmental outcomes, as opposed to isolated areas of development domains, the field can move towards recognizing the beneficial aspects of AT in meeting early childhood outcomes. Assistive technology allows children full participation with family, friends, and community. Upon completion of this chapter readers should be able to:

- Summarize key legislation impacting AT for young children with disabilities and their families.
- Describe federally mandated early childhood outcomes as they relate to AT.
- Identify evidence-based and promising AT solutions for children with disabilities and their families to meet early childhood outcomes.
- Identify evidence-based and promising AT solutions for families of children with disabilities to meet family outcomes.

## **BACKGROUND**

### **“Maria”**

Maria, the youngest in a family of three children, is an 8 month-old girl with Down syndrome. Maria has difficulty feeding, and she has to have frequent hospital visits for a related heart condition. Maria’s parents live on a remote rural ranch and travel up to three hours to the nearest clinic for their daughter’s special health needs. With the help of the clinic, Maria’s family has been in contact with an early interventionist and an occupational therapist who visits weekly to assist Maria and her family with Maria’s disability.

In an ideal world, children and families have resources to meet challenges inherent to all per-

sons, such as information, resources, and support. If all things were equal, every child would have the opportunity to reach developmental milestones ensuring their success and leading to a productive and fulfilling adulthood. For children such as Maria, developmental challenges are significant. However, a provision for early intervention services under the federal laws ensures that she and her family receive the assistance needed to help her in reaching developmental milestones. These services begin at birth and may well extend into a child’s school years. According to the Individuals with Disabilities Education Act (IDEA), all children who are eligible to receive special education or early intervention services are also eligible to receive AT at no cost to the family, if it is included as part of their Individualized Family Service Plan (IFSP) (34CFR§ 303.344[d]) or Individualized Education Plan (IEP) (34CFR§ 300.105). The following section explains the federal mandates that may guide the provision of AT for children with disabilities, such as Maria.

## **Federal Mandates Governing AT**

In 1988, federal initiatives developed definitions for devices and services outlining support for persons with disabilities in the form of AT (Tech Act, 1988). What emerged from the original initiatives is now embodied in the Individuals with Disabilities Education Improvement Act of 2004 (IDEA, 2004).

IDEA is the federal education program that assists states in developing and implementing systems of comprehensive services for all eligible individuals with disabilities, birth through 21 years of age. Part C of IDEA supports young children with disabilities from birth to 3 years of age, and Part B of IDEA supports children 3 through 5 years of age. Part C and Part B stipulate that these children receive these services in inclusive and natural settings (NECTAC, 2009). IDEA also requires AT be considered and provided for a child if it is determined the child needs such

18 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/supporting-early-childhood-outcomes-through/42848](http://www.igi-global.com/chapter/supporting-early-childhood-outcomes-through/42848)

## Related Content

---

### Multi-sensing Monitoring and Knowledge-driven Analysis for Dementia Assessment

Thanos G. Stavropoulos, Georgios Meditskos, Efstratios Kontopoulos and Ioannis Kompatsiaris (2015). *International Journal of E-Health and Medical Communications* (pp. 77-92).

[www.irma-international.org/article/multi-sensing-monitoring-and-knowledge-driven-analysis-for-dementia-assessment/134012](http://www.irma-international.org/article/multi-sensing-monitoring-and-knowledge-driven-analysis-for-dementia-assessment/134012)

### Enhancing Autonomy in Persons with Intellectual Impairments by Means of ICT Tools

Yolanda de la Fuente, Eva Sotomayor, Dolores Escarabajal, Samuel Romero and María del Carmen González (2013). *Handbook of Research on ICTs for Human-Centered Healthcare and Social Care Services* (pp. 763-783).

[www.irma-international.org/chapter/enhancing-autonomy-persons-intellectual-impairments/77173](http://www.irma-international.org/chapter/enhancing-autonomy-persons-intellectual-impairments/77173)

### Analysis of Machine Learning Algorithms in Health Care to Predict Heart Disease

P Priyanga and N C. Naveen (2018). *International Journal of Healthcare Information Systems and Informatics* (pp. 82-97).

[www.irma-international.org/article/analysis-of-machine-learning-algorithms-in-health-care-to-predict-heart-disease/210580](http://www.irma-international.org/article/analysis-of-machine-learning-algorithms-in-health-care-to-predict-heart-disease/210580)

### Comparative Study of Oncology Information Systems for Better Patient and Provider Outcomes

Muhammad Nadeem Shuakat and Nilmini Wickramasinghe (2020). *Handbook of Research on Optimizing Healthcare Management Techniques* (pp. 228-237).

[www.irma-international.org/chapter/comparative-study-of-oncology-information-systems-for-better-patient-and-provider-outcomes/244708](http://www.irma-international.org/chapter/comparative-study-of-oncology-information-systems-for-better-patient-and-provider-outcomes/244708)

### UK Primary Healthcare Groups: Stakeholders, Technology and Benefits

Ray Hackney and Neil McBride (2000). *Managing Healthcare Information Systems with Web-Enabled Technologies* (pp. 14-29).

[www.irma-international.org/chapter/primary-healthcare-groups/25820](http://www.irma-international.org/chapter/primary-healthcare-groups/25820)