Chapter 11
Infants, Toddlers, and Technology in Early Childhood Settings:
Putting the Pieces Together

Ross Glen Chandler Nunamaker
University of Cincinnati, USA

William Arthur Mosier
Istanbul Gelişim University, Turkey

ABSTRACT

This chapter addresses how early childhood professionals can implement technology in early childhood settings with infants and toddlers. Early childhood educators face complex expectations to ensure children learn and develop optimally. Technology use with infants and toddlers in early childhood settings introduces additional intricacies and nuances. This chapter explores and assesses technology usage with infants and toddlers. The impact of violent media on infants and toddlers is explored. The use of applications in early childhood settings is discussed, including consideration of the COVID-19 pandemic and its impact on technology usage, along with research-based solutions and recommendations to using technology with infants and toddlers. Implications for early childhood teacher education and professional development are also summarized. Finally, future trends related to technology usage with infants and toddlers are discussed.

INTRODUCTION

Many young children find themselves as part of a "digital world" where technology is ubiquitous (Marsh et al., 2017; McClure et al., 2018). Technology is incredibly pervasive and internet access is increasing significantly, worldwide. By the end of 2019, about half of the world's population was using the internet, and in developed countries, 87% of people use the internet (International Telecommunication

DOI: 10.4018/978-1-7998-6888-0.ch011

Union, 2020). Early childhood education programs, as well as young children and their families, are extremely likely to use a variety of technologies for a variety of purposes (Pila et al., 2019; Rideout & Robb, 2020). Early childhood professionals must ensure that any technology use with infants and toddlers is developmentally appropriate. This is especially important to address since very few screen-based technologies are developmentally appropriate or developmentally supportive (Atlı et al., 2019; NAEYC & Fred Rogers Center, 2012; Rideout & Robb, 2020; Small et al., 2020; Wooldridge & Shapka, 2012). While everyone should be cognizant of their technology and media usage, special attention needs to be paid by early childhood professionals to technology and media usage with infants and toddlers due to the potentially significant negative impact it can have on their development (AAP Council on Communications and Media, 2016; Duch, Fisher, Ensari, & Harrington, 2013; Li et al., 2020; Pempek & Lauricella, 2017; Radesky & Christakis, 2016; Small et al., 2020).

This chapter is divided into ten sections. The first section provides an overview of recent research on the use of technology with infants and toddlers. The second section discusses specific types of technology used with infants and toddlers, including e-reading, videos, video chatting, and electronic toys. The third section discusses parental and familial influences on infant and toddler behavior related to technology use. The fourth section discusses challenges, issues, and dilemmas in technology use with infants and toddlers, key information about technology usage with very young children from two major organizations, and the use of technology in early childhood settings. The fifth section offers specific research-based recommendations for early childhood professionals to consider concerning the use of technology with infants and toddlers. The sixth section discusses implications of technology use with infants and toddlers for early childhood teacher education preparation programs, including the importance of providing in-service training for early childhood professionals about developmentally appropriate use of screen-based technologies. Finally, the seventh section addresses future trends in the use of technology with infants and toddlers of which early childhood professional need to be aware.

The literature review conducted for this chapter included locating all reviews of research on the topic of screen-based technology use with very young children (e.g., infants and toddlers from birth through age three as defined in the key terms and definition section) which included using the ERIC and PsycINFO databases under the heading identifier "technology use with infants and toddlers" and with keywords "teaching" or "education" or "technology." The literature review was limited to research articles, studies, and reports published since 2003 in peer-reviewed journals that addressed the implications of technology use with very young children in terms of theoretical findings, ongoing research, and practice for both early childhood educators working with infants and toddlers as well as studies that addressed these issues for parents of infants and toddlers.

TECHNOLOGY AND VERY YOUNG CHILDREN: WHAT DO WE KNOW?

Technology is not wholly "good" or "bad," regardless of the age of the person interacting with the technology. Research has indicated that technology can have both benefits and drawbacks for the general population. For example, using e-readers or touchscreen devices for reading e-books to young children can be very positive for the development of early literacy. Yet, an infant or a toddler watching television programming can actually be detrimental for cognitive development (AAP Council on Communications and Media, 2016). Technology use has the potential to support neural circuitry, cognition, and positive mental health among other brain health benefits, depending on the type of technology used. For