Chapter 9
Technology Shaping Education in Rural Communities

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ABSTRACT
This chapter examines how technology has shaped the teaching and learning process for individuals residing in rural areas. Research on the history and unique needs of rural communities and the impact of technology in these areas is discussed. Educational experiences of students across all grade levels, from early childhood through post-secondary education, is examined. Examples of innovative and creative uses educational technologies in distance and face-to-face settings are described from the perspective of rural teachers and students.

INTRODUCTION
For decades, rural education advocates have argued that rural students represent a forgotten minority marginalized by poverty and geographic isolation (Azano & Stewart, 2015). According to the 2010 U.S. Census 59,492,276 people, or 19.3 percent of the U.S. population, lived in rural areas (U.S. Census Bureau, 2015). The purpose of this chapter is to examine how technology has shaped the teaching and learning process for individuals residing in rural areas. This chapter presents research and practical examples of technology in rural education across all grade levels, from early childhood through post-secondary education.

The chapter begins by presenting the state of technology use in early childhood rural educational settings. The chapter continues by exploring current technology trends in rural K-12 classrooms. Lastly, the authors examine the history and current application of distance education in rural settings including

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TECHNOLOGY IN RURAL EARLY CHILDHOOD EDUCATIONAL SETTINGS

Meet Maria a Rural Preschooler

Four-year-old Maria hears a car driving up the dirt road to her home in a rural agricultural community. She peeks through the curtain on the window and sees that it is Miss Sarah in the car. She enthusiastically asks her mother if she can open the door before Miss Sarah has a chance to knock. Maria opens the door and asks Miss Sarah, who is just getting out of her car, “What are we going to do on the iPad today?”

“We are going to read a story about a garden and then do so fun activities to learn about different types of plants,” Miss Sarah replies.

A few moments later, Maria sits down at the kitchen table with Miss Sarah and touches the iPad in exactly the right places to start the story. She is able to touch words that appear on the screen to hear them read aloud to her as she chooses. She touches a picture of a tomato and then an icon that looks like a tiny speaker that plays recorded information about the tomato plant. “A tomato is really a fruit not a vegetable?” she asks Miss Sarah. After exploring all of pages of the story Maria asks her mother to come and read it with her again, but this time in Spanish, which is accomplished simply by touching another icon on the screen. Her mother has never owned a computer and is not quite sure how to use one, but smiles proudly when she sits down at the table to use the iPad with Maria, who help her to navigate the device effortlessly.

Today’s young children are part of a generation of digital natives (Prensky, 2001). They were born and are growing up in a world filled with digital technologies, and are hence native to the digital world (Black, 2010; Prensky, 2001). They are exposed to digital technology by the adults in their lives at school, home, or even on the go. However, statistics indicate that young children residing in rural communities have less access to technology than their urban and suburban peers (Perrin & Duggan, 2015; Smith, 2013). This section of the chapter explores how technology has shaped the types of learning opportunities available to young children from rural communities. Literature on technology use and early learners is reviewed, statistics on the prevalence of technology in young children’s lives are presented, and examples of innovative literacy programs for rural preschoolers like 4-year-old Maria are described.

The Impact of Technology on Young Children’s’ Development

Early education has increasingly focused on language development and emergent literacy skills to prepare children to become strong readers by the third grade. Now professionals are beginning to assess what role exists for digital tools and apps (Guernsey & Levine, 2014, p. 104).

The question as to whether technology helps or hinders early learners has been debated for more than a decade. For example, Healy (1999) examined both sides of this argument in the book Failure to Connect: How Computers Affect our Children’s Minds—for Better and Worse. Conversely, Armstrong and Casement (2000) pointed out the problems associated with young children and technology use in the book The Child and the Machine: How Computers Put Our Children’s Education at Risk. A recent study