

Chapter 15

Preparing Pre-Service Teachers to Meet the Unique Academic Needs of 21st Century Learners

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ABSTRACT

This chapter provides an overview of current demographic and technology trends found in educational contexts. Particularly, this chapter highlights the obstacles that teacher preparation programs may face in regards to the changing student demographics and ever evolving technological components found in classrooms settings. This chapter provides examples of technological resources that can be utilized in teacher preparation programs to enhance pre-service teachers' content knowledge and afford them opportunities to discuss topics focused on cultural diversity. Specifically, this chapter will provide strategies on how educators in K-12 settings and institutions of higher education can integrate technology-enhanced tools such as Web 2.0 applications, social learning platforms, gaming, and virtual fieldtrips into their curriculum to improve students' learning gains. Suggestions at the end of the chapter call for pre-service and in-service teachers to collaborate through cross-training in order to effectively provide students meaningful academic experiences.

INTRODUCTION

Teacher education programs often have a difficult job in determining how best to prepare pre-service teachers (PSTs) to meet the unique academic needs of their future K-12 students (K12-students). Obstacles that university and college teacher preparation programs may face in training future educators include changing student demographics and new technology components found in current classroom settings. The National Digest of Educational Statistics (Snyder & Dillow, 2015) identified overall student enrollment changes between 2006 and 2011 as increased Hispanic (16%) and Asian/Pacific Islander enrollments

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(8%) but decreased enrollments of White (8%) and Black (7%) K12-students. These demographic changes create demands that many novice teachers feel underprepared to address competently.

Likewise, the rapid growth of technology trends and changes will most likely surpass the implementation of educational technologies. Novice teachers face a challenge of incorporating various forms of technology effectively (Teclehaimanot, Mentzer, & Hickman, 2011). Unfortunately, prior research focused on the adoption of technology has found that educators do not typically implement technology for instructional purposes (Hayes, 2007; Kurt, 2011). Yet, all teacher preparation programs in the United States provide some form of instruction based on technology integration (Gronseth, Brush, Ottenbreit-Leftwich, Strycker, Abaci, Easterling, Roman, Shin, & van Leusen, 2010).

In Gronseth et al.'s 2010 study, they discovered that the overall majority of teacher preparation programs contain a standalone educational technology course. When participants in this study were asked to describe desired changes to their educational technology curriculum, they indicated a preference for more systematic technology integration processes through the inclusion of field experiences and methods coursework. Gronseth et al. (2010) also discussed the need for technology integration curriculum to integrate "activities and content (that) reflect the knowledge and skills used in the field" (p. 34). Particularly, given that "gaining an understanding of the content of instruction from other teacher preparation programs may provide teacher educators with insights for use in the redesign and development of technology experiences in their own institutions" (p. 34). In a study conducted by Teclehaimanot, Mentzer, and Hickman (2011) they found that teacher preparation programs were preparing PSTs to be competent in technology use, but not with integrating technology. They concluded that participants lacked confidence in technology integration and lacked knowledge of associated benefits which enhance students' learning gains. These studies help to demonstrate that PSTs need to receive hands-on activities that allow them to practice technology implementation during their content courses.

Meyen (2015) proclaimed that "inventors of technology have always been ahead of those who adopt and/or generalize innovative applications to instruction" (p. 69). Already behind the curve with technology in general, educators in 21st century classrooms are tasked with the challenge of gaining students' attention among the continuous influx of readily accessible devices such as smart phones and tablets (Dicheva, Dichey, Angelova, & Agre, 2014). Additionally, current technologies shape how educators and students communicate and share information, and children are growing up in a world that is "increasingly multimodal due to ever new technologies" (Jansen & van der Merwe, 2015, p. 190). Jansen and van der Merwe (2015) indicated that this has natural implications for skill development of PSTs and questioned if current teacher-certification curriculum encompasses these skills. For example, research has discovered that seven out of ten parents who own tablets allow their children to play with them; likewise, 90% of children possess a moderate ability level to use a tablet by the age of two (Wanshel, 2015). Given these new realities, what should the response be when seeking to educate PSTs for the 21st century classroom? The objectives of this chapter are to answer this question and to provide suggestions on how teacher preparation programs can appropriately utilize technology-enhanced tools and strategies to meet the current generation of K12-students' unique learning needs and preferences.

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