

Chapter 39

Technology Tools, Proficiency, and Integration of Physical Education Teacher Educators

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ABSTRACT

Accredited Physical Education Teacher Education (PETE) programs within the U.S. are bound by the implementation of national standards, which include a standard on the use of technology to meet lesson objectives. It is the responsibility of PETE faculty and program management to include technology within the program and insure that physical education pre-service teachers are well prepared to integrate technology into their teaching. This chapter investigates the perceptions of PETE faculty towards their technology proficiency, their use of technology in their courses, and the approaches PETE programs use to integrate technology and address the preparedness of pre-service teachers. Results show that PETE faculty use technologies such as computer technologies, pedometers, heart rate monitors and digital cameras most often, yet in general, perceive their proficiency and integration levels to be low. Their technology proficiency levels significantly predicted their level of integration. The chapter also includes recommendations for technology integration in PETE.

INTRODUCTION

Since 2009, the Census Bureau reports that 74.8% of Americans use computers and the Internet at home versus 41.5% in 2000 (U.S. Census Bureau, 2013). As of Fall 2003, all public schools in the United States have Internet access (National Center for Education Statistics, 2007) and reported in 2010, 97% of students have classrooms infused with technology (Gray, Thomas & Lewis, 2010). With this use of technology in the daily lives of students, concern exists for how well teachers are prepared to teach with technology (Chelsey & Jordan, 2012; Koehler, Mishra, & Cain, 2013). Physical Education (PE) teachers do not escape this concern. A study investigating the technology preparation of physical education pre-service teachers in 2006 revealed that pre-service teachers do not feel prepared to be technology

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proficient in order to teach in this digital age (Liang, Walls, Hicks, & Clayton, 2006). Currently, innovations such as computerized gadgets and digital apparatus in PE are noticed all around the globe. For example, pedometers count the steps students take each day and motivate them to adopt a more physically active lifestyle (Lubans, Morgan, & Tudor-Locke, 2009). Digital video is used to help teachers observe, assess, and provide specific feedback to children on how to move in space in order to support motor skill development (Fiorentino, 2004; Lim, Pellett, & Pellett, 2009). By including such technologies, PE teachers are bound to enhance their programs with alternative lifelong physical activities and innovative fitness programs (Mears, Hansen, Fine, Lawler, Mason, & Richardson, 2009).

In spite of the potential to transform the field of education, evidence exists that PE teachers are less likely to use technology than their subject-matter counterparts (Vahey & Crawford, 2002). To encourage the integration of technology, the Council for the Accreditation of Educator Preparation (CAEP, formerly known as NCATE, National Council for Accreditation of Teacher Education) together with the International Society for Technology in Education (ISTE) created national standards on how to infuse classrooms with technology (ISTE, 2008). In Physical Education Teacher Education (PETE), technology integration was first adopted in the 2001 national standards for beginning teachers (National Association for Sport and Physical Education (NASPE), 2001). Later, in 2008, new national PETE standards included a more integrated approach to teaching pre-service teachers about technology and stated that “teacher candidates should demonstrate knowledge of current technologies by planning and implementing learning experiences that require students to use technology appropriately to meet lesson objectives” (NASPE, 2008, p. 15).

Based on the inclusion of the 2008 standards for future PE teachers, PETE faculty have the task of creating instruction that effectively integrates technology (NASPE, 2008). However, it is questionable whether or not current faculty members of PETE programs are adequately prepared to take on such a task. While there are various practical papers on the benefits of using technology in PE, little empirical research exists to understand the current scope of the perceptions of PETE faculty on the integration of technology (Woods, Karp, Miao, & Perlman, 2008). Physical education journals such as *Strategies* and the *Journal of Physical Education, Recreation & Dance* have published articles related to the implementation of technology (e.g. Gibbone & Mercier, 2014; Juniu, 2011; Leight & Bechtel, 2013; Pittman & Mohnsen, 2005; Roth, 2014), as well as provided ideas related to the use of an assortment of innovative technologies (e.g. Hicks & Higgins, 2010; Nye, 2010). *Strategies*, a journal for physical and sport educators, offered a 6-part technology series that reviewed the benefits of technology to enhance instruction within PE and PETE (Mears, 2009) and continues to publish articles focused on technology in PE and PETE.

The purpose of this study was to analyze the status of technology integration within PETE programs as perceived by the faculty of such programs. The primary research question was: “What are the perceptions and experiences of PE educators on the inclusion of technology in PETE?” The following sub-questions guided the research:

1. What types of technologies are currently included in PETE programs?
2. What do current PETE faculty believe to be their technological proficiency levels?
3. How are PETE faculty integrating technology in PETE courses?
4. How does technology proficiency affect the level of technology integration?
5. How do PETE programs approach technology integration according to the perceptions of the PETE faculty members?

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