Chapter 27
Infusing Technology into a Physical Education Teacher Education Program

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ABSTRACT

Technology is changing the way Physical Education is taught. From heart rate monitors and pedometers to podcasting, exergaming, and desktop applications, tomorrow's teachers need to know how to infuse technology into their teaching. The use of technology in Physical Education can increase both student learning and teacher productivity. Courses in a comprehensive PETE (Physical Education Teacher Education) program can be divided into the following categories: Fitness related courses, Activity courses, Assessment courses, and Methods courses (including field experiences and student teaching). A strong PETE program will infuse technology into the course work in all four categories, in addition to a stand-alone technology course that introduces the various forms of technology that will be used in their future Physical Education classroom. This chapter will describe how to prepare future physical educators to utilize the myriad of technological options available in the field.

INTRODUCTION

The fusion of technology and physical education can seem to be counterproductive, however, implementing technology in physical education can be an asset and beneficial to the goals of physical education (Bennett, 2006). There is an increasing demand for technology savvy physical education teachers, individuals who are equipped with skills to not only instruct using technology, but equipped to use data to change the design of physical education curriculum to meet the demands of lifestyle illnesses that begin in childhood (Edginton & Kirkpatrick, 2007). Leading

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the future teachers of physical education into the 21st Century requires new, dynamic and innovative approaches by Physical Education Teacher Education (PETE) programs; these approaches should utilize technology as a way of motivating and inspiring students as well as promoting self directed learning experiences. University programs need to provide experiences and skills that will prepare future teachers to create learning environments that use a holistic approach to educating youth at home and in the community (Edginton & Kirkpatrick, 2007). Using technology resources in a physical education environment can be exciting and stimulating for teachers and their students (Nye, 2008). This chapter includes methods and examples of embedding technology within a PETE program and methods for developing technology savvy physical education teachers for the future.

BACKGROUND

The world of education has changed dramatically in the last few decades. Research over the past twenty years in the field of education has indicated that computer technology can impact teaching and learning in a positive manner at all levels of education (Brayley, 1999; Hokanson & Hopper, 2000; LeMaster, Williams, & Knop, 1998; Reeves and Reeves, 1997; Wilkinson, Hiller & Harrison, 1998). When teachers become more competent with the technology, then teacher effectiveness is increased, and this results in greater student learning (Zemelman, Daniels, & Hyde, 1998). In a study conducted by Woods, Karp, Hui and Perlman, teachers reported that technology can enhance student learning because it facilitates individual development, aids the visual learner, and is useful for assessment purposes. This same study found that teachers indicated a high level of perceived competency with many forms of technology, but there were differences based on years of experience, teaching level and gender (2008). In 1994 only 20% of public schools teachers felt competent to integrate technology into their teaching. Nine years later that number soared to 99%, as indicated by the National Center for Education Statistics (NCES) (USDOE and NCES, 2005). This confidence covered areas such as using a computer, email and the Internet. This self-assurance dipped when asked about technologies such as presentation software (35%) and video cameras (18%) (USDOE & NCES, 2005). Additionally, physical education teachers reported low competency levels for website creation, heart rate monitors, body composition analyzers and PDA's (Woods et al, 2008). "Before educators can successfully integrate technology into the learning environment, they must first be proficient it its use" (USDOE & NCES, 2005, p. 1). It was determined that teachers who had fewer years of experience were more inclined to use technology than their more experienced colleagues (Dorman, 2001; Lam, 2000). This is not surprising since younger teachers have been exposed to technology throughout their lifetime and are not afraid to learn and implement this knowledge into their classrooms.

Early Technology in Physical Education

Many physical educators can remember a time when technology was non-existence. A gymnasium, athletic equipment and a whistle were the only teaching tools these educators had to do their job. Technology is definitely changing the way physical education is taught. The first use of technology in the field of physical education was in the 1970's and 1980's when college professors used computers to analyze fitness scores. The students would be tested, the data would be inputted into a computer, and then a report would be printed (Mohnsen, 2004). Physical educators are still collecting fitness scores, but the equipment has become much more sophisticated, the criteria for the data is different, and the results can