

Technology Integration in Physical Education Teacher's Education Program: A Comparative Analysis

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Abstract—The purpose of this research was to examine and compare the attitudes and perceptions of program preparation to use and integrate technology during teaching practices between pre-service physical education students from Davanagere University davanagere STJCPE and BCPE College(N = 50). Collected by means of a questionnaire. Of the 50 participants Analysis of t-tests indicated a significant difference between the two institutions in the opinion of the students about their readiness to integrate Information and Communication Technology (ICT) in education technological knowledge acquired during classes, and the student's opinion of professors modeling the use of educational technologies. According to the results, STJCPE students have clearer knowledge on the use of specific technologies such as heart rate monitors, pedometers, and systems assessment of fitness and physical skills. Furthermore, the differences between universities did not depend on gender or race. The findings also indicated that technology integration in these programs was still in the developmental stages.

Index Terms— ITC'S, Teacher Education, Technology Integration and Physical Education.

I. INTRODUCTION

Questions such as how educational technology impacts teaching and learning, which is the best tool or technology to prompt engagement and collaboration between the students, and how to promote higher-order thinking skills have concerned the educational realm, particularly when discussing the efficacy of pre-service teacher education programs to prepare future educators to infuse the use of technologies in their practice (Kirschner & Sellinger, 2003; Pearson, 2003). According to Smerdon et al. (2000), the sense of preparedness is strongly related to the amount of professional development teachers receive. Research shows that in-service training and the use of the Internet for instructional purposes are related to teachers' confidence and feelings of being prepared to integrate technology in the classroom (Lockyer & Patterson, 2007; Settlage et al., 2004). In addition, teachers' ability to use a full range of digital learning tools contributes to students' engagement and achievement in the learning process (Shonfeld, Resta, & Yaniv, 2011). Thus, the students are likely to show positive attitudes towards technology after experiencing the use of them (LaMaster, 1998; Lim, 2005).

Preparing educators to use different technologies or tools is not the only element to support teachers to integrate Information and Communication Technologies (ICT) in the classroom. Several factors should be

considered when deciding which tools to use. An important point is that the learning experience that students are expected to have should determine what tools to include in the design of the lesson. One of the major problems is that educators tend to use technology just because it is available without considering the design principles that will work to support and meet the learning expectations. The use of tools without a clear purpose could become distracting and could impede learning. Technology should be used to facilitate cognitive processing and engage students in critical, higher order thinking about the content, to support interactive, collaborative, and student-centered classrooms (Jonassen et al., 1998).

II. TECHNOLOGY FOR PHYSICAL EDUCATION TEACHERS

The literature suggests that effective technology integration with specific subject matter requires teachers to apply their knowledge of curriculum content, general pedagogies, and technologies. Because physical education is usually taught in a gymnasium or outdoors, it is important for teacher education programs to prepare teachers to infuse technology in a way that will support the pedagogical strategies used in those settings. Teachers need to learn and practice teaching skills in a context as similar as possible to the one they will teach in later. Physical education teachers are expected to know how computers and other technological devices can contribute to data collection for the analysis of sport skills, assessment of student learning, and evaluation of health-related physical fitness. This includes using exercise equipment to assess physical activity (e.g., accelerometers, heart rate monitors, pedometers, interactive dance machines), body composition (e.g., bioelectrical impedance devices, electronic skin-fold calipers), and movement and motor-skill performance. There are also a number of software packages used to record and analyze physical fitness, physical activity levels, and nutrition habits, such as TriFit, FITNESSGRAM, and Activity gram. PE Manager is another application used in physical education to track student performance via rubrics, tests, and assignments on a mobile device.

These expectations are reflected in educational standards such as the National Educational Technology Standards (NETS), established by the International Society for Technology in Education (ISTE), and in the physical education teacher education (PETE) standards of the National Association for Sport and Physical Education in the United States (NASPE, 2009). Bechtel (2010) explored the use of technology in a Physical Education Teacher Education (PETE) program while addressing the national standard 3, outcome 3.7 for physical education teacher education: "Teacher candidates will: Demonstrate knowledge of current technology by planning and implementing learning experiences that require students to appropriately use technology to meet lesson objectives" (NASPE, 2009, p. 6). Bechtel found that technology was not being effectively infused across the PETE program. The results of this prompted changes in the program to address the need to prepare pre-service teachers to use various forms of technology in their teaching practice. Bechtel recommended that technology be taught across the curriculum using progressive learning experiences that incorporate pedometers and heart rate monitors.

Other research on technology integration in physical education teacher preparation programs reported successful results. For example, Lim (2005) examined the effects of integrating computer technology into a physical education course on students' attitudes and competency levels towards the national technology standards and selected instructional software applications. The study revealed that overall students' technology competency improved significantly toward national technology standards and selected instructional software applications after taking the course. Also, after their participation in this course, students' attitudes toward national technology standards and selected instructional software applications changed significantly to a more positive view. Ninety-two percent of students indicated they would like to see more computer technology-integrated courses. The findings also indicated that incorporating technology for teaching and learning across the curriculum could be effective in preparing teacher education students to successfully use technology as teaching tools when they become teachers.

Therefore, the current investigation examined and compared attitudes towards the use of computers and the perceptions of program preparation to use and integrate technology during teaching practices between pre-service physical education students from Davanagere University College of Physical Education. Such results may shed light on the way to incorporate ICT into physical education pre-service programs in an effective way. The following research questions were addressed in this investigation:

1. What was the technology literacy level of physical education students?
2. What were their attitudes about integrating technology into teaching?

3. What were the differences between STJCPE and BCEP students based on college status?
4. What were students' attitudes towards computers, access to computers, students' perception of their preparation to integrate ICT in teaching, technology knowledge acquired during coursework, and perception of professors modeling the use of computers?

III. PARTICIPANTS AND PROCEDURES

The present study was descriptive in nature. The participants in this study were Pre- service Physical Education students from Davanagere University, STJ and BCPE College of Physical Education. During the months of September and October 2016, the investigators sent an email to the students inviting them to participate in the survey. The email included a brief explanation of the study and a link to the survey page.

IV. DATA ANALYSIS

A total of 50 complete responses were analyzed using the Statistical Package . The purpose of the study was to find out effect of Technology integration in physical education teacher education programs, in Davanagere University Davanagere. For this study I select 50 student from STJ and BCPE college of physical education. I collected the data from questionnaires. The analyses of t test was used for find the difference between two colleges students opinion.

TABLE NO I. SHOWS THE DIFFERENCE BETWEEN TWO TRAINING COLLEGE STUDENTS' OPINIONS

Sl.No	Subjects	Mean	SD	T-Value
1	STJCPE	54.35	11.65	35.80
2	BCPE	10.46	7.45	

The table shows difference between two training college students opinion. The STJCPE college students mean 54.35 and sd is 11.65. The BCPE college students mean 10.45 and sd 7.45 the t value is 35.80. Table value is 0.05 .This table shows that STJ College students have more knowledge of technology compare to BCPE college students.

V. DISCUSSION

This study compared the perceptions of technology integration in teacher preparation programs and the perception of computer proficiency pre-service physical education in a group of students from Davanagere University. The results of this investigation provide information about ways to incorporate ICT into physical education pre-service programs in an effective way. Learning about teachers' preparation of uses of instructional technology should support the development of professional workshops for in-service physical education teachers.

In addition, students from STJCPE were more likely to use technology to develop lesson plans and to teach lessons than students from BCPE. These findings are also consistent when comparing students' preparedness to integrate technology in their class. STJCPE students indicated that they feel more prepared to use technology than BCPE students. STJCPE students also tend to be more familiar with the use of content-specific software such as FITNESSGRAM, PE Manager, and heart rate monitors. These results could be explained by the fact that some of these technologies are taught across the STJCPE PETE program.

VI. CONCLUSION

These findings should encourage physical education pre-service programs to seek effective ways for preparing high quality physical teachers to meet the technological challenges in the classroom. In essence, the need resides in redirecting the educational strategies and to adopt new educational models to teach to integrate technology that links the main components that intervene in the educational process. This includes the knowledge on the relations among the most appropriate technology (T) and the most effective teaching (P) to make the educational contents (C) more accessible to the students (Mishra &

Koehler, 2006). The idea is that in order to optimize technology-based models of teaching and learning, teachers should be able to apply the content knowledge in a pedagogically sound way that is adaptable to the characteristics of students and the educational context (e.g., the gymnasium). The key challenge is to prepare educators to effectively and efficiently incorporate technological features into the teaching and learning process. Basically educators need to make connections between the purpose of the educational technology and the learning outcome expected. Other recommendations include reviewing the Physical Education curriculum for each program to address the pedagogical uses of discipline specific technologies and developing a digital environment appropriate to pre-service physical education students.

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