PHYSICAL EDUCATION TEACHER EDUCATOR'S ATTITUDES TOWARD
AND UNDERSTANDING OF ONLINE PHYSICAL EDUCATION

BY

DAVID NEWMAN DAUM

DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Kinesiology
in the Graduate College of the
University of Illinois at Urbana-Champaign, 2012

Urbana, Illinois

Doctoral Committee:

    Associate Professor Amelia Mays Woods, Chair
    Associate Professor Kim C. Graber
    Professor Elizabeth Delacruz
    Professor Weimo Zhu

ABSTRACT

K-12 online physical education (OLPE) is as an educational opportunity in at least 22 states in the US (NASPE, 2006; 2010). Clearly, teachers play important roles in these online educational experiences, so gaining a better understanding of these teachers is critical. The purpose of this study was to examine physical education teacher educators' attitudes toward and understanding of K-12 OLPE. Bandura's Social Cognitive Theory (1986), which is comprised of the interaction between behavior, personal factors, and environmental factors served as the theoretical framework for this study. Data were collected utilizing semi-structured open-ended interviews. Participants (N=25) were current physical education teacher education (PETE) faculty members at universities granting a bachelor's degree in physical education certification. Participants were randomly selected using a stratified sampling technique based on the Carnegie classification of their universities. Data were analyzed using the constant comparative method as well as inductive and deductive analysis. Deductive analysis was viewed through the lens of the Social Cognitive Theory. Results of this study indicate that PETE faculty are aware that online education is available K-12; however, they are generally not cognizant of K-12 OLPE. Participants believed that NASPE (2004) National Physical Education Standards could be met online, except for Standard 1, which relates to motor skill competency. Participants were almost unanimous in their belief that OLPE should not be available to elementary-aged children, but is a viable option at the high school level. This study provided initial insight into PETE faculty members' knowledge about and perceptions of K-12 OLPE, however additional research is warranted.

ACKNOWLEDGMENTS

process due many hours we did not get to spend together, my fiancée Anne. She was understanding and supportive throughout the entire process including those weekends I was unable to see her so I was able to focus on writing. I hope this project exceeds everyone's expectations and is a true testament to all those who helped me along the way, again from the bottom of my heart, THANK YOU!

Table of Contents

CHAPTER 1

Introduction

Distance education has taken many forms over the past decades. It has included courses by mail, video-tape, and television and is currently taking form with online courses. The purpose of these courses was often to reach the underserved populations in the US, those individuals who were, for various reasons, unable to attend regular classes. Distance learning opportunities also provided different ways for states, districts, and schools to meet educational goals.

This chapter will (a) discuss the prevalence of online education, (b) describe the arguments for and against online education, (c) describe the purpose of physical education, (d) introduce online physical education, (e) discuss online physical education and teacher education programs, (f) introduce the purpose of the proposed research and the research questions, and (g) address the significance of the proposed research.

Prevalence of Online Education

Online education is rapidly growing in the US. Since 2004 the Evergreen Education Group has conducted an annual survey of K-12 online programs in the US, *Keeping Pace with K-12 Online Learning*. While earlier reports did not include the projected number of students enrolled in online programs, Picciano and Seaman (2007) estimated that during the 2004-2005 school year approximately 700,000 K-12 students were enrolled in online education courses. More recent estimations put K-12 online enrollment at 1.5 million students (Wicks, 2010). Among those 1.5 million students taking courses, about 450,000 K-12 students were enrolled in state-led online programs (Watson, Murin, Vashaw, Gemin, & Rapp, 2010), and approximately 200,000 students

are attending online school full time (Watson et al., 2010). It is increasingly difficult to quantify the number of K-12 students taking online courses due to the rapid growth of online education and the multiplicity of options available (magnet schools, state led schools, franchise schools, college course offerings, etc.).

There are a wide variety of choices for K-12 online learning in addition to those offered by state educational boards. Currently there are a total of 39 state-led online programs that are publically funded. State online programs such as the ones in North Carolina and Florida account for 64% of K-12 enrollment and 96% of the growth in K-12 online education. Other online education options include franchises such as Connections Academy, K-12, and Insight Schools, which are funded by fees much like private schools. There are district, magnet, contract, charter, private, home, and state level online programs. Due to the plethora of options of online schools, and few reporting requirements, the number of students actually enrolled in K-12 online education courses in the US is unknown (Watson et al., 2010). Another population to be considered in online education, for example, are high school students taking online college courses. Presently these students have not been figured into any online education estimates.

Reasons for and against Online Education

Distance education including online education is chosen for many different reasons including: time, geography, financial considerations, family, work schedules, time flexibility, place, and space (Davison, 2005; Mills, 2003; Schwartzman, 2007). Other reasons students take online courses are to: earn college credit, take courses not offered in local schools, get extra help, and complete high school requirements (Watson, Gemin, Ryan, & Wicks, 2009). Another advantage of online education is to serve

2

students who might truly benefit from an online venue. Because face-to-face classroom teachers, administrators, and school staff see their students daily it falls on the school leaders to identify those students who would benefit from online education (Ring, 2006). Perhaps one of the strongest arguments for online education is that online courses expand the choice of classes for students and potentially serve all student populations (Pape, 2006; Ronsisvalle & Watkins, 2005).

Concerns from critics of online education include the lack of opportunities for socialization and personal interaction with other students, and that classes become a dumping ground for troublesome students including those students who are unsuccessful in face-to-face classroom environments (Davison, 2005). Another concern of critics relates to student achievement because little research has been conducted on online education exclusively. A comprehensive review of the literature regarding student achievement between distance learning and regular classroom learning, however, found no significant differences among online, face-to-face, and hybrid groups (Russell, 2001). Russell's (2001) review suggests that the differences in learning among online courses, face-to-face courses, or hybrid courses are negligible. The blended or hybrid models combine the best features of online learning and face-to-face learning. This form of instruction "is likely to emerge as the predominant model of the future – and become far more common than either one alone" (Watson, 2008, p. 3). Those studies, nonetheless, do not include courses in physical education. Thus, little is known about how these models contribute to learning in OLPE. An additional concern specifically regarding OLPE, is cultural resistance to change, not only from the physical education teacher education (PETE) faculty but from pre-service and in-service physical educators, as well.

Purpose of Physical Education

The purpose of quality physical education is to "develop physically educated individuals who have the knowledge, skills, and confidence to enjoy a lifetime of healthful physical activity" (NASPE, 2004, p. 11). Federal and state governments have identified quality physical education as an important component in the fight against the childhood obesity epidemic. Quality physical education takes many forms, depending on the philosophy of the teacher, school, district, and state. Central factors for all quality physical education programs, however, include adequate opportunities to learn (meet recommended minutes per week, qualified teacher, and adequate equipment), meaningful content (variety of motor skills, fitness education, develop the whole child), and appropriate instructional techniques (inclusion of all students, maximal practice, and no physical activity for punishment) (NASPE, 2003).

Online Physical Education

The National Association for Sport and Physical Education (NASPE) defines technology as a "tool" that is discipline-specific or tailored to achieve learning goals and objectives to be used to increase student learning and performance (NASPE, 2008). Online Physical Education (OLPE) is a subset of online education and, much like online education in general, has seen growth in the last decade. In 2006, the *Shape of the Nation* report (NASPE, 2006) indicated that OLPE was an educational option in 12 states across the US. The 2010 report (NASPE, 2010), however, showed that number had almost doubled and 22 states were allowing physical education credits to be earned online (see Figure 1). Among those 22 states, six claimed to be aligned with state and national physical education Standards, nine offered courses in personal fitness and wellness, four

offered weight training, and three offered a course focused on a specific sport. Only ten states required that the OLPE courses be taught by certified physical education teachers (NASPE, 2010). As a response to a growing concern in the physical education community, NASPE (2007) published initial guidelines for OLPE, the intent of which was to help educators consider the "multitude of implications" in the preparation and teaching of quality OLPE.

Currently, few published studies focus on online physical education, and none of these relate K-12 OLPE. One study evaluated a college weight training course and examined students' strength and knowledge gains relative to the manner in which their course sections were delivered. The students were enrolled in one of three sections: a face-to-face section ("traditional" setting), a hybrid section (online materials and a teacher in the weight room), or an online section (online materials and student discretion when to work out). The researchers found that all groups significantly improved knowledge and only the online section did not significantly improve in strength (McNamara, Swalm, Stearne, & Covassin, 2008).

Daum and Buschner's (2012) investigation into the status of K-12 OLPE in the US found OLPE to be more widespread than suggested by the *Shape of the Nation* (2006, 2010) reports. Another key finding was that most OLPE programs did not meet the NASPE (2004) Standard of 225 minutes per week for student participation in physical education. In addition, several OLPE programs did not have physical activity requirements. Furthermore, these programs had an emphasis on cognitive development and little to no focus on motor skill development. Given that current OLPE courses fail to meet physical education Standards, the authors questioned whether OLPE courses were

5

appropriate substitutes for physical education. Clearly, the time has come to focus on the

delivery of OLPE, instead of debating its appropriateness. As Schwartzman (2007) states,

"the important question may no longer be whether to engage in online instruction, but

how to do it in concordance with principles for effective instruction (p. 114)."

OLPE and Teacher Education

Given the recent explosion of online education, it is essential that physical

education teacher educators (PETEs) grapple with a number of aspects of OLPE. Teacher

education programs are an important venue through which to teach future teachers the

basics of online pedagogy. Although the research in the area is limited, one study showed

that a technology training program that was incorporated into a teacher education

program produced the best results for participants (Davis, Preston, & Sahin, 2009). In

addition, the use of technology in teacher education programs produced a teacher's

increased ability and confidence to use technology in his/her teaching (Turvey, 2010).

Undoubtedly, successful teacher education programs should include the entire faculty to

provide a clear and consistent message (Chen, 2010).

The PETE curriculum is usually framed around NASPE/NCATE (2008) National

Standards and guidelines for physical education teacher education programs or similar

Standards set by other accreditation bodies. NASPE/NCATE's (2008) current six

Standards encompass a variety of topics including: scientific and theoretical knowledge,

skill and fitness based competence, planning and implementation, instructional delivery

and management, impact on student learning, and professionalism (NASPE, 2008).

Technology appears to be largely ignored except for Standard 3.7 under the heading of

planning and implementation. This Standard states that students should, "demonstrate

knowledge of current technology by planning and implementing learning experiences that require students to appropriately use technology to meet lesson objectives" (NASPE, 2008, p. 2).

Purpose and Research Questions

The purpose of this study is to examine PETE faculty attitudes toward and understanding of OLPE. The specific research questions are:

1. What is PETE faculty's knowledge of online education?

2. What are PETE faculty's perceptions of K-12 OLPE?

3. What are PETE faculty's perceptions of teaching online pedagogy to pre-service teachers?

Significance

The purpose of quality physical education is to "develop physically educated individuals who have the knowledge, skills, and confidence to enjoy a lifetime of healthful physical activity" (NASPE, 2004, p. 11). High quality OLPE has the potential to contribute the development of physically educated individuals. Ideally, the instructors of online courses are well-prepared and have gained appropriate pedagogical content knowledge for this method of teaching. Without appropriate specific teacher education in online teaching methods, OLPE can potentially become a detriment to the advancement and credibility of the field of physical education. There is little information regarding OLPE and it is difficult to ascertain where OLPE is taking place, who teaches these courses, and the number of students who are enrolled. What is known is that some courses do not require physical activity or a qualified physical educator to teach the courses. To prepare physical education teachers for online teaching, PETE faculty will

need to be prepared to teach online pedagogy. This study will set the foundation for

research on PETE faculty's attitudes toward and understanding of OLPE.

CHAPTER 2

Review of Literature

The purpose of this literature review is to present an organized knowledge base

related to online education and online physical education (OLPE). Due to the limited

related literature in the field of OLPE, this review will primarily focus on research

conducted regarding other subject matters in online education. This review of the

literature is structured in four areas: online physical education, teachers and technology,

teacher training for using technology, and teacher educators and technology. Followed by

the literature review is a description of the Social Cognitive Theory which serves as the

theoretical framework for this study.

Online Physical Education

Few studies have investigated K-12 online physical education classes. There are,

however, recent studies that focus on this topic. One dissertation examined student

outcomes and attitudes related to OLPE (Futrell, 2009). A second dissertation was a

descriptive study of Florida Virtual School's physical education students (Mosier, 2010),

and a third was a descriptive study of high school OLPE in the US (Daum & Buschner,

2012). Futrell's (2009) study focused on secondary students' outcomes and attitudes

toward online and traditional physical education. Data were collected on 24 online

physical education students and 36 traditional face-to-face physical education high school

students. Pretest and posttest Activitygram/Fitnessgram data were collected on all

participants. In addition, a 25 question Likert scale questionnaire related to the students'

experiences in their respective courses was employed. Findings indicated that online

physical education students were as satisfied with their course experiences as the face-to-

face students. Contrary to McNamara's (2008) study who found that students in an online weight training course did not improve upper body strength, Futrell's findings indicated that online students physical performance improved (specifically in upper body strength) over the course of the semester.

Another doctoral dissertation that was conducted by Mosier (2010) explored the characteristics of online physical education students (N=19,994) who were enrolled in Florida Virtual School physical education courses. The Florida Virtual School is the largest state run online school in the country with over 150,000 course completions and more than 10% of those course completions are physical education related. A factor of interest was the characteristics of those who completed the course and those who did not. Data were collected from three existing questionnaire databases in use by the virtual school, including, demographic data, a survey taken when the student had completed 65% of the course (N=10,333), and a survey for those students who did not complete the course or signed up but never logged into the coursework (N=9.611). Mosier findings indicated that while only 52% of the students completed the course, 40% registered but never activated their accounts. These non-completers did not believe that the Florida Virtual School could have facilitated course completion, and they planned to register for future courses.

Students taking Florida Virtual Schools physical education courses range from the 5th-12th grades (12th grade has highest enrollment), are white/non-Hispanic (58% of total population), and are mostly female (68% of total population) (Mosier, 2010). Findings indicated that those students with prior success had the highest completion percentages (as high as 73%), while new students or prior students who had yet to be successful in

completing an online course were the highest non-completers (as high as 66%). The author concluded that while online education was viewed by many as an exciting and attractive educational method, it is largely unexplored, and additional research is warranted.

Daum and Buschner (2012) investigated the status of K-12 OLPE in the US. Participants (*N*=32*)* were 9-12th grade teachers currently teaching OLPE in the US. The researchers employed a descriptive study approach using an online survey that had qualitative and quantitative responses. The purpose of the study was to describe the current status of high school OLPE in the US by investigating course design, content, teacher qualifications, and teacher/student communication. Results showed OLPE to be more widespread than suggested by the *Shape of the Nation* (2006, 2010) reports. Another key finding was that most OLPE programs did not meet the NASPE (2004) Standard of 225 minutes per week for student participation in physical education. In addition, several OLPE programs did not have physical activity requirements. Furthermore, these programs had an emphasis on cognitive development and little to no focus on motor skill development. Perhaps one of the reasons for this was that most of the participants were fairly new to this mode of teaching, with many of them with two or less years teaching online. The authors concluded that OLPE is the horse that has left the proverbial barn and that only carefully designed research will determine the worth of this constantly increasing option for students to learn about physical education.

Teachers and Technology

In order for the field of physical education to be ready for the 21st century, the profession must prepare its students to be 21st century teachers. Woods, Goc-Karp, Miao

and Pearlman (2008) conducted a study investigating physical education teachers'
technology competencies and usages. The participants (*N*=114) were K-12 physical
education teachers in the Northwest US Data were collected through a survey designed to
examine teachers' perceived competency to use technology, where they used technology,
and how they used technology in their physical education classes. Results showed that the
teachers used technology to aid in instruction (videotaping of skills), facilitate individual
student development (pedometers), and support assessment (videotaping students' skills).
Teachers' perceived barriers to technology use included: (a) a lack of financial resources,
(b) time, training, and (c) space. Regardless of the barriers, the physical educators
believed better preparation and training for the use of technology should have occurred in
teacher preparation programs.

Related to reasons classroom teachers choose to integrate technology into their
teaching, Niederhauser and Perkman (2008) investigated intrapersonal-cognitive
variables that effect teachers' predispositions toward integrating technology into their
teaching. The participants were 92 pre-service teachers at various stages in their pre-
service education. Data were collected through the use of the Intrapersonal Technology
Integration Scale. Findings revealed that the factors related to teachers' choices to
integrate technology into their teachings were: intrapersonal factors, self-efficacy,
outcome expectations, and interest. The authors concluded that teacher's predisposition to
use technology in their classrooms can be better understood by examining these
intrapersonal beliefs.

In a study examining self-efficacy ratings of technology proficiency, Morales,
Knezek and Christensen (2008) investigated teacher confidence in technology use. The

participants included teachers in Mexico (*N*=978) and Texas (*N*=932). Data were collected with the Technology Proficiency Self-Assessment Scale. The results indicated that the Texas teachers perceived themselves as more proficient in using e-mail and the Internet than Mexican teachers. Other computer skills, however, such as integrated applications and teaching with technology were similar between groups. The authors concluded that the teachers in both groups perceived themselves technology proficient.

Wentworth, Graham, and Tripp's (2008) research question related to how pre-service teachers' knowledge of technology integration transferred from course work to practice. Data were collected from 96 elementary and secondary teacher candidates through the use of rubrics to assess teachers work samples. The lessons were coded into three categories of candidates using technology for: (a) increasing productivity such as grading and displaying class ideas, (b) pedagogy use by pre-service teachers, and (c) pedagogy use by students. The findings showed that the majority of the technology use was by the students (as a part of lessons) and pre-service teachers for presentation of material to their classes. Productivity was by far the least area in which technology was used. The authors concluded that there was a disconnect between the goals of the technology faculty and the cooperating teachers who were mentoring the pre-service teachers in their field experiences.

Online K-12 education occurs throughout the country, not only are students using the technology but logically online teachers are involved in this enterprise, as well. Archambault and Crippen (2009) examined 596 K-12 online teachers' knowledge of technology, pedagogy, content, and the combination of these areas using the Technological Pedagogical, Content, And Knowledge (TPACK) framework. The

TPACK framework is used to describe and understand teacher knowledge and how it

"informs the debate on what teachers need to know (and how they might develop it)"

(Mishra, & Koehler, 2006, p. 1019). Archambault and Crippen used a web-based survey

to collect data. They received 596 responses (response rate of 33%, 1,795 surveys sent

out) from 25 different states. The survey used a five point Likert scale, and through pilot

testing, reliability and construct validity were confirmed. The findings suggest that K-12

online teachers rated their knowledge of pedagogy, content, and pedagogical content the

highest (4.04, 4.02, and 4.04 respectively), indicating that they were comfortable with

their abilities to use a variety of teaching strategies, create learning materials, and teach

content. While pedagogy and content ratings were high, the ratings related to technology

were almost a full point lower, signifying less comfort in the use of technology in their

teaching. The lowest scored item was in regards to teachers' abilities to assist their

students with technology related problems (3.04). In general K-12 online teachers were

comfortable with their abilities to perform as teachers, but less comfortable in using

technology in their teaching. The authors concluded that the findings have implications

for the field of teacher preparation because the field will need to adapt to teach future

teachers for settings other than the traditional classrooms.

Teacher Training for Using Technology

From 1999 to 2002 a national initiative in England provided teacher training to

use information and communication technologies in classrooms (Davis, Preston, & Sahin,

2009). In this initiative approximately 395,000 teachers were trained. In a study

examining this initiative, Davis et al. (2009) investigated various training methods and

the way in which the participants reacted to those methods. One method was the organic

approach; this approach was incorporated into the schools and teacher education

programs. Teachers were trained by face-to-face training with an instructor, workbooks,

and group work. The second approach was a computer based training designed to provide

training online with the teachers completing learning modules. Initially in this approach

one individual was responsible for training 400 teachers, in the later stages the ratio

dropped to 200 teachers per trainer. Overall, there were greater positive responses to the

organic approach and negative responses to the computer based approach. From the

responses of the participants the authors developed five recommendations for future

information and communication technology trainings: (1) use an ecological perspective to

design trainings (i.e. make the training relevant to the teacher), (2) seek additional

funding from the schools to encourage teachers' engagement, (3) use online and face-to-

face communities of practice for ongoing support, (4) avoid computer-based instruction

for those with few skills or little confidence in computers, and (5) include program

evaluations.

Chen (2010) investigated teacher educators' efforts to integrate instruction with

technology to teach pre-service teachers about technology uses in education. Twenty-five

pre-service teachers, all female and one graduate student, were in their first semester

courses as a cohort (spanning 3 semesters). Data were collected from documents,

observations, and interviews. In the first course, the instructor utilized a constructivist

approach to learning by using technology to guide the students in completion of projects,

problems, and investigations. The first theme that emerged was a "discrepancy regarding

technology use." The students were required to buy computers, yet did not believe that

computer use was necessary with all instructors. The pre-service teachers, for example,

did not believe that computers were needed to help teach math. A second theme was a "discrepancy regarding instructional content and approaches." Because the teacher did not use a book or lecture in the course, the students believed that they received little knowledge from the course. The students actually wanted to have books or notes as references when questions arose in the field. The author concluded that the content that teacher educators teach their students may conflict with the pre-service teachers' beliefs or even the practice of in-service teachers. The author suggests that teacher educators collaborate with their colleagues within the same institution to avoid overlap and deliver a consistent message.

Vannatta and Banister (2008) used a technology performance assessment tool with pre-service teachers to determine competence in word processing, presentation, spreadsheets, graphic/drawing, and internet skills. The students were not required to pass the assessment, but failure resulted in a lower final grade. The authors explored the impact of the assessment on the students use and development of technology in later courses. Only 25% to 40% of students passed the assessment on their first attempts. After retakes, students increased their passing rates from 70% to 95%. Notably, almost 64% of the participants believed the assessment was an effective way to encourage students to develop their technology skills. The findings indicated that throughout their time in the pre-service program, participants' skills increased each year. The findings also showed that assessments of technology skills early in pre-service programs can increase student awareness of the importance of technologies in education, and help students advance their technology skills.

Turvey (2010) used a case study method to analyze five student teachers' capacity to theorize and reflect on the development of online pedagogy after experiencing face-to-face and online university lectures. A pedagogical research design was used and a questionnaire centered on student teachers use of communication technologies, content analysis of the lessons, and teaching reflections. The findings showed that in some ways the student teachers integrated technology into their teaching by using techniques like online discussion. Nevertheless, in other ways the student teachers expressed a lack of their own content knowledge in using technology. Overall, the student teachers engaged with the technology and developed their own pedagogical strategies to address knowledge limitations when online technology was implemented. Also, the student teachers used prior experiences and predispositions toward technology, often to the detriment of learning, when the online technology was used for learning. The researcher concluded that there is a need to account for the various factors regarding learning online pedagogy and that student teachers learn how to use technology in very different ways.

Teacher Educators and Technology

Because teacher educators have a great deal of control over the content that they teach pre-service teachers, it is important to understand their viewpoints on curricular reform. Hokka, Etelapelto and Rasku-Puttonen (2010) investigated how teacher educators approached curriculum reform in the area of function (the purpose of curriculum reform discourse), context (when the conversation about curriculum reform takes place), and the subject position (the role of the educator within the curriculum reform discussion). Eight teacher educators participated in open-ended interviews. Five themes were identified: (a) the competition repertoire (describing the curriculum process as a struggle), (b) the

practical knowledge repertoire (stating the central purpose of teacher education is to teach practical skills to their students), (c) the collaboration repertoire (the interdisciplinary collaboration between teacher educators, teachers in the field, and other departments to design the curriculum), (d) the research-based knowledge repertoire (the purpose of producing new knowledge and using research based approaches in the curriculum), and (e) the break with tradition repertoire (discussing what is currently done and trying to improve it). The authors found that the competition repertoire was most prevalent which was likely due to the demand of curricular change from external bodies such as the government. The authors were most concerned when participants felt the need to re-assert the status or justify the existence of their subject. This troubled the authors because the focus and energy that goes into defending a programs' existence can hinder the development and implementation of new curriculum which would negatively affect the quality of teacher education. The authors endorsed the need to achieve a deeper understanding of the contrasting interpretations of the ways in which teacher education should be conducted.

Related to gaining a better understanding of teacher educators' beliefs and attitudes, pre-service teachers' views should also be examined. Bai and Ertmer (2008) asked how teacher educators' beliefs and technology uses affected pre-service teachers' beliefs and attitudes. The participants in their study were 96 pre-service teachers from eleven different majors and fourteen teacher educators from 3 different teacher education courses. Data were collected with the Teacher Beliefs Survey, the Attitude Toward Technology survey, and a survey exploring the frequency that students used and educators required the students to use technology. Qualitative data were collected with

two open-ended questions at the end of the survey. These questions were about pre-service philosophies and attitudes related to teaching with technology. The findings indicated that instructors' learner and non-learner centered beliefs regarding teaching and learning influenced pre-service teachers' attitudes and beliefs. The influence, however, was minimal over one semester. One of the three courses, however, had a significant effect on the pre-service teachers' beliefs about technology. The authors' noted the possibility that the instructors of this course, as opposed to the instructors in other courses, had different beliefs and ultimately a positive effect on the pre-service teachers. Bai and Ertmer (2008) concluded that pre-service teachers need to experience technology use in pedagogically sound manners to impact their own teaching.

A dilemma facing PETE faculty is how to acquire the knowledge to teach pre-service teachers to teach online. Koehler, Mishra, and Yahya, (2007) contribute an answer. They conducted a study in which the participants were six faculty and 18 students. The participants' task over the semester was to work collaboratively to develop online courses. Teams were formed with one faculty member and several students. Data collected included emails between group members, notes and artifacts from the groups, notes taken from group discussions, and self-progress surveys. The results showed that over the course of the semester the teams moved from considering technology, pedagogy, and content as independent factors towards an integrated approach. The authors concluded that by giving the opportunity to thoughtfully engage around designing an online course, faculty and students showed noteworthy growth in their "sensitivity" to the connection between content, pedagogy, and technology.

Who will teach technology skills to the teacher educators? This was the question raised by Simpson, Payne, Munro, and Hughes (1999). Data were collected at four-year, bachelor-degree granting institutions in Scotland. Questionnaires, semi-structured interviews, and diaries were employed to collect data. Participants (*N*=243) were teacher educator faculty members across multiple disciplines. The data indicated that the teacher educators had strong, positive attitudes toward technology and toward its use in teacher education. Only about half of the participants, however, believed that they would be able to keep up with future developments with technology, and over 40% determined that technology skills should be taught by technology specialists. Other key findings showed that the teacher educators believed that technology enriched the courses in which it was used and provided different learning opportunities. Based on the qualitative data results, Simpson et al. concluded that teacher educators learned technology as they taught, and that as long as the teacher educators had an understanding of proper pedagogy, they can plan educational activities in which their students learned to use technology.

Theoretical Framework

The theory used in this study was Albert Bandura's Social Cognitive Theory (SCT). SCT is derived from social learning theory which was developed by Neal Miller and John Dollard (1941) and expanded by Bandura (1977). Bandura's (1977) social learning theory has three main concepts; (a) people learn through observation, (b) mental state, or intrinsic motivation is important in motivation to learn, and (c) learning does not necessarily lead to behavior change. Bandura's work with social learning theory led to the development of Social Cognitive Theory (1986). In a video about SCT Bandura stated; "a comprehensive theory must explain how people acquire competencies, values,

20

and styles of behavior. But it must also explain how people motivate and regulate their behavior" (Davidson, 2003).

A central construct behind SCT is that the human mind is "generative, creative, proactive, and reflective, not just reactive" (Bandura, 2001a, p. 4). Bandura (2001a) further states that SCT is designed to investigate how "people operate as thinkers of the thoughts that exert determinative influence on their actions" (p.4). Social Cognitive Theory is also used in determining how forethought, planful proaction, aspiration, self-appraisal, and self-reflection are used, and how these thoughts are intentionally recruited (Bandura, 2001a). SCT is a triadic causal model using behavior, personal factors, and environmental factors as influences on each other (see Figure 2). These reciprocal factors do not mean these influencers are of equal strength or that they all occur concurrently (Wood & Bandura, 1989). The nature of the relationship between the factors depends upon the behavior. Wood and Bandura (1989) further note that because of the bi-directionality of the influencers, "people are both the products and producers of their environment" (p. 362).

SCT "devotes much attention to the social origins of thought and the mechanisms through which social factors exert their influence on cognitive functioning" (Bandura, 2001b, p. 267). Self-efficacy plays a key role within SCT because it influences how a person views the world (pessimistically or optimistically) which affects are either self-enhancing (positive influences) or self-hindering (negative influences) (Bandura, 2001a). Bandura (2001b) identifies four core features of human agency, or what it means to be human; (a) intentionality of setting goals and planning a future action, (b) forethought of future events by setting goals, (c) self-monitoring of one's plan, and (d) self-reflecting, or

21

the ability to evaluate one's actions. These four features provide humans with the tools to comprehend and regulate the events that affect their ever day lives through personal and vicarious experiences (Bandura, 2001b).

In terms of this study SCT was appropriate to use because PETE faculty members knowledge and perceptions of OLPE are directly derived from their experiences. Self-efficacy is a major influencer within SCT, and a faculty member's view, positive or negative, at least through the lens of SCT, will impact how they perceive and act upon matters related to OLPE.

Summary

As this literature review shows, little is known about online physical education. Perhaps, even less is known about teacher educators in regards to online education, especially related to preparing the next generation of teachers. Clearly, online education is experiencing a boom; each year virtual schools are growing as more students register for courses. The Florida Virtual School online physical education courses are among the most popular offerings. Teachers in grades K-12 incorporate technology into their classrooms when they feel comfortable with its use (Wentworth, Graham, & Tripp, 2008). Alongside this, K-12 teachers must have financial support and time to commit to using technology in the classroom. Teachers in grades K-12 can, however, be taught how to use technology. It falls on the teacher educators' to ensure the knowledge is relevant and educate their students on ways in which to seek funding, so they may support the technology (Woods, Goc-Karp, Miao, & Pearlman, 2008). Research shows that making pre-service teachers aware of their technology shortcomings did not hinder their

development; in fact it seemed to encourage the development of their technology skills (Vannatta & Bannister, 2008).

What limits teacher educators from initiating curricular change? While the answer to this question is complex, clearly the teacher certification curriculum is affected by accreditation bodies and the time a teacher has to implement and create new curriculum. A teacher education curriculum is influenced by the government, accreditation bodies, universities, and departments. Teacher educators must take all of those different managing bodies into consideration, which can be challenging, especially for programs with limited numbers of faculty. Time is also a factor as teacher educators often believe they have too many concepts to cover within their courses, making it difficult to reduce or add any concepts. Ultimately, incorporation of technology is heavily influenced by teachers' confidence in their own ability to use technology (Archambault & Crippen, 2009; Morales, Knezek, & Christensen, 2008; Niederhauser & Perkman, 2008; Woods, Goc-Karp, Miao, & Pearlman, 2008).

CHAPTER 3

Methodology

As Tashakkori and Creswell (2007) suggest, the purpose of a study shapes the research questions, which in turn drives the methodology and design of the study. The purpose of this study and its research questions required a qualitative approach to understand PETE faculty's attitude toward and understanding of K-12 OLPE. Qualitative research uses rich description, through the use of words, rather than numbers, to explain a phenomenon. The use of qualitative methods in educational research is well established and is characterized by process-product research and other naturalistic inquiry methods (Rink, 1993).

The purpose of this study was to examine PETE faculty attitudes toward and understanding of OLPE. This study will contribute to an under represented area in the literature, yet one of the fastest growing educational methods for teaching K-12 students. The specific research questions that guide this study are:

1. What is PETE faculty's knowledge of online education?

2. What are PETE faculty's perceptions of K-12 OLPE?

3. What are PETE faculty's perceptions of teaching online pedagogy to pre-service teachers?

To answer the abovementioned research questions the design of this study used a variety of established qualitative methods. A graphical display of the design of this study can be viewed in Figure 3. Each of the proceeding steps is described in further detail in the following sections.

Sampling and Recruitment

Previous studies of PETE faculty found approximately 450 four-year institutions offering degrees in physical education, with approximately three full time faculty at each institution (Woods, Phillips, & Carlisle, 1997). In order to have the most complete list of current PETE faculty members who teach methods courses to undergraduate students in teacher preparation programs, the current study employed a database generated at the University of Illinois (Graber, Erwin, Woods, Rhoades, & Zhu, 2011). This database contains information about PETE faculty across the United States, and was updated prior to data collection. The original database was compiled from searching two editions of *The Carnegie Classification of Institutions of Higher Education* (1994, 2000) and an online internet database, *UnivSource* (http://www.univsource.com/ussc.htm). The current database was updated using *The Carnegie Classification of Institutions of Higher Education (2011)*. The process of updating the database involved searching the websites of institutions identified as having a PETE program and locating names, phone numbers and email addresses of PETE faculy members currently teaching methods courses. Methods courses are those courses that have content related to instructional strategies, teaching styles, curriculum, and pedagogical techniques. Methods courses are not activity courses, adapted physical education courses, or the supervision of student teaching.

Prior to recruitment or data collection, all necessary trainings and institutional approvals were ascertained through the universities Institutional Review Board. There are no rules for the number of participants required in qualitative studies (Patton, 2002); however, after the database has been completed a stratified random sampling of 25 participants was selected for telephone interviews. To reflect the percentages of male and female PETE faculty in the US, the goal of this study was to generate an equal number of

males and female participants (Ayers & Housner, 2008; Graber, Erwin, Woods, Rhoades, & Zhu, 2011; Metzler & Freedman, 1985; Woods, Phillips, & Carlisle, 1997). The stratified random sampling technique divides the population based on characteristics of that population before sampling (Thomas, Nelson, & Silverman, 2005). The population was stratified by gender, the Carnegie classification of the PETE faculty member's institution, and if the university was public or private. Once the database was updated, descriptive statistics were calculated to determine the percentages of institutions at each classification and those percentages were reflected in the participant pool.

The final database contained a total of 414 universities and 938 physical education teacher educators across 33 Carnegie classification categories. Descriptive analysis of the 414 universities revealed 234 (56.5%) were classified as public universities and 180 (43.5%) were classified as private universities. In regards to the 2011 Carnegie classification of the universities, it was determined that institutions categorized as 15 (very high research activity universities), 16 (high research activity universities), 17 (doctoral/research universities), 18 (large program masters colleges and universities), 19 (medium program masters colleges and universities), 20 (smaller program masters colleges and universities), 21 (arts & sciences baccalaureate colleges), and 22 (22-diverse fields baccalaureate colleges) would be included in the sample. All other Carnegie classifications; 1-14 and 23-33, had few or no teacher educators employed at those colleges or universities and did not warrant representation within the database. The physical education teacher educator list was reduced to 607 individuals by removing as many of the non-Ph.D. members as existed and those who were not at universities Carnegie classified 15 to 22.

Analysis of the Carnegie classifications showed that approximately 7% of institutions were classified as very high research, 9% classified as high research, 6% classified as doctoral/research, 32% classified as large program masters, 13% classified as medium program masters, 5% classified as smaller program masters, 9% classified as arts & sciences baccalaureate, and 17% classified as diverse fields baccalaureate. A summary of the Carnegie analysis in comparison to the actual sample can be viewed in Table 1. Because this study employed a stratified random sampling technique based on the Carnegie classifications, the goal was to represent those percentages as best as possible within the sample.

Participants were recruited by email inviting their participation in this study (see Appendix A). Attached to the recruitment email was the informed consent (see Appendix B) asking participants to reply by indicating his/her wish to either participate or not participate in the study. A maximum of three reminder emails were forwarded to non-responding participants. Those participants who gave consent were emailed to schedule the interview at their convenience. Once the interview date and time was set, the interview guide was sent to the individual participants so they could review the questions before the interview (see Appendix C). After the interviews were conducted, a thank you email was forwarded to all participants who participated in interviews (see Appendix D).

Participants

The participants were physical education teacher educator (PETE) faculty (N=25) with doctoral degrees at institutions granting a bachelor's degree in physical education teacher certification. The demographic data are reported here and a summary can be viewed in Table 2. The gender of participants was almost evenly divided, 13 participants

were female (52%) and 12 were male (48%). The average number of years the participants had been teaching as a tenured or tenure-track faculty member in higher education was 14.98±2.44 years, with a range of 1 year to 45 years. Eighteen participants had earned a Ph.D., six had an Ed.D., and one participant had a PED. (doctorate of physical education). In regards to their academic titles, twelve participants were assistant professors, five were associate, and eight were full. Three of the participants also identified themselves as the interim chair, department chair, or the dean of their department. Twenty-two of the participants identified their racial background as Caucasian and three participants identified as African American. The type of degree the participants physical education majors earned were mostly Bachelor of Science degrees (n=22) with two identified as Bachelor of Arts and one Masters of Arts in Teaching (MAT) program.

In regards to the Carnegie classifications the final participant pool of 25 participants across the eight selected Carnegie classifications were as follows; 5 participants (20%)in classification 15 (very high research), 3 participants (12%) in classification 16 (high research), 3 participants (12%) in classification 17 (doctoral/research), 8 participants (32%) in classification 18 (large program masters), 2 participants (8%) in classification 19 (medium program masters), 1 participant (4%) in classification 20 (20-smaller program masters), 2 participants (8%)in classification 21 (arts & sciences baccalaureate), and 1 participant (4%) in classification 22 (diverse fields baccalaureate). In regards to public and private institutions, 20 participants were at public universities (80%) and 5 were at private universities (20%). A summary of the participants' Carnegie classifications can be viewed in Table 3.

Participants also represented 22 different states (Alabama, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Illinois, Louisiana, Maryland, Michigan, Missouri, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Texas, Utah, Virginia, and Wisconsin) and 25 different universities. A total of 71 faculty members were contacted for a response rate of 35%. Two participants responded declining participation citing time constraints and 25 agreed to participate. Best efforts were made to align the demographics of participants with the analysis of the Carnegie classification database. The biggest differential between the database analysis and the final participant pool was the classification of public or private universities. This disparity was not due to a lack of private universities in the participants whom were contacted.

Data Collection

As stated previously, this study employed qualitative methods of inquiry for data collection. Specifically, data were collected through semi-structured, open-ended telephone interviews. Described in detail in forthcoming sections are the techniques this study used to establish credibility, dependability, and trustworthiness. Credibility, dependability, and trustworthiness are critical factors when using qualitative methods. The use of these methods enhances the rigor and strength of a qualitative study (Lincoln & Guba, 1985).

Interviews. Semi-structured, open-ended interviews were conducted with a stratified random sample of 25 participants as described previously. The interview guide consisted of five demographic questions and 15 open-ended questions. The interview guide was critiqued by a panel of experts to determine clarity, and alignment with the

research questions and theoretical framework. A pilot interview was conducted to determine approximate interview length, proper wording of questions, and appropriate ordering of questions. The pilot data are not included within the data set. Due to the complexity of some of the interview questions, the interview guide was emailed to participants approximately one week before the interview.

The interview questions were guided by the research questions and grounded in the theoretical framework of Social Cognitive Theory. The wording of interview questions ensured that each part of the triadic relationship would be examined in relation to the research questions. Patton (2002, p. 56) states that an open-ended interview "permits the respondent to describe what is meaningful and salient without being pigeon holed into standardized categories." Patton (2002) emphasizes that an interview guide contain clear and concise questions, potential follow-up questions, and a consistent ordering of questions for all participants. A criticism of open-ended interviews is the lack of naturalness that an informal or conversational interview allows (Patton, 2002). Therefore, probing questions were used to combat this weakness. Probing questions were employed to prompt in-depth responses from participants. Jones (1985) suggests five approaches to probing questions: (a) the direct probe, (b) the additional information probe, (c) the repetition of the original question probe, (d) the echo of the participants' answer probe, and (e) the silence probe. Jones (1985) further explains that the silence probe should be used sparingly due to its disruptive potential to the interview process.

Trustworthiness. Trustworthiness relates to the worth of the inquiry, the overall quality of results and to the extent the results can be trusted (Lincoln & Guba, 1985). There are many methods of increasing trustworthiness of data (for a more complete list

see p. 360 in Thomas, Nelson, & Silverman, 2005); however, not all are applicable to this study's design. The methods used to ensure trustworthiness for this study are; (a) addressing researcher' bias, (b) negative case checking, (c) member checking, and (d) peer debriefing.

Negative case checking was used to investigate data that was contrary to other data (Thomas, Nelson, & Silverman, 2005). In quantitative research this might be known as the outlier and be dismissed. In qualitative research, however, this negative case data is accounted for and examined. To further explain the importance of negative cases, Patton (2002) described them as the exception that proves the rule, broadens the rule, or casts doubt on the rule and that negative cases are at the centerpiece of qualitative analysis. After transcription of the interviews a digital transcript was emailed to the participants for member checks. Member checks are a method of allowing the participants to review the interview transcription to clarify statements and add data they may have forgotten during the interview (Thomas, Nelson, & Silverman, 2005).The participants were given one week to reply with changes or additions. Lincoln and Guba (1985) state that member checks are crucial for establishing credibility.

Peer debriefing, also known as an external audit, was used after all interviews were conducted, transcribed, member checked, and analyzed by the primary researcher. The individual who conducted the peer debriefing was another doctoral student within the Department of Kinesiology and Community Health at the University of Illinois who was familiar with qualitative methods and data analysis. He reviewed the un-coded data and subsequently met with the primary researcher to compare impressions about the data.

Credibility and Dependability. Patton (2002) describes three criteria for establishing credibility: (a) rigorous methods, (b) credibility of the researcher, and (c) philosophical belief in the value of qualitative inquiry. This study used rigorous methods which were evidenced by the methodology laid out in this chapter. Credibility of the researcher was established by having completed previous qualitative studies as well as by selecting expert committee members. Three of the four committee members were experienced qualitative investigators and the fourth was a respected quantitative researcher.

Triangulation enhances the credibility of results and the point of triangulation is to test for consistency within data (Patton, 2002). For purposes of data triangulation, comparisons were made between and among participants working at universities at different Carnegie classifications, academic titles, and years teaching experience. Dependability relates to the quality of the data and the structure of the data collection methods (Thomas, Nelson, & Silverman, 2005). As outlined in the above section, an interview guide was used and the sequence of questions was the same across participants. Follow up questions were asked when needed, and follow up questions were incorporated into the interview guide.

Data Analysis

Data were collected through semi-structured, open-ended telephone interviews. Once the data were transcribed and had undergone member checking, the interviews were divided by question so that constant comparative analysis could take place. Constant comparative analyses consist of grouping participants' responses to common questions and then analyzing the various perspectives on that issue (Patton, 2002). The data were

analyzed inductively and then deductively through the lens of the theoretical framework. Inductive analysis (Patton, 2002) "involves discovering patterns, themes, and categories in one's data" (p. 453). He suggests that there are two ways of analyzing qualitative data inductively: (a) identify, define, and clarify the emerged categories that the participants articulated, or (b) develop the categories based on the data. In this study, the former was used, and the participants' words were used to describe their responses. Deductive analysis requires the investigator to use an existing framework to understand and interpret the data (Patton, 2002). The deductive analysis in this study used Social Cognitive Theory as a guide.

Researcher Bias

As Patton (2002) eloquently states, "that data from and about humans inevitably represent some degree of perspective rather than absolute truth" (p.569). Researcher bias should not be hidden, but out in the open, available for critique and to help explain the perspective of the researcher. My own relationship with the topic of OLPE is relatively recent, but has yielded some biases.

My first exposure to this topic was serving on a National Association for Sport and Physical Education (NASPE) committee to write a position paper about OLPE. I was in charge of supplying the literature review materials and in my search found no empirical studies related to the topic. The committee concluded that that with limited empirical research available to support claims; it would be difficult to make claims about its effectiveness of lack thereof. This conclusion led the committee to write a position paper about OLPE. Involvement in that project fostered my interest in this topic and my master's thesis topic in which I conducted a descriptive study of 9-12 OLPE programs

within the US. This project made me aware of several things: (a) OLPE had little to no curricular oversight, (b) finding where, how, and who were teaching OLPE was difficult, (c) online schools were very protective of their teachers, and in many cases, unwilling to be made available for a study, and (d) OLPE teachers were, in most cases, had limited experience in teaching online.

As a first-year doctoral student at the University of Illinois at Urbana-Champaign I attempted to conduct a follow up study with 9th-12th grade OLPE teachers as participants. This attempt was unsuccessful due to the lack of cooperation from schools teaching OLPE. Due to the lack of availability of teachers, programs, and students of OLPE, I have temporarily shifted away from using these individuals as a focus of inquiry. I believe that research into OLPE is an important endeavor and my goal is to become an expert in the field of OLPE. I believe that if this area is left un-examined, it will hinder the development of physical education. Ultimately, I want to help guide OLPE to another quality method of teaching youth how to be physically active for a lifetime in accordance with the goals of NASPE.

For this study, I anticipate that many participants will have limited knowledge regarding K-12 OLPE. With this lack of awareness it is likely many participants will be unable to answer with certainty details regarding K-12 OLPE courses. I also believe that the participants will have negative opinions toward K-12 OLPE, especially at the lower grade levels. I anticipate that a primary reason the PETE faculty will be resistant to K-12 OLPE will relate to the potential challenges in teaching motor skills in an online venue. Regardless of participants' knowledge of K-12 OLPE I believe these research questions

are important to answer to inform future research and to begin investigating possibilities

of curricular design for K-12 OLPE.

CHAPTER 4

Results

Online education in the US is rapidly growing with recent estimations of 1.5 million students enrolled in K-12 online courses (Wicks, 2010). Online Physical Education (OLPE) has also experienced growth in the last decade. Daum and Buschner (2012) found that OLPE is more widespread than suggested by the *Shape of the Nation* report (NASPE, 2006, 2010). The purpose of the current study was to examine physical education teacher education (PETE) faculty attitudes toward and understanding of OLPE. This study contributed to an under represented area in the literature, focusing on one of the fastest growing educational opportunities for K-12 students. The specific research questions that guided this study were:

1. What is PETE faculty's knowledge of online education?

2. What are PETE faculty's perceptions of K-12 OLPE?

3. What are PETE faculty's perceptions of teaching online pedagogy to pre-service teachers?

A description of the participants was provided in the previous chapter. Therefore, this chapter will focus on the various themes and subthemes that emerged from the participant interviews. All references to identifiable information such as states, program titles, and names were replaced with pseudonyms. Each quote is identified with the participants' pseudonym, university Carnegie classification, and years of teaching experience in higher education. A quote by Kristy, for example, who taught at a Carnegie classified 15 (very high research), and was an Associate Professor is followed with: (Kristy, 15-very high research, Associate Professor).

Eight of the Carnegie classifications were represented in this study, including 15 (very high research activity universities), 16 (high research activity universities), 17 (doctoral/research universities), 18 (large program Master's colleges and universities), 19 (medium program Master's colleges and universities), 20 (smaller program Master's colleges and universities), 21 (Arts & Sciences baccalaureate colleges), and 22 (diverse fields baccalaureate colleges). Table 1 provides a summary of this information.

The following sections outline the inductive and deductive findings of this qualitative study related to the participants' knowledge about and perceptions of K-12 OLPE. The deductive analysis was viewed through the lens of the Social Cognitive Theory (Bandura, 1986). This chapter addresses four primary areas: (a) knowledge about online education, (b) perceptions of K-12 OLPE, (c) perceptions about teaching OLPE pedagogy, and (d) PETE faculty demographics may offer different viewpoints. Each section includes the themes and subthemes that emerged from the data.

Knowledge about Online Education

Participants' knowledge of online education is expressed with two themes, (a) universities are moving toward online instruction, and (b) K-12 OLPE exists, but little is known about the topic. Each of the two themes includes several subthemes. Three related to universities' shift toward online education and three emerged about PETE faculty's knowledge related to K-12 online education.

Universities Are Moving Toward Online Instruction

In most cases, the participants discussed the extent to which online education was prevalent at their respective institutions. The sub-themes that emerged were: (a) pressure from administration, (b) "I am well versed.", and (c) "Well… I know it exists."

Pressure from administration. The most common response among participants concerning their knowledge of university online education was related to pressure that they felt from their administration to offer online courses in their departments (n=11). The pressure from administration was due to a variety of reasons including reaching more students. For example, the participant stated, "There's a push from our college to get as many courses online as possible. That way we can reach our students online, who are here, but who are also across the country" (Gordon, 21-arts & sciences baccalaureate, Assistant Professor). Other participants affirmed this notion by stating "That seems to be the move of the country right now, because everyone is doing something hybrid or online courses" (Brian, 15-very high research, Assistant Professor) and "We are encouraged to have online courses, and that is what led me into doing some of my classes online" (Amy, 19-medium program masters, Assistant Professor). Another participant discussed how moving courses online was not promoted at all universities; however he had, "been pushed in other places [previous employers] to create online courses" (Keith, 18-large program masters, Assistant Professor). Lauren offered an historical perspective and perhaps a reason for the shift toward online education at the college level: "It [online education] has become popular in the last 20 years and a lot of higher education programs are looking to use it in order to increase tuition money and getting outreach programs to rural areas" (15-very high research, Assistant Professor).

While references to online courses at university level were common, courses within the departments that housed physical education teacher education were less prevalent. Nine participants' stated that their universities had no online courses available to their undergraduate pedagogy students; however, four noted the availability of

coursework for graduate students in their programs. A number of participants (*n*=8) indicated that their undergraduate pedagogy students had the option of taking courses online. Some were; however, quick to note these were courses outside their departments.

The online courses that were available to pedagogy students within their departments were cognitive in nature and did not include courses that incorporated practicum experience; for example, "We only have one class that is fully online, and that is a measurement and evaluation class" (Anne, 16-high research, Professor). Brandon discussed how online course availability in his department varied depending on the faculty members' workloads. When faculty were not able to teach a course because of scheduling problems then that course might be converted to an online offering. These online offerings were "usually lecture courses like the liabilities class" (18-large program masters, Assistant Professor). Other types of courses mentioned by participants were independent study, history and principles of sport, psychology of sport, health sciences, health and wellness, and introduction to physical education.

"I am well versed." Ten of the participants' noted they have taught online courses and took the opportunity to discuss their involvement with online education. One participant stated, "I teach my entire pedagogy program at the master's level online. I know how to create programs. I am well versed in Blackboard and Moodle" (Anne, 16-high research, Professor). Another participant with similar years of university teaching experience discussed her involvement in terms of being: "involved in developing courses myself for online instruction and utilizing a hybrid fashion ever since we started getting online capabilities back in the mid-nineties" (Kim, 18-large program masters, Professor). Those participants who mentioned they were involved with online education were due to

prior experiences. They related to the development of online programs within their universities; however one PETE faculty member indicated he completed his doctorate online (Brandon, 18-large program masters, Assistant Professor). While there has been a considerable shift toward online courses nation-wide, numerous participants have not yet experienced online teaching.

The use of online course supplementation (n=15) was much more common than comprehensive online course offerings among the courses taught by the participants. Participants discussed how they used online supplementation in their face-to-face courses, "I did a couple of blended classes; it was called Fitness Concepts. I did about one-third of it online. Part of the purpose of that is to go more paperless" (Adam, 18-large program masters, Assistant Professor). Amy stated that her university does not have 100% online courses, but she was "encouraged to have online resources" (19-medium program masters, Assistant Professor). Another participant shared her experience with using online learning management systems: "We use Moodle, so our coursework for our students is uploaded to their course Moodle. They are in discussion groups [online], so I use it in that respect but they have to meet in class" (Carol, 18-large program masters, Associate Professor). While most of the participants did not teach online, they were usually quick to note they used online resources in their face-to-face courses. It was apparent that most participants in this study had expertise with putting teaching materials online. A question, however, is how they acquired their knowledge to accomplish this task.

The most common forms of training mentioned were faculty development seminars (n=13) and teaching themselves through experience or reading research about

online practices (*n*=14). Anne stated that most of her knowledge of online education was self-taught, but she participated in a two hour seminar and "learned some of the tools that they could offer" (16-high research, Professor). Similarly, Courtney affirmed that her knowledge came from experience, "learning from teaching it one or two times and seeing the responses and feedback from the students." She also indicated that the use of technology was promoted at her university and seminars were frequently offered for faculty development (15-very high research, Assistant Professor). Other participants had similar experiences, but also drew upon the knowledge they gained from taking online courses: "Trial and error, being a person whose taken online classes, there's things I liked and didn't like about those classes" (Brandon, 18-large program masters, Assistant Professor). Mary had a similar experience but expanded upon her influences and how she learned how to use online materials:

> Through my doctoral program, as well as through my professional experience in terms of the departments I've worked in, and the colleagues who have taught online courses. Also, by having discussions about what it takes to conduct an online course (18-large program masters, Assistant Professor).

Most of the participants' training on the use of online resources was experiential. There was a general sense from the participants that they learned more from the experience of using online resources or teaching online than they did from the faculty development seminars.

"Well… I know it exists." While various participants had explicit knowledge of online education, some participants (*n*=7) were unable to provide detailed information about online education beyond acknowledging its existence. One such participant, for

example, stated, "Well I know it's in a virtual environment. I know that there are some different kinds of online education, so I think the word 'hybrid' has been thrown around" (Brian, 15-very high research, Assistant Professor). Another PETE faculty member shared a similar narrative, stating that he did not possess detailed knowledge, but was aware that there were "programs in higher education" (Antonio, 17-doctoral/research, Professor). Awareness of colleges offering online courses was prevalent among participants, with several (n=5) mentioning online universities such as the University of Phoenix. Generally, the participants' knowledge of such online universities was not positive. Shane, for example, explained that his negative viewpoint of online education at the university level was shaped by mass media. He said:

> Some of these large online and non-traditional universities have gotten a lot of
> bad press because of the high incidence of student dropouts, their very
> questionable practices, and a whole lot of promises and not a lot to show for it
> (Shane, 16-high research, Assistant Professor).

Awareness of online education in general was very high among participants; however, their knowledge was mostly broad and without detail.

K-12 OLPE Exists, But Not Much Is Known About It

Participants' had little knowledge about specific K-12 OLPE programs. Few participants (n=5) were aware that OLPE occurred within their states. Regardless of knowledge of specific K-12 OLPE programs, the PETE faculty discussed their viewpoints on the subject. The themes that emerged were: (a) "I just don't know…", (b) "I will tell you what I do know", and (c) "OLPE is better than nothing."

"I just don't know…" There was a general sense (*n*=10) among participants that they did not have enough knowledge of the K-12 OLPE programs or the research on the topic to possess an informed decision about the effectiveness of K-12 OLPE. For example, "I think it would be uneducated, uninformed for me, giving an opinion of effectiveness without having more information and exposure to it myself" (Mary, 18-large program masters, Assistant Professor). Keith stated he had discussed the idea of K-12 OLPE with his colleagues, but "if there is any research out there I'm not aware of it" (18-large program masters, Assistant Professor). One participant shared an experience of a colleague who taught a summer high school OLPE course: "He [the teacher] said it was okay… they based the course on discussions, but his main concern was more of a kinesthetic component in the sense that he is not really there to give immediate feedback [on motor skills]" (Brian, 15-very high research, Assistant Professor). The recognition of the limited personal knowledge and lack of empirical data on the effectiveness of K-12 OLPE were clearly reasons some participants gave for withholding views about the topic.

"I will tell you what I do know." In regard to an awareness of K-12 OLPE in the states in which they taught, five mentioned knowledge of such K-12 OLPE programs. Six participants were aware of other states in which K-12 OLPE was offered, while 14 participants had no knowledge of K-12 OLPE programs. Anne, who had knowledge of OLPE in her state, said:

> In my state, there is nothing K-5; I can tell you that. We do, in this state, have
>
> some virtual [education]. They [high school students] are required to take on-line
>
> classes and some of them choose to take that in physical education (16-high
>
> research, Professor).

Another participant had a similar story relative to the existence of K-12 OLPE in his state. He explained, "We've worked with homeschooled children and I believe that they can get some courses in physical education [online]" (Keith, 18-large program masters, Assistant Professor). Participants' also knew of OLPE in other states. Jennifer, for example, said, "The only place that I've been remotely familiar with online stuff is in Alaska, and I don't know much about it. I knew they were doing it with the rural areas that weren't assessed [in physical education]" (17-doctoral/research, Professor). Allison stated, "I don't think my state does [offer OLPE]; actually, I'm not sure. I know Pennsylvania does" (18-large program masters, Assistant Professor). Overall, participants had limited knowledge of the existence of OLPE within their own states. This is not surprising because even within the literature the number of US students enrolled in OLPE courses is imprecise.

Those participants (*n*=11) who were aware of K-12 OLPE programs discussed the extent of their knowledge. Their responses were related to the content taught in those OLPE courses and the method in which they were delivered, either fully online or using a hybrid model. In regard to the curriculum of the online courses, several participants (*n*=4) did not know what was taught, making statements such as, "I'm at a loss; I don't know what's in them" (Mary, 18-large program masters, Assistant Professor). Other participants, however, stated they thought the courses were fitness based. For example, Kristy said, "I think it is mostly fitness, but again I am not really sure" (15-very high research, Professor). Another participant stated the OLPE courses with which he was familiar were summer courses for students who were sick or had difficulties during the year, so those students could "pick up their physical education credit" (Brian, 15-very

high research, Assistant Professor). Overall, there was a lack of curricular knowledge in regard to the K-12 OLPE courses.

Twelve participants had knowledge of K-12 OLPE courses within their states. Six participants stated they thought the courses were fully online, six participants stated they thought the courses used a hybrid model, and two of the participants stated they thought the K-12 OLPE courses used both methods. Shane, for example, indicated that his impression of K-12 OLPE was that courses were, "completely online; there are some that are hybrid, but my impression of these online physical education programs is they are completely online" (16-high research, Assistant Professor). As with the content of the K-12 courses, the participants' responses related to the method in which the OLPE courses were conducted were more conjectures than confident answers.

"OLPE is better than nothing." OLPE is part of a movement toward online teaching, and many of the participants had been exposed to online education at the college level. Twenty of the participants noted that OLPE is likely a part of physical education's future, with a representative statement from Anne, "I think online [P.E.] is the wave of the future. I do believe this [OLPE] is here to stay; you can hold your breath if you like" (16-high research, Professor). Another participant echoed this sentiment by stating, "I think whether we are wholly supportive of it [OLPE] or we are resistant to it, it is an inevitability" (Adam, 18-large program masters, Assistant Professor). Keith provided a counter opinion about the future of OLPE. He thought that the profession needed to determine the extent to which students would use OLPE as an educational option, and then "if things start to change, we will catch up" (18-large program masters,

Assistant Professor). Colton admitted that he thought OLPE is likely a part of the future; however, he felt that:

> We are almost cutting our own throat. I am afraid this [OLPE] will be used to get rid of teachers… with physical education programs being eliminated [across the country]. I don't think online courses are going the help alleviate that issue; they [online courses] may hasten it (19-medium program masters, Professor).

While there was consensus among PETE faculty that OLPE is likely a part of the future of physical education, there was clearly a sense of resignation in relation to this movement.

Some participants (*n*=7) voiced opinions about the potential positive outcomes for K-12 OLPE. For example, Carol stated:

> If it is at least helping students think in the right direction or a more healthy lifestyle then I think it's good. Because it's [OLPE] getting students that otherwise are not going out for athletics after school a real good physical activity and so this may be at least the best thing, better than nothing (Carol, 18-large program masters, Associate Professor).

Meanwhile, another participant discussed the potential benefits for students in rural areas, so the "kids could design programs that were self-directed and goal oriented to what they want to do" (Jennifer, 17-doctoral/research, Professor). Another participant, who was quite knowledgeable about K-12 OLPE held a positive view of the topic. She referred to a high school OLPE program with which she was familiar and stated, "[The online school] received amazing reviews from students about how they've learned, progressed and grown from the program. We don't have empirical evidence [about OLPE

effectiveness] but we have empirical evidence in general that is done on online schooling" (Courtney, 15-very high research, Assistant Professor). Clearly some participants agreed there may be potential benefits of K-12 OLPE, while others are not convinced.

Perceptions of K-12 OLPE

As stated above, the participants generally lacked knowledge about specific K-12 OLPE courses in their states; however, they clearly voiced their perceptions on the topic. Two themes that represented their viewpoints emerged: (a) feasibility of meeting NASPE standards through K-12 OLPE and (b) K-12 OLPE is not appropriate for everyone. The two themes also included subthemes. Three related to the feasibility of meeting NASPE Standards through K-12 OLPE courses and four related to K-12 OLPE's inappropriateness for some students.

Feasibility of Meeting NASPE Standards Through K-12 OLPE

A Few participants (*n*=5) had negative views of OLPE and questioned its viability. For example, Allison stated, "I think it [OLPE] would be a detriment to the field. I don't know how you can do online physical education and hold kids accountable to meeting the NASPE Standards" (18-large program masters, Assistant Professor). Participants' perceptions of OLPE's ability to meet the NASPE (2004) Standards for Physical Education were varied; however, these PETE faculty members clearly believed that OLPE should be held accountable for meeting NASPE Standards.

There was a variety of responses among the participants related to the extent to which K-12 OLPE could facilitate the accomplishment of specific NASPE Standards. The majority of participants (*n*=15) did not believe OLPE could facilitate meeting

47

NASPE Standard 1, which is to demonstrate "competency in motor skills and movement patterns needed to perform a variety of physical activities" (NASPE, 2004, p. 11). OLPE's ability to meet NASPE Standard 2, however was viewed positively by many (*n*=13). Standard 2 is to demonstrate "understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities" (NASPE, 2004, p. 11). Standards, 3-6 had an almost equal number of participants stating OLPE had the ability to meet or not meet those Standards. Participants' responses fell into three subthemes (a) teaching motor skills online is challenging, (b) teaching cognitive knowledge online is feasible, and (c) creative teaching can offer solutions.

Teaching motor skills online is challenging. In regard to OLPE's inability to address NASPE Standard 1, the participants (*n*=15) questioned the ability of online teachers to assess motor competence through an online medium. Shane, for example, posed these questions about an OLPE course: "How are you going to monitor? How are you going to assess? How are you going to do skill assessments on motor competency" (16-high research, Assistant Professor)? Another participant questioned the feasibility of meeting NASPE Standard 1 due to the inability to provide timely feedback, "You can go back and do video analysis and look over the skill, but there is something to being in the moment and giving someone feedback when they are actually producing a movement" (Brian, 15-very high research, Assistant Professor). Those participants who believed Standard 1 could be accomplished through OLPE cited the use of video technology as a means of assessment, but as noted by Brian, the challenge of providing timely feedback exists.

Teaching cognitive knowledge online is feasible. A number of participants (*n*=13) agreed that NASPE Standard 2 could be met through OLPE courses. For these participants, meeting Standard 2 was quite feasible through an online approach. Representative statements included, "I think it can meet Standard 2 easily" (Allison, 18-large program masters, Assistant Professor) and "That [NASPE Standard 2] blends well with an online situation" (Mary, 18-large program masters, Assistant Professor). The participants who said Standard 2 could be met through an online approach connected their views to the natural fit of cognitive learning in online courses. Those participants who did not agree with the ability of Standard 2 to be met online questioned the ability of an online teacher to assess the use of tactical knowledge in game play.

Fifteen participants noted the cognitive components they would include in a K-12 OLPE course. Keith, for instance, discussed the notion that that face-to-face physical education shifts from unit to unit without going in-depth about the activity or sport. He explained a potential benefit of OLPE would be to allow students "to choose some sports and get deeper into it and learn the game play, tactics, history, do a little sport-ed. type thing with it" (18-large program masters, Assistant Professor). Courtney shared her thoughts related to the cognitive content that should be included in a K-12 OLPE course: "Well, anatomy and physiology is important. I'm not sure what level that content would be included, but I think cognitively they [students] need to have an understanding of the way the body moves" (15-very high research, Assistant Professor). It is important to note that only cognitive aspects of a physical education curriculum were mentioned when the participants described the content they would include in a K-12 OLPE curriculum, and no participants cited psychomotor or affective tasks.

49

Creative teaching can offer solutions. In relation NASPE Standards 3-6, the participants equally agreed or disagreed on the ability to meet the Standards through an online approach. One participant, who was convinced all Standards could be met in an OLPE course, stated:

> I think that the degree to which an online environment can meet those Standards is limited only by the creative thinking of the teacher, much as the same way to reach those Standards is limited by the ability or creativity of the face-to-face teacher (John, 21-arts & sciences baccalaureate, Associate Professor).

Another participant, in addition to noting the need for creativity, believed that the curriculum should include student choice, because "whether or not you like a sport, so making them [the students] perform a certain sport or game if they don't enjoy it, I think is detrimental; it's a waste of time" (Courtney, 15-very high research, Assistant Professor). On the other side of the argument, a few participants (*n*=2) disagreed with the notion that online courses could meet the NASPE Standards. For example, Dan did not believe the Standards could be met online because of the lack of social interaction: "What kid wants to go outside and work on their fitness? It's a lot easier to go out and do it as a group because there is group peer pressure and a lot of fun group activities" (17-doctoral/research, Professor). The lack of face-to-face social interaction was often cited as a potential limitation of online education; however, there were an equal number of participants who believed that barrier could be countered through the use of web chatting and discussion boards.

A common concern among participants (*n*=15) was the need to ensure that OLPE students were actually completing assignments themselves. Ellen, for example said,

50

"How could you ever really know that the work being submitted was done by the person enrolled in the course" (22-diverse fields baccalaureate, Professor)? Another participant agreed that although students could be assessed through their contributions to discussion boards and knowledge tests, one is "always going to wonder if this is really the student's work" (Chris, 16-high research, Assistant Professor). John also discussed this difficulty and the challenges associated with an environment in which there is no daily face-to-face contact with students: "You have to trust them, especially when it involves activities. You don't want to put a GPS on them or make them video tape everything they do" (21-arts & sciences baccalaureate, Associate Professor). Clearly, the participants believed that student accountability should be a consideration in the design of OLPE experiences.

K-12 OLPE is Not Appropriate For Everyone

Participants were typically resolute in their beliefs about the grade levels at which OLPE was appropriate. When participants identified whether OLPE should be allowed at the elementary, middle, and high school levels their responses fell into four subthemes: (a) elementary level is a critical time for developing motor skills, (b) I'm on the fence about middle school OLPE, (c) high school students can learn online because the foundation is set, and (d) optimistic for the possibility of success.

Elementary level is a critical time for developing motor skills. Among the few concepts upon which the participants overwhelmingly agreed was that OLPE was inappropriate at the elementary level (*n*=20). Most claims for inappropriateness were related to the difficulty of facilitating the development of fundamental motor skills. For example, Jennifer stated, "I think foundational skills at the elementary school require more face-to-face contact, and those kids aren't as self-directed [as older kids]" (17-

doctoral/research, Professor). Courtney echoed this sentiment, and said that elementary-aged children have innate desires to "run and jump and needing someone to correct their motor skills, also to make them go out and learn new games" (15-very high research, Assistant Professor). In addition to the concerns about motor skill development for elementary students, another challenge noted was elementary students' capacity to communicate, as Adam said: "For somebody that is very young, they are not even able to read and write at that point, so I think online usage would be a challenge" (18-large program masters, Assistant Professor). PETE faculty were mostly adamant that OLPE was inappropriate at the elementary level and that young learners would be unsuccessful in courses offered online.

 I'm on the fence about middle school OLPE. While participants were mostly in agreement regarding elementary OLPE, views on the appropriateness of middle school OLPE were more diverse. Some viewed middle school OLPE as inappropriate (*n*=9) while others struggled with determining appropriateness because of variability among middle school learners. The reasons participants gave for OLPE being unsuitable for middle school students were similar to those given for the elementary students. Dan, for example, said, "I am not sold on the idea of online education [at the middle school level]. I think that for just the social aspect alone, physical education should be taught in the classroom and not online" (17-doctoral/research, Professor). Other participants, however, vacillated in their opinions, for example, Antonio stated, "Middle school… I'm on the fence on that one, but I think they are moving toward a maturity where possibly there could be some level of the kinds of attributes they need to be successful" (17-doctoral/research, Professor). Another participant had similar dialogue when referencing

middle school OLPE. "I don't know if I have a strong enough opinion. I couldn't say appropriate or in appropriate. I don't know if I said inappropriate that I would strongly feel that is the case" (Courtney, 15-very high research, Assistant Professor). As with the elementary students, the participants generally struggled to support middle school OLPE.

High school students can learn online because the foundation is set. OLPE at the high school level was largely supported by the participants (*n*=17). The ability of high school students to be independent learners was cited by the participants as a reason they believed OLPE was appropriate at the high school level. Theresa, for example, said that as long as high school students had "quality programs [in elementary and middle school], they should be ready for independent learning" (18-large program masters, Associate Professor). As opposed to their beliefs about the appropriateness of OLPE at the elementary and middle school levels, participants mostly viewed high school students as ready to learn in an online setting. Adam, for example, said that high school OLPE students are "more directed, more focused for learning" (18-large program masters, Assistant Professor). Another reason some participants (*n*=2) gave for supporting OLPE at the high school level was related to the "toxic ecologies" (Chris, 16-high research, Assistant Professor) that exist in some high school programs. Essentially, Chris believed that some physical education programs are detrimental to learners and he preferred an effective OLPE course to an ineffective face-to-face course.

Optimistic for the possibility of success. Participants shared their thoughts on how to create an effective OLPE course, which for them would include using a hybrid design. Many participants (*n*=12) indicated that they initially held negative attitudes toward the notion of K-12 OLPE, but as they considered the possibilities or opportunities

for students, their viewpoints changed. Adam provided great detail related to his changing viewpoint when he recognized the limited number of days that students have opportunities to be in physical education class. He stated:

> I thought it [OLPE] a bad idea; I thought it was going to hurt the field in general. I think, though, as I have continued and gotten a little more understanding about where it could lead… I think it could be beneficial in the fact that a lot of your cognitive stuff could be taught online (18-large program masters, Assistant Professor).

Another participant experienced a similar self-argument evaluating the pros and cons: "Because I train teachers, I would hate to call online physical education, physical education; that's not what it is… it would be a wellness course. However, I can see how an online class can be beneficial and very positive" (Ellen, 22-diverse fields baccalaureate, Professor). Another participant (Mary, 18-large program masters, Assistant Professor) discussed that while the idea of OLPE was against her personal philosophy of physical education, she was willing to be educated because she realized that not all face-to-face physical education was beneficial for the students due to the prevalence of ineffective traditional physical education programs. As with other participants, Kristy initially had concerns about high school OLPE, but ultimately concluded that many learning outcomes related to fitness, nutrition, and physiology could be met through this venue. She said, "You can teach them [students] a bunch of stuff! There are lots of things that could be taught online that we don't do in traditional classes" (15-very high research, Associate Professor). Another participant agreed with Kristy and was "hopeful that it [OLPE] can be used to improve the delivery of our product"

(Brandon, 18-large program masters, Assistant Professor). After their initial negative

reactions toward OLPE, some participants reflected on the potential benefits that OLPE

might have for some students.

Participants (*n*=24) agreed that in a case in which K-12 OLPE was mandated, then

a hybrid format, which included face-to-face interaction would be necessary. The

rationales provided for enacting a hybrid model were related to: promoting psychomotor

development and maintaining contact with the students. Antonio, for instance, stated that

the hybrid model was preferable because "you could solve some of what I perceive to be

the issues [of OLPE] in terms of the psychomotor aspects" (17-doctoral/research,

Professor). Related to ensuring contact with the students, Allison said she preferred the

hybrid model so "there is some face-to-face interaction, so you are able to control the

quality" (18-large program masters, Assistant Professor). One participant however,

indicated that if K-12 OLPE existed, it should be fully online because within a hybrid

orientation one would question:

> What exactly would you do in that moment of time you had with them? You
>
> could focus on physical skill acquisition, but that would not be enough time. So
>
> what's the point to meet with them for only two hours? (Brian, 15-very high
>
> research, Assistant Professor)

Of course, another argument for online courses relates to why students take online

courses in the first place: the freedom of not having to go to a physical setting. Clearly

there are benefits of a high school OLPE course, but participants believed that specific

design was needed to ensure effectiveness.

Perceptions about Teaching OLPE Pedagogy

The increasing prevalence of online education, including OLPE, brings to question how teacher education programs will integrate online pedagogy into their curricula. Participants' viewpoints on the way in which OLPE pedagogy should be taught in undergraduate PETE programs were are expressed in two themes: difficulty for PETE faculty to teach OLPE pedagogy, and OLPE pedagogy will need to be taught. In addition, there were two subthemes that related to PETE faculty's ability to teach OLPE pedagogy and two that related to the need for OLPE pedagogy to be taught.

Difficulty for PETE to teach OLPE Pedagogy

The ability of PETE faculty to effectively teach OLPE pedagogy to undergraduate physical education students was questioned by the participants in this study. Participants were generally receptive to the notion of including technology related concepts into the curriculum, but fully online methods were viewed in a different way. The subthemes that emerged were: (a) resistance to change and (b) lack of faculty knowledge.

Resistance to change. Nine participants indicated that they would receive little support from colleagues in regard to preparing future physical education teachers to teach online. For example, "It would be like prohibition; it would not go over well… There would be huge fallout" (Brandon, 18-large program masters, Assistant Professor). Ellen also offered a negative perspective in that "I don't think we would get any support for taking class time away to teach somebody how to teach P.E. online" (22-diverse fields baccalaureate, Professor). Likewise, Conrad discussed the difficulty of bringing about curricular change in teacher education and the impact of teacher educators' comfort with technology. He explained that, "the more familiar they are with technology use, those

people [teacher educators] are going pro [teaching OLPE pedagogy] and those not technologically sound will not like it" (20-smaller program masters, Professor). Congruent with Conrad's beliefs, some participants indicated that colleagues within their departments would be supportive of an initiative of this nature. Courtney, for instance, discussed how her department is known for integrating technology into the curriculum and their goal is to "be more innovative with how technology can be used to improve student learning, so we immediately grabbed hold of the idea. We did our research of what online teaching looks like" (15-very high research, Assistant Professor). Understandably, those participants who had experience with teaching online courses seemed the most positive about the possibility of including OLPE pedagogy in their undergraduate curricula.

In relation to the concept of "resistance to change" some participants (n=11) believed they could convince resistant colleagues by confirming that OLPE pedagogy was needed in their undergraduate programs. Put differently, if they could prove the need, their colleagues and department might be open to the idea of integrating OLPE in the curriculum. Mary discussed this concept of necessity, "Actually show them [her colleagues] that it [OLPE] is in the schools and our teachers need to know this, because this is what is going to be expected of them for jobs" (18-large program masters, Assistant Professor). Another participant echoed this idea, "If that [OLPE] was something that was prevalent, that we could see that it was really something that was going to happen, then we would have to deal with it" (Kristy, 15-very high research, Professor). As previously noted, the awareness of K-12 OLPE is limited among PETE

57

faculty members; therefore, at present, it seems there is little perceived need for including

OLPE pedagogy into the undergraduate curriculum.

While perceived collegial support was mixed in relation to the inclusion of OLPE

pedagogy in undergraduate programs, a number of participants (*n*=7) mentioned that they

would likely receive university or administrative level support. Chris indicated that he

would receive little support from colleagues but would receive administrative support, "If

I asked for an extra month of summer pay [to develop an online curriculum], they'd

probably give me that" (16-high research, Assistant Professor). Another participant

discussed how his university had graduate courses related to teaching online and while

the courses "are offered at the graduate level, they would definitely be willing to come

over and help a department if they wanted to integrate concepts into an undergraduate

class" (Jay, 15-very high research, Associate Professor). Since, as previously noted,

universities and administrators tend to promote the conversion of traditional college

courses to online offerings; it is not surprising that they also would support the concept of

teaching online pedagogy.

Lack of faculty knowledge. In some instances, participants (*n*=7) acknowledged

shortcomings of PETE faculty's ability to teach online pedagogy to undergraduate

students. Dan, cited the disposition of professors as a limitation, "Most university

professors are 'old school'; we are face-to-face, and I think it would take a lot of

retraining of those professors to be able to move in that direction" (17-doctoral/research,

Professor). Brian also acknowledged that a barrier to teaching online pedagogy would be

"prior knowledge of technology and technology usage with the faculty" (15-very high

research, Assistant Professor). Setting a good example by modeling effective pedagogy

was mentioned by Gordon in that PETE faculty "would have to be mentors themselves and they would have to model the use of technology" (21-arts & sciences baccalaureate, Assistant Professor). As confirmed previously, many PETE faculty members have benefited from technological pedagogy, through faculty development seminars and their own trial and error; however, further training is warranted.

OLPE Pedagogy Will Need to be Taught

While PETE faculty have limited knowledge of specific K-12 OLPE programs, and most admit that they need to gain knowledge about OLPE pedagogy, they also were resigned to the possibility that OLPE will become much more prevalent in the future. Two subthemes emerged: (a) undergraduates require training to use technology, and (b) PETE should be involved.

Undergraduates require training to use technology. Undergraduate students' ability to use technology was cited by participants' (n=7) as a facilitator for OLPE pedagogy instruction in teacher education programs. Chris explained that the new generation of undergraduates is technology savvy because they have "always had the Internet, electronic media tools like smart phones, computers and satellite TV" (16-high research, Assistant Professor). Another participant echoed this notion: "Our students are really into technology, social networks, things like that, so they have those skills and they could bring them along [in educational settings]" (Keith, 18-large program masters, Assistant Professor). Gordon acknowledged undergraduate students' exposure to technology, but cautioned against assuming too much understanding on the part of the students, "They don't know everything. They are good at it [using technology], but you have to double check that they could actually use it [in an educational setting]" (21-arts &

sciences baccalaureate, Assistant Professor). The current generation was considered a part of the digital generation since they have not known life without the inclusion of Internet, computers, and cell phones. This exposure to technology would likely facilitate pre-service teachers' receptivity to the concept of OLPE.

Although the participants believed that pre-service teachers were technology savvy; they indicated that additional training for educational settings was warranted (n=16). John discussed that a downside to using technology in education is that teachers overload the learners by using technology inappropriately. He said, "You can do a wide variety of things, but there gets a point where simpler is better. So you have to understand just because you can, doesn't mean you should" (21-arts & sciences baccalaureate, Associate Professor). Anne stated that in order to be successful online teachers, undergraduates need to have "advanced technological skills so they can manipulate the software to provide effective instruction" (16-high research, Professor). In addition, undergraduates also need to know "how to set up chat rooms, webinar sessions with Skype so they can communicate in groups" (Theresa, 18-large program masters, Associate Professor). Along with learning technology, staying abreast of new technology is required for pre-service teachers because they need to "keep up with technology or else you are going to get left behind" (Colton, 19-medium program masters, Professor). Another participant, Lauren, also mentioned this concept, "The problem with technology is the constant revolving door, so they [pre-service teachers] wouldn't have to just learn it here, they would also have to have some sort of mechanism to keep up with technology" (15-very high research, Assistant Professor). As Lauren noted, keeping up with the latest technology is difficult due to its quick evolution. If undergraduates are to learn online

pedagogy, they as well as their teacher educators will need to keep up-to-date with the latest innovations.

A majority of participants (*n*=14) pointed to the importance of pre-service teachers gaining an understanding of pedagogical methods. Ellen, for example, discussed pre-service teachers need to become aware of their online learners learning styles:

> A big portion of online pedagogy has to do with being aware of learning styles and having the understanding that visual learners will see this page differently than auditory learners. You [the teacher] are going to have to make sure both those learning styles are covered in an online course (22-diverse fields baccalaureate, Professor).

Another participant agreed that pre-service teachers need to learn to differentiate instruction, and also believed that pre-service teachers need to learn "how they [pre-service teachers] are going to deliver content in those [online] courses, and using assessment" (Brandon, 18-large program masters, Assistant Professor). New teaching strategies need to be acquired in order to successfully teach online. Brian acknowledged, "Teaching a group of people in person is much different than teaching them virtually" (15-very high research, Assistant Professor). Fortunately, physical education majors acquired pedagogical knowledge in their teacher education programs. This knowledge can serve as a foundation on which teacher educators can base instruction related to differences in instructional strategies appropriate for the face-to-face and digital environments.

PETE should be involved. The participants confirmed that the prevalence of online education warrants its inclusion in undergraduate programming. An apparent

question is who should assume responsibility for teaching OLPE pedagogy to physical education pre-service teachers. The majority of participants (*n*=23) believed that PETE faculty members should be involved, at some level, in teaching this online pedagogy. Adam shared, "We are going to have to ask our PETE specialists get comfortable in this stuff. Regardless of whether it's online or not, you need somebody that knows the subject matter to be teaching it" (18-large program masters, Assistant Professor). Another participant agreed with this notion, stating that PETE specialists should assume responsibility because of their "understanding of concepts and content" (Kim, 18-large program masters, 30). Conrad mentioned that PETE faculty members and not a technology specialist should teach these courses. He explained, "Just because you know how to use technology doesn't necessarily mean they know how to properly teach the class for teacher preparation. Just because I walk through a garage doesn't make me a mechanic" (20-smaller program masters, Professor). Undoubtedly, the participants believed PETE specialists should teach specific online pedagogy to pre-service teachers.

Many participants (*n*=13) believed that PETE faculty members' should share the teaching of online pedagogy responsibilities with technology specialists. According to Brandon, such collaboration is necessary to help PETE faculty members "understand some of the things available in technology, to do things more efficiently" (18-large program masters, Assistant Professor). Brian echoed this sentiment and stated that a partnership with the technology specialist would be beneficial:

> Unless PETE faculty are trained and someone forced them to go to a workshop, a very long detailed workshop, I do not think they would have the knowledge necessary to deliver an online course. But on the other side, you cannot have a

technology specialist in technology because they will not have the pedagogy

necessary to teach high quality physical education (15-very high research,

Assistant Professor).

Consequently, these participants believe that until PETE faculty members acquired the

technological pedagogy needed to teach online pedagogy themselves, a partnership was

necessary to deliver instruction to pre-service physical educators.

PETE Faculty Demographics May Offer Different Viewpoints

Data were analyzed to examine differences among participants in regards to

Carnegie classifications and academic titles (assistant professors compared to associate

and full professors). Two themes emerged: PETE faculty at different Carnegie

classifications are similar, and academic standing may influence perception.

PETE Faculty at Different Carnegie Classifications are Similar

No conclusive differences were found related to the analysis of participants from

the various Carnegie classifications. Differences were examined between Carnegie

classifications 15-17 (higher research universities) and 18-21 (masters and baccalaureate

universities). An equal number of participants from higher research universities had

positive (n=4) and negative (n=4) perceptions of K-12 OLPE. In addition, three

participants from higher research universities believed K-12 OLPE had both positive and

negative outcomes. Participants from the masters and baccalaureate universities also had

similar number of participants viewing K-12 OLPE positively (n=8), negatively (n=5),

and both (n=1).

Academic Standing May Influence Perception

Data were analyzed to examine differences between assistant professors versus associate and full professors. Data indicated that associate and full professor participants (*n*=9) tended to have more positive comments about the potential benefits of K-12 OLPE versus their assistant professor counterparts (*n*=4). Jennifer, who is a full professor, did not think OLPE would detract from current secondary physical education because:

It could allow students to design physical education and physical activity programs that met their needs rather than having them be prescribed as you may see in secondary physical education today. I don't think people who do online [physical education] would take away from what's happening in most secondary programs right now (17-doctoral/research, Professor).

On the other side of the argument, Lauren, who is an assistant professor, was not as optimistic, "I don't think it's [K-12 OLPE] a good thing. I think its opening a flood gate for a direction we don't want to go" (15-very high research, Assistant Professor). There were also associate and full professors who had negative opinions of K-12 OLPE and assistant professors who had positive opinions, however, more experienced faculty members tended to more positive statements toward K-12 OLPE.

Summary

Physical education teacher education faculty members' knowledge of online education was primarily derived from their experience of including online resources with their face-to-face courses. Some participants, however, had experience teaching courses online. Most of these courses were at the graduate level. Participants' knowledge about K-12 OLPE was limited. Few participants were aware of OLPE programs within their states or the content of those courses. A general impression among participants' was that

a K-12 physical education course online had potential, but was not appropriate for all learners.

The consensus among participants was that K-12 OLPE was appropriate for the high school level only and that a hybrid model was best for content delivery. Participants acknowledged that K-12 OLPE had the potential to meet NASPE Standard 2 which relates cognitive goals of physical education, but could not facilitate goals specific to NASPE Standard 1, which are related to the psychomotor domain. Appropriate assessment and being able to trust online students to do their own work were concerns among many participants. Accountability of ensuring online students were actually completing the physical activity requirements was important. Also, effective student assessment using the online medium was a concern; however, ideas such as videos, fitness logs, and discussion boards were mentioned as solutions.

A general attitude among participants was that there is not a current need to teach OLPE pedagogy to pre-service teachers due their perception regarding the lack OLPE jobs around the country. There was a sense that PETE faculty members would encounter resistance from their colleagues if OLPE pedagogy was proposed for the undergraduate physical education curriculum. In the case in which OLPE pedagogy was mandated in the pre-service teacher curriculum, however, participants overwhelmingly agreed the PETE faculty should be included in the instructional delivery.

CHAPTER 5

Discussion

Online education is rapidly growing in the US, with recent estimations of 1.5 million students enrolled in K-12 online courses (Wicks, 2010). Online Physical Education (OLPE) has also experienced growth in the last decade. A recent study indicated OLPE was more widespread than suggested by the *Shape of the Nation* (2006, 2010) reports (Daum & Buschner, 2012). The purpose of the current study was to examine physical education teacher education (PETE) faculty attitudes toward and understanding of OLPE. This study contributes to an under represented area in the literature, yet one of the fastest growing educational opportunities for K-12 students.

This qualitative study evaluated interview data from PETE faculty through inductive and deductive analysis. The deductive analysis was viewed through the lens of the Social Cognitive Theory (Bandura, 1986). Social Cognitive Theory (SCT) is a triadic causal model using behavior, personal factors, and environmental factors as influences on each other (see Figure 2). These reciprocal factors do not denote these influencers are of equal strength or that they all occur concurrently (Wood & Bandura, 1989). The nature of the relationship between the factors depends upon the behavior. Wood and Bandura (1989) further note that because of the bi-directionality of the influencers, "people are both the products and producers of their environment" (p. 362).

Three constructs of SCT, including: personal factors, environmental factors, and behavior are used as organizers for this chapter. In addition, conclusions related to the findings, limitations of the research, implications of this research, and recommendations for future research are presented.

Personal Factors

According to Bandura (1986), personal factors are related to self-efficacy, self-control, motivation, and knowledge. In the current study, examples of personal factors include participants' knowledge about online education and beliefs about K-12 OLPE. Many participants were knowledgeable about college online courses, with several having taught graduate courses online. As expected, participants' knowledge about K-12 OLPE was limited; few participants knew of the existence of K-12 OLPE in their states. There were participants, however, from 10 states who work in states in which K-12 OLPE is in place (NASPE, 2006; 2010, Daum & Buschner, 2012). Perhaps this lack of knowledge is through no fault of their own, as the literature is unclear as to how prevalent online programs are within these states. The participants' knowledge of content and effectiveness of these programs was limited. Even those participants who had specific knowledge of K-12 OLPE programs within their states were unable to provide specific details about those programs.

Regardless of the participants' lack of knowledge of K-12 OLPE, there were participants who believed that OLPE could be used effectively and students could benefit from these courses. Participants' reflected on their opinions of K-12 OLPE, which were initially negative, but changed over the course of time as they thought about its potential for accessing students who might not be reached through traditional physical education. These beliefs are important to note because beliefs and self-efficacy, positive or negative, ultimately effect PETE educators actions (Bandura, 2001a). Social Cognitive Theory suggests that PETE faculty who have positive attitudes toward K-12 OLPE are more likely to incorporate online pedagogy into their curricula. A common concern among

67

participants was accountability. The participants believed that for a K-12 OLPE course to be successful, tools needed to be available so the teacher could appropriately assess his/her students. Participants suggested that one way for K-12 online students to be held accountable would be through the use of a hybrid model. The participants believed that a hybrid course design could provide accountability for quality motor learning.

A general sense of concern was present among the participants' regarding K-12 OLPE. They generally believed that while it had potential in promoting cognitive learning, its ability to meet all the NASPE (2004) standards was extremely limited, particularly its ability to meet NASPE Standard 1. They believed that Standard 1 would be difficult to measure online, especially when one considers how to assess acquisition of motor skills in an online environment. Related to meeting NASPE standards, participants were adamant that OLPE was inappropriate at the elementary level due OLPE's inability to promote the development of fundamental motor skills and children's socialization into the school environment. Participants' beliefs toward OLPE at the middle school level were inconsistent. Though participants did not support OLPE at the elementary level, they did support high school OLPE due to older students' ability to work independently. While empirical literature cannot corroborate these claims by participants concerning the age at which students have the ability to work independently, research indicates that over 93% of youth ages 12-17 use the Internet and may have the skill set to be successful online learners (Lenhart, Madden, MacGill, & Smith, 2007).

Related to faculty members' lack of K-12 OLPE knowledge, was the perceived lack of ability of PETE faculty to teach online pedagogy to their students. This finding is consistent with related literature in that educators feel confident in their ability with

pedagogy, but less confident in their ability to use technology (Archambault & Crippen, 2009). The participants believed that they needed more training in order to become knowledgeable enough to teach online pedagogy to their students. Participants' self-efficacy toward their technology use has been cited by others as a barrier to incorporating technology in educational settings (Morales, Knezek, & Christensen, 2008; Niederhauser & Perkman, 2008; Woods, Goc-Karp, Miao, & Pearlman, 2008).

As noted in the previous chapter, the associate and full professor participants tended to have a more positive disposition regarding K-12 OLPE than their assistant professor counterparts. These more experienced faculty members could have a more positive outlook in regards to K-12 OLPE because they have reached what Fessler (1985) called *Enthusiastic and Growing Career Stage*. In this stage, an educator is knowledgeable about and comfortable with his/her ability to use proper pedagogy. Likewise, given that these experienced PETE faculty are confident in their content knowledge for the courses they teach, perhaps they embrace the challenge of online education, as they seek to develop professionally. Assistant professors, on the other hand, are likely in *Induction* and *Competency Building Stages* (Fessler, 1985) in which they are striving for acceptance, gaining knowledge, and improving their teaching skills. Their lack of experience within the profession could be a reason that they did not have as positive an outlook toward K-12 OLPE as their more experienced colleagues.

Environmental Factors

The next element of the triadic relationship of SCT describes the environmental factors, which includes physical environment, contextual factors and social structures (Bandura, 1986). Environment is comprised of each participant's surroundings and how

69

they interpret those surroundings. In terms of this study, examples include university support, collegial support, and Carnegie classification. The purpose of using the Carnegie classifications as a framework for the selection of participants was to ensure a representative sample of PETE faculty in the United States. As noted in the previous chapter, no differences were found between the higher research productive university faculty; Carnegie classifications 15-17, and the lower research producing universities; Carnegie classifications 18-22. This finding suggests knowledge and perceptions regarding K-12 OLPE are related to PETE faculty's individual dispositions and not the type of university in which they teach.

Support from the participants' universities in relation to online education was apparent. Participants suggested that their universities promoted the creation and inclusion of more online courses and the university was supportive of faculty members who included technology pedagogy into their courses. Support from the university took the form of provisions for funding, facilities, and trainings. These three factors; funding, facilities, and training have all been cited in the literature as barriers for teachers to implement technology within their courses (Woods, Goc-Karp, Miao, & Pearlman, 2008). With this supportive infrastructure, participants incorporated technology into their courses. Participants were most likely to mention online courses being available to graduate students and likely to mention its use with undergraduate students, suggesting that university support does not apply to all levels.

Participants were confident in their universities' support of technology-related endeavors, but were less confident about attaining the support of their colleagues. The lack of collegial support is not surprising, given that the inclusion of technology could be

seen as an attack upon their subject matter. Other researchers have found that perceived threats upon an educator's subject matter will hinder the faculty member's ability to include new content (Hokka, Etelapelto, & Rasku-Puttonen, 2010). While there was perceived resistance from other faculty members, the participants believed they could convince their colleagues to include OLPE pedagogy in the curricula if became a necessity for their pre-service teachers.

Several participants cited barriers to including OLPE pedagogy related to the inability of the profession to adapt to changes and the inability of technology-challenged faculty to use online learning. Barriers to curricular change are not unique to physical education in that other researchers have found that the additional burden of curricula change fostered resistance among educators (Licari, 2007; Maggi, Stergiopoulos, & Sockalingam, 2008; Tagg, 2012).

While the participants' believed that the faculty would struggle to adapt to online learning, they believed that students would adapt more easily because they tend to be savvy with technology. In other words, PETE faculty thought that undergraduates could move into online education with relative ease because they are a part of the digital generation. Geyer (2009) found that perceived savvy of technology use increases steadily from age 10 to when they enter high school. Therefore, the participants beliefs about pre-service teachers confidence in using technology is likely accurate. Some participants, however, cautioned that while students knew how to use the technology, they would need to learn how to use it appropriately or risk having that technology be a detriment to the learning process. Without training, pre-service teacher's ability to use technology successfully within the classroom has been shown to be limited (Turvey, 2010).

71

Behavior

The final element of the SCT is behavior. In terms of the current study, behavior is related to the participants' inclusion of online resources within their teaching and whether they teach online. According to Wood and Bandura (1989), the nature of the relationship between environment and personal factors is dependent upon behavior. Faculty members performing a behavior such as learning to teach online will have a direct effect on their self-efficacy, beliefs, and other perceived influencers. Contributing to participants' knowledge of how to use online resources was the prevalence of faculty attendance at seminars focused on using online resources. Also, some participants learned through experience as they taught online courses at the graduate level. Use of online learning management systems such as Moodle or Blackboard was mentioned as supplements the faculty members included within their graduate and undergraduate courses. These learning management systems were cited as a way to disseminate materials and foster discussions. Attendance at training seminars and use of technology are perhaps positive indicators regarding PETE faculty members' perceptions of K-12 OLPE. These seminars and discussions might encourage PETE faculty to thoughtfully engage in discourse on how best to include technology in the design of online courses. This discourse is suggested as a valuable part of the growth needed to connect content, pedagogy, and technology (Koehler, Mishra, & Yahya, 2007).

Many participants had experienced integrating online learning into their courses. This took the form of participants' use of online materials to supplement their face-to-face courses. In addition, several PETE faculty had taught online courses. In that case teaching online pedagogy was required, 92% of the participants in this study believed the

PETE faculty should be in charge of incorporating it into the curriculum. Participants believed PETE faculty would need to act in cooperation with a technology specialist until the PETE faculty acquired the knowledge to accomplish teaching online pedagogy on their own. This finding is in conflict with a previous study in which 40% of participants' believed that technology skills needed to be taught by technology specialists (Simpson, Payne, Munro, & Hughes, 1999). Wentworth, Graham, and Tripp (2008) along with Chen (2010), cited the need for educators to work in cooperation with technology faculty to ensure better learning experiences for pre-service teachers and to foster a consistent message appropriate use of technology. This cooperation should lead to a positive learning environment, allowing the pre-service teachers to experience the technology in a pedagogically sound manner (Bai & Ertmer, 2008).

Integration of SCT Elements

The results of this study indicate a causal relationship of the SCT factors related to PETE faculty and K-12 OLPE. Much of the PETE faculty's relationship between environmental and behavior factors was influenced by their respective universities pressure to include more online course offerings. Because PETE faculty needed to learn about how to teach online they took faculty development seminars. This pressure caused the faculty to teach online and consequently learn the pedagogy, which influenced another part of the triadic model, personal factors. In addition, the participants do not perceive the need to include K-12 OLPE pedagogy in their pre-service curricula and therefore will not take action to integrate this pedagogy until it is mandated at the departmental or university levels.

Another relationship existed between the personal and environmental factors. PETE faculty members' personal factors, such as knowledge about online education, were related in part to pressure from their universities' to include more online materials and online classes. Likewise, several participants stated that they could influence environmental factors, such as university and collegial support, in the cases that they were able to prove the need for including K-12 OLPE pedagogy into the pre-service curricula.

In relation to the connections between the personal and behavior factors; much of what PETE faculty knew about online education is from their experience in teaching or taking online courses. They learned about online pedagogy through experience and those experiences have influenced their perception about online education. Their self-efficacy and knowledge related to K-12 OLPE, or personal factors, was limited and their behavior related to K-12 OLPE was also limited. PETE faculty will need to become more knowledgeable about K-12 OLPE if online pedagogy is to be included in pre-service education curriculum.

Insights and Interpretations

Environmental factors are likely to influence online education more than personal factors or beliefs. While only one participant mentioned the reason their university was promoting online courses was money related, it is likely this factor is much more prevalent. Universities can increase enrollment, influence, and income by including more online courses. So what does this mean for universities, and more specifically teacher education programs? PETE faculty's would be resistant towards online courses that would attempt to address motor and social development. Their support for online courses

would be limited to courses that include cognitive components. It is not likely that there will be a fully online pre-service degree program because the face-to-face practicum experiences would be difficult to replicate in an online environment. There are other components of a pre-service pedagogy program that could be conducted online. In terms of physical education, this could include courses related to curricular models, anatomy/physiology, motor development, and history of sport.

As mentioned previously, online education at all educational levels is growing, and with it the number of course offerings and student enrollment. While it is unclear exactly how many K-12 students are enrolled in OLPE courses in the US, it is likely that in the immediate future that number will increase. There are definitely challenges with the integration of OLPE such as accountability and teaching for motor skill development, however, the train has left the proverbial station and as a profession we need to get on board or risk getting left behind. As a profession physical education is behind other fields that have been researching the impact of online education for almost a decade.

There are an increasing number of physical activity applications (apps) available for devices in addition to pedometers, accelerometers and heart rate monitors. All of these types of technologies can be used for the accountability of physical activity in a K-12 OLPE course. A constraint that participants continually mentioned was the inability of K-12 OLPE to meet NASPE standard 1 due to the difficulty in teaching and assessing motor skills. It should be noted that technology is available to accomplish this; however, cost and awareness may be the contributing factors for lack of use. For motor learning, haptic devices and virtual realities could be used to monitor and assess motor learning;

however, costs associated with such devices are currently impractical for educational settings.

Limitations

Several limitations were identified during the completion of this project. First, some participants misinterpreted selected interview questions. The misinterpretation happened at times when the topic of questions moved from college online courses, to K-12 OLPE, and preparing pre-service teachers. This caused some answers to be irrelevant to the intended question; however, efforts were made by the interviewer to refocus participants by re-wording the questions. A second limitation, as with some qualitative research, is only having 25 participants; however, that is the nature of qualitative research. Qualitative research provides rich description from in-depth interviews which are difficult to implement with a large number of participants. Third, interviews were the only form of data collection. Lastly, the lack of knowledge about K-12 OLPE was a limitation and led to the inability of some participants to fully answer various interview questions. This was an anticipated limitation and prompted the development of fewer interview questions related knowledge of K-12 OLPE and more questions related to participants' viewpoints related to K-12 OLPE. Thus, the interview guide was designed to draw upon participants' knowledge of physical education pedagogy and relate this knowledge to their perceptions of K-12 OLPE.

Implications

The findings of this study indicate that PETE faculty were supportive of OLPE at the high school level only, particularly if it can be delivered through a hybrid model so that teachers have face-to-face interactions to promote psychomotor learning. The

promotion of students' cognitive learning was acknowledged as the strength of the online learning format; however, PETE faculty were not supportive of a K-12 OLPE course that was purely cognitive and lacked the psychomotor components. Awareness of K-12 OLPE has not reached a level of prominence due to its lack of perceived prevalence. There is a general absence of motivation to explore K-12 OLPE because PETE faculty have not yet been affected by its existence even though some participants were aware of virtual schools that employed online physical education teachers. It would benefit PETE faculty to become more knowledgeable about K-12 OLPE due to its increased prevalence within the educational landscape. With greater awareness comes the possibility of increased involvement of PETE faculty and the potential of an improved OLPE curriculum.

Online pedagogy could potentially be included in the pre-service education curriculum if PETE faculty perceived that it would be useful for their pre-service teachers. It is not likely online pedagogy would warrant its own course but PETE faculty could include aspects of online pedagogy into pre-existing technology-related courses. Even in the case that teacher educators wanted to include online pedagogy in their curricula, few resources are available which focus on appropriate practices related to K-12 OLPE. If, as some participants noted K-12 OLPE is the wave of the future, the PETE faculty will need to investigate the topic as an offering within their pre-service curricula.

Future Research

This study's findings contribute to an area of literature in which there is limited empirical evidence. Future research should examine the viability of this mode of physical education instruction and its lasting impact upon learners. Future studies should examine K-12 OLPE teachers' and their student's perceptions about K-12 OLPE to ensure those

77

courses would meet their needs. In addition, it is of interest to appraise their thoughts

compared to the findings from this study in terms of content, delivery mode (hybrid or

fully online), and in what contexts OLPE is appropriate.

Research studies regarding curricular design, models, content, and other factors

related to online learning should be conducted to determine best practices in K-12 OLPE.

These lines of research differ from studies regarding online education in general because

physical education focuses on psychomotor learning. Research regarding curricular

design should be conducted to determine best practices in regard to accountability related

to physical activity, which was a major concern of participants in this study. Also of

interest is research comparing the physical activity levels of K-12 OLPE students and to

those students who receive face-to-face instruction. More importantly, investigating the

difference in course design and the lasting impact upon physical activity levels for

students is warranted.

References

Archembault, L., & Crimpen, K. (2009). Examining TPACK among K-12 online distance educators in the United States. *Contemporary Issues in Technology and Teacher Education, 9*. Retrieved from http://www.citejournal.org/vol9/iss1/general/article2.cfm

Ayers, S. F., & Housner, L. D. (2008). A descriptive analysis of undergraduate PETE programs. *Journal of Teaching in Physical Education*, *27*, 61-67.

Bai, H., & Ertmer, P. A. (2008). Teacher educators' beliefs and technology uses as predictors of pre-service teachers' beliefs and technology attitudes. *Journal of Technology and Teacher Education*, *16*, 93-112.

Bandura, A. (1977). *Social learning theory*. New York, New York: General Learning Press.

Bandura, A. (1986). *Social foundations of thought and action: A Social Cognitive Theory*. Englewood Cliffs, New Jersey: Prentice-Hall.

Bandura, A. (2001a). Social Cognitive Theory: An agentic perspective. *Annual Review of Psychology*, *52*, 1-26.

Bandura, A. (2001b). Social Cognitive Theory of mass communication. *Media Psychology*, *3*, 265-299.

Carnegie Foundation for the Advancement of Teaching (1994). *A classification of institutions of higher education*. Princeton, NJ: Author.

Carnegie Foundation for the Advancement of Teaching (2000). *A Carnegie classification of institutions of higher education*. Menlo Park, CA: Author.

Chen, C. H. (2010). Expectation discrepancy in the integration of constructivist-instruction technology into a teacher education course. *International Journal of Instructional Media, 37,* 65-77.

Daum, D. N., & Buschner, C. (2012).The status of secondary online physical education in the United States. *Journal of Teaching in Physical Education, 31,* 86-100.

Davidson, F. (Producer) (2003). *Bandura's Social Cognitive Theory: An introduction* [Motion picture]. USA: Davidson Films Inc.

Davis, N., Preston, C., & Sahin, I. (2009). Training teachers to use new technologies impacts multiple ecologies: Evidence from a national initiative. *British Journal of Educational Technology*, *40*, 861-878.

Davison, M. (2005). Distance education in high schools: Benefits, challenges, and suggestions. *The Clearing House, 78*, 105-108.

Fessler, R. (1985). A model for teacher professional growth and development. In P.J. Burke, & R.G. Heideman (Eds.), *Career-long teacher education* (pp. 181-193). Springfield, IL: C.C. Thomas.

Futrell, J. (2009). *A comparative study of virtual high school instruction versus traditional instruction of high school student outcomes and attitudes in physical education* (doctoral dissertation). Retrieved from ProQuest. (3360073).

Geyer, R. W. (2009). Developing the internet-savviness (IS) scale: Investigating the relationships between internet use and academically talented middle school youth. *Research in Middle Level Education*, *32,* 1-20.

Graber, K. C., Erwin, H., Woods, A. M., Rhoades, J., & Zhu, W. (2011). A national

profile of teacher education faculty: The construction of an online survey.

Measurement in Physical Education and Exercise Science, 15, 245-256.

Hokka, P., Etelapelto, A., & Rasku-Puttonen, H. (2010). Recent tensions and challenges

in teacher education as manifested in curriculum discourse. *Teaching and Teacher

Education, 26,* 845-853.

Jones, R. (1985). *Research method in the social and behavioral science*. Sunderland,

MA: Sinauer Associates, Inc.

Koehler, M. J., Mishra, P., & Yahya, K. (2007). Tracing the development of teacher

knowledge in a design seminar: Integrating content, pedagogy and technology.

Computers & Education, *49*, 740-762.

Lenhart, A., Madden, M., MacGill, A., & Smith, A. (2007). Teens and social media: The

use of social media gains a greater foothold in teen life as they embrace the

conversational nature of interactive online media. Retrieved from the Pew Internet

and American Life Project website:

http://www.pewinternet.org/~/media//Files/Reports/2007/PIP_Teens_Social_Media_

Final.pdf.pdf

Licari, F. W. (2007). Faculty development to support curriculum change and ensure the

future vitality of dental education. *Journal of Dental Education, 71*, 1509-1512.

Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.

Maggi, J. D., Stergiopoulos, V., & Sockalingam, S. (2008). Implementing a new

physician manager curriculum into a psychiatry resisdency training program: the

change process, barriers and facilitators. *Psychiatric Quarterly, 79*, 21-31.

Metzler, M. W., & Freedman, M.S. (1985). Here's looking at you, PETE: A profile of physical education teacher education faculty. *Journal of Teaching in Physical Education, 4,* 123-133.

McNamara, J., Swalm, R., Stearne, D., & Covassin, T. (2008). Online weight training. *The Journal of Strength and Conditioning Research, 22*, 1164-1168.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, *108,* 1017-1054.

Miller, N., & Dollard, J. (1941). *Social learning and imitation*. New Haven, CT: Yale University Press.

Mills, S. (2003). Implementing online secondary education: An evaluation of a virtual high school. In C. Crawford et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2003* (pp. 444-451). Chesapeake, VA: AACE.

Morales, C., Knezek, G., & Christensen, R. (2008). Self-efficacy ratings of technology proficiency among teachers in Mexico and Texas. *Computers in the Schools, 25,* 126-144.

Mosier, B. A. (2010). *A descriptive study of Florida virtual school's physical education students: An initial exploration* (Unpublished doctoral dissertation). Florida State University, Tallahassee, FL.

National Association for Sport and Physical Education. (2003). *What constitutes a quality physical education program* [Position Statement]. Reston, VA: Author.

National Association for Sport and Physical Education. (2004). *Moving into the future: National standards for physical education (2nd ed.).* Reston, VA: Author.

National Association for Sport and Physical Education. (2006). *Shape of the nation: Status of physical education in the USA.* Reston, VA: Author.

National Association for Sport and Physical Education. (2007). *Initial guidelines for online physical education,* [Position Paper]. Reston, VA: Author.

National Association for Sport and Physical Education. (2008). *National initial physical education teacher education standards.* Reston, VA: Author.

National Association for Sport and Physical Education. (2010). *Shape of the nation: Status of physical education in the USA.* Reston, VA.

Niederhauser, D. S., & Perkman S. (2008). Validation of the intrapersonal technology integration scale: Assessing the influence of intrapersonal factors that influence technology integration. *Computers in the Schools, 25,* 98-111.

Pape, L. (2006). From bricks to clicks: Blurring classroom/cyberlines. *The School Administrator, 63,* 18-25.

Patton, M. Q. (2002). *Qualitative research & evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.

Picciano, A., & Seaman, J. (2007). *K-12 online learning: A survey of U.S. school district administrators.* Needham, MA: Sloan-C.

Ring, R. (2006). Where's the discipline in online education? *The School Administrator, 63,* 24-24.

Rink, J. E. (1993) Teacher education: A focus on action. *Quest*, *45*, 308-320.

Ronsisvalle, T., & Watkins, R. (2005). Student success in online K-12 education. *The Quarterly Review of Distance Education, 6*, 117-124.

Russell, T. L. (2001). *The no-significant difference phenomenon (5th ed.)*. Raleigh, NC: North Carolina State University.

Schwartzman, R. (2007). Refining the question: How can online instruction maximize opportunities for all students? *Communication Education, 56*, 113-117.

Simpson, M., Payne, F., Munro, R., & Hughes, S. (1999). Using information and communications technology as a pedagogical tool: Who educates the educators? *Journal of Education for Teaching*, *25*, 247-262.

Tagg, J. (2012). Why does the faculty resist change? *The Magazine of Higher Learning*, *44,* 6-15.

Tashakkori, A., & Creswell, J. (2007). Exploring the nature of research questions in mixed methods research [Editorial]. *Journal of Mixed Methods, 1,* 207-211.

Thomas, J. R., Nelson, J. K., & Silverman, S. J. (2005). *Research methods in physical activity*. Champaign, IL: Human Kinetics.

Turvey, K. (2010). Pedagogical-research designs to capture the symbiotic nature of professional knowledge and learning about e-learning in initial teacher education in the UK. *Computers & Education, 54,* 783-790.

Vannatta, R. A., & Banister, S. (2008). The impact of assessing technology competencies of incoming teacher education students. *Computers in the Schools, 25*, 90-97.

Watson, J. F. (2008). *Promising practicies in online learning: Blended learning: The convergence of online and face-to-face education*. Retrieved from the International Association for K-12 Online Learning website: http://www.inacol.org/research/promisingpractices/NACOL_PP-BlendedLearning-lr.pdf

Watson, J. F., Gemin, B., Ryan, J., & Wicks, M. (2009). *Keeping pace with K-12 online learning: An annual review of policy and practice.* Retrieved from Evergreen Education Group Website: http://www.kpk12.com/wp-content/uploads/KeepingPace09-fullreport.pdf

Watson, J. F., Murin, A., Vashaw, L., Gemin G., & Rapp, C. (2010). *Keeping pace with K-12 online learning: An annual review of policy and practice.* Retrieved from Evergreen Education Group Website: http://www.kpk12.com/wp-content/uploads/KeepingPaceK12_2010.pdf

Wentworth, N., Graham, C. R., & Tripp, T. (2008). Development of teaching and technology integration: Focus on pedagogy. *Computers in the Schools*, *25,* 64-80.

Wicks, M. (2010). *A national primer on K-12 online learning: Version 2.* Retrieved from International Association for K-12 Online Learning Website: http://www.inacol.org/research/docs/iNCL_NationalPrimerv22010-web.pdf

Wood, R., & Bandura, A. (1989). Social Cognitive Theory of organizational management. *Academy of Management Review*, *14*, 361-384.

Woods, M. L., Goc-Karp, G., Miao, H., & Pearlman, D. (2008). Physical educators' technology competencies and usage. *The Physical Educator*, *65*, 82-99.

Woods, M. L., Phillips, D. A., & Carlisle, C. (1997). Characteristics of physical education teacher educators. *The Physical Educator, 54*, 150-159.

Tables and Figures
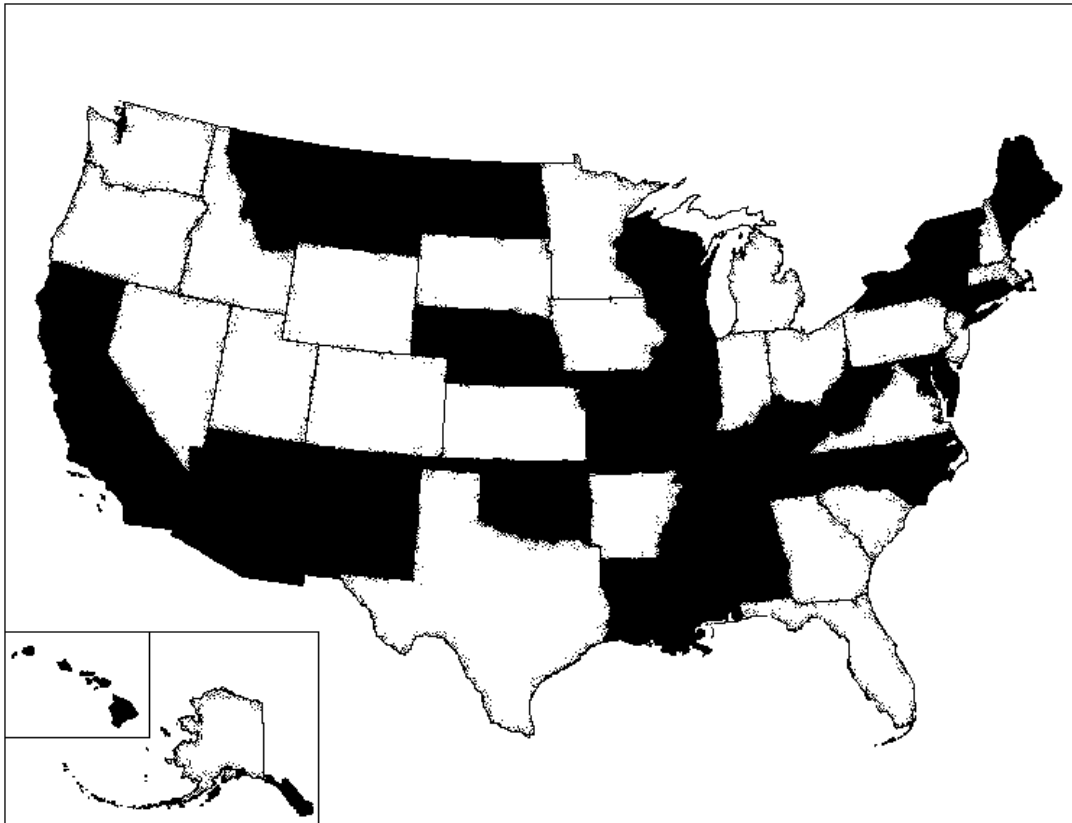
Figure 1: Black = Does not offer OLPE, White = Offers OLPE, **Note** Kentucky was mentioned as offering OLPE in 2006 but not in 2010.
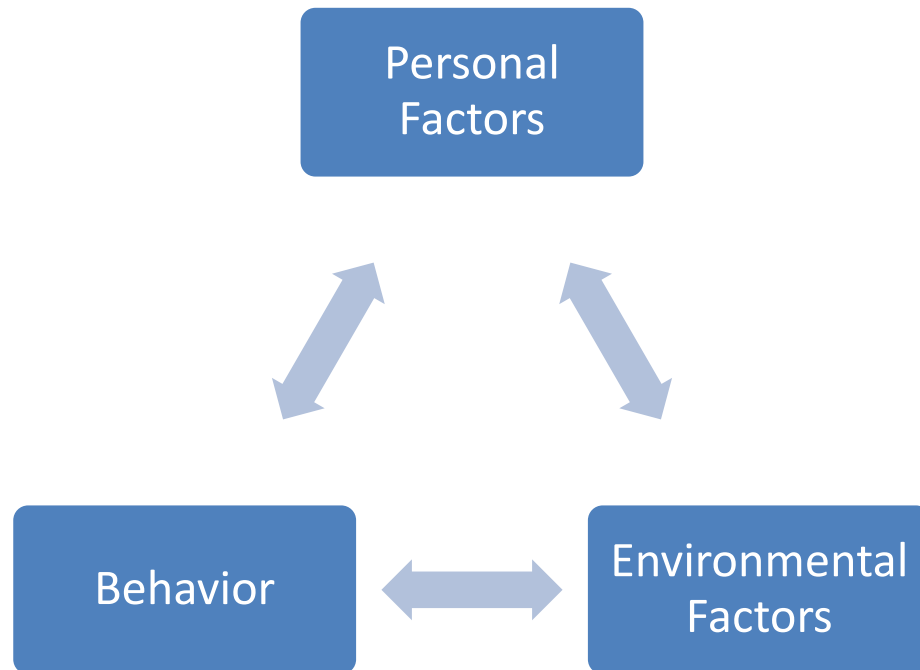
Figure 2. The Social Cognitive Theory (Bandura, 1986).

```
┌──────────────┐      ┌──────────────┐      ┌──────────────┐
│  Establish   │ ───▶ │Critique and  │ ───▶ │ Participant  │
│  Interview   │      │Pilot of      │      │ Recrutment   │
│  Questions   │      │Interview     │      │              │
│              │      │Questions     │      │              │
└──────────────┘      └──────────────┘      └──────────────┘
                                                    │
                                                    ▼
┌──────────────┐      ┌──────────────┐      ┌──────────────┐
│  Inductive   │ ◀─── │Member Checks │ ◀─── │  Conduct     │
│  Analisys    │      │              │      │  Interviews  │
└──────────────┘      └──────────────┘      └──────────────┘
       │
       ▼
┌──────────────┐      ┌──────────────┐      ┌──────────────┐
│  Deductive   │ ───▶ │Negative Case │ ───▶ │Peer Debriefing│
│  Analysis    │      │Checking      │      │              │
└──────────────┘      └──────────────┘      └──────────────┘
```
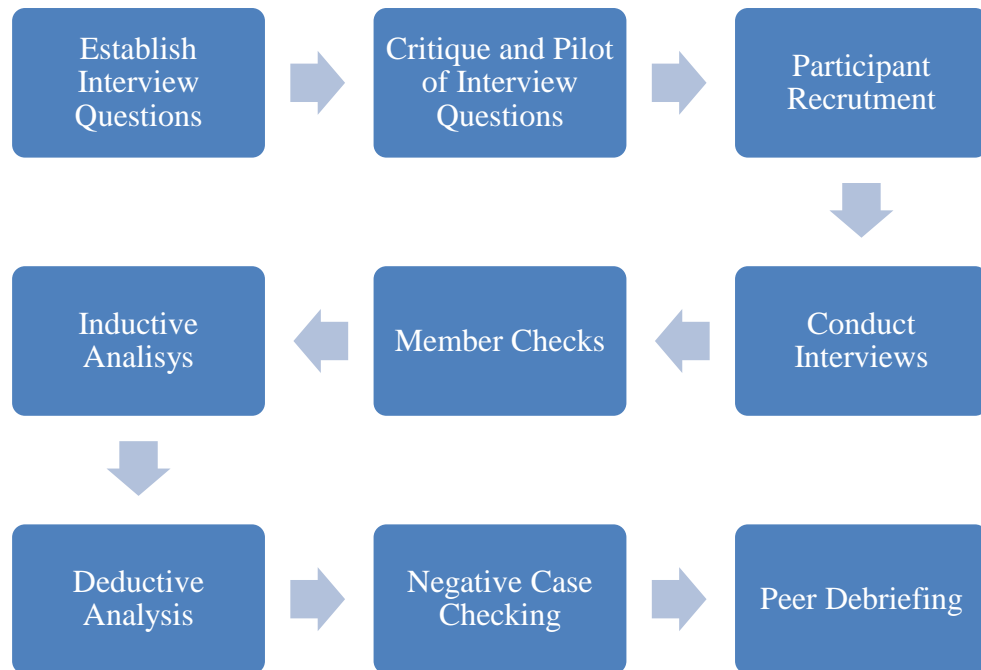
Figure 3: Visual of study design.

Table 1   Summary of the Database used for Determining Sampling

Carnegie classification	Universities at each Carnegie classification	Goal number of participants per classification	Actual number of participants per classification	Differential of goal minus actual
15	30 (7%)	2 (8%)	5 (20%)	+3
16	38 (9%)	2 (8%)	3 (12%)	+1
17	24 (6%)	2 (8%)	3 (12%)	+1
18	131 (32%)	8 (32%)	8 (32%)	0
19	53 (13%)	3 (12%)	2 (8%)	-1
20	21 (5%)	2 (8%)	1 (4%)	-1
21	37 (9%)	2 (8%)	2 (8%)	0
22	72 (17%)	4 (16%)	1 (4%)	-3

Table 2   Demographic Data of Participants

Pseudonym	State	Gender	Years teaching in higher education	Academic title
Lauren	North Dakota	Female	1	Assistant Professor
Chris	Virginia	Male	1	Assistant Professor
Adam	Georgia	Male	1	Assistant Professor
Shane	North Dakota	Male	2	Assistant Professor
Gordon	Alabama	Male	2	Assistant Professor (Interim Chair)
Courtney	Florida	Female	3	Assistant Professor
Brian	New Mexico	Male	3	Assistant Professor
Brandon	Missouri	Male	4	Assistant Professor
Allison	New Jersey	Female	6	Assistant Professor
Amy	Louisiana	Female	6	Assistant Professor
Jay	Utah	Male	15	Associate Professor
Antonio	Maryland	Male	15	Professor
Mary	Illinois	Female	15	Assistant Professor
Keith	Connecticut	Male	15	Assistant Professor
John	California	Male	19	Associate Professor
Carol	New York	Female	20	Associate Professor
Conrad	Oklahoma	Male	20	Department Chair (Professor)
Theresa	North Carolina	Female	23	Associate Professor
Ellen	Texas	Female	23	Professor
Anne	Michigan	Female	27	Professor
Jennifer	Colorado	Female	28	Professor
Kristy	Arkansas	Female	29	Associate Professor
Colton	Wisconsin	Male	29	Professor
Kim	Georgia	Female	30	Dean (Professor)
Dan	California	Male	45	Professor

Table 3   Carnegie Classification of Participants

Pseudonym	Carnegie classification	Public or Private
Jay	15	Public
Lauren	15	Public
Courtney	15	Public
Brian	15	Public
Kristy	15	Public
Chris	16	Public
Shane	16	Public
Anne	16	Public
Antonio	17	Public
Jennifer	17	Public
Dan	17	Private
Adam	18	Public
Brandon	18	Public
Allison	18	Public
Mary	18	Public
Keith	18	Public
Carol	18	Private
Theresa	18	Public
Kim	18	Public
Amy	19	Public
Colton	19	Public
Conrad	20	Public
Gordon	21	Private
John	21	Private
Ellen	22	Private

Appendix A: Participant Recruitment E-mail

Dear [Insert Name here],

You are invited to participate in a study regarding your perceptions about K-12 online physical education. This study is being conducted by Dr. Amelia Woods, Associate Professor in the Department of Kinesiology and Community Health at the University of Illinois at Champaign-Urbana and David Daum a doctoral student in the same department and University.

The purpose of this study is to examine physical education teacher education faculty attitudes toward and understanding of K-12 online physical education. The participants in this study will participate in a telephone interview approximately 30 minutes in length. If you agree to participate, please respond to this email to so we may set up a day and time that is most convenient for you to discuss this important topic. Attached to this email is the informed consent document with further details.

Thank you!

David Daum
Graduate Student
Department of Kinesiology
University of Illinois at Urbana-Champaign

Appendix B: Informed Consent Document

Teacher Educators Attitudes Towards and
Understanding of K-12 Online Physical Education

Dear participant:

You are invited to participate in a study regarding your perceptions about K-12 online physical education. This study is being conducted by Dr. Amelia Woods, Associate Professor in the Department of Kinesiology and Community Health at the University of Illinois at Champaign-Urbana and David Daum a doctoral student in the same department and university.

The purpose of this study is to examine physical education teacher education faculty attitudes toward and understanding of K-12 online physical education. The tape recorded telephone interview will last approximately 30 minutes. The interviews will be scheduled at your convenience.

By agreeing to be interviewed you are consenting to be a participant in this study. Participation is voluntary and you have the right to withdraw from this study at any time. As the participant you have the researchers' assurances that your identity will be kept confidential. Any reference used in publication or presentations will use pseudonyms. There is no perceived risk or benefit in your choice to participate in this study.

Questions about this research can be addressed at any time by calling or writing David Daum or Dr. Amelia Woods, Department of Kinesiology and Community Health, Louise Freer Hall, University of Illinois, 906 S. Goodwin Avenue, Urbana, IL 671801 (phone: 217-333-9602 or email: daum1@illinois.edu or amywoods@ad.uiuc.edu. If you desire additional information about your rights as a participant, please feel free to contact the UIUC Institutional Review Board office at 217-333-2670 or irb@illinois.edu. Collect calls will be accepted if you identify yourself as a study participant.

Appendix C: Interview Guide Questions

1) How long have you taught in higher education?
2) What is your highest degree earned?
3) What is your academic title?
4) How would you describe your racial/ethnic background?
5) What type of degree/certification do your students earn?
6) What do you know about online education (all subjects, all levels)?
7) Does your university have an online pedagogy program? If so, what is your experience with online education?
8) What is your knowledge of best practices in regards to online education? Where did you acquire that knowledge?
9) Do you know of any specific K-12 OLPE programs in your state? If so, tell me what you know about the program (do you know what content is taught?).
10) What do you know about the effectiveness of K-12 OLPE?
11) What do you know about the method in which K-12 OLPE is offered? (Online, hybrid, asynchronous, synchronous, etc.)
12) What is your perception of how online physical education will impact the field in general?
13) What are OLPE's barriers and facilitators in being able to meet NASPE National Standards?
14) Is there a school level that OLPE would be most appropriate or inappropriate? (Elementary, Middle, High School?) Why?
15) If you were in charge of designing the content of K-12 OLPE program, what would you include? (Rules, health, anatomy/physiology, specific sports/games, etc.)
16) What do you believe the best educational model should be in K-12 OLPE (hybrid or fully online, asynchronous/synchronous)? Why?
17) What type of support (or non-support) would you receive from your department if you proposed you should begin to teach future teachers how to teach online?
18) What barriers and facilitators are there to show PETE undergraduates how to teach online?
19) What do you believe should be included in a PETE undergraduate program in regards to online pedagogy? What would be the three most important things that future teachers should know and be able to do?
20) Is knowledge about online pedagogy currently a valued PETE program outcome?
    a) Do you think it has the potential to become a valued PETE program outcome?
21) Who should be responsible for teaching online pedagogy (ex. PETE faculty, technology specialists, etc.)?

Appendix D: Thank You E-Mail

Dear [Insert Name here]:

I would like to take this opportunity to thank you for participating in my study examining physical education teacher education faculty attitudes toward and understanding of K-12 online physical education. If any future questions or concerns please feel free to contact me.

Thank you!

David Daum
Graduate Student
Department of Kinesiology
University of Illinois at Urbana-Champaign