



Received: 16 September 2015
Accepted: 15 October 2015
Published: 13 November 2015

*Corresponding author: Timothy Baghurst, Health and Human Performance, Oklahoma State University, Stillwater, OK 74075, USA
E-mail: tbaghurst@live.com

Reviewing editor:
May Cheng, Hong Kong Institute of Education, Hong Kong

Additional information is available at the end of the article

PROFESSIONAL EDUCATION & TRAINING | RESEARCH ARTICLE

Procedures and reasoning for skill proficiency testing in physical education teacher education programs

Timothy Baghurst^{1*}, Kevin Richard², Mwarumba Mwavita³ and Nilo Ramos⁴

Abstract: This study sought to determine how the testing of skill proficiency is being conducted in physical education teacher education (PETE) programs in the USA and how fitness or skill proficiencies, as attributes of a physical educator, are perceived. Participants were 312 college PETE program coordinators who completed an online survey about skill testing in their program. The eligible respondents yielded a 52.7% total response rate. Most participants believed that skill proficiency for PETE students was important, but only 46% of programs reported testing within their program. Many participants stated it was possible for their students to graduate without demonstrating proficiency in skill technique, yet were confident their students would pass an independent skill test. Only 46.2% of respondents indicated their students needed to demonstrate proper skill technique in order to graduate, and there was no consistent method of assessment. Responses were evenly split regarding the importance of a physical educator being able to demonstrate proper skill technique or be physically fit. The lack of skill testing in programs, combined with the variation in assessment, is concerning, and the development of a standardized skill-based test may provide more rigor to this important area of teacher credibility and effectiveness.

Subjects: Physical Education; Sports Pedagogy; Teaching & Learning

Keywords: modeling; PETE; skill proficiency; teacher credibility

ABOUT THE AUTHOR



Timothy Baghurst

Timothy Baghurst is an associate professor of health and human performance at Oklahoma State University. He serves as the program coordinator for physical education and his research interests focus on modeling health in the health professions. This project is part of a larger effort to discuss the dispositions and credibility of physical educators. Namely, physical education teachers, as well as other professionals who work in health and education, should have a responsibility to possess content knowledge in their field, but also demonstrate personal characteristics that support and promote their discipline. This study highlights the disparity across programs in how physical education teacher education students are assessed for their skill proficiency. This also serves as part of a larger effort to demonstrate the inconsistencies in physical education training, and encourages standardization as well as higher expectations for modeling.

PUBLIC INTEREST STATEMENT

The purpose of this study was to determine if and how college students seeking to become physical education teachers are evaluated on their own sports skills. We surveyed 312 collegiate physical education programs to find out how and why they skill test their physical education students. Our findings suggest that there is currently no “one way” to do conduct skill testing, and many programs do not. Therefore, the development of a skill assessment that could be used nationwide might help collegiate physical education programs with their accreditation and ensure that all physical education students are graduating with the same skill competencies.

1. Introduction

The development of proficient skills and confidence in youth has shown to be essential for fostering lifelong commitment to physical activity (Lounsbury & Coker, 2008). Teaching youth appropriate ways to exercise by utilizing specific techniques and skills increases their levels of interest and persistence in physical activity as well as their fitness later in life (Ishee, 2004). Research shows the greatest predictor of adult involvement in physical activity is early childhood involvement in activity through exercise (Portman, 2003). Therefore, if youth are to maintain health-enhancing levels of fitness, they need to establish a framework of skills that can be used throughout their lifespan. Researchers have shown that once children obtain fundamental motor skills, particularly those associated with sport-based skills, they will gain access to more advanced skill proficiencies, which will perpetuate greater success in sports and fitness later in life (Vlahov, Baghurst, & Mwavita, 2014).

While knowing that skill acquisition can be an essential part of childhood fitness, finding professionals to teach and model these skills may be equally important. When youth develop relationships with adults who can model appropriate behaviors and fitness skills, they gain higher perceptions of competence and intrinsic motivation for physical fitness (Bhalla, 2010). Further, a youth's physical, social, and cultural environment plays a significant role in facilitating or impeding their level of physical activity (Dewar, Lubans, Morgan, & Plotnikoff, 2013). This suggests that physical educators, those responsible for teaching these skills within a school setting, are an important contributor to a child's environment and influence whether or not they will be physically active later in life.

1.1. Why skill proficiency testing is important

Physical education in schools serves as an orientation for youth to be introduced to a skill-based, physically active lifestyle. The pedagogy of physical education has been defined as the study and teaching of exercise science, motor behavior, and biomechanical movement (Henry, 1964). Physical education teacher education (PETE) programs are responsible for training professionals who can effectively teach, implement, and model proper technique and skills for physical exercise (Bulger, Housner, & Lee, 2008).

In an ideal world, physical education teacher education (PETE) programs would provide prospective teachers with subject-matter knowledge related to the physiology, anatomy, and neuromuscular structures of the body and an understanding of how these systems respond and adapt to physical activity. Quality programs would also develop skills and dispositions essential to the acquisition of patterns needed to perform a variety of physical activities successfully (pp. 44–45).

The Society of Health and Physical Educators (SHAPE America, 2014) is the United States' largest membership organization of health and physical education professionals, and it serves to guide policy and programming across the nation. It published national standards that a PETE student should know and perform as a result of education at a competent school-based physical education program. Two of these standards directly address the importance of skill development and physical fitness: Standard One expects that "the physically literate individual demonstrates competency in a variety of motor skills and movement patterns," and Standard Three requires that "the physically literate individual demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness." These standards serve as guidelines for educators so they can create a positive social-cultural model of exercise, and such standards have been shown to increase student fitness levels (Ntoumanis, 2001).

Modeling desirable behaviors for children and adolescents facilitates skill acquisition and allows K-12 students in physical education to learn appropriate techniques for exercising. These skills can be demonstrated at a slower pace that is easier for students to learn, and then critiqued when they are being used at full speed. Additionally, motor skill technique observations have the ability to be stored in long-term memory that can be accessed and practiced later (Trempe, Sabourin, Rohbanfar, & Proteau, 2011). Therefore, PETE students that are able to model correct techniques to a class of

students can provide them with the opportunity to observe these skills of motor movement through visual demonstration. Further, research indicates that motor skill acquisition is greatly increased when an observation of a skill occurs before practicing it versus only explaining the skill verbally prior to practice (Ashford, Bennett, & Davids, 2006). These findings highlight why physical educators need to be able to correctly demonstrate and assess the use of proper skill technique in their students.

Highlighting importance on physical educators modeling skills lends itself to whether PETE programs are teaching and evaluating their students' skills before they graduate. A lack of both the teaching and assessment of skills to ensure correct technique may compromise PETE students' ability to effectively model these techniques to their future students. Further, K-12 students that aren't able to observe correct motor movements during physical education class will be less likely to exercise with correct technique, which could ultimately inhibit their ability for a physically active lifestyle (Baghurst & Bryant, 2012; Bulger et al., 2008; Treasure & Roberts, 1995; Vlahov et al., 2014; Welk, 2008). Given its importance, a purpose of this study was to determine whether and how skill proficiency testing is being assessed in PETE programs in the USA, with residual implications for K-12 physical education.

Unfortunately, many PETE programs suffer from inconsistency between programs due to differing ideological approaches for teaching PETE students (Crum, 1993). Not all programs in the USA align with the standards proposed by SHAPE America (Baghurst & Bryant, 2012), and physical educators may not be educated with the knowledge of teaching skill-based exercise. Further, physical education being taught to K-12 students that does not incorporate skill development misses the opportunity to foster higher physical activity levels, cardiorespiratory fitness, and self-esteem in students (McKenzie & Lounsbery, 2013). Additionally, variations in didactic training models for PETE students indicate teaching skills development is not always a priority (Baghurst & Bryant, 2012).

The growing demand for testing in physical education has focused primarily on fitness rather than skills. However, the emphasis on fitness has undermined the importance of skills or technique needed to maintain levels of fitness. Welk (2008) explained that, "A limitation of fitness testing is that it focuses attention on the outcome or product rather than the underlying behavior that is being promoted (physical activity)" (p. 185). Fitness testing will not automatically increase a student's overall physical activity and should only be used as a tool that is incorporated into other measurements for an overall assessment of an individual's physical activity and knowledge (Silverman, Keating, & Phillips, 2008). Therefore, even though fitness testing can be helpful, it does not always include the importance of proper training through correct technique or skill, which allows an individual to be physically active much longer throughout their life (Vlahov et al., 2014).

Researchers previously investigated why PETE programs do or do not fitness test their students, and found that programs will choose not to require testing of their students because of time constraints, liability issues, and usefulness of the tests (Baghurst & Mwavita, 2014). The same arguments might be made for testing the skills proficiency of PETE students as well. Training programs may not find it beneficial to skill test their students, as there are a multitude of other teaching constructs that are utilized in the assessment of a PETE student (Pascual, 2006). Further, instructors of PETE programs lack a universal expectation for what their students should be able to demonstrate, teach, or promote, allowing for a variety of training approaches (Bulger et al., 2008). Therefore, variations in programmatic teaching lead to a multitude of approaches, meaning skill testing may not be a major priority in a number of training programs.

There is limited research that indicates how a teacher's fitness versus skill proficiency is perceived in physical education. Is it more important for a physical educator to promote the construct of fitness, or is it more important they focus on skill-specific knowledge and training? Therefore, the purpose of this study was to determine whether and how skill proficiency testing is currently being assessed in PETE programs in the USA, and how fitness and skill proficiencies, as attributes of a physical educator, are perceived.

1.2. Theoretical framework of study

PETE students are trained professionals with knowledge of kinesthetic movement, teaching competency, sport-specific skills, nutrition, and aspects of fitness (Bulger et al., 2008). The expectation is for these professionals to transfer this knowledge to a younger population of primarily K-12 students. According to Social Learning Theory (Bandura & McClelland, 1977), “virtually all learning phenomena resulting from direct experiences can occur on a vicarious basis through observation of other people’s behavior and its consequences for them” (p. 2). Therefore, this study was framed within the concept that observational learning can facilitate the transfer of knowledge from a physical educator to a K-12 population when desirable behaviors are appropriately modeled. However, in order for that facilitation to occur, physical educators need to be able to effectively demonstrate these skills for beneficial observational learning to occur. Furthermore, youth begin to adopt the behaviors, values, and beliefs they see modeled by physical educators through indirect internalization (Conroy & Coatsworth, 2006). Therefore, when physical educators value skill development for the students they are teaching, the more likely the students will endorse skill-based kinesiology themselves. In addition, social learning is obtained through consequences derived from a specific behavior. Physical educators can demonstrate and educate their students on correct skill development by showing them how to exercise with proper technique and movement (i.e. proper running posture, weight training, swimming technique, etc.). These demonstrations can lead to positive consequences for K-12 students, given they are able to perform skills more effectively in an appropriate fashion.

1.3. Study purpose

Modeling physical skills is an important and effective teaching method for learners, and it is expected that physical education teachers be able to demonstrate a variety of skills that can be learned during their undergraduate education (SHAPE America, 2014). Baghurst and Mwavita (2014) recently reported that many PETE programs lack clear and standardized fitness testing guidelines or do not fitness test at all. Therefore, the primary purpose of this study was to determine if PETE programs had standardized testing for skill proficiency assessment of their students. A secondary purpose of the study was to assess whether PETE programs in the USA felt modeling fitness was more or less important than being skill proficient. Implications include whether or not programs are adhering to national PE standards and if PETE students are being appropriately educated based on these standards (SHAPE America, 2008).

2. Method

2.1. Participants

Participants were 312 faculty members who worked within a PETE program at four-year collegiate institutions in the USA and were considered decision-makers within their respective program. To be eligible, the participant’s program had to provide an option within their program for their students to gain licensure as physical education teachers. All two-year institutions or kinesiology programs that did not have a PETE program were eliminated from consideration, which resulted in 287 eligible participants.

A list of potential PETE programs in the USA was acquired from two websites (www.A2ZColleges.com; www.petersons.com), and the lists from both were cross-referenced to ensure that all potential institutions were included in a master list of 592 academic institutions that offered a PETE program. Although not required of participants, 59.3% named their academic institution, which was optional, and all states were represented.

2.2. Instruments

The instrument used was part of a larger study to better understand fitness and skill proficiency testing in PETE programs. This instrument was delivered electronically and was developed using Qualtrics software. In addition to soliciting demographic information about participants’ programs, participants were asked to indicate whether students’ skill proficiency was tested during their program and whether their program was accredited by the National Council for Accreditation of Teacher Education

(NCATE). The main body of the survey included approximately 15 questions based on the choices made by the participant. Several questions were open-ended questions in which participants had an opportunity to provide more detailed responses than the pre-set options. In addition, closed Likert-type questions sought participant perspectives about skill proficiency testing in general. These questions were either on a five-point Likert scale that ranged from one, *disagree completely*, to five, *agree completely*, or on a four-point scale, where a neutral option was removed to force an opinion.

Validity of this survey followed several steps. After a broad search to locate an equitable survey, items were developed recognizing the historical perspectives outlined in previous research. In addition, three university professionals in physical education evaluated these questions to provide content feedback and aid in construct validity. These recommendations were adopted in the final survey instrument. Following these changes, further validity of the survey was acquired through a pilot study, where the survey was sent out to the seven PETE programs that met the criteria in one state. The purpose of this pilot was to solicit any further feedback and determine whether wording and formatting was easily presented and understood. There were some minor grammatical edits made, but the structure and wording of the survey was unchanged.

2.3. Procedure

Participants' contact information was acquired from their educational institution's website. The person identified as the PETE coordinator, program director, or chair was included in a master list of contacts. If it was unclear which individual would be in the best position to answer questions about a PETE program, then the contact information of the department head or chair was included, and in a few cases, the college dean.

Following Institutional Review Board approval, prospective participants were solicited from the 592 academic institutions identified via email. First, an individually addressed informational email was sent to each prospective participant that provided information about the study and requested that the email be forwarded to the person best able to answer questions about the PETE program if not the person receiving the email. Approximately one week later, a link to the online survey was sent to participants and a follow-up reminder was sent after an additional week. Informed consent was included within the survey. This recruitment method yielded 243 responses (41% response rate). Approximately one month after the reminder email, all programs that had not responded (i.e. participants that had not indicated their educational affiliation in the survey) were contacted via a phone call. Some programs were unable to be contacted, but these calls resulted in an additional 69 participants yielding 312 total participants and a 52.7% response rate.

2.4. Data analysis

Analysis of quantitative data occurred through the assessment of frequencies, percentages, means, and standard deviations of the variables. Data were normally distributed and met the assumptions for parametric analysis. One-way ANOVAs were performed to determine statistical differences between participants' opinions of skill testing based on whether the PETE program was accredited or not and whether or not the program tested skill proficiency. Effect sizes were calculated where .01 (1%) is a small effect, .06 (6%) is medium, and .15 (15%) is a large effect (Cohen, 1988).

After qualitative data had been transferred to a spreadsheet, three experts independently developed categories based on question responses. Each expert was experienced in both qualitative and quantitative methodologies and had educational backgrounds in kinesiology and physical education fields. Categorical agreement as well as coding agreement was acquired through constant comparative analysis (Glaser, 1965; Morgan, 1993). According to Onwuegbuzie and Leech (2007), coding can occur abductively (codes emerge iteratively), inductively (codes emerge from the data), and deductively (codes are developed prior to analysis). Inductive coding occurred in the present analyses as: (a) each expert independently read through statements pertaining to each survey question to form overall categories; (b) experts met to discuss these categories until a group consensus was formed; (c) experts independently coded participant statements to a category; (d) the experts met

again to compare coding for each statement; and (e) discussion occurred among the group on statements that were not originally agreed upon until consensus was met (Ryan & Bernard, 2000). This entire process took approximately two months.

3. Results

3.1. Program demographics

Average student enrollment in each PETE program was 82 and just over two-thirds (69%) of programs were NCATE accredited. Participants were asked whether their PETE students were required to pass a skill-based test or demonstrate proficiency in fundamental motor skills necessary for teaching physical education. Of those that responded, less than half (46.2%) required such testing in their program.

3.2. Skill proficiency testing by its use in the program

Participants were asked six questions using a Likert-type scale to ascertain opinions regarding skill proficiency and testing (see Table 1). The questions were designed to determine the perceived importance of physical educator skill proficiency, confidence in PETE students' skill proficiency, whether skill proficiency in PETE programs should be independently evaluated, and whether fitness or skill proficiency was considered a more important physical educator attribute. These six statements were first compared by whether the participant's program was NCATE accredited, and there were no significant differences ($p > .05$). Responses were compared with participants that included skill testing in their program or not. The first three questions (see Table 1) used a five-point scale, where a middle or neutral option was available. Significant differences were found concerning the belief that proficiency in fundamental motor skills and sports skills is an important attribute for a physical educator [$F(1, 262) = 6.97, p = .01, \eta^2 = .026$], where participants from programs that required a skills-based test had a higher score agreement than their counterparts. Participants from

Table 1. Participant opinions of skill testing by whether programs do or do not test skill proficiency

Opinion statement	Agree completely (test skills/do not test skills) (%)	Agree somewhat (test skills/do not test skills) (%)	Neither agree nor disagree (test skills/do not test skills) (%)	Disagree somewhat (test skills/do not test skills) (%)	Disagree completely (test skills/do not test skills) (%)
1. Proficiency in fundamental motor and sport skills is an important attribute of a physical educator.	69.1/57	30.9/37.3	0/2.8	0/2.1	0/.7
2. Skill proficiency can be accurately assessed by grade point average in skill-based classes.	14.6/8.5	24.4/30.3	16.3/14.8	22/35.2	22.8/11.3
3. It is possible for our PETE students to graduate without clearly demonstrating proficiency in a range of fundamental sports skills and locomotor movements (e.g. jump rope, volleyball spike, and tennis serve).	8.9/21.8	30.1/46.5	8.9/16.9	26.8/9.9	25.2/4.9
4. If an outside, independent evaluator assessed the skill proficiency of our graduating PETE students, I would be confident they would pass.	27.5/15	65.8/70	NA	5.8/13.6	.8/1.4
5. All PETE students nationwide should be required to pass an independently assessed skills-based test that demonstrates competency similar to Praxis or other state mandated tests for teachers.	18.6/16.5	40.7/40.3	NA	24.6/25.2	16.1/18
6. It is more important for a PETE student to demonstrate skill proficiency than to be physically fit.	3.5/10.8	48.7/38.8	NA	39.1/34.5	8.7/15.8

programs that did *not* skill test were significantly more likely to agree that it was possible for their students to graduate without clearly demonstrating proficiency in a range of fundamental sports skills and kinesiology [$F(1, 262) = 45.38, p = .001, \eta^2 = .148$]. No significant differences were found between programs that required their students to fitness test versus those that did not concerning the belief that skill proficiency can be accurately assessed by grade point average in skill-based classes [$F(1, 262) = .06, p = .80$].

Using a four-point scale, where no neutral option was made possible, participants were asked to rate their confidence in their PETE students' ability to pass an independently assessed skill proficiency test (Table 1). Those that skill tested were significantly more confident of passing [$F(1, 257) = 9.44, p = .01, \eta^2 = .035$]. However, there were no significant differences when asked whether all PETE students nationwide should be required to pass an independently assessed skills-based test [$F(1, 257) = .19, p = .66$].

One final question, again using a four-point Likert-type scale to eliminate a neutral response, asked participants to indicate whether they thought it was more important for PETE students to demonstrate skills proficiency or be physically fit. There was no significant difference between those that skill tested in their programs and those that did not [$F(1, 257) = .04, p = .84$], but participants overall were evenly split between the two options (Table 1).

3.3. Opinions of skill proficiency testing, fitness testing, and skill tests used

3.3.1. Skill proficiency testing used

Participants were asked two open-ended questions in relation to skill testing. Those that performed skill testing were asked to provide more details. Responses were categorized into four categories; (a) specific skill proficiency is indicated, (b) proficiency is indicated, but specific details are unclear, (c) skill proficiency is not standardized and/or not considered of primary importance, and (d) other statements.

Of the 95 participants that responded, 19 provided specific details concerning passing requirements, but were very diverse in nature. Examples included "The teacher candidates must demonstrate competence by scoring 100% (highly effective) and no lower than 95% (Competent) on the two assessments used to determine skill levels (Louisiana Competency Test for Adapted Physical Education, C-TAPE, Test Level VI)," and

Each of the activity courses (dance & gymnastics, team sports I & II, and individual sports) requires students to pass a written and skills test at 80%. If students do not get 80%, they fail that test. Students are allowed to retake tests until they pass at an 80% level until the end of the semester.

The majority of the responses ($n = 59; 62\%$) indicated that some form of skill proficiency was required, but it was unclear at what standard or level. For example, one participant indicated that "Students are required to take a skill proficiency course and are assessed on a variety of physical skills based on a rubric system," while another stated that "Students must demonstrate the critical elements of specific skills named in our sport skill acquisition lab course. The student must be able to explain and demonstrate each skill correctly."

Thirteen participants indicated that there was some form of skill testing, but it was not standardized and/or not considered of primary importance. "They are required to pass two three credit courses" and "They take skills classes in various sports and have to pass the class with a C" were typical responses. Only four participants' responses could not be categorized in the first three categories and included "Much too complicated for here" and "Through their methods classes."

3.3.2. Importance of skill proficiency and fitness

The second open-ended response asked participants to explain their selection on whether they thought it was more important for PETE students to demonstrate skill proficiency or be physically fit. Participant statements were first separated into two groups based on their choice before categories and coded statements were agreed upon.

For those that stated that skills were more important (103 responses), four categories were agreed upon: Expectation of an Effective Teacher, Skills Lead to Fitness, Skills and Fitness are Equally Important, and Other. Almost half (48.5%) of responses attributed skill proficiency to an expectation of an effective teacher. Example statements included: “A good teacher must have the ability to demonstrate a skill properly, analyze the student’s performance, and make corrections (feedback) to promote student learning,” “I feel skill proficiency is more important because these candidates for teacher licensure will potentially be teaching students how to perform skills,” and “Their job is to teach. Modeling the skill is very important to teaching.”

Others (15.5%) responded that skills were more important because their development leads to fitness. For example, “I believe the focus of physical education should be skill development - not fitness. I think fitness can be attained through skill based physical activity” and “The two go hand-in-hand. Research indicates that the more skilled a person is the more likely he or she will be active ... thus the more likely he or she will be fit.”

While participants were asked to choose between skill proficiency and fitness, 13.6% of participants selected skill proficiency, yet stated that both were equally important. For example, one participant stated, “... they both are equally important.”

Finally, 22.4% of responses did not fit into any pre-designated category primarily due to a lack of clear explanation for the response. One participant stated that physical education “is skill based” but provided no rationale why. Another asked, “Why do teachers demonstrate skill?”

3.3.3. Fitness more important than skill proficiency

Categories designated for those who selected fitness as being more important than skill proficiency (111 responses) included: Promotes Lifetime Health, Role Modeling, Fitness Leads to Skills, Fitness and Skills are Equally Important, and Other. The most supported category was that Fitness and Skills are Equally Important (31.5%). “Need to be proficient in both” and “Both are important to being a quality physical educator” were example responses.

Promotes Lifetime Health was supported by 22.6% of participants. One participant stated “The focus of our field needs to shift from skill-based activities to lifetime fitness based activities” while another thought that “... today’s physical education needs to focus on the health of physical activity more so than the skills learned in the program.” Another responded:

I think the physical fitness component is more important than sport skill component. PETE students today need to know how to design exercise programs and motivate individuals to be physically active. This can often be accomplished through activities other than sport skills. I love sports and was trained to play many sports, but I don’t see many undergraduates today who have sound fundamental sport skills.

Role Modeling was also considered an important rationale for fitness over skill proficiency accounting for 20.7% of the responses. Participants believed that role modeling allowed students to set a good example. “If they are physically fit they are setting a good example for lifetime fitness for their students” and “The obesity epidemic is primary in our State and a physically fit instructor may make more of an impact in the public schools than that instructor that is very proficient at psychomotor skills but does not represent a physically active lifestyle.” Further, one participant clarified that:

Since childhood obesity is becoming more and more prevalent, it is imperative that physical educators be able to model a lifestyle that will help students strive for longevity - and not just living a long time, but living a higher quality of life - for a long time. Without proper parental guidance, so many students need to understand the importance of being fit and learn this from educators who live what they teach.

Although some participants responded that fitness leads to skills, it was not well supported (3.6%). "If a student is physically fit in terms of health related fitness and somewhat fit in performance related fitness they can develop sport/activity related skills" was one supporting statement.

Finally, a category of Other included 21.6% of responses that mainly lacked depth to the response to allow more detailed categorization. Examples included "Fitness is more vital than skill" and "I believe teaching fitness to children is more important than skill proficiency."

4. Discussion

The purpose of this study was to determine whether and how skill proficiency testing is currently being assessed in PETE programs in the USA and how fitness and skill proficiencies, as attributes of a physical educator, are perceived. National standards (SHAPE America, 2008) require physical education teacher candidates to (2.1) "demonstrate personal competence in motor skill performance for a variety of physical activities and movement patterns," (2.2) "achieve and maintain a health-enhancing level of fitness throughout the program," and (2.3) "demonstrate performance concepts related to skillful movement in a variety of physical activities" (p. 1). Therefore, it is important to determine whether PETE students possess the skills necessary to exhibit and achieve such standards.

Based on those that participated in this study, only 46% of programs had any skill testing within their PETE program compared with 59% of programs that fitness tested, as reported recently (Baghurst & Mwavita, 2014). This is an interesting finding, as those participants that did and did not skill test highly valued proficiency in fundamental and motor sport skills as an attribute of a physical education teacher. Within the qualitative responses, participants were asked whether teacher skill proficiency or fitness was more important. Many participants, even though forced to choose, stated they considered both equally important in the explanation of their choice. However, despite both fitness and skill being perceived as equally important, there is a considerable disparity between how many programs fitness test versus skill test.

How skill testing is conducted varies, and 39% of programs that skill tested and 68.3% that did not assess skill proficiency agreed that it was possible for their students to graduate without clearly demonstrating proficiency in a range of fundamental sports skills and technique. Not surprisingly, programs that did test skills were significantly more confident their students could pass an independent skill test outside of their program. However, programs that did not have skill assessment as part of their curriculum still indicated they felt their students would be proficient in a skill-based assessment outside of their programs, despite the students not having to prove it.

Further analysis of skill testing procedures indicates a lack of uniformity. Unlike the Fitnessgram, which was frequently reported to fitness test in PETE programs (Baghurst & Mwavita, 2014), there was no consistent method for skill testing. Participants in both groups (39% each) agreed with the statement that skill proficiency could be accurately assessed by grade point average in skill-based classes without demonstration.

4.1. Should a teacher be skilled or fit?

Although research supports that a teacher should be both skilled and fit, participants were asked to indicate which one was most important. Responses were almost evenly split, and there was no distinction between participants in skill and non-skill testing programs. Therefore, there appears to be a philosophical dilemma about whether a physical educator should be focusing on fitness or skill

development. For those in support of fitness, role modeling for lifetime physical activity appeared to be the overall theme. With the current childhood obesity epidemic, this should be an important focus of physical education programs. After all, the goal of physical education programs should be to foster lifelong physical activity, and educator perceived fitness has been found to influence learning in physical education (Melville & Maddalozzo, 1988).

For those in favor of assessing skill proficiency, it was perceived as an expectation of the profession along with the belief that a physical educator's ability to demonstrate and thereby teach skills would lead to greater student fitness. As one participant noted, there is empirical support for this suggestion. Vlahov et al. (2014) recently found that the development of sport-based skills over general movement skills in preadolescence leads to higher fitness levels as adolescents.

Some might suggest that a physical educator need not model the skills and a student demonstration or video might suffice. However, modeling skill-based movements for student observation is an essential component for student retention of specific movements (Ashford et al., 2006; Maslovat, Hodges, Krigolson, & Handy, 2010; Shea, Wright, Wulf, & Whitacre, 2000; Trempe et al., 2011). If physical education teachers are going to foster a rich learning environment for their students, they need to provide those students with opportunities to observe technique-based movements and then allow the students to practice those movements. Further, a PETE student that can correctly demonstrate skill-based movement will be able to provide necessary skill analysis and critiques. Isolating observation and practice from one another has been shown to produce marginal results for movement acquisition; however, by incorporating observation and practice together, students have an optimal environment to perform skill-based movements correctly (Shea et al., 2000). Research on modeling behaviors has found that skills can be acquired through observation (Ashford et al., 2006; Bandura & McClelland, 1977), yet only 46% of programs surveyed had skill testing implemented into their curriculum for their PETE students. This indicates a gap between the scientific literature on the importance of demonstrating skills to students and programs' didactics for competent physical education professionals.

If fostering lifelong fitness in youth is to be achieved, skill testing needs to be incorporated into regular physical education programs. Fitness testing measures a standard of cardiovascular performance, but does not measure how the individual achieves that performance. Further, fitness testing does not measure underlying behaviors that facilitate the level of displayed fitness (Welk, 2008). Therefore, an individual could train for a set amount of time and acquire a moderate to high level of fitness, but the technique they utilize during exercise could be detrimental to their ability to be physically active throughout their life. Skill proficiency allows students to utilize proper movement for long-term physical activity and reciprocally allows them to develop and maintain higher levels of physical fitness (Vlahov et al., 2014). However, 39% of participants stated that although they assessed skill proficiency, their students could pass their program without demonstrating this proficiency. Because lifelong fitness is an important component to physical education, physical education teachers need to be proficient in demonstrating and teaching the building blocks for fostering that lifestyle.

5. Limitations and implications for future research

This study should be considered in light of its limitations, which simultaneously provide avenues for future research. Not all programs and participants solicited participated, and the sample may not be reflecting PETE program didactics accurately. Further, respondents that completed the survey may not have been the best persons to accurately answer questions about the PETE program in question. Future research may consider these factors and provide qualitative interviews with several individuals from a specific program in order to gain a more accurate representation on the important aspects of each program.

Responses to the open-ended questions of the survey varied in detail. Some participants provided comprehensive, detailed answers for the survey questions while others answered the questions with

minimal explanation. Future research should consider a more qualitative approach to acquire deeper, richer information from both those programs that do and do not skill test.

Future studies may also want to include categories based on program philosophies. Delineating between programs that are primarily research based versus teaching focused, for example, could provide valuable insight as to why certain programs don't utilize skill testing as part of their program curriculum.

6. Conclusion

It is apparent from this study that many PETE programs in the USA do not assess skill proficiency. How many of these programs achieve accrediting standards (CAEP/NASPE Standard 2) is unclear. For those programs that do, many appear to lack clear guidelines regarding the expected level of proficiency. Although most participants were confident of their students passing an independently assessed skill proficiency test, many admitted that students could graduate without demonstrating proficiency in a range of fundamental movement techniques and sports skills. This study demonstrates the wide range of skill proficiency expectations of PETE students across collegiate programs, and demonstrates how one graduating student can be considered proficient in fundamental motor skills while another can exit a program without ever being tested. Therefore, although it only received mixed support, this study tentatively supports the development of a standardized and independently assessed skill-based test. Such an assessment may provide more rigor to this important expectation of a teacher.

Funding

The authors received no direct funding for this research.

Author details

Timothy Baghurst¹

E-mail: tbaghurst@live.com

Kevin Richard²

E-mail: kevin.w.rich21@gmail.com

Mwarumba Mwavita³

E-mail: mwavita@okstate.edu

Nilo Ramos⁴

E-mail: nila.ramos@okstate.edu

¹ Health and Human Performance, Oklahoma State University, Stillwater, OK 74075, USA.

² School of Applied Health and Educational Psychology, Oklahoma State University, Stillwater, OK 74075, USA.

³ Center for Educational Research and Evaluation, School of Educational Studies, Oklahoma State University, Stillwater, OK 74075, USA.

⁴ Health and Human Performance, Oklahoma State University, Stillwater, OK 74075, USA.

Citation information

Cite this article as: Procedures and reasoning for skill proficiency testing in physical education teacher education programs, Timothy Baghurst, Kevin Richard, Mwarumba Mwavita & Nilo Ramos, *Cogent Education* (2015), 2: 1111716.

References

- Ashford, D., Bennett, S. J., & Davids, K. (2006). Observational modeling effects for movement dynamics and movement outcome measures across differing task constraints: A meta-analysis. *Journal of Motor Behavior*, 38, 185–205. doi:10.3200/JMBR.38.3.185-205.
- Baghurst, T., & Bryant, L. C. (2012). Do as I say, not as I do: Improving the image of the physical education profession. *Strategies*, 25, 11–13. <http://dx.doi.org/10.1080/08924562.2012.10592156>
- Baghurst, T., & Mwavita, M. (2014). Evaluation, rationale, and perceptions regarding fitness testing in physical education teacher education programs. *The Global Journal of Health and Physical Education Pedagogy*, 3, 348–364.
- Bandura, A., & McClelland, D. C. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bhalla, J. A. (2010). *Coaches and parents as sources of positive youth development: Caucasian and African American girls' life skills learning through sport* (Doctoral dissertation). Retrieved from <http://search.proquest.com/docview/815572267?accountid=4117>. (2010-99180-418)
- Bulger, S. M., Housner, L. D., & Lee, A. M. (2008). Curriculum alignment. *Journal of Physical Education, Recreation & Dance*, 79, 44–49. doi:10.1080/07303084.2008.10598215
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Conroy, D. E., & Coatsworth, J. D. (2006). Coach training as a strategy for promoting youth social development. *Sport Psychologist*, 20, 128–144.
- Crum, B. J. (1993). Conventional thought and practice in physical education: Problems of teaching and implications for change. *Quest*, 45, 339–356. <http://dx.doi.org/10.1080/00336297.1993.10484092>
- Dewar, D. L., Lubans, D. R., Morgan, P. J., & Plotnikoff, R. C. (2013). Development and evaluation of social cognitive measures related to adolescent physical activity. *Journal of Physical Activity & Health*, 10, 544–555.
- Glaser, B. G. (1965). The constant comparative method of qualitative analysis. *Social Problems*, 12, 436–445. doi:10.2307/798843
- Henry, F. M. (1964). Physical education: An academic discipline. *Journal of Health, Physical Education, & Recreation*, 35, 32–69.
- Ishee, J. H. (2004). Are physical education classes encouraging students to be physically active? *Journal of Physical Education, Recreation & Dance*, 75, 6. doi:10.1080/07303084.2004.10608548
- Lounsbury, M., & Coker, C. (2008). Developing skill-analysis competency in physical education teachers. *Quest*, 60, 255–267. <http://dx.doi.org/10.1080/00336297.2008.10483580>
- Maslovat, D., Hodges, N. J., Krigolson, O. E., & Handy, T. C. (2010). Observational practice benefits are limited to

- perceptual improvements in the acquisition of a novel coordination skill. *Experimental Brain Research*, 204, 119–130.
<http://dx.doi.org/10.1007/s00221-010-2302-7>
- McKenzie, T. L., & Lounsbury, M. A. F. (2013). Physical education teacher effectiveness in a public health context. *Research Quarterly for Exercise and Sport*, 84, 419–430.
doi:10.1080/02701367.2013.844025
- Melville, D. S., & Maddalozzo, J. G. (1988). The effects of a physical educator's appearance on body fatness on communicating exercise concepts to high school students. *Journal of Teaching in Physical Education*, 7, 343–352.
- Morgan, D. (1993). Qualitative content analysis: A guide to paths not taken. *Qualitative Health Research*, 3, 112–121.
<http://dx.doi.org/10.1177/104973239300300107>
- Ntoumanis, N. (2001). A self-determination approach to the understanding of motivation in physical education. *British Journal of Educational Psychology*, 71, 225–242.
<http://dx.doi.org/10.1348/000709901158497>
- Onwuegbuzie, A. J., & Leech, N. L. (2007). Validity and qualitative research: An oxymoron? *Quality & Quantity*, 41, 233–249. doi:10.1007/s11135-006-9000-3
- Pascual, C. (2006). The initial training of physical education teachers - In search of the lost meaning of professionalism. *Physical Education & Sport Pedagogy*, 11, 69–82. doi:10.1080/17408980500471110
- Portman, P. A. (2003). Are physical education classes encouraging students to be physically active?: Experiences of ninth graders in their last semester of required physical education. *Physical Educator*, 60, 150–161.
- Ryan, G., & Bernard, R. (2000). Data management and analysis methods. In N. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (pp. 769–802). Thousand Oaks, CA: Sage.
- Shea, C. H., Wright, D. L., Wulf, G., & Whitacre, C. (2000). Physical and observational practice afford unique learning opportunities. *Journal of Motor Behavior*, 32, 27–36.
<http://dx.doi.org/10.1080/0022890009601357>
- Silverman, S., Keating, X. D., & Phillips, S. R. (2008). A lasting impression: A pedagogical perspective on youth fitness testing. *Measurement in Physical Education and Exercise Science*, 12, 146–166. doi:10.1080/10913670802216122
- Society for Health and Physical Educators America. (2008). *National standards for initial physical education teacher education*. Retrieved March 4, 2015, from <http://www.shapeamerica.org/accreditation/upload/2008-National-Initial-Physical-Education-Teacher-Education-Standards-Edited-1-5-12.pdf>
- Society for Health and Physical Educators America. (2014). *National PE standards*. Retrieved December 16, 2014, from <http://www.shapeamerica.org/standards/pe/>
- Treasure, D. C., & Roberts, G. C. (1995). Applications of achievement goal theory to physical education: Implications for enhancing motivation. *Quest*, 47, 475–489.
<http://dx.doi.org/10.1080/00336297.1995.10484170>
- Trempe, M., Sabourin, M., Rohbanfar, H., & Proteau, L. (2011). Observation learning versus physical practice leads to different consolidation outcomes in a movement timing task. *Experimental Brain Research*, 209, 181–192. doi:10.1007/s00221-011-2540-3
- Vlahov, E., Baghurst, T. M., & Mwavita, M. (2014). Preschool motor development predicting high school health-related physical fitness: A prospective study. *Perceptual and Motor Skills*, 119, 279–291. doi:10.2466/10.25.PMS.119c16z8
- Welk, G. J. (2008). The role of physical activity assessments for school-based physical activity promotion. *Measurement in Physical Education and Exercise Science*, 12, 184–206. doi:10.1080/10913670802216130



© 2015 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

You are free to:

Share — copy and redistribute the material in any medium or format
Adapt — remix, transform, and build upon the material for any purpose, even commercially.
The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.
You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.
No additional restrictions

You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.



Cogent Education (ISSN: 2331-186X) is published by Cogent OA, part of Taylor & Francis Group.

Publishing with Cogent OA ensures:

- Immediate, universal access to your article on publication
- High visibility and discoverability via the Cogent OA website as well as Taylor & Francis Online
- Download and citation statistics for your article
- Rapid online publication
- Input from, and dialog with, expert editors and editorial boards
- Retention of full copyright of your article
- Guaranteed legacy preservation of your article
- Discounts and waivers for authors in developing regions

Submit your manuscript to a Cogent OA journal at www.CogentOA.com

