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PHYSICAL EDUCATION REQUIREMENTS

Credit Hour Comparisons Across Various Physical Education Teacher Education Institutions in the United States

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Abstract

The physical education teacher education (PETE) landscape is in need of adjusting the types of credit hours allocated within its programs. In doing so, preservice physical education teachers will be better equipped to take on the challenges of today's physical education milieu. PETE program credit hours have remained similar over the past 3 decades. That is, general education credits still outnumber physical education major credits. Colleges and universities appear to place more emphasis on general education, rather than on the specific content related to the physical education major. This study examined credit hour allocation leading up to and within PETE programs based on the 2018 Carnegie Classifications to understand how preservice physical education teachers are being prepared at different institutional levels. It also examined differences in general education credits and PETE major credits required for graduation. Analysis of variance, multivariate analysis of variance, descriptives, and a paired sample t test examined whether there were credit hour differences between content areas within the same institution and whether credit hours offered varied by institution. The results showed that general education credits outweighed PETE credits and that total required credit hours varied significantly by institutional type.

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It has been suggested that a quality physical education program can help children develop lifelong habitual involvement in physical activity (Chen et al., 2014; Dyson, 2014). Physical education, for example, has been shown to provide students up to 18% of their recommended daily physical activity of 60 min or more of moderate-to-vigorous physical activity each day (Morgan et al., 2007). Essentially, physical education has the potential to help students increase their physical activity levels and improve their overall health and fitness (Chen et al., 2014; Sallis et al., 2012). However, none of this health promotion or physical fitness knowledge would exist if it were not for a well-rounded physical educator (McKenzie & Lounsbery, 2013; Sallis et al., 2012).

Quality physical education teacher education (PETE) programs are of the utmost importance when it comes to shaping and preparing the physical educators of tomorrow (Ayers & Housner, 2008; Fletcher, 2016; Kim et al., 2015). To date, a number of studies have examined what quality PETE is. It may include adequate instructional time within the PETE major (Bahneman, 1996); sufficient time spent in field experiences, such as internships and student teaching (Curtner-Smith, 1996; Layne & Blasingame, 2018); an in-depth understanding of physical education teaching methods, content knowledge, and pedagogy (Ward et al., 2015); the inclusion of cultural diversity (Burden et al., 2004); and modern technology (Jones et al., 2017; Liu et al., 2018). Thus, it is important that preservice physical educators (PPE) are fully prepared to tackle public health issues (McKenzie & Lounsbery, 2014) and meet the national PETE standards (Hastie, 2017; SHAPE America, 2017; Taliaferro et al., 2017). This preparation begins during the teacher education phase of a person's occupational socialization (Richards et al., 2013; Romar & Frisk, 2017).

To better help us understand what quality PETE is, it is important to address the standards for PPE in the United States. The Council for the Accreditation of Educator Preparation (CAEP) took the place of the National Council for Accreditation of Teacher Education (CAEP, 2013). The CAEP aims to ensure that education preparation providers are delivering students with evidence-based instruction and provide five standards: (a) content and pedagogical knowledge; (b) clinical partnerships and practice; (c) candidate

quality, recruitment, and selectivity; (d) program impact; and (e) provider quality, continuous improvement, and capacity. These standards are overarching and have the ability to branch out into Specialized Professional Associations (SPA), such as physical education. The PETE SPA is SHAPE America (SHAPE America, 2017). Essentially, the 2017 SHAPE America national standards for beginning physical education teachers consist of the following elements: (a) content and foundational knowledge, (b) skillfulness and health-related fitness, (c) planning and implementation, (d) instructional delivery and management, (e) assessment of student learning, and (f) professional responsibilities. However, the way in which these standards are conveyed within PETE programs differs from institution to institution (Ayers & Housner, 2008; Kim et al., 2015).

As might be expected, PPE undergo various types of coursework in college. According to studies on the topic in the United States (Ayers & Housner, 2008; Bahneman, 1996; Hetland & Strand, 2010), there are three types of coursework included within undergraduate studies: general education courses, professional education courses, and PETE specialization courses (i.e., physical education subject content courses, teaching methods courses). Although the number of credit hours required within each subject area is dependent upon the university, a number of studies have suggested that more credit hours should be applied toward physical education content knowledge (Herold & Waring, 2017; Kim et al., 2015) and that field experiences should be embedded throughout the PETE program (LaMaster, 2001; Layne & Blasingame, 2018). In addition, a handful of studies have suggested including cultural diversity (Burden et al., 2004) and instructional technology (Jones et al., 2017; Liu et al., 2018) training within PETE programs. To date, however, it is unclear if more PETE credit hours have been offered within PETE programs to meet new public health challenges.

University core curriculums—also known as general education requirements—help to prepare an undergraduate student for life beyond graduation. Some general education courses may include English, math, religion, liberal arts, humanities, and science. Typically, a student takes these courses prior to entering their major or these are woven throughout the undergraduate curricula (Young et al., 2018). Professional education courses (i.e., introduction to

teaching in education, students with disabilities in the classroom) are related to general teaching and learning practices in schools. Major credit hours are taken within the PETE major. PETE courses include subject matter content knowledge (activity courses such as swimming, basketball, football; Herold & Waring, 2017; Kim et al., 2015; Ward et al., 2015) and pedagogical content knowledge (K–12 internships and student teaching experiences; Ward et al., 2015). Embedded in the pedagogical content knowledge courses are field experiences. These content knowledge and pedagogical content knowledge credits make up a portion of the major credit hours offered within PETE programs (LaMaster, 2001) and serve as the cornerstone for PETE programs by providing PPE with the opportunity to practice their teaching methods under guided and controlled experiences with cooperating teachers and field supervisors in elementary and secondary settings. In general, field experiences and physical education content courses can be formative aspects of PPE training (Curtner-Smith, 1996; Layne & Blasingame, 2018). Total credit hours are the number of credit hours required for graduation.

It is important to point out that general education credits, major credits, field experience credits, and total credits differ from institution to institution according to the 2018 Carnegie Classifications (see carnegieclassifications.iu.edu). Some programs may require more general education credit hours than others. This requirement may affect the total number of credit hours required for graduation and thus may take away from the courses dedicated to the PETE major. The quality of PPE preparation could be better understood with an analysis of the credit hours requirements for PPE (Strand, 1992). As such, an examination of research on this credit hour topic could shed new light on this study.

Research on Physical Education Teacher Education Program Credit Hours and Course Content

Strand (1992) examined 131 PETE programs, using a 21-item questionnaire that focused on programmatic experiences in PETE. Strand found that 6% of those PETE programs required their students to take all of their skill courses prior to their junior year. It was also discovered that weight training was the number one class taught in secondary schools, yet only 3% of the 131 PETE programs

included in the study taught weight training concepts to its PPE. In the same vein, 103 physical education practitioners were surveyed about their content knowledge, pedagogical content knowledge, and professional knowledge taught within their PETE programs (Collier & Hebert, 2004). Movement education and skill feedback were the two areas that physical educators wished they had learned more about. According to this study, future physical educators were not adequately prepared to deal with behavioral problems, nor were they exposed to diverse teaching settings or practicum experiences. This study helped to kickstart the realization as to whether PETE programs were preparing PPE in a consequential, comprehensive, and cohesive manner (Collier & Hebert, 2004). Along with these realizations, the adequacy of university coursework within PETE programs has also been examined.

Hill and Brodin (2004) investigated 132 physical education teachers who had approximately 15 years of teaching experience. They asked the participants about their undergraduate coursework and the value it had toward what they learned in their PETE program. The participants were also asked about any teaching difficulties encountered during their first year as a physical educator. Access to adequate facilities and equipment, student discipline, catering to students with special needs, and scheduled interruptions were the top four perceived areas of difficulty during the induction year. Hill and Brodin also reported that sport skills knowledge and student teaching experiences were the most valuable concepts that former PETE students took away from their PETE program.

To the best of our knowledge, three existing studies have specifically examined courses and credits related to PETE programs in 1996 (i.e., Bahneman), 2008 (i.e., Ayers & Housner), and 2010 (i.e., Hetland & Strand), respectively. Bahneman (1996) examined differences and similarities in curricular elements by surveying 47 institutions and examined the collection of programmatic purposes and requirements from each institution. The author reported that general institution requirements included written and oral communication, math, computer science, humanities, social and behavioral sciences, and physical and biological sciences. The mean credit hours for these general education requirements was 69.1, whereas the physical education major credit hour requirement was 28.8.

Bahneman found that PE major credit hours did not even make up half of the general education credit hours required for graduation. Similarly, in a descriptive analysis of undergraduate PETE programs, Ayers and Housner (2008) investigated 116 institutions throughout the United States by administering a comprehensive questionnaire. Respondents were asked about the characteristics of their undergraduate PETE programs based on the 2006 Carnegie Classifications. Total credit hours required ranged from 120 to 156, with PE major credits averaging at 54.57. This contrast speaks to the notion that general education credit hours occupy a majority of an undergraduate curriculum. "On average, only 9.61 credits are allocated to what teachers will be expected to teach in K–12 programs in a 130-credit-hour program" (Ayers & Housner, 2008, p. 61).

In 2010, Hetland and Strand also used a self-designed survey to analyze PETE programs in SHAPE America's central district (i.e., Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wyoming). Similar results were reported given that the authors found the average total number of credit hours required for graduation was 122.70. Average credit hours for physical education content knowledge courses was 8.93. Field experience credit hours ranged from 8.14 to 27.11. Although a handful of studies on credit hour distribution have been published, it is unclear to what degree the distribution of credit hours differs from institution to institution. Furthermore, it has been 10 years since the last study on this topic was published. During this time, the new physical education teaching standards were published. Therefore, it is important that we gain new knowledge about the preparation of PPE. Specifically, we explore credit hour differences by institutional types according to the 2018 Carnegie Classifications. These classifications will help provide a background on how and why colleges and universities differ.

Carnegie Classifications

The Carnegie Classifications of Institutions of Higher Education is a framework that classifies colleges and universities across the United States. This framework helps to serve both educational purposes and research-intensive purposes (i.e., identifying groups of somewhat comparable institutions). The 2018 Carnegie Classifications highlights six types of institutions: doctoral universities, master's colleges

and universities, baccalaureate colleges, associate's colleges, special focus institutions, and tribal colleges. For the purposes of this study, PETE institutions were classified utilizing the 2018 Carnegie Classifications as follows: (a) doctoral universities, (b) large master's colleges and universities, (c) medium/small master's colleges and universities, and (d) baccalaureate colleges. In the United States, doctoral institutions make up 9.6% of universities (n = 418), whereas master's colleges and universities comprise 15.8% of institutions (n = 682) and baccalaureate colleges make up 19.5% of the country's institutions (n = 838). Associate's colleges, special focus institutions, and tribal colleges were not included in this study due to differences in educational objectives. Doctoral institutions consist of three types and are classified as Very High Research Activity, High Research Activity, and Doctoral/Professional institutions. Master's colleges and universities are classified into three types: Large, Medium, and Small programs. Baccalaureate colleges consist of Arts and Sciences, Diverse Fields, Mixed Baccalaureate/Associate, and Associate's Dominant institutions. However, for the purposes of this study, Arts and Sciences and Diverse Fields schools were examined.

Table 1 shows a breakdown on the Carnegie Classifications in this study. It is imperative to understand these differences across institutions, as they may affect the structure of PETE programs, especially from a content and pedagogical perspective (Liu et al., 2018). For example, the highest research activity is carried out by Very High Doctoral Research Activity institutions. Therefore, the credit hours offered may revolve around research that has been conducted in the field, resulting in differences in major credits or field experiences credits. Baccalaureate colleges may lack credit hours on research-intensive pedagogy when compared to their doctoral counterparts. Hence, it is critical that we examine the current curricula of PETE programs by credit hours in the United States to ensure that PPE are being provided with the education necessary to carry out their own quality physical education program. As a result, this study examined PETE program credit hour allocation in comparison to general education credits. An emphasis was placed on field experience credit hours in PETE programs due to the experiential importance in the quality of PPE (Curtner-Smith, 1996; Layne & Blasingame, 2018). This study also examined differences in PETE program credit hours

by institution based on the Carnegie Classifications. Our hypotheses were as follows: (a) There is a significant difference between general education credit hours and major credit hours required across all PETE programs; (b) the number of institutional credit hours for graduation varies significantly according to the Carnegie Classifications; and (c) major credit hours and field experience credit hours differ significantly by institutional types. It is hoped that this study will provide baseline data to help improve the quality of PPE preparation, especially in this culturally diverse and technologically advanced era.

Table 1
Carnegie Classifications of Universities and Colleges in the United States

Types	Doctoral universities	Master's colleges and universities	Baccalaureate colleges
Levels	Very High Research Activity	M1: Larger Programs	Arts and Sciences Focus
	High Research Activity	M2: Medium Programs	Diverse Fields
	Doctoral/ Professional Universities	M3: Smaller Programs	
Criterion	Award 20 or more doctoral degrees or 30 or more professional practice doctoral degrees [a]	Award 50 or more master's degrees, but fewer than 20 doctoral degrees [a]	At least half of the degrees offered are bachelor's degrees [a]

[a] Number of degrees awarded per year.

Method

Selection of PETE Programs

There are approximately 503 PETE programs in the United States. Of those, 391 award undergraduate degrees and 112 award graduate degrees. For the purposes of this study, 322 (more than 50%) PETE

programs were randomly selected using the Peterson's school index (see https://www.petersons.com/). Colleges and universities with undergraduate PETE programs were identified through a lottery procedure that drew on well-mixed numbers (Collins, 2010). Once randomly selected, schools were categorized into their Carnegie Classifications. Selection criteria for each institution with a PETE program were twofold: (a) The PETE program had to offer an undergraduate degree and (b) the undergraduate degree had to include a K–12 teaching license emphasis. Thus, only undergraduate PETE curricula were included in this study.

Following the identification and categorization of these programs, PETE curriculum guides, graduation checklists, course listings, program websites, and academic catalogs were located within the search engines of the colleges and universities and coded according to the number of general education, major, field experience, and total credit hours offered. Curricula for 83 doctoral universities, 168 master's colleges and universities, and 71 baccalaureate colleges were included. Master's colleges and universities were split into two groups based on sample size. Specifically, large master's programs made up one group and medium/small master's programs were combined as the other group. This split ensured similar sample sizes across institutional type. As a result, four types of institutional programs were analyzed. Because no human subjects were involved in this study, no institutional review board approval was needed. The data collected for this study were for descriptive and statistical purposes only.

Data Collection

We used a secondary data analysis research design for this study. For this study, we used information that had already been collected and made electronically available by PETE programs, to attempt to answer the research questions. A coding sheet was developed to differentiate between the types of institutions and the credit hours offered within each curricular category across those institutions. It is important to note that major credit hours usually comprises both field experience credits and other physical education course credits. We separated field experience credit hours from PETE major credit hours. Therefore, we compared the field experience credit hours to

the PETE major credit hours (i.e., methods, technology, assessment, adapted, measurement courses in PETE). Classification of content of electives was difficult since those credits varied by each student, rather than by PETE program. As a result, only required credit hours were coded. Intercoder reliability took place when Xiaofen Keating randomly code 20% of the selected programs. The percentage of agreement between the two coders was calculated and the agreement was greater than 80%, which is the cutoff value for acceptable intercoder reliability (Meyers et al., 2017). Peer debriefing was also used as a cross-check to the coding of the credit hour variables and the number of credit hours offered; this ensured error-free coding in the curriculum analysis phase of the study. Discrepencies between the codes were discussed and rechecked one last time.

Data Analyses

Once all data were coded, cross-checked, and verified, descriptive statistics were performed first, followed by a paired-sample *t* test for the first hypothesis: There is a significant difference between general education credit hours and major credit hours required across all PETE programs. A multivariate analysis of variance (MANOVA) was also used in the examination of variations in noncombined variables (i.e., general education credits, major credits, and field experience credits) offered within and across PETE programs (Meyers et al., 2017). Because MANOVA requires variables to be independent from each other, whereas total credit hours were the sum of general education credits and major credits, an analysis of variance (ANOVA) was performed for differences in total credit hours across the Carnegie Classifications. A post hoc test was performed for a significant ANOVA test, identifying which groups resulted in differences. Effect sizes were calculated for all significant tests. Specifically, Cohen's *d* was computed for the paired-sample *t* test and partial eta-squared was employed for the ANOVA. Cohen (1988) suggested a *d* of 0.2 as a small effect size, 0.5 as a medium effect size, and 0.8 as a large effect size. All data analyses were completed through SPSS version 25.0. A *p* value of less than .05 indicates a significant difference (Meyers et al., 2017).

Results

Description of Mean Credit Hours for General Education, Major, Field Experience, and Total Credits

Excluding elective credit hours, mean general education credit hours of 45.06 (SD = 8.79) outweighed the mean of major credit hours at 34.99 (SD = 11.17), indicating that students take more general education credits than they do credits in their PETE major (see Table 2). This also means that the first two years of an undergraduate's PETE trajectory is mainly devoted to content other than physical education–related coursework.

Table 2
PETE Credit Hours

Credit hours	*M*	*SD*	*f*
General education	45.06	8.79	36 (42)
Major (excluding field experience)	34.99	11.17	19 (32)
Field experiences	10.89	4.33	118 (12)
Total	122.77	10.29	119 (120)

Mean field experience credit hours totaled to 10.89 (SD = 4.33), whereas mean total credit hours required for graduation was 122.77 (SD = 10.29). The mode (i.e., most frequent number) of general education credits required was 42 (appearing 36 times), whereas the mode of major credits required was 32 (appearing 19 times). The mode of field experience credits required was 12 (appearing 118 times). The mode of total credit hours for graduation was 120 (appearing 119 times). Table 3 shows the mean credit hours within PETE programs based on the Carnegie Classifications.

Differences in Mean Credit Hours for General Education, Major, Field Experience, and Total Credits

Our first hypothesis was confirmed, considering that the paired sample t test result revealed that the difference between general education credit hours and major credit hours was statistically significant at the specified .001 level, $t(321) = 12.44$, $p = .000$, ES = .693. For our second hypothesis, the difference in total credit

Table 3
Credit Hours Based on the Carnegie Classifications

Institution type	Mean credit hours			
	General education*	Major*	Field experiences	Total
Doctoral	44.07	33.90	11.34	122.09
Large Master's	46.00	35.13	11.07	121.08*
Medium and Small Master's	44.62	34.93	10.93	125.69*
Baccalaureate	45.29	36.09	10.07	123.28

* $p < .05$.

hours required for graduation across institutional levels (i.e., doctoral, large master's, medium/small master's, and baccalaureate), the ANOVA test result was statistically significant between large master's colleges and universities and medium/small master's colleges and universities, $F(3, 318) = 2.91$, $p = .035$, ES = .027. The post hoc test results indicated differences in two types of colleges and universities: (a) doctoral universities had more total credits than medium/small masters' colleges and universities, and (b) large master's colleges and universities also had more total credit hours that medium/small colleges and universities. However, the MANOVA result did not support our third hypothesis for whether there were significant differences in general education credits, major credits, and field experience credits across institutions according to the Carnegie Classifications.

Discussion

It has been widely acknowledged that the way in which PPE are taught plays a critical role in the quality of physical education as they are trained to become the future workforce for our profession (Ayers & Housner, 2008; Bahneman, 1996; Chen et al., 2014; Curran & Standage, 2017; Sallis et al., 2012). Although various factors may affect the quality of PPE preparation, the centerpiece to determining such quality is the training PPE receive in their PETE program, which is mainly done through coursework and field experiences (Ayers & Housner, 2008; Bahneman, 1996). However, to the best of our knowledge, few studies have explored the professional preparation of PPE measured by credit hours within PETE programs of varying levels of the Carnegie Classifications. More importantly,

new technology and student diversity have jointly changed the landscape in which physical education is taught and learned in schools (Koekoek & van Hilvoorde, 2018; Sargent, 2018; Hill et al., 2018). As a result, PETE programs need to meet the new demands of PPE preparation to better help K–12 schools combat childhood obesity and the propensity of physical inactivity. Without an adequate number of credit hours within PETE programs, it is impossible for physical education field to ensure the quality of PPE. This strand of research warrants more attention from professionals in our field.

As noted, the purposes of this study were twofold: (a) examine credit hour differences in general education credits and major credits within PETE programs and (b) explore credit hour variations of general education, major, field experience, and total credits required by PETE programs based on the 2018 Carnegie Classifications. Our study contributes to our understanding concerning PPE preparation by identifying the types of coursework and the amount of credit hours included in and outside of PETE programs based on the type of university or college in which the degree is offered. This was done using a large sample size across the United States. The findings reported in this study could allow for better design of future PETE curricula that align with the needs of quality physical education in K–12 programs. Specifically, three results from this study are worth noting. First, one finding of our study aligns with three studies (Ayers & Housner, 2008; Bahneman, 1996; Hetland & Strand, 2010) in that differences in general education credits and major credits were statistically significant. Second, there were no differences in major credits and field experience credits by the type of institution. Third, the only significant credit difference across institutions lies in the total number of credit hours required for graduation between large master's colleges and universities and medium/small master's colleges and universities.

General Education Versus Major Credits and Total Credits

PETE programs varied significantly in their general education and major credit hour requirements, and total credit hour requirements also varied significantly across large master's colleges and universities and medium/small master's colleges and universities. It is unclear how these differences affect the quality of program

graduates. It is apparent, however, that general education credits outnumber major credits across institutions, regardless of their Carnegie Classifications, which aligns with what has been reported in the literature (e.g., Ayers & Housner, 2008; Bahneman, 1996; Hetland & Strand, 2010). More alarmingly, the consistent finding on the difference between general education and physical education major credit hours is a cause for concern as it indicates that PPE only have approximately 1.5 to 2 years of study in their discipline to become a qualified physical education teacher. These findings are consistent with the results found by Ayers and Housner (2008) in that PETE majors were averaging only 1 to 2 years in their educational program.

It is surprising that an increase in major credit hours within PETE and a decrease in general education credit hours have not occurred, even after a number of researchers have implied the importance of reallocating credit hours toward the PETE major (Hetland & Strand, 2010; Siedentop, 1990, 2002). Although it is not easy for PETE programs to readjust the number of credit hours offered, steps can be taken through educational policy change. The results found in this study may explain why previous studies have pointed out that physical education teachers are not well prepared to effectively teach physical education in schools (Hill & Brodin, 2004; McKenzie & Lounsbery, 2013, 2014; Phillips & Marston, 2008).

Although it is still unclear what cut-point for general education credit hours is reasonable, PETE programs should consider restructuring the number of credit hours offered in the physical education major. A possible idea may be transferring the imbalance of credits required for general education courses into the PETE program; again, such a change would have to account for the educational policies of the institution. These findings call for the reorganization of undergraduate PETE programs. Future research could explore the emergence of diversity courses and technology courses to expand the traditional role of physical education teachers, which makes it necessary for PETE programs to provide authentic, contextually diverse opportunities for PPE (McMullen et al., 2014). Sparing general education credits and ramping up field experiences may be a plausible solution to developing more well-rounded physical educators.

Major and Field Experience Credits Across the Carnegie Classifications

Field experiences provide PPE with practical exposure to multiple PE classes in school districts surrounding their college or university. Student teaching makes up an important part of the PETE curricula and is considered the pinnacle field experience (Gao et al., 2014; Hushman, 2013; Jones et al., 2017; Syrmpas & Digelidis, 2014). However, it is surprising that no significant differences were found in PE major credits and field experience credits by the type of institution. Furthermore, although 3 decades worth of attention has been given to field experiences embedded within PETE programs (e.g., Belka, 1988; Curtner-Smith, 1996; LaMaster, 2001; Layne & Blasingame, 2018; O'Sullivan & Tsangaridou, 1992), the average number of credit hours for field experiences was about the same as that reported in other studies (i.e., 9.61 credit hours, Ayers & Housner, 2008; 8.14 credit hours, Hetland & Strand, 2010). In essence, no significant changes have occurred within PETE programs over the past 3 decades. This is a cause for concern as the rise in childhood obesity has gone up exponentially (Ludwig, 2018).

Differences in Total Credits Required for Graduation Across the Carnegie Classifications

The significant difference in total credit hours by the type of institution indicates that large master's PETE programs have fewer electives, given that no differences were found in the general education, major, and field experience credit hours. Generally speaking, electives are used to meet individual needs, because each student has unique previous knowledge and experiences related to their program of study. More elective credit hours usually indicate more personalized program elements. Unfortunately, no data are available to explain why universities and colleges with large master's PETE programs have the smallest number of elective hours than other types of institutions. This is because our study was the first to attempt to analyze all credit hours required for graduation from a PETE program, using the 2018 Carnegie Classifications.

Although this study is the first to examine PETE undergraduate credit hour differences across institutions, using the 2018 Carnegie Classifications, a couple limitations should be addressed. First, the

information related to PETE credit hours was obtained by searching the website of each selected university or college. It is possible that some universities or colleges may be behind in updating their website, resulting in data collection errors. Cautions need to be exercised when interpreting the results of this study. Second, not all course descriptions within each PETE curriculum are known. Therefore, it was difficult to assess the quality of the PETE programs in this study. Experimental studies need to examine the quality of PPE by allocating more content to the physical education major and seeing whether additional content helps to prepare PPE for teaching quality physical education beyond graduation. By addressing this gap in the literature, researchers may be able to determine what PETE content affects their students' future teaching endeavors the most.

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