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PEDAGOGY

Credit Hour Analysis of Adapted Physical Education Courses in Higher Education

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Abstract

Adapted physical education (APE) is a critical piece to the physical education puzzle. However, this topic is often overlooked from a preparation standpoint in physical education teacher education (PETE). The purpose of this study was to analyze the number of APE credit hours offered in undergraduate PETE programs across the United States. The 2018 Carnegie Classifications were used to help differentiate between types of institutions. Ranging degrees of institutional classification may be a contributing factor to the number and type of credit hours offered. Data analysis indicated that majority of PETE programs in the United States only offer one APE course in the PETE curriculum. Findings from this study are critical to understanding the preparation of preservice physical education teachers (PPETs) in PETE. Findings may also contribute to a conversation on credit hour allocation and whether PPETs are being sufficiently prepared to teach in an inclusive and adapted environment.

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The school setting is an integral venue for promoting physical activity (Centers for Disease Control and Prevention [CDC], 2013). For elementary and secondary students with disabilities, a structured and quality adapted physical education (APE) program can positively impact their health and well-being (Pan & McNamara, 2020). Such an impact is important because students with disabilities are at greater risk of health disparity than their peers (Haegele et al., 2020; Hinckson & Curtis, 2013). Therefore, quality APE can be a place where physical activity can be made accessible to all. Alongside a historic movement toward integration (Alquarini & Gut; Block & Krebs, 1992; Yell, 1995), many students with disabilities are being mainstreamed into general education settings at unprecedented levels (National Center for Education Statistics [NCES], 2018). Furthermore, to satisfy least restrictive environments (LREs), federal law states: "to the maximum extent appropriate, children with disabilities, including children in public or private institutions or other facilities, are educated with children who are nondisabled" (Individuals With Disabilities Education Act, 2017). This is important to note as inclusion is an everyday matter in education.

The literature suggests teachers who are inadequately prepared will likely struggle to adapt their teaching to meet the needs of their students (Block et al., 2016; McNamara et al., 2022). Beyond the students' needs, teachers worldwide do not feel prepared to teach and adapt their instruction for students with disabilities (Hutzler et al., 2019). Furthermore, in the United States, not all teachers are doing coursework in adapted physical activity in their undergraduate and graduate programs (Beamer & Yun, 2014). This is a symptom of a larger problem, and Block et al. (2016) suggests one course on APE is not sufficient for the preparation of physical education teachers. If a teacher does not feel competent in their ability to adjust their mode of instruction, their behavior and attitude toward inclusive and integrated [1] settings is impacted, potentially leading to negative experiences for students with and without disabilities (LaMaster et al., 1998). Some sport pedagogy experts suggest integration is a potential contribution to teacher burnout (Fejgin et al., 2005). Even though integrated practices may not have a causal relationship to

[1] Integration is the situation of students with disabilities being present in class with students without disability, commonly referred to as mainstreaming.

burnout, this notion raises questions about the demands, support (or lack thereof), training (or lack thereof), and constraints (Payne & Fletcher, 1983) being placed on physical education teachers. To clarify, we do not blame physical education teacher education (PETE) preparation programs, but we see a need to analyze how these outcomes may be addressed during postsecondary preparation. As a profession, teaching physical education can be stressful and effect a teacher's mental, physical, and emotional health (Bartholomew et al., 2014). Therefore, how can physical education teachers navigate this environment of increased integration while meeting job demands and the needs of *all* students?

The literature suggests that adequate preparation is key for teachers to teach APE (Block & Obrusnikova, 2007) and that the physical education teacher is an integral part of the student's physical education experience (Haegele & Sutherland, 2015). Inadequate training and lack of experience may lead to negative perceptions of integrating students with disabilities into general classes (Block & Obrusnikova, 2007). Furthermore, perceived competence, quality of experience, and APE coursework are dire components to a teachers' positive beliefs, with perceived competence being the strongest predictor of positivity (Obrusnikova, 2008). For clarity, perceived competence is a teacher's belief they have the skills necessary to accomplish teaching tasks successfully. Negative beliefs may be due to lack of adapted training in PETE programs (Tant & Watelin, 2016). It is clear that in-service and preservice teachers need more preparation about the topic of successful integration practices for APE (i.e., Hardin, 2005; McNamara et al., 2022). This can be explored through an analysis of the number of credit hours U.S. PETE programs offer or require.

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Though preservice teachers need to participate in quality APE training, university and college structures vary in terms of degree-granting authorities. A course added at one university may not be feasible at another where many varying initiatives (i.e., social-emotional learning, social justice training, trauma-informed instruction, content knowledge, pedagogical knowledge, technology integration) already compete for concern and better coverage in an

environment of shrinking professional training. The 2018 Carnegie Classifications (carnegieclassification.iu.edu) help to clarify whether there are institutional differences in the offering of APE courses in U.S. PETE programs. These differences may be indicative of the APE preparationof preservice physical education teachers (PPETs). In the following section, we examine research concerning APE courses and credit hour offerings.

Research on Adapted Physical Education Courses in Physical Education Teacher Education

A survey from Piletic and Davis (2010) of 136 PETE faculty who teach an Introduction to APE course in the United States indicates that most (83%) PETE programs offer 3 credit hours in APE. A replication of the Piletic and Davis study from Kwon (2018) of 75 PETE professors who teach an APE course in the United States reveals that a little over half of PETE programs (51%) offer one course in APE. Both Piletic and Davis and Kwon provide valuable information and much needed evidence about APE training in PETE programs. However, the use of surveys may lead to nonexhaustive response rates and therefore not comprehensively capture the status of APE coursework. This study uses this as its empirical focal point.

With most PETE programs in the United States offering, at minimum, a 3-credit hour APE course (Block et al., 2021; Depauw & Karp, 1994; Rizzo et al., 1997), some scholars question what is missing from current preprofessional programs and what can be included in a second course or second practical experience to help strengthen an undergraduate PETE program (Block et al., 2021). These questions raise implications that need addressed and directly concern APE preparation in PETE in the United States. For a better understanding of the course climate in U.S. PETE programs, an exhaustive evaluation of APE credit hour requirements can help solidify the type of preparation PPETs are encountering throughout their undergraduate PETE program. Conducting this type of research may lead to future programming recommendations. Given current arguments, this research can also empirically embolden advocacy efforts in APE.

This study uses 2018 Carnegie Classifications to analyze APE credit hour offerings in U.S. PETE programs and whether those course offerings differ on the basis of the type of institution housing

it. Given that universities and institutions vary on the basis of size, type, and orientation toward general/adapted training, a closer analysis may offer more targeted insight into the APE preparation of PPETs. Ultimately, this work confirms or denies the hypothesis that the majority of U.S. PETE programs offer at least one three–credit hour course in APE. Results of this study can support APE preparation in PETE programs to help meet the need for teacher training that prepares the next generation of physical educators to work with all populations.

Method

PETE Program Selection Criteria

Three hundred fifty-eight U.S. PETE programs were identified and categorized into their Carnegie Classifications on the basis of the 2018 guidelines. If curriculum guides were unable to be located, those PETE programs were removed from the APE credit hour database, leaving 308 PETE programs for analysis. Institutions were broken down into three classifications: doctoral universities ($n = 86$), master's colleges and universities ($n = 158$), and baccalaureate colleges ($n = 64$). Doctoral institutions ranged in the amount of research activity required (i.e., very high, high, doctoral/professional practices). Master's colleges and universities varied from large, medium, and small programs, and for the purposes of this study, baccalaureate colleges fell under one of two classifications: arts and sciences and diverse fields. Table 1 hows the breakdown of the 2018 Carnegie Classifications.

Google and the Peterson Index were the main search engines used in identification of undergraduate PETE programs in the United States. The programs included in this study required teaching licensure. Data were compiled into a spreadsheet in which the institutions were classified and APE credit hours were recorded. Curriculum guides were located for each PETE program. Hyperlinks to those curriculum guides were inserted into the spreadsheet. This became the database for the study. Curriculum guides were used in identification of whether PETE programs offered an APE course. If the PETE program offered an APE course, the number of credit hours for that course was recorded. The database was then used for interrater reliability. Credit hours for a little over 25% of the entries

Table 1
2018 Carnegie Classifications

Type of institution	Doctoral	Master's	Baccalaureate
Levels	• Very high research activity • High research activity • Doctoral/ professional	• Large • Medium • Small	• Arts & sciences • Diverse fields
Benchmark	20 or more doctoral degrees or 30 or more professional practice doctoral degrees awarded [a]	50 or more master's degrees and fewer than 20 doctoral degrees awarded*	50% of the degrees offered are bachelor's degrees*

[a] Number of degrees awarded each year.

were cross-checked. There was no need for IRB approval because this study did not conduct human subjects research. The dataset in this study was part of a larger preexisting dataset used previously and was not indicative of program quality.

Data Collection

In the spring of 2021, a database of PETE programs and corresponding curriculum guides were compiled and APE credit hours were located via each of the curriculum guide hyperlinks from the database. Programs that did not offer an APE course were excluded from the study. This ensured there were no missing values.

Interrater reliability was conducted through random selection of 80 PETE programs (i.e., a little over 25% of the APE credit hour database). The research team was trained in search protocols for using the dataset as well as course search strategies. The second rater was trained to use the Ctrl+F function to target these course terms:

"APE," "Adapted Physical Education," "APA," and "Adapted Physical Activity." Furthermore, not all course catalogs were available or navigable through the website itself, so the same process was followed when course offerings were located in downloadable PDF forms. A second rater double-checked the first raters work, and the percentage of agreement between the two raters was 81.35%, which is more than the 80% cut point for sufficient interrater reliability (Meyers et al., 2017). There were no disagreements between raters during the peer debriefing stage.

Data Analysis

After collection and cross-checking of the data, descriptive statistics and frequencies were run. An ANOVA was also completed for differences in APE credit hours on the basis of type of institution in which the PETE program was located. The Statistical Package for the Social Sciences (SPSS) software (Version 26.0) by International Business Machines Corporation was used in data analysis. A p value of $< .05$ for ANOVA indicates a significant difference.

Results

Master's colleges and universities made up 51.3% of the sample. The majority (31.8%) of the institutions were larger master's colleges and universities. APE credit hours ranged from 1 to 17 credits with institutions averaging 3.35 credit hours for APE ($SD = 1.726$). Of the 358 PETE programs identified, 50 either did not offer an APE course or the curriculum guide could not be located. The ANOVA test result did not show a statistically significant difference in the number of APE credit hours offered on the basis of the type of institution, $F(2, 305) = 1.714$, $p = .182$. Since there was no significance, a post hoc test was not conducted nor were effect sizes calculated. Table 2 displays the mean APE credit hours offered on the basis of the type of institution.

Discussion

Our initial analysis confirms universities and colleges offer similar amounts of APE training regardless of size or research production, on the basis of the 2018 Carnegie Classifications. The finding of approximately 14% of PETE programs giving no indication of APE content–based coursework in which PPETs can enroll, with initial

Table 2
Adapted Physical Education Credit Hours

Institution type	*M*	*SD*	*N*
Doctoral	3.47	1.720	86
Master's	3.44	1.893	158
Baccalaureate	3.00	1.195	64

exclusion of these schools from the study, is similar to the findings of Beamer and Yun (2014). Our results empirically strengthen and support the notion that universities and colleges offer about one course on APE, or 3 credit hours (Beamer & Yun, 2014; Block et al., 2021; Depauw & Karp, 1994; Rizzo et al., 1997). Meanwhile, on the basis of the experiences and perspectives of physical education teachers, more training is essential for teachers' longevity in the profession and for teachers to provide a quality physical education experience for students (Block & Obrusnikova, 2007; Hutzler et al., 2019; Tant & Watelin, 2016; McNamara et al., 2022).

Perceived competence is the strongest predictor of positive belief (Obrusnikova, 2008), and targeted adapted training can improve teaching outcomes (Laughlin et al., 2019). However, even after one experience, preservice teachers need more practicum time (i.e., APE practice during field experiences; Perlman & Piletic, 2012). Whatever the educational philosophy, whether rooted in behaviorism (Reimann, 2018), social learning theory (Bandura, 1977), or self-determination theory (Deci & Ryan, 2000) a common limiting factor is time and experience in contextually relevant situations. As K–12 students with disabilities continue to be integrated in physical education at unprecedented levels (NCES, 2018), it is imperative that PETE programs adjust their curricula to foster inclusive conditions and prepare teachers to be ready to offer appropriate modifications and accommodations for students with disabilities (Holland & Haegele, 2021).

The last decade shows an increase in the prevalence of childhood disability (Kansra et al., 2021), and difficulties with mobility, cognition, independent functioning, hearing, vision, and self-care impact nearly 1 in 4 adults (CDC, 2020). This statistic, which is already considerable, does not necessarily factor in mental health

and/or undiagnosed mental health issues such as anxiety, depression, or other trauma-related conditions associated with childhood abuse or neglect. Furthermore, as medical research and big data are trending forward, all fields in education should be aware of adverse childhood experiences and their negative effects in both childhood and adulthood (Anda et al., 2006; Westermair et al., 2018). "Extreme, traumatic or repetitive childhood stressors such as abuse, witnessing or being the victim of domestic violence, and related types of abuse are common, tend to be kept secret, and go unrecognized by the outside world" (Anda et al., 2006, p. 2). The bottom line is PETE programs need to train PPETs to be advocates for the importance of mental health.

Problematic Suggestions and Rationale

Acccording to O'Conner and Jess (2020), "consensus is not a requirement and, if the least path of resistance is adopted, the outcomes may indeed be unproductively bland" (p. 416). Consensus also faces major challenges such as teacher certification resting within diverse state government organizations and idiosyncratic policies and practices (i.e., state departments of education; Mitchell et al., 2021). By taking stock in public policy waves (Lawson et al., 2021), we make suggestions to prioritize needs for the appropriate APE instruction on the basis of the least restrictive environment (LRE), in integrated contexts. Further, we act as continued stewards of PETE by suggesting the continued use of innovative models (i.e., teaching personal and social responsibility [TPSR], social-emotional learning [SEL] strategies, restorative justice [RJ], sport education model [SEM]) and pragmatic examples that may bridge both practitioners and researchers who are equally important to students with and without disabilities. According to other research and our analysis, one or two APE courses is not sufficient in PETE. The only ways forward are transdisciplinary and interdisciplinary lenses (O'Conner & Jess, 2020), applied through collective action (Lawson et al., 2021) and infusion (DePauw & Karp, 1994) approaches. As we suggest the infusion of adapted strategies into PETE curricula (Depauw & Karp, 1994), SEL strategies may be stranded across courses. While research uses SEL in physical education settings with typically developing students (Richards et al., 2019), this construct can be utilized with students with disabilities in physical education. SEL programs

in schools can address behavioral problems and assist students with success in the classroom (Durlak et al., 2011). This type of learning construct is imperative for all students and can support students with disabilities. In this regarding, teaching SEL skills in physical education with a blend of the skill-theme approach (Graham & Parker, 2013) and TPSR model (Hellison, 2003) may lead to improved SEL skills in elementary students with and without disabilities (Richards et al., 2019).

The skill-theme approach can be used in PETE to teach PPETs to customize specific skill themes (i.e., locomotor, nonmanipulative, and manipulative skills) and movement concepts (i.e., spatial awareness, effort, and relationship) in physical education with little to no equipment (Gentry & So, 2019). Educating PPETs on the importance of a mastery climate for children with and without disabilities in physical education is important because it allows for student-centered learning (Valentini & Rudisill, 2004; Wilhelmsen et al., 2019). Unfortunately, physical education teachers commonly teach large class sizes with minimal equipment, which makes it harder for teachers to teach and students to learn with one another. Utilizing the skill-theme approach can help challenge the whole class at appropriate developmental levels and lower the attention placed on students with disabilities.

RJ also has use in education to enhance mutual respect among teachers and students and to foster positive relationships (Anfara et al., 2013). RJ circles allow for discussion of undesired behaviors within an inclusive physical education setting. Through RJ circles, the entire class can build relationships, make connections with one another, and build SEL skills. The TPSR model can also educate PPETs in supporting students with disabilities.

The TPSR model (Hellison, 2003) supports students fundamental life skills through physical movement. Teachers can use this model teach awareness talks, and the models needs to include one of the five SEL competencies (i.e., self-awareness, social awareness, self-management, relationship skills, and responsible decision-making) as the focus of the lesson. All-inclusive group discussions provide an opportunity for students to share and self-reflect on their use of SEL competency in physical activity. Ultimately, when electing a model

or combination of approaches, teachers need to reflect on developmental appropriateness for all students.

Teaching PPETs to implement the SEM (Siedentop et al., 2020) can help enhance quality integration and foster inclusionary opportunities. One component in particular, *persisting teams*, allows students and their teams to become familiar with one another over time. The *teams* grow to understand each individual's strengths. As students become teammates over the *season*, consistent communication fosters deeper—not necessarily better—friendships through less avoidant behavior and increased positive behaviors (Rocamora et al., 2019). Though SEM is promising, there is a need for more research on the feelings of students with disabilities about the extent to which they feel included. Adapted sports (e.g., sitting volleyball or goal ball) can be the focus of a season and can increase disability awareness—though the use of adapted learning activities should be approached with care and ideally include the perspective of persons with disability (Maher et al., 2022).

Teachers can also merge other complementary adaptions from game-based models such as Teaching Games for Understanding (Griffin & Butler, 2005), Game Sense (Light & Robert, 2010), and Teaching Sport Concepts and Skills: A Tactical Approach (Oslin et al., 2006). Teaching using small-sided games, grouping similarly skilled competitors, and employing modified or simplified rules and equipment adjustments (i.e., lower nets, larger racquet faces, larger/slower trainer volleyballs) are also appropriate accommodations that require careful and strategic consideration (see Lieberman et al., 2008, pp. 35–37).

Even though we highlight a variety of models that can be taught to PPETs in their PETE programs with inclusion in mind, the underlying components of these models are important for teachers to understand for strategic integration that helps foster conditions that enhance students' feelings of inclusion. Other models such as Cooperative Learning (Dyson & Casey, 2016) may better target social cohesion and cooperation, so teachers must choose curricular models to fit their (or their program's) vision for physical education with respect to student needs. Furthermore, there are philosophical arguments being made about sport and the developmental appropriateness of competition (Aggerholm et al., 2018), a concept that

teachers and teacher educators need to ponder while trying to empathize with each viewpoint, intended outcome, and/or unintended consequence. Regardless of model, researchers need to continue to look into APE preparation within PETE programs and ways to strengthen this area.

Strengths and Limitations

Findings from this study contribute to the literature on credit hour research and allocation in U.S. PETE programs, bringing to light a lack of APE credit hours and number of APE courses offerings within PETE programs. This study provides PETE faculty, teacher educators, PPETs, and in-service physical education teachers with an idea of how PETE programs are preparing their future physical educators. This knowledge may allow this field of individuals to come together and share a unified voice on the importance of preparing PPETs to integrate students with disabilities proficiently into physical education so they feel included and not forgotten or bullied by their teacher and peers. Although this study presents some strengths, it has some limitations.

First, since most information about college course offerings are made easily accessible and available to both current students and prospective students, we can reasonably assume the course offerings are accurate and up-to-date. However, the temporal nature of this project may affect that results due to curriculum changes, new course listings, and other technological errors be- tween initial data extraction and the interrater reliability agreement process, with a majority of website information changing or being updated from Time 1 to Time 2. Moreover, broken links and lack of available information as well as a few PETE programs closing hinder our results. These factors limit our PETE program selection pool. Another limitation of this study is the search for the quantitative output in terms of courses offered as well as the number of credits. Therefore, this study does not capture information about the quality of included PETE programs.

Conclusion

There are many ways for PETE programs and teachers to make forward progress. However, some of the outcomes are within the agency we carry as teacher educators, preservice physical education teachers, and in-service physical education teachers. Embracing a

collaborative and collective active way of doing may also enhance our ways of being and lead not only to change but also to sustainable change. Regardless of methodology, researchers can embrace rigor while innovatively studying the problems they wish to change for the better. Findings from this study highlight the need for more APE coursework and/or the infusion of these concepts through a standard approach in PETE.

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