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PEDAGOGY

The Coeducation of Physical Education in Greece: From the Ancient Times Until the Modern Times

Eleni D. Kantzidou and Lawrence W. Judge

Abstract

The majority of physical education (PE) classes in the United States became coeducational after Title IX was enacted in 1972. However, the process of considering the effects of coeducational PE did not begin there. The purpose of this study was to present in as much detail as possible, through a thorough literature review, the presence and development of coeducation in the subject of PE in Greece over the years. This historical review shows the views of the two founders of ancient Greek education, Plato and Aristotle, according to whom education was necessary for both boys and girls. This study also references the influences of the European Enlightenment, where the education of both sexes was considered necessary. During the 19th century, specifically in 1828, the institution of coeducation of the two sexes took the first timid steps toward an educational evolution, which is directly related to social, cultural, and moral issues. Laws played a catalytic role in the issue of mixed education of boys and girls, even under adverse conditions, to reach 1985, where Law 1566 was passed, the last to assess Greek coeducational PE.

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History paints a detailed picture of how society, technology, and government functioned in the past, so one can better understand how they have evolved. A historical lens also helps determine how to approach the future, as it allows leaders to learn from the challenges and triumphs of past societies. When examining the past, one can understand the process of education and how it evolved over the years to the present. Over 2 millenia ago, the ancient Greek philosophers Plato and Aristotle laid the foundations of Western culture. Plato and Aristotle were the founders of the theory of education and the basic principles of educating children and the masses. Until modern times, specifically the 19th century, there was little to no evidence documenting the coexistence of the two sexes in education. After the creation of an independent Greek state in the 19th century, one finds relevant information pertaining to the sexes in education. Specifically, Dimaras (1990) stated, "On March 16, 1822, the Peloponnesian Senate, with its proclamation, announced the establishment and operation of a school in Tripoli and called on all young people to study there for free, while also inviting worthy teachers to teach them" (pp. 4–5). About a month later (April 7, 1822), the same committee urged parents to take care of the education of their children, boys and girls (Kantzidis, 2002, p.12).

Following the enactment of Title IX in the United States in 1972, physical education (PE) classes generally became coeducational. The controversy of mixed-gender education has been a concern of the educational world since antiquity. This can be seen in a brilliant way through the work of Plato and Aristotle, who were "the first founding fathers of the sciences of education" (Zourmpanos, n.d.). The Greeks made significant contributions to philosophy, mathematics, astronomy, medicine, and PE. Aristotle's ideals, similar to Plato's, were focused on PE and sports to develop the spirit of sportsmanship and to develop good habits in life. This historical review shows the evolving views on education. The purpose of this study was to provide a thorough literature review, presenting the presence and development of coeducation in the subject of PE in Greece over the years.

The Influence of Plato

Socrates, the Greek philosopher who had an extensive influence on what now is known as Western philosophy, guided his students Plato and Aristotle in his ideology. Socrates educated Plato that the surest path to wisdom was rational contemplation and that being a "lover of wisdom" or philosopher was the highest form of life. In his two very important works the *State* (*Πολιτεία* or *Politeia*) and the *Laws* (*Νόμοι* or *Nomoi*), Plato cited views on education and pedagogy that find a place even in modern times. He believed that the education of children began in kindergarten and considered it appropriate and necessary for education to be public, be compulsory, and be applied equally for both boys and girls (Geraris, 2014; Platon, n.d., p. 367). As his views regarding how children should be educated were based on developing a utopian society, he suggested that for the first ten years of life, education shall be predominantly physical, proposing "play and sports are to be the entire curriculum" (Durant, 2006). He continued by saying that "music and physical exercise do not aim, as some believe in body shaping" but "in its cultivation of the soul with the help of others" (Platon, 1963, p. 141). Thus began the concept of PE.

In his work with equal emphasis regarding exercise, *Laws*, Plato considers education more deeply. In this work, education is structured in six stages (Platon, 1964, pp. 8–9). The first period of youth education includes the period from birth to the age of 3. It emphasizes the physical development of children as well as the cultivation of their souls (Platon, 1964, p. 158). During the next stage of education, which occurs between ages 3 and 6, both sexes have a common course coexisting in the educational process. After the age of 6, boys and girls are separated and both sexes continue their education with the same sex (Platon, 1964, p. 164). In this phase of their education, however, both sexes are taught the same subjects and in particular learn to "turn their attention to lessons of the masculine" (Platon, 1964, p. 164). The males turn their attention to the horses, bows, javelins, and the art of slinging. On the other hand, females, to the extent they consent, voluntarily attend the same educational courses until the stage of learning, "especially the use of weapons" (Platon, n.d., p. 331).

This is followed by the fourth level of education, which begins at the age of 10 and lasts until the age of 13, during which children are taught "reading, writing, arithmetic, stereometry and astronomy" (Geraris, 2014, p. 4). Additionally from the 13th year, selected students are given the opportunity to be taught music, specifically guitar and lyre (Geraris, 2014, p. 4).

The Influence of Aristotle

Aristotle was Plato's most brilliant pupil and had developed a slightly different view. Growing up in a family of Greek physicians, Aristotle learned very early the value of observation and hands-on experience. Aristotle, for his part, emphasized that the highest good was happiness, but "it depended on the deeds of virtue" (Mouratidis, 1998, p. 52). To achieve "happiness," the individual needs to receive the appropriate education and training, as these contribute to the development and cultivation of those abilities of the individual, which help them to make the right choices during their life (Mouratidis, 1998, p. 52). The philosopher "supported the measure and condemns the exaggeration" (Mouratidis, 1998, p. 50), while the virtue was "the disposition to behave in the right manner and as a mean free from any dose of lack and exaggeration" (Mouratidis, 1998, p. 50). Thus, according to Aristotle, there were two extremes, one referring to the minimal and the other to the exaggeration, while the median or "fine balance" (χρυσή τομή) is the right path for education and training (Mouratidis, 1998, p. 50).

For the achievement of this middle ground or mean, of course, it was necessary to keep in balance the body and the soul of man, which cannot be provided by nature to the individual, but by education (Aristotle, 1939, pp. 34–35). This was the duty of the state—to provide the education—and not of everyone individually (Aristotle, 1939, p. 22). Therefore, it is obvious that Aristotle was a supporter of the view that education should be public and not private, as it should be "one and the same for all" (Aristotle, 1993, p. 151).

The established courses of the time, of which the education of young people was founded, were "about four" (Aristotle, 1993, p. 155): reading-writing, gymnastics, music, and art (Aristotle, 1993, p. 155; Aristotle, 1989, pp. 23–28). It is worth noting that the training of the body, according to Aristotle, preceded that of the soul (Aristotle, 1993, p. 161), because man, from the moment he is born,

is characterized by his appetizing thymic and volitional element, while over time he develops speech and his mind (Aristotle, 1989, p. 31).

Both Plato and Aristotle, of course, argued that not only boys but also girls should receive a common (same) public education. In addition, it is worth noting that both philosophers embraced the view that the education of the individual begins at birth (Tsoni, n.d.). They also emphasized the importance of PE and the need to develop and cultivate it before the soul, as logic follows physical development (Sakkorafou, 1957, p. 274). The educational theories of both great ancient Greek philosophers shared similarities regarding the purpose of education, the scheme of education (curriculum), and the method of teaching but also differed significantly. Plato believed the purpose of education was to free the soul and turn it toward the truth. According to Aristotle, the purpose of education was to attain knowledge and happiness. Virtue can only be attained through happiness.

Influence of the European Enlightenment

The current education system evolved from these ancient principles. At the beginning of the 19th century, the influences of the European Enlightenment penetrated the circles of Greek educators, according to which the necessity of education of not only boys but also girls was emphasized. In any case, the education of each sex must be differentiated "in terms of its purpose and organization" (Dalakoura & Ziogou-Karastergiou, 2015, p. 40). According to the prevailing trend at that time, the role of the two sexes is clearly separated, with the result that their education must be different, as girls are destined for the role of host and mother and not to participate in public affairs (Dalakoura & Ziogou-Karastergiou, 2015, p. 40). The problems related to the education of girls at the time were (a) the differentiation in the education of students ("who and how much in total and how," according to Xanthopoulos, 1873) and (b) the "coeducation" (Karastergiou, 1986, p. 259; Xanthopoulos, 1873, p. 250).

Coeducation in Modern Greek Education

However, the coeducation of the two sexes, as an institution, in modern Greek education, has always had a direct relationship with social, cultural, and moral issues. This institution appeared especially

during the 19th century under certain conditions. Specifically, boys and girls coexisted in the same school space, when and where the need arose, because the state did not have the organizational and financial capacity to establish what were considered "pure" primary schools, some for girls and others for boys (Skoura, 2011).

The first timid appearances of coeducation in Greek education occurred around 1828, immediately after the liberation of the country from the Ottoman Empire. The concept was first established in the schools of the Greek islands, then in the capitals of the provinces, and then in the other municipalities of the country (Ziogou-Karastergiou, 1986, pp. 46–56). As early as 1829, despite the unfavorable conditions, there were parents who sent their girls to school and the girls attended the same school establishments as the boys. These schoolgirls faced difficult, almost primitive conditions and studied with a large number of boys in the same schools. There were simply not enough educators to go around.

On July 15, 1833 (new calendar; old calendar on July 3, 1833), the committee for the organization of schools in the Greek state provided for the establishment of primary school "and for the girls." However, due to the lack of female teaching staff, young women had to be taught by men with the necessary presence of an elderly woman, who had the role of the girl's curator with the obligation to teach them embroidery. The same act also provided gymnastics instruction for girls (i.e., exercise in wrestling, jumping, and running; Antoniou, 1992, p. 43). Also, in this plan, the meeting of May 1 and 2, 1833, the government was asked, at least for the time being, to accept two types of primary schools: the mutual learning schools (Andreou, 1989) and the coeducational secondary schools (Kalafati, 1988, p. 129).

Chasekidou-Markou (2013) and Andreou (1989) both alluded to the Royal Decree of February 6, 1834 (Law 1834 On Primary Schools, 1834). When this law was passed, primary education was organized, while secondary education was established with the decree of December 31, 1836 (Kitsou, 1993, pp. 14–15; Royal Decree on the Regulations, 1836). These decrees, in addition to some changes, were enforced until the first two decades of the 20th century and formed the basis of the Greek educational system. These decrees provided for the establishment of pure primary schools for

girls, where possible. However, this plan was not maintained due to lack of financial resources and properly trained teaching staff. In the middle of the 19th century, Minister S. Vlachos (On Boys Leaving, 1852) completely banned coeducation in both public schools and private schools that attended to students of both sexes, because it was characterized as "interference, which predisposes to the seeds of unpleasant consequences" (Fournaraki, 1987, p. 141).

The issue of coeducation came up again in 1873, particularly regarding the views of members of the Hellenic Teachers' Association. Most of them argued that mixed schools were, of course, a "necessary evil" but "harmful to the morals" of the country. A smaller number of members thought that they should be kept where it was not possible to operate mono-educational schools for each sex, while a third party claimed that mixed schools should not be maintained at all, because they affect the moral formation of generations. As a result, there was a hesitation from teachers and parents and consequently from society and the state. The works of Kitsou (1993) invoke the views of many educators of this era who support the differentiation of students, believing the nature and mission of education of women in life is different from that of men (p. 36).

Also noteworthy is the way in which the draft laws on education were created as early as 1870 and then discussed in the Greek Parliament. These draft laws contributed in some way to tackle the problems of coeducation in the primary school in the country. Thus, they influenced and changed the already existing negative attitude of the public opinion and the teachers toward the issue of coeducation (Kitsou, 1993, p. 37). More specifically, the first draft laws of 1870 and 1877 highlighted the need for the complete separation of primary schools into boys schools and girls schools, while the draft laws that followed in 1880 and 1889 were more compromising, accepting coeducation under certain conditions as a solution to the problem (Kitsou, 1993, p. 38). Essentially, the gym was established as an important facility in the primary school from the year 1878 (Antoniou, 1987, p. 402).

Ioannis Fokianos made a profound and impactful contribution to the establishment of the gymnastic course in primary education (Giannakis, 1998, p. 21). The highly successful organization of the gymnastic demonstrations of the primary schools of Athens on May

15, 1883, contributed to this. The Minister of Education and many officials watched with great interest the gymnastics demonstrations of the students at all three levels. The success of these gymnastic demonstrations gave Fokianos the opportunity to conquer the field of primary education. Since then, the gymnastic exercises have been established and introduced in the primary schools as well (Giannakis, 1998, p. 21).

Aik. Lakaridou emerged as an innovative figure for the education system in Greece. She worked in collaboration with the Gymnastics Association to establish gymnastics classes for teachers in 1891. Her pioneering ideas were revealed in such an early period, during which there was an obvious emphasis on the instruction and employment of women in Greece (Ziogou-Karastergiou, 1986, p. 180).

The issue of coeducation has occupied the educational world quite vigorously since the early 1880s, but it has also strongly evolved since this time. Confrontation raised against coeducation slowly diminished when Law ΒΤΜΘ′ (1895) was enacted, which decided the condition for girls to study with boys was that there should be no boys-only schools in the area and the boys should not exceed the age of 10.

Law ΒΧΚΑ′(1899) in Article 4 imposed gymnastics as a primary subject in all schools of primary and secondary education of the state in both public and private. Also, the same law in Article 6 provided that students who attended all schools of primary and secondary education, males and females, as well in teaching establishments, be taught gymnastics at least 3 hours a week. Also, Article 11 of the same law imposed the subject of gymnastics on both sexes (Antoniou, 1987, p. 410).

However, the substantial assistance of the Minister Ath. Eftaxia in Physical Education was completed at the end of the 19th century with the Official Government Gazette/Φ.Ε.Κ. 225 on 20/11/1899 with the publication and voting of (a) of the Royal Decree for teaching gymnastics in schools, (b) "the decision to teach gymnastics in primary and secondary schools and in both sexes," and (c) of the Curriculum Analytical Program (cf. the royal decree, the decision, and the curriculum were published in Official Government Gazette, Ε. τ. Κ. Α Φ.Ε.Κ. 225, Vol. Α′/20-11-1899; Antoniou, 1987, pp. 398–422).

The first educational conference, which took place on March 31, 1904, dealt with educational issues of the country, among which was that of women's education. One of the decisions concerned the application of the law for compulsory schooling of girls in primary school so that their illiteracy could be combated (Parren, 1904).

20th Century to Present Times

At the beginning of the 20th century, of course, the issue of coeducation preoccupied both the Greek world and the European world. The coeducational model, despite the initial reactions of teachers and the public, was gradually finding supporters, if only for primary education. This support emerged from a survey, and the concerns from the results of the questionnaire were published by Marsalis's deputy director M. Papamavros in the magazine *Ergasia* (Skoura, 2011). In July 1929, the same issue preoccupied them with the participation of secondary education officials at the International Congress in the Hague, who, after intense and interesting discussions, concluded that each country should make relevant arrangements, considering its educational and social aspects, as well as its customs, traditions, and its financial situation (Palaiologos, 1938, p. 156).

Until August 1929, Law 1242/1919 B′ (1919) was enforced. According to this law, girls could also attend public schools, since there were no girls' school in the area, with the limitation that they would not exceed the age of 10. Female teachers were preferably appointed to these schools. In another case, boys were allowed to attend girls' schools when there was a shortage of male schools and, of course, if they did not exceed 12 years of age (Karachristou, 1934, p. 6). According to Kitsou (1993), the government, because it was unable to establish schools for girls, urged many parents to send their daughters to boys' schools, showing that coeducation was essentially and compulsorily applied. This is clearly evidenced by the statistics available at the time; out of the 7,843 schools in the country, 5,327 operated as mixed and only 958 pure for girls and 1,558 pure for boys (Gontikas, 1913, p. 12; Kitsou, 1993, p. 57). Thus, as Karachristou (1934) mentioned, the so-called coeducation occupied all the elementary education and almost all the public schools of the primary education of that time (p. 9).

However, from 1923 to 1924, the issue of coeducation was rekindled. A portion of teachers supported the mixed teaching of boys

and girls. However, some of them were concerned about the subject of gymnastics and claimed that a distinction should be made between boys and girls because the mental and physical strengths of the two sexes differed (Kitsou, 1993, p. 65). Some teachers, of course, had the opposite view of this institution, arguing that pure schools were appropriate because the mixed attention distracted the boys and because the girls' destination required different teaching materials (Kitsou, 1993, p. 65).

Thus, in August 1929, Law 4397/1929 (1929) was passed: "Always the schools of elementary education, except for households, are mixed." The application of Law 4397/1929, according to Gontikas (as cited in Kitsou, 1993, pp. 57–58), resulted in the bias of the prejudices of parents and public opinion against mixed schools. The interaction of the two sexes, according to this law, from an early age contributes to the mental development of children, helping them to form healthier, more human and civilized perceptions of their lives and actions. They also find suitable conditions for the noble and social feelings of all students to develop (Kitsou, 1993, pp. 57–58). This law in Article 5 defines the subjects of the primary school and does not exclude gymnastics from them. Social and economic benefits of coeducation are evident from the application of this law. For example, large sums of money have been saved as a result of the reduction of teaching staff as well as teaching and teaching instruments (Kitsou, 1993, p. 58). From all these actions, it can be seen that the reasons that led the Greek state to establish the universal institution of coeducation in primary education were not only social but also educational and economic.

From 1929 to 1959, there was no significant change in the country's educational issues. In 1959, the Educational Reform (Law 3971/2-9-1959; Law 3973/2-9-1959) established a series of decree laws that also concerned primary education. Specifically, they "strengthen Primary Education by increasing its staff and improving the training of kindergarten teachers and teachers" (Meletiadis, 2015). However, this period is characterized by the complete absence of PE teachers from primary education. Similar stagnation and inactivity, as in previous years, characterize the period 1959 to 1964, during which no obvious change in the issues of gymnastics in primary education was observed.

On November 7, 1964, a plan for educational reform was submitted to the Parliamentary Authorization Committee by Papanoutsos, accompanied by a detailed presentation. The explanatory memorandum proposed the adoption of three acts to be passed in parliament. The first was related to the organization of primary and secondary education, the second was related to technical education, and the third was to improve some issues of higher education. The first draft law was passed by parliament and became state law and is the Decree Law 4379/1964, while the other two would follow in May 1965. Unfortunately, the last two did not manage to be voted on, because after 2 months, on July 15, the government of the Center Union of Papandreou was dissolved (Kantzidis, 2002, p. 70).

Among other things, the Decree Law 4379/1964 (1964) provided for the increase of the compulsory attendance of students from 6 to 9 years and, as in most countries, free education. The Pedagogical Institute was established as an independent public service belonging to the Ministry of Education to improve education and research (Kantzidis, 2002, p. 70).

The Royal Decree 72/14-1-1966, which was then voted after the Decree Law 4379/1964, only caused disappointment to spread in the gymnastics world, as this did not provide a solution to the chronic problems of the industry. Furthermore, the disadvantage was that it referred to the application of older and anachronistic provisions (Royal Decree 5/9, 1935, referred in turn to the application of provisions of Presidential Decree 18-11-1931 and Law 4373/1929, Art. 5, "On the Regulation of Middle Schools Education"). In contrast to this royal decree, Ion Ioannidis, a gymnast who had been elected as educational advisor at the Pedagogical Institute, organized a series of seminars across the country during the 1964–1965 school year to inform teachers and professors of issues related to modern fitness trends, which prevailed internationally for primary education. But also Royal Decree 425/4-5-1966 (1966) and Royal Decree 1074/15-12-1966 (1966) did not positively affect the education and especially PE in the schools of primary and secondary education. So this was the picture of the general situation in education until April 21, 1967, when the 7-year dictatorship was imposed.

However, the last law passed in Greece, which concerned the structure and operation of education in both primary education and

secondary education, was Law 1566/1985 (1985) on the "structure and functioning of primary and secondary education and other provisions." It is still applied in Greece today. According to this law, primary education, especially in primary school, aims at the intellectual and physical development of students. It also aims at building mechanisms that contribute to the assimilation of knowledge, physical development, physical and mental health, as well as cultivation of motor skills (Law 1566/1985, 1985, Art. 4, paras. 1a, 1b). This law does not expect anything more for the course of PE compared to the previous ones, which concerned education and especially primary education. While the past three decades have produced some educational reforms, nothing substantial has been done for PE, especially not in primary education.

Article 19883 of Presidential Decree No. 373, which sets out the curriculum of the PE course in the last four grades of primary school (i.e., third, fourth, fifth, and sixth), does not mention any substantial relevant regulations with the issue of coeducation. In October 1995, Presidential Decree No. 377 defined the curriculum of the PE course at the primary school that is to be taught in all its classes.

Conclusion and Implications

The purpose of this study was to present a historical overview of the development of coeducation in PE in Greece. This historical review shows the views and impact of the two founders of ancient Greek coeducation. In summary, it is concluded that coeducation in primary schools in Greece continues to be practiced even today with great effects as a result of these initial steps, in spite of its adverse origins. Coeducation continues today as established by Law 4397/1929 on elementary education. Studying the history of coeducation in PE starting with ancient Greece can provide insight into the origin of our culture as well as cultures with which we might be less familiar, thereby increasing cross-cultural awareness and understanding.

The COVID-19 disease has given everyone time to think about and consider the past, present, and future of PE. Greek education provided some of the early methods and systems that are still used in teaching coeducational PE today. PE is so much more than just physical activity; it is a catalyst through which students learn character and self-efficacy and develop persistence, resilience, and mettle. As PE teachers, we have an amazing opportunity and respon-

sibility to continue to innovate the field of PE. By keeping this field updated and interesting for students, instructors can provide a new generation of students with a toolbox of transferable skills that can be utilized across a range of situations. Hopefully, studying ancient Greek culture can spark the innovative spirit of the past that physical educators need to help shape the future.

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PEDAGOGY

Graduate Teaching Assistants' Experiences Using Digital Media Pedagogies in University Physical Activity Courses

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Abstract

Many college and universities in the United States provide physical activity courses (PAC) for students to earn credit toward graduation. Institutions vary in PACs, as physical activity programs are affected by administrative goals and needs. Although PACs can vary by institution, it is important to examine how PACs can contemporarily address the cultural changes in education and physical activity. This study employed a case study research design and investigated the lived experiences of eight graduate teaching assistants working as PAC instructors at one university. Interview, observational, document collection, and technology journal data were collected throughout a 16-week semester. An interpretative phenomenological analysis of multiple variables, attitudes and beliefs, and pedagogical implementations resulted in four recurrent themes regarding the use of digital media in PACs: (a) experimenting with student engagement, (b) finding meaningful resources, (c) learning Canvas, and (d) valuing video and audio media. This article also provides future considerations around digital resources and professional development opportunities.

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Colleges and universities in the United Stated provide physical activity courses (PAC) for students to earn credit toward graduation. Historically, PACs were designed to prepare students for military preparedness but have evolved into more recreation and leisure courses (Cardinal, 2017; Evans et al., 2013; Kim & Cardinal, 2019). There is a growing literature base suggesting the need to support PACs in higher education institutions, as physical activity can have positive impacts on student academic success (Annesi et al., 2017; Casebolt et al., 2017; Goldstein et al., 2017; Kim & Cardinal, 2019; Stapleton & Bulger, 2015).

Institutions vary in PACs, as physical activity programs are affected by administrative goals and needs (Brock et al., 2018). Although PACs can vary by institution, it is important to examine how PACs can contemporarily address the cultural changes in education and physical activity behaviors (Beaudoin et al., 2018; Cox et al., 2019; Kim & Cardinal, 2019). For example, institutions have begun implementing online PACs to encourage students who might be less inclined to enroll in face-to-face PACs, and the use of online management systems and mobile apps have kept PACs current with cultural trends (Brock et al., 2018; Goldstein et al., 2017; Melton et al., 2016; Prensky, 2010). Despite the benefits of PACs and the new digital pedagogies, there has been in a decline in physical activity programming due to budgetary restrictions, university priorities, and lack of contemporary pedagogical practices (Beaudoin et al., 2018; Charles & Charles, 2016; Stapleton et al., 2017).

PACs are typically taught by graduate teaching assistants (GTAs) in fields related to physical education or kinesiology (Langdon et al., 2017). GTAs often play multiple roles as both a student and an instructor (Melton et al., 2016). GTAs who are PAC instructors are responsible for quality instructional strategies without much teaching experience, and provisional efforts to support GTAs is a useful way to develop effective instructional strategies in PACs (Brock et al., 2018; Langdon & Wittenberg, 2018). Efforts such as professional development opportunities (e.g., workshops) and peer support groups are commonly favorable to prepare GTAs (Brock et al., 2018; Langdon & Wittenberg, 2018; Melton et al., 2016). However, physical activity programs' budget or resource restrictions can limit the amount of preparedness GTAs have for their PAC instructional strategies

(Brock et al., 2018; Cox et al., 2019; Langdon & Wittenberg, 2018). Instructional strategies that incorporate technology, and more specifically the use of digital media are increasingly supported in PAC literature (Charles & Charles, 2016; Cox et al., 2019; Goldstein et al., 2017; Melton et al., 2015; National Association for Sport and Physical Education, 2009).

Digital media is the exchange of information through an electronic device (e.g., computer, phone, wearable device) used in a multitude of formats, including photographs, video and audio clips, animations, and text. Digital media can be an engaging tool used by both instructors and students to consume (e.g., watch, listen, read) and/or produce (e.g., type, produce, record) educational content (Koc & Barut, 2016; Reynolds, 2016). However, despite digital media incorporation being a best practice (International Society for Technology in Education, 2017; Prensky, 2010), instructors continually need to stay updated with today's cultural trends in technology to be effective with their use in education (Bodsworth & Goodyear, 2017).

There is a growing research base on the use of digital media in the field of kinesiology and sport pedagogy. Little is known, however, about the incorporation of digital media in PACs, particularly among GTAs (Charles & Charles, 2016; Cox et al., 2019; Melton et al., 2016). More can be understood about the variety of practices, attitudes, and values that GTAs experience regarding digital media in PACs. Therefore, the purpose of this study was to explore the lived experiences of GTAs working as PAC instructors and their use of digital media as a pedagogical tool in PACs. Specifically, this study explored GTAs at a university with no full-time coordinator. As technological advancements continue to change educational needs and desires, it is important to explore what GTAs experience in their roles. These research questions guided this study: (a) What variables impact the use of digital media within physical activity courses? (b) What are GTAs' attitudes and beliefs toward the implementation of digital media in physical activity courses? and (c) What are the pedagogical practices of digital media use by GTAs?

Method

This study was based on a social constructivist paradigm that acknowledges that social constructs are based on an individual's

interpretations of experiences, knowledge, and realities (Creswell & Poth, 2018; Crotty, 1998; Park, 2004; Patton, 2015). With a social constructivist paradigm, the research also acknowledges interpretations based on subjective values of educational meanings and patterns (Creswell & Poth, 2018; Papert, 1980; Reynolds, 2016).
This study employed a case study research design, which is used to investigate a shared phenomenon (Creswell & Poth, 2018; Stake, 1995). A case can be defined as a person, group, or event that is bounded by a set of parameters such as time and place (Hodge & Sharp, 2016; Stake, 1995). Using a collectively bound case study, we investigated several cases (GTAs) experiencing the commonalities of digital media pedagogies. This study was approved by our institutional review board.

Participants and Procedures

This study was conducted during a regularly scheduled semester. On the basis of previous pilot studies and relevant literature, recruiting no more than eight participants deemed sufficient in the development of a robust data set of an entire physical activity program (Cox et al., 2019; Creswell & Poth, 2018; Goddard, 2010). Participants were both conveniently recruited and purposefully recruited. The convenience of the sample was based on the established rapport we had with the program's administration (Creswell & Poth, 2018; Smith et al., 2012). The purpose of the sample was based on choosing a program that had no full-time physical activity coordinator, because physical activity programs with limited staffing should be better understood (Cox et al., 2019).

Participants were recruited during a required GTA workshop at the beginning of the semester in which the study took place. Eight GTAs (six males, two females) from a university in the Rocky Mountain region of the United States participated in this study. The GTAs were doctoral students between the ages of 25 and 32. All GTAs were instructor of record for at least one PAC for the semester. Table 1 includes a listing of additional demographic information, including doctoral area sought, semester in program, PAC experience, and additional GTA responsibilities.

Table 1
Participant Information

Participant	Gender	Age	PhD area sought	Semester in program	Prior number of PACs taught	Number of PAC sections	Number of non-PAC sections
A	Male	26	Sport Administration	1st	0	(1) Activities for Stress Management, (2) Bowling	(1) Sport Finance (online)
B	Male	25	Sport Administration	1st	2	(1) Basketball	(1) Coaching and Officiating
C	Female	27	Social Psychology of Sport and Physical Activity	1st	2	(1) Fitness and Conditioning (online)	(3) Motor Learning Lab
D	Male	25	Exercise Physiology	3rd	1	(1) Swimming	(2) Exercise Physiology Lab (1) Exercise Assessment Lab

Table 1 (cont.)

Participant	Gender	Age	PhD area sought	Semester in program	Prior number of PACs taught	Number of PAC sections	Number of non-PAC sections
E	Female	29	Sport Pedagogy	4th	5	(2) Activities for Stress Management	(1) Planning, Assessment, and Instruction in Physical Education Lab
F	Male	25	Social Psychology of Sport and Physical Activity	3rd	4	(1) Fitness and Conditioning (online)	(1) Introduction to Research in Sport TA
G	Male	30	Sport Administration	6th	5	(1) Self-Defense	(1) Introduction to Research in Sport TA
H	Male	32	Sport Pedagogy	1st	0	(1) Self-Defense (2) Walking and Jogging (online)	None

There were four methods of data collection: (a) interviews, (b) observations, (c) document collection, and (d) technology journals. This section provides detailed information regarding the data collection and analysis procedures.

Interviews

Semistructured interviews were the primary source used to investigate the lived experiences of the GTAs (Smith et al., 2012). Each participant was interviewed three times (beginning, middle, and end) during the 16-week semester. We audio recorded, transcribed, and hermeneutically analyzed each interview to develop further inquiries and triangulate the data with other data sets. Interview questions consisted of inquiries about pedagogy (e.g., What have students learned in your PAC?), inquiries about digital media (e.g., What are your experiences using digital media?), and questions related to other data gathered from the participants (questions to expand upon previous observations, technology journal, etc.). For example, one participant mentioned they had to wear a microphone for a student with deaf and hard of hearing equipment. Upon transcriptions and course observations, we were able to ask for more details about the experience with a microphone. The interviews also served as a time for participants to provide us with a virtual tour of their course setup in the learning management system Canvas.

Observations

Participants who taught a face-to-face PAC were observed teaching their class twice (i.e., fourth/fifth and 11th/12th weeks) during the semester. Dannon G. Cox served as a participant observer, which involved participating in the activities as a form of analysis (Merriam, 1995; Schwandt, 2014). Descriptive notes were recorded during each observation and included classroom layout (e.g., equipment), physical settings, and number of students in class (Creswell & Poth, 2018). Reflective notes were recorded after each observation, which included Cox's interpretations and were used for further inquiries for interviews.

Document Collection

Participants were asked during or after each interview to provide documents used in the PAC such as files, photos, video links, or handouts as supplemental data (Merriam, 1995; Stake, 1995). Additional

documents included screenshots from the PAC Canvas pages. For example, one participant provided a screenshot of a Canvas rubric. No student information or data were observed or collected.

Technology Journal

Participants completed a technology journal three times throughout the semester. The technology journal provided more information about the participants' lived experiences while Cox was not present (Bartlett & Milligan, 2015; Corti, 1993). An online survey link was sent at the end of each month to the participants. The survey contained two parts: (a) checklists of digital media formats and (b) open-ended inquiries. The checklists included digital media formats such as Microsoft Outlook, mobile phones, audio or video links, Canvas pages, wearable devices, and augmented reality. The open-ended inquiries included questions that allowed participants to provide more details about the digital media pedagogies used. Questions inquired about the benefits, challenges, perceived successes of using digital media and the GTAs' willingness to use it again.

Analysis

An interpretative phenomenological analysis (IPA) explored how digital media was implemented in PACs. Similar to a thematic analysis, an IPA purposefully details narrative accounts of a homogeneous group of individuals within a bounded system. An IPA is useful when the complexity of a phenomenon is not appropriately comparable for analysis across cases (Sparkes & Smith, 2013). An IPA primarily uses interviews as the primary data source and uses additional information (i.e., observations and technology journals) to triangulate and establish a more robust data set (Smith et al., 2012). IPAs generally involve a hermeneutic approach, which prioritizes the analysis of individual experiences while routinely examining the overall experiences in the latter stages of analysis (Smith et al., 2012).

Investigating the lived experiences for a larger sample size of eight, we used six major steps to investigate the use of digital media in PACs (Smith et al., 2012; Sparkes & Smith, 2013). First, data immersion began with listening and reading to all transcripts and rereading all data sets so that we could be fully knowledgeable and organized with the content. Second, exploratory coding included inductively

commenting and coding transcripts with short sentences and phrases related to verbatim quotes or other data sets. Third, patterns were identified based on common patterns across all participants. The identified patterns were placed into a digital table, which provided an organized culmination of verbatim quotes (Smith et al., 2012). Fourth, clusters were formed based on the identified patterns across participants. Fifth, superordinate themes were categorized based on common patterns that best represented the essence of the individual's lived experiences while concurrently represented across cases. On the basis of Smith et al. (2012), at least one third of participants had to experience common patterns to be considered a superordinate theme. Last, recurrent themes were identified based on the defined superordinate themes. The recurrent themes provided the overall essence of GTAs implementing digital media within a single semester.

Trustworthiness

Throughout the data collection and analysis process, data trustworthiness was strengthened via four primary methodological criteria standards established by Lincoln and Guba (1985). First, the data were strengthened via prolonged engagement that involved reading and rereading all data sources and this established greater triangulation across an entire semester (Stake, 1995). Second, the methodological procedures were descriptively recorded and this strengthened transferability if the study was to be reproduced (Burke, 2016; Schwandt, 2014). Third, dependability was strengthened by the establishment of traceable accounts of all data collection and analysis procedures (Schwandt, 2014). Fourth, confirmability was strengthened through multiple member checking as well as peer checking throughout the data collection and analysis procedures and this verified the interpretations were accurate (Creswell & Poth, 2018; Sparkes & Smith, 2013).

Results

We examined the data to determine the shared experiences of implementing digital media pedagogies in PACs. The qualitative analysis resulted in common variables, attitudes and beliefs, and common pedagogical practices. Table 2 lists and describes the most common variables associated with digital media uses. For example, *resources* was a highly common variable based on direct and indirect

quotes such as "I checked the video again and I wondered, should I share this video with my students cause it's a good resource" and "I have files of video techniques from Olympians that were connected through coaches here and the coaches I've worked with elsewhere." Table 3 describes the most common attitudes and beliefs about digital media as a pedagogical tool in PACs. For example, participants considered digital media to be an engaging tool. This common attitude and belief was shown through direct and indirect quotes such as "I can see they have a reaction to the videos. They laugh or they look at the screen and uh, they engage in discussion"; "personally, I like the YouTube and the PowerPoint and voiceover…I think it's so much more engaging or you can see student's creativity a lot of times"; and "I need to think through how can I still create something that's interactive." Table 4 lists the digital media pedagogies that were either observed or discussed by the participants via interviews, technology journal, or collected documents.

Table 2
Definitions of Variables

Variable	Definition	Sample quote
Experimental	Willingness to apply digital media	"I'm still attempting to attempt creativity pieces…"
Resources	Digital access to people, information, or equipment	"Different online resources allow me to…"
Experience	Prior teaching experience	"I've taught so many times…"
Empathy	Conscious of student experience and involvement	"I feel like this semester catches up with all of us."
Student variety	Addressing diverse student population and class culture	"I had students who wanted to train for half marathons…"

Table 2 (cont.)

Variable	Definition	Sample quote
Peers/network	Influence of fellow graduate teaching assistants, faculty members, and friends	"I would like to know what kinds of specific media other instructors have used..."
Personal equipment	Use of personal equipment	"I use my Apple Watch; I do use it for when I exercise…"
Professional development	Impact of professional development workshops and opportunities	"I was already aware of the content, but it was a nice refresher."
Online interaction	Communication via online platforms	"I changed the language of the discussion posts to incorporate…"
Feedback	Interaction between student and teacher via feedback	"I asked my students, 'Did you watch the video?'"
Self-reflection	Recounting experiences throughout the semester	"I put some thought into it as the class progressed…"
Student limitations	Adapting to student physical, cognitive, and environmental limitations	"One of my students is actually coming back from an injury…"
Canvas management	Managing Canvas to specific needs	"It's kind of a beast."

Table 3
Definitions of Attitudes and Beliefs

Attitudes and beliefs	Definition	Sample quotes
Digital media is an engaging tool	Promoting an active learning environment for students to optimally learn	"I can see they have a reaction to the videos." "I'm going to look up videos and (use) Kahoot. Stuff like that to get them, to make sure they're engaged…" "Some of the topics at the end are more, I'm just going to call them kind of fun topics that are relatable but not necessarily pertinent what they're trying to do as an engaging in physical activity."
Digital media is a supplemental resource	Providing additional mechanism to enhance both teaching and learning	"[Digital media] definitely could be much more beneficial [for students] because they seem like they're going to be more willing to reach out and use those resources." "Some videos helped me a lot."
Digital media has its time and place	Contextual variables and attitudes determine the use of digital media	"They wrote [an assessment] down on paper. I thought about doing it online, but I felt like that would consume a little more class time." "I have a bad connotation towards phones in my head right now because I always think they're so distracting."
Willing to learn more about digital media	Valuing digital media as a resource but lacks pedagogical knowledge	"I'm trying to even come out of my comfort area of not really using technology extensively but doing so because like the generation that are the students…" "I'm as neophyte as you can get, but I'm super intrigued by it."

Table 4
Digital Media Pedagogical Implementations

	Participant							
Digital media use	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Canvas								
Announcements	✓	✓	✓	✓	✓	✓	✓	✓
Syllabus	✓	✓	✓	✓	✓	✓	✓	✓
Assignments	✓	✓	✓	✓	✓	✓	✓	✓
Files	✓	✓	✓	✓			✓	✓
People	✓	✓	✓			✓	✓	
Modules	✓		✓			✓	✓	✓
Discussions	✓				✓	✓		✓
Attendance	✓	✓						✓
Course evaluations	✓			✓			✓	
Quizzes	✓							
Microsoft Outlook	✓		✓	✓	✓		✓	✓
Microsoft PowerPoint	✓				✓	✓		
Mobile tablets or phone	✓		✓	✓	✓	✓		✓
Mobile apps			✓			✓		✓
Audio/video	✓	✓	✓	✓	✓	✓	✓	✓
YouTube	✓	✓	✓	✓	✓	✓	✓	✓
Voiceover	✓		✓		✓	✓		
Music	✓			✓	✓		✓	
Wearable devices			✓			✓		
Social media								✓
Campus equipment	✓	✓		✓	✓		✓	
Customized rubrics	✓	✓			✓	✓		
SMART goals	✓		✓	✓	✓	✓		✓

Recurrent Themes

Overall, four recurrent themes were found across all participants with regard to variables, attitudes and beliefs, and practices of digital media: (a) experimenting with student engagement, (b) finding meaningful resources, (c) learning Canvas, and (d) valuing video

and audio media. Table 5 displays each theme along with supporting quotes from participants.

Discussion

The purpose of this study was to investigate the lived experiences of implementing digital media in PACs. Specifically, this study investigated the uses of digital media by GTAs. The results show that digital media plays an essential role for instructors to find student engagement pedagogies with the proper resources. However, finding the proper resources is varied and depends on the individual's experience, network, and environment (Cox et al., 2019). Additionally, the learning management system used by GTAs at this university requires experience and practice to gain adequate competency. Last, video and audio files are highly valuable pedagogical tools for GTAs who teach PACs.

Experiment With Student Engagement

All GTAs intrinsically wanted students to remain interested in class and used digital media to keep students engaged. On the basis of their reflections and experiences, PACs were an "escape" from the stresses of school for both the instructor and the students. Particularly, GTAs wanted to build student relationships because of the low stress of a "one-credit" course. Similar to Evans et al. (2013) findings, this study's findings show that the GTAs highly desired building relationships with students. Consequently, GTAs had to experiment with digital media pedagogies to address attendance and communication issues. Attendance issues are common among students in PACs (Brock et al., 2018). Many GTAs played music in class to create a more welcoming environment, while others used what was available in their environment. For example, Participant B began using a Daktronics scoreboard in an attempt to increase student attendance as well as provide opportunities for a variety of students, noting that engagement "went through the roof" because it provided a more authentic feel to basketball rather than "pick-up game." Meeteer et al. (2011) suggested similar strategies by using a Sport Education model, which offers students a variety of roles related to a sport, such as incorporating a referee, scoreboard operator, and team managers.

Table 5
Recurrent Themes

Theme	Representative quotes
Experimenting with student engagement	Participant B: "You want to make sure they're involved so you want to make sure they're having fun or if they think it's meaningful [and that] they don't think it's dumb…it's about how connected they are to the class and it and it's like (snap, snap, snap) every minute. It's always adjusting. It's always fluctuating. So, it's tough 'cause I think that's what we try, even if I'm in class lecturing, I want to make sure that they're engaged. I think competitiveness helps engagement."
	Participant C: "Students specifically referred to the fact that [online modules] just helps them focus on whatever sort of theme that each week has as opposed to feeling like they have to encompass everything…A lot of students are actually pretty honest with what works and what doesn't work."
	Participant D: "I want [students] to enjoy it as much as I do. Making it fun, being positive constantly in that pool is a huge thing that I have to do. Staying positive, always reminding them, 'look where you were last week'...Keep them positive and hopefully get them excited to swim more."
	Participant G: "We may never teach this kind of physical activity when we get to the professor level… It's also a little easier [than other classes]. Especially it was the physical activity class, not the three-credit class. But yeah, this kind of teaching experience would be very helpful for me and preparing like teaching lectures in the future… It can be more related or kind of involved in the class with the students, not just talk and chalk."

Table 5 (cont.)

Theme	Representative quotes
Finding meaningful resources	Participant C: "[A workshop] gave me a general understanding to get my feet on the ground… got more into specifics like how to manage a classroom and gave me different perspective, not only like from the faculty here but also from current students, which I always appreciate because there's always different ways of seeing things. So, if anyone can give me their experience of perspective, it just adds more to my toolbox and things that I definitely will be using."
	Participant E: "To be honest, I had no idea how to teach [PAC]. But peers shared resources, lesson plans, and assignments. All of those were very helpful for me. And based on those, I modified the resources to my strengths."
	Participant F: "Resources, resources, resources. That's all were trying to do."
	Participant G: "I pretty much got everything [resources] cause I had zero knowledge about self-defense. Even though I practiced [martial arts] before, the syllabus and all the course materials and content, even the quizzes and final exam, pretty much everything, I followed the exact same way that the previous instructor did. But as the semesters go by, I changed it a little and revised it to my specific preferences…So it has been changed a little by little each semester."
	Participant H: "I cannot watch everything."

Table 5 (cont.)

Theme	Representative quotes
Learning Canvas	Participant A: "I feel sufficient enough, like I was able to pick up Canvas just based on my experience with put similar software like Desire 2 Learn (LMS), but everything, like even paying rent deals over a different kind of software. Just there's something different [components]."
	Participant B: "It's kind of a beast…If people haven't ever used it, it could probably be a little daunting."
	Participant C: "I noticed at the beginning of the semester [the challenge] was locating where to find certain items… I guess just familiarizing with Canvas itself [is necessary]."
	Participant H: "Blackboard (LMS) is more familiar to me because I have six years of experience using Blackboard… The overall concept is the same but like small things, detailed things, you know, functional things (made it) a little bit confusing."
Valuing video and audio	Participant B: "Next semester I think I'm going to have them partner up one day, use their cell phones and do that, watch their forms, maybe like write something about it."
	Participant C: "I would probably provide more than one link video just so they can get different interpretations of SMART goals so that they feel like they're just not having to solely rely on one."
	Participant E: "I use music each class because it creates a positive learning environment….It's just really helpful."
	Participant F: "To me it also fulfills one of our basic needs that to fulfill motivation, autonomy, they get to deal with it when they want…I'd like to give them the option of how they want to digest this information, so they can read the PowerPoint, they can listen to my voice over it, or they can just listen to my voice."

Additional experiments included GTAs providing video links related to PAC content, such as goal-setting videos, swimming technique videos, and meditation videos. GTAs often wanted feedback about the video and would reflect on future use of the video. Fink (2003) noted that asking for feedback from students is an important way for instructors to develop an understanding of student engagement. GTAs used other experiments such as the development of rubrics to assess students objectively and to make clear their expectations. Many GTAs had never taught prior to graduate school, further supporting the need to develop guidelines for syllabi, assignments, rubrics, and other instructional media (Brock et al., 2018; Melton & Burdette, 2011). Overall, GTAs considered themselves "neophytes" to their position, resulting in experimentations that relate with younger generations. With the increasing demand to adopt digital media pedagogies in PACs, future studies should explore best practices that GTAs can use to keep students engaged in class (Kawaguchi, 2009; Melton et al., 2015; Nelson et al., 2011; Reynolds, 2016).

Finding Meaningful Resources

Resources have continued to be a major limiting factor for PACs for over 20 years (Hensley, 2000). The resources and support provided for GTAs should aim to meet learning objectives and better prepare instructors to utilize digital media (Beaudoin et al., 2018; Langdon et al., 2017; National Association for Sport and Physical Education, 2009). Results of this study showed that instructors sought resources and information through a variety of ways such as personal research via the internet, fellow GTAs from the institution or colleagues from different universities, and social media. GTAs are encouraged to connect with fellow peers within their program. This allows them to exchange resources and provides greater mentorship between newer and experienced instructors (Brock et al., 2018; Langdon & Wittenberg, 2018).

GTAs locating resources can depend on many factors, such as teaching experience, time, energy, and motivation (Cox et al., 2019; Ottenbreit-Leftwich et al., 2010). Results of this study support these factors; all participants had varying degrees of willingness and success in finding the proper resources for their PACs. For instance, Participant D taught a swimming PAC and had internal access to Olympians and college athletic videos of swimmers because they

were a swim coach for the athletic swim team, whereas all other participants resorted to resources such as YouTube. YouTube has been known as an effective way for instructors to demonstrate and explain PAC content (Tiernan, 2015). Reynolds (2016) suggested that students should also investigate course-related content to develop individualized ideas while providing GTAs with a variety of video links. The use of mobile devices is steadily increasing in PAC and higher education literature (Cochrane et al., 2014; Goldstein et al., 2017; Melton et al., 2015) and should therefore be further studied and offered as a resource for other institutions.

Learning Canvas

All participants used the learning management system Canvas to communicate with students. Although the use of Canvas varied by instructor and PAC, all participants used Canvas to make announcements (e.g., due date changes or weather-related information) and to upload grades on assignments and/or assessments. Results of this study support relevant literature that learning how to navigate the learning management system is essential for instructors to effectively communicate and lead a PAC (Cox et al., 2019; Goldstein et al., 2017; Melton et al., 2016). Due to the variety of instructors and PAC types, online courses required more focus on online content. Online PACs have gradually increased in relevant literature (Brock et al., 2018; Goldstein et al., 2017). Brock et al. (2018) encouraged uniformity across PAC content such as syllabi. On the basis of the results of this study, GTAs did not have a common template, suggesting the need for program administration to develop learning management system course shells to uniformly develop PAC content while allowing the flexibility of adaptations needed for student and instructor strengths (Brock et al., 2018; National Association for Sport and Physical Education, 2009).

Valuing Video and Audio

The instructors in this study valued the use of video and audio media. All participants used video to either learn content for themselves or teach content to students. Implementing video and audio supports younger generations native use of digital media (Bodsworth & Goodyear, 2017). O'Loughlin et al. (2013) used video as a feedback tool with students as early as fourth grade, suggesting it can

be implemented for college learners, as well. Multiple participants incorporated a video project where students were assigned to create their own video related to PAC content. Lim et al. (2009) encouraged the use of media production as a pedagogical tool to engage students with PAC content while promoting higher order cognitive skills. More empirical evidence should specifically investigate the use of video and audio into PACs and the use of students' mobile devices (Cochrane et al., 2014; Cox et al., 2019).

Limitations

Multiple limitations should be considered in the interpretation of the findings of this study. First, this qualitative study is naturally subjective on the basis of our perspective, bias, and influences. Second, self-reported data were collected from participants, which can be subject to error and inaccuracies of true data. Therefore, multiple data collection methods were employed and triangulation established. This study was also based on a single physical activity program with only eight participants, limiting generalizability across other institutions and programs (Sparkes & Smith, 2013). However, participants at this institution were purposefully chosen because there was no full-time coordinator.

Conclusion and Recommendations

The results of this study highlight the various roles of digital media in college and university PACs. If given the opportunity, GTAs are willing to implement digital media as a pedagogical tool in their courses. Therefore, administration should provide GTAs an array of digital media tools and training to generate more effective and efficient methods of instructional delivery. Furthermore, if GTAs have the opportunity to experiment with digital media in PACs, there are greater chances to develop transferable skills that they can use in other aspects of their education and professional career.

PACs remain an important and historical factor in higher education. As technological advancements continue to develop, it is important to encourage the use of digital media as a pedagogical tool. Future considerations include the creation of open access archival procedures of programs and PACs so that instructors can stay updated with contemporary practices in education. Furthermore, future documentation of professional development opportunities

should encourage the use of digital media to support GTAs throughout their time.

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PEDAGOGY

edTPA During Student Teaching: PETE Teacher Candidates' Experiences and Future Support

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Abstract

Many physical education teacher education programs require teacher candidates to successfully complete edTPA during student teaching. Considering that research remains sparse regarding best practices in edTPA, the purpose of this study was to understand the experiences of teacher candidates completing edTPA during student teaching and of university supervisors supervising teacher candidates during the process. Twenty-four teacher candidates and 11 university supervisors participated in a focus group discussion for approximately 1 hr. Data were analyzed and categorized as (1) negative experiences, (2) positive experiences, and (3) future support. Overall, the teacher candidates felt that completing edTPA diminished their student teaching experience, as it was tedious and time-consuming pertaining to technological difficulties in videotaping, video processing, and video uploading. Nonetheless, the participants felt that completing edTPA was valuable in providing teacher candidates with detailed feedback to improve on their pedagogical skills. Future support for teacher candidates includes integrating edTPA early in their curriculum of study to better prepare them to successfully complete edTPA during student teaching. The university supervisors felt that with more in-depth

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training in edTPA and experience supervising teacher candidates on edTPA, they would be more competent in the future.

Teacher education programs across the United States face the challenge of evolving their practice at institutions that are adopting and implementing edTPA as part of the program (Lys et al., 2014). Through the partnership of the Stanford Center for Assessment, Learning, and Equity (SCALE) and the American Association of Colleges for Teacher Education (AACTE), a teacher performance assessment known as edTPA was created and began to be used operationally in 2013 with a goal to deliver an assessment program for teacher candidates (TCs; SCALE, 2019). The edTPA, which is designed to measure a TC's readiness to teach, is available nationally in 27 content areas including physical education. Currently, 41 states have participated in edTPA, either having a policy in place to use edTPA for state licensure and/or state program accreditation/review, taking steps toward implementation, or exploring/trying out edTPA (SCALE, 2019). Linda Darling-Hammond, a leader in teacher education, advocated for the development of a standardized performance assessment that uses authentic tasks to measure TC performance (Darling-Hammond & Hyler, 2013).

The edTPA is considered a fairly valid assessment for evaluating TCs' teaching through teacher performance assessments (Goldhaber et al., 2017; Sato, 2014). During student teaching, TCs prepare a portfolio of materials for edTPA and submit it to Pearson for scoring. The portfolio demonstrates TCs' readiness to teach through lesson plans, engage their students in standard-based learning, and analyze whether their students are learning and adjust their instruction to become more effective. The TCs submit unedited video recordings of themselves at work in a real classroom/gymnasium as part of their edTPA portfolio. Specific to the field of physical education, the edTPA portfolio is scored based on three tasks: planning, instruction, and assessment. Each task is scored using five rubrics on a 5-point scale and TCs can score a maximum of 25 points/task, totaling 75 points. Some states set a "cut score," which is used in concert with other state requirements to determine whether TCs are eligible for state teaching licensure.

Many physical education teacher education (PETE) programs in the United States are implementing accountability measures, such

as the completion of edTPA during student teaching; incorporating mandatory passing scores on the Praxis II Physical Education Content Knowledge test before student teaching; and requiring minimal test scores and procedures for entry and continuation in the program (Heidorn, 2014). Importantly, current physical education teachers are being held accountable to the same criteria as teachers in other content areas, and the criteria and the policies that support them are different from those in the 20th century (Ward, 2013). The content-specific nature of edTPA has given PETE programs equal responsibility and importance as other teacher education programs, and the teaching methods of physical education are similar to many of the best practices and procedures of the edTPA (Davis & Wash, 2019). Furthermore, the goals of edTPA are closely aligned with the SHAPE America National Standards for Initial Physical Education Teacher Education in that physical education candidates apply content and foundational knowledge to plan and implement developmentally appropriate learning experiences (Standard 3), engage students in meaningful learning experiences through effective use of pedagogical skills (Standard 4), and select and implement appropriate assessments to monitor students' progress and guide decision making related to instruction and learning (Standard 5; SHAPE America, 2017).

At a time when new policies on initial teacher certification appear to be taken out of the hands of researchers, teachers, and teacher educators and transferred to educational agencies (Metzler, 2014), research remains sparse regarding best practices in edTPA in PETE programs in universities. Furthermore, there has been a considerable implementation toll of edTPA on teacher preparation programs around the country (Carter Andrews et al., 2019). Therefore, the purpose of this study was to understand the experiences of TCs and university supervisors (USs) from a PETE program, participating in and completing the edTPA process. Specifically, the study sought to answer these questions: (1) What are TCs' and USs' negative experiences participating in and completing edTPA? (2) What are TCs' and USs' positive experiences participating in and completing edTPA? and (3) What changes should be made to enhance the experience of edTPA? Through the study, TCs' experiences in completing and submitting the edTPA portfolio and USs' experiences in supervising the

TCs during student teaching were examined. Through the perspectives of the TCs and USs involved in edTPA, this study contributes to the knowledge on effective strategies to prepare TCs to successfully complete edTPA during student teaching.

Method

Participants and Setting

Data were collected during the 2017–2018 academic year. Twenty-four TCs (10 in the fall: 4 females, 6 males; 14 in the spring: 4 females, 10 males) majoring in physical education from a university in the Northeastern United States participated in the study. Additionally, 11 USs (10 females, 1 male) who supervised the TCs during student teaching in the 2017–2018 academic year participated in the study. Four of the 11 USs were full-time university faculty, while seven additional USs were hired by the university as part-time instructors to supervise TCs during student teaching.

Physical Education Teacher Certification Program

Students admitted into the university's Physical Education Teacher Certification program were required to complete a student teaching experience in the final semester before graduation. The TCs practiced completing edTPA through two university courses (elementary and secondary physical education methods courses) prior to student teaching. The student teaching experience spans 16 weeks in two placements (8 weeks in an elementary school and 8 weeks in a middle or high school) with different cooperating teachers. During the 16-week student teaching, the TCs were also supervised by a US. As part of a project examining effective strategies in supporting TCs, the TCs in this study were required by the university to complete the edTPA assessment during their first placement in the initial 8 weeks of student teaching and submit it to Pearson for scoring. The purpose of scheduling TCs' edTPA completion within the first placement was to allow for resubmission (in the case of nonpassing scores) during the TCs' second placement in the subsequent 8 weeks. Where there were cases of nonpassing, TCs' edTPA portfolios were evaluated within the university by the USs. All the TCs in this study successfully passed their edTPA before the end of their student teaching.

Data Collection and Study Procedures

Informed consent forms were obtained in accordance with the University Human Studies Council. Data collection methods included focus group discussions with the TCs and USs. Each person participated in one focus group discussion for approximately 1 hr. TCs were organized in separate focus group discussions of three to seven participants per group. A separate focus group discussion was conducted for the USs. The focus group discussions were conducted at the end of student teaching in fall 2017 and spring 2018 in meeting rooms located within the university. All the focus group discussions were facilitated and moderated by Tan Leng Goh, Jan Bishop, and Carol Ciotto, using a discussion guide. A sample question from the TCs' guide was "What was your overall experience on the submission and completion of edTPA?" A question on the USs' guide was "What was your overall experience on supervising edTPA?" We used a semistructured focus group discussion format to facilitate any follow-up questions (Fontana & Frey, 2005). The focus group discussions were digitally audio recorded and transcribed verbatim after data collection.

Data Analysis and Trustworthiness

We analyzed data from the focus group discussions to examine the perspectives of TCs who completed the edTPA assessments and of the USs who supported them in the completion of edTPA. We conducted a preliminary analysis by reading the data individually to identify codes that occur frequently within quotes in the focus group discussion transcripts (Aronson, 1994). Then, we discussed and agreed on themes generated from the most frequent or significant codes that best represented the perspectives of the participants.

Trustworthiness and credibility were established in the study through peer debriefing where we (1) discussed the protocols prior to the study and (2) analyzed the data individually, then confirmed and agreed on the emerged themes (Marshall & Rossman, 2011). Furthermore, when discussing the themes, we ensured that the generated themes were supported by a significant amount of quotes to represent the participants' perspectives.

Results

The main themes of the study were (1) negative experiences, (2) positive experiences, and (3) future support. Subthemes are organized under each main theme and discussed in detail through quotations gathered from the focus group discussions.

Negative Experiences

The subthemes for negative experiences were (1) edTPA (re)defined student teaching, (2) edTPA consumed TCs' time, (3) difficulty deciphering edTPA language, and (4) difficulty with technology and the submission process. Overall, the TCs felt that completing edTPA diminished their student teaching experience, as it was tedious and time-consuming especially pertaining to technological difficulties in processing the videos. The TCs also felt that the submission process was complicated, sharing difficulties they encountered when they were submitting their edTPA portfolios.

edTPA (Re)Defined Student Teaching

In support of this theme, one TC commented, "It's pretty much you have to become a fake teacher . . . it's how do I make this look well for edTPA?" Another TC concurred, "We keep saying the word it's fake teaching because you're asking us to format our teaching just to fit this assessment." Furthermore, a TC shared, "You're asking me to tailor-make my lessons to fit the edTPA standard, when that's just not 100% realistic to me." Likewise, another TC stated, "I feel like I was teaching to edTPA and not to my lesson plan." One TC felt that teaching to edTPA was "unreal," saying, "That was the hardest part when you were providing feedback to your specific focus students. You had to provide it all [at] once to that one student before you could move on to another student, which is unreal." Another TC shared his perspective,

> I had my three focus students next to each other dribbling, so that I can get them in the video. The video was on them and the other kids were getting jealous. Now, you have kids on the other side of the gym throwing balls into your focused student kids, because they are not getting attention. Especially, in that inner city setting where the kids want your

attention, they want you to care . . . Now I'm ignoring them, and they're revolting on me now.

edTPA Consumed TCs' Time

The TCs also felt that having to complete edTPA on top of student teaching was unenjoyable. For example, one TC mentioned, "It was hard to enjoy our first placement when we were doing edTPA . . . I feel like I was lesson planning on top of doing edTPA." The USs commented that edTPA "consumed" all of the TCs' time during student teaching. One US commented, "[The TCs] weren't focusing on what we felt was important to focus on in teaching. They were putting heavier emphasis on things that we didn't feel that they should have been putting it on." She continued,

> My student teacher last semester said that he spent every single planning period cooped up in his men's locker room office getting his edTPA done when his cooperating teacher was urging him to go into the faculty room, talk with other colleagues, go sit in on another class, and his answer always was, "I can't. I have to get my edTPA done."

One TC shared the same feeling: "I'd be so focused on trying to get something [done] on one of the rubrics that it would take away from some of the things that I would like to do like connecting with the students." Another TC shared her discontent: "I had so much to learn from [my cooperating] teacher. She was awesome, but a lot of things that I would have liked to try out, I couldn't, because I had to stick strictly to my edTPA lessons."

Difficulty Deciphering edTPA Language

The TCs felt that edTPA uses its own "academic language" that is different from the terms they learned in the PETE curriculum. One TC commented,

> [What] I noticed was edTPA has its own language. When you go through the directions, there's terminology they have in there that . . . it was very tedious to get that really big packet, read the directions, and then have to flip to the glossary to highlight those key terms.

Furthermore, a TC said, "There were some things on there where I had no idea what it was. Some academic language, I had trouble with." Another TC added, "When they asked me the questions, I'm like, 'What are they really asking here?' Because the language changed. It changed from unit, to the learning segment and central focus, and academic language." Similarly, a TC concurred, "I think it's just the language that blurs everything. I have a hard time understanding how the questions are worded, how the feedback is worded, how answers are supposed to . . . It's just I don't understand [the] language."

The USs also commented that the edTPA language was new to them. For instance, one US commented, "I'm definitely a little bit more well versed now, but a barrier for me was just being comfortable with the terminology, the language used." Another US concurred, "Sometimes I don't understand what the rubric means. Again, it's language. What did they mean by that?"

Difficulty With Technology and the Submission Process

For the preparation of the videos for edTPA, the TCs shared their anxiety in filming their videos correctly with the help of their cooperating teachers. One TC shared,

> There was one [video] that was stationary, but when he was filming it, I was going to use it, he didn't have my [focus] students in it. You could hardly see them, so it did not work . . . As I was teaching, I was more worried about him videoing and getting it because I couldn't redo the lesson.

Another TC voiced his frustration with the videotaping, saying, "My camera didn't cover the whole gym. You had to worry about making sure that my focus students did his work right here . . . you have to fit everything in 20 minutes." He continued, "One of the tapes no audio came through. It was just static. One of the tapes, it just didn't show enough of the focus students." Another issue that the TCs pointed out was that the gym where physical education lessons were conducted is a noisy environment and hence not conducive for video filming. One TC said, "I can't really hear myself. There's music playing, there's another class going on the other side of the curtain. The kids are loud. There's balls bouncing all around, so I think the video portion is really tough and difficult." One TC shared

another issue he encountered with the videos: "If the students don't all have their permission slip signed to record them, then we have to go in and blur faces." Another TC voiced an interesting issue: "I did a fourth-, fifth-grade class combined and they were dropping F-bombs in the middle of the video on multiple occasions . . . I lost the section [of video] and it was a mess."

Processing the videos for edTPA also created anxiety among the TCs. One TC commented, "I'm just not really tech-savvy in that way . . . it was a lot to compress into one project." Uploading the videos for edTPA submission was very time-consuming and tedious for the TCs. For example, one TC shared,

> One of my videos took over 45 minutes to upload. Then when you go to submit it and it says error on a certain section, for me, I would go back to that section and look over everything and it was exactly what needed to be done. I just had to do it like 10 times without changing it, the error goes away and I had no idea why. It was super stressful.

Another TC reflected on his experience on the submission process: "I was done with everything at 8:00. I was like, 'I'm done, submit.' It was like, error, error. I had like seven errors. I was freaking out . . . It was like 11:00. I'm not submitting this tonight." The TCs also pointed out the tight timeline to resubmit their edTPA if they did not pass the first time. One TC shared,

> I personally felt the wait time to get your grade back was a little bit much. Especially because if you didn't pass it, you are now in the high school placement, you are down a week already because of winter break . . . You got about two weeks to really look at what they told you to fix and then try and fix it.

Positive Experiences

Despite encountering negative experiences, the TCs shared positive experiences on edTPA. These were categorized as (1) edTPA providing 'another' perspective, (2) support throughout student teaching, and (3) good organization skills facilitate process. During the focus group discussions, the participants shared that edTPA

provided a new perspective for evaluating TCs. The TCs also discussed the support they received throughout edTPA during student teaching and that possessing good organization skills facilitates the edTPA process.

edTPA Providing "Another" Perspective

Completing edTPA offered an opportunity for the TCs to reflect on and analyze their teaching. For example, a TC mentioned,

> I think [edTPA] made me look at different aspects that I didn't normally look at, like when I reflected on my teaching, I reflected on the basics like feedback. But edTPA made me really look deeper into it, and be like, "Oh, well, I get this feedback, what can I do better?" and I think watching myself definitely helped a lot. If we didn't have to have a video, I don't think I would record myself.

Some TCs mentioned that their cooperating teachers likened edTPA to TEAM (Teacher Education and Mentoring) program, which teachers will complete later in their teaching career, so early exposure to the program is an advantage. One TC said, "I was talking to my cooperating teacher about TEAM training compared to this and she said this was TEAM training on steroids." Another TC added, "Once we go out and we do TEAM training, we will be prepared for that."

Support Throughout Student Teaching

The TCs shared the support they received during student teaching. Pertaining to their cooperating teacher, one TC shared,

> My cooperating teacher helped me out a lot. She didn't know edTPA, but just reassuring me, "That's something you should think about" or "You should probably just do this instead of this." I just asked for her advice how I should handle things or what I should consider.

Another TC concurred, "What definitely facilitated me completing was my [cooperating] teacher was really good; she wasn't pressuring me to finish it, but she did a really good job with helping me stay on track with it."

The USs also shared the support they provided for the TCs during student teaching. For instance, one US said,

> Every email, every contact I made with the student, every visit I made I always come back to edTPA. "How are you doing on it? Do you want me to look at it?" Pretty much they said no except for one of the student teachers did have me look at task three. I gave him some advice.

Another US discussed how she was always prepared to answer TCs' questions on edTPA every time she visited her TC. She said, "When I go to see my student teacher, I bring [the edTPA Handbook] with me just assuming that there's going to be a question . . . I've got so much highlighted in that thing."

Support for the TCs also came from their peers. One TC shared,

> There was me and [friend]. She lives close to me. We already had each other's number and we talked. Questions I had, I asked her. Questions she had, she asked me. When submission came, the last two weeks I was at her house two, three days a week just to make sure we are all aligned in the same thing. Then, when we both submitted it, we both submitted at the exact same time which really helped.

Good Organization Skills Facilitate Process

Through student teaching, the TCs felt that having good time management skills facilitated the process of completing edTPA. For instance, a TC said, "You don't want to wait until the last second to do it. But definitely space it out over time, start as soon as you can." Another TC concurred, "edTPA was a lot of work. It was something that shouldn't have been handled lightly. Like I tell everybody, you should do edTPA and not save it for, obviously, last minute." Likewise, a TC advised, "A little bit at a time, read the handbook, and just try to focus as much on your actual teaching as you can, and don't let it take over you."

Another TC added, "I think making a false date, what I did is I put the date a week and a half, about two weeks ahead . . . and that helped me get through it, so that the last two weeks was just cleanup work, prepping or editing." Similarly, a TC commented,

> First week, I had at least a template out. Then once I knew what I was [teaching]—the unit and the class—then I can start filling stuff in. Over the eight weeks I worked on it piece by piece.

Another TC concurred, "Because of just the nature of [edTPA] being a lot of work in different parts and pieces and having to film some of it, you really had to plan and manage, which is part of being a teacher." The USs also suggested that the TCs complete their edTPA as early as possible so that they can receive feedback from their supervisors. One US said, "When you finish task one, let your supervisor look at it so that any questions that come up could be answered, and you could have some feedback."

Future Support

The subthemes for future support were (1) early integration of edTPA in PETE curriculum and (2) more edTPA training for USs. During the focus group discussions, the participants shared strategies and suggestions for TCs to successfully complete edTPA during student teaching in the future.

Early Integration of edTPA in PETE Curriculum

The participants commented that they would like edTPA to be integrated earlier in the PETE curriculum so that TCs would get more exposure and experience in completing edTPA. For instance, one TC mentioned, "Starting it earlier in our [physical education teacher education program] so it's not just our last two classes. There's a familiarity with it all the way through." Another TC commented, "If edTPA is implemented earlier in the collegiate career, then students will excel at it more because like I said, they'd be comfortable with it." Similarly, a TC concurred, "The biggest thing I think it should be . . . from the beginning, obviously, freshman year, all the way through."

Furthermore, the TCs shared that exemplars of "good edTPA" portfolio would help them in their preparation of their edTPA. For instance, one TC commented,

> Find a good example . . . watch a video that was good and then try and make it, don't copy it, don't use the same words, don't use the same unit, but structure it the same way. To

> me, that's what this test is and that's why really I like it, it's standardized.

Another TC concurred, "What helped me the most was at the very beginning of the semester when we got the exemplar. The exemplar helped me a lot. I would use that if I think I'm missing something." The USs also suggested that providing a variety of exemplars would be useful. One US said, "[The TCs] have an exemplar that I gave them . . . one's score like in the 60s, one is 47, and then we have a 37, we could look at all three." Additionally, the USs suggested that TCs be trained on the edTPA rubrics during the courses they take before student teaching. One US commented, "Having them have a better understanding of what exactly does this score point look like in the rubric."

More edTPA Training for USs

The USs had some initial training to prepare them for their role to supervise their TCs but felt that the training was insufficient. One US mentioned, "I think the training was helpful somewhat, but again, there was even still a gap until we actually scored them." Another US concurred, "I personally felt I needed more training on the scoring. It was a half day, and I felt it really warranted a full day for me personally." Likewise, a US shared,

> I felt like I was learning along with my student teacher and certainly could answer questions about good instruction and answer things that related back to anything that we had experienced in the past, but when it came down to nitty-gritty stuff that only came from edTPA, I'm not there yet.

The USs discussed the specific areas in which they needed training. For instance, one US commented, "I need more clarification and training on what we need in the video and how you use that video segment to answer certain questions. That's my biggest weakness right now." Another US added, "I have trouble aligning the rubric with reading what they write. They can give us the specific examples of this in the rubric and this is how they should answer a question and score a three on the rubric." The USs commented that they also needed more training on the edTPA submission process because their TCs often sought their help on the process. One US said, "I had

not been trained on how they have to go through the submission part, and the submission part, isn't that the tech part?"

The USs shared that they will become more competent in supervising TCs on their edTPA with more experience. For instance, one US commented, "The more I teach it, the more I learn and I become more proficient with being able to explain it to students and/or understanding what they're looking for." They also shared similar stories from cooperating teachers. One US mentioned,

> A cooperating teacher that my student teacher was working with during edTPA had just had a student teacher over the semester before doing edTPA. This was a repeat for that individual, so the cooperating teacher was starting to have a little better understanding, also because [the cooperating teacher had] two experiences with it, two opportunities to talk with me both times about it. You learn as you go along.

Discussion

The purpose of the study was to understand the experiences of TCs and USs in a PETE program, participating in and completing the edTPA process. Through focus group discussions, the participants shared their negative and positive experiences while completing edTPA, as well as future support needed to complete the edTPA successfully.

Overall, the TCs felt that the edTPA (re)defined what quality teaching needed to look like during their first placement (first 8 of 16 weeks), many sharing that they designed their lessons to fit the criteria for the edTPA, that they were teaching to the edTPA. Likewise, Ledwell and Oyler (2016) reported in their study that the TCs were limited to teach in a particular way prescribed by the edTPA, not necessarily the way they have learned to teach in their program. Many teacher educators also felt that the edTPA had initiated a top-down method to evaluating TCs' teaching performance and they were also being stifled in their contribution to meaningful quality conversations about teacher education as academics and professional teacher educators (Cohen et al., 2018). Dover and Schultz (2016) asserted that edTPA prevented authentic and longitudinal evaluations of TCs' readiness in teacher education, thereby compromising the

accountability they promised. The TCs in our study also perceived that edTPA was "unreal" and because of the need to provide feedback to the three focus students (as required by edTPA), they could not provide equal attention to the other students in the class. Metzler (2014) asserted that best practices in P–12 programs will be driven in the future by policies such as edTPA, rather than research on teacher effectiveness. Nonetheless, PETE faculty and P–12 teachers should continue to pursue evidence-based best practice for instruction in physical education (Metzler, 2014). Results from the study also indicated that edTPA "consumed" a lot of the TCs' time during the first placement (8 weeks) of their student teaching. The TCs' time was occupied with preparing for edTPA lessons, videotaping, and writing commentaries for submission. Consequently, the TCs felt that they did not have an enjoyable student teaching experience in their first placement, which led to missed opportunities to connect with their students. Completing edTPA during student teaching could pose external restrictions on TCs and restrain the educational nature of the student teaching experience (Hébert, 2019).

Another negative experience mentioned by the TCs was the "new" edTPA academic language that was foreign to them because they have learned other physical education terminologies throughout the PETE program. The TCs felt minimally prepared to integrate academic language in their lessons and hence found it challenging to write the edTPA commentaries while learning the "new" academic language. Indeed, how academic language is "incorporated into lessons is often presented as some sort of obscure code that one must decipher in order to become an effective teacher" in physical education (Martin et al., 2018, p. 34). Oftentimes, syntax complexity in academic language is more challenging for English-language learners because of the way they structure sentences in their own language (Constantinou, 2015). Similarly, Liu and Milman (2013) found that while edTPA allowed TCs to teach academic language and connect curriculum to student background, it impeded critical, in-depth reflection that is important to preparing TCs to teach diverse populations. A possible solution is to integrate academic language into each and every physical education lesson plan by providing opportunities for students to practice academic language (Constantinou, 2015; Treadwell et al., 2017).

Results from the study also reflected that the TCs experienced technological difficulties using videotaping equipment during edTPA lessons and submitting their portfolio. They found submission of their edTPA to be a complicated process during which they encountered confusing error codes. In another study, TCs reported difficulty in fully addressing the competencies assessed by the edTPA in the written commentaries and representing their teaching practices from their video analysis (Choppin & Meuwissen, 2017). Elsewhere, Carter Andrews et al. (2019) asserted that the challenges of standardized licensure exams and teacher performance exams such as edTPA present another challenge in regard to increasing the racial and ethnic diversity of the teacher profession, perhaps because of the high cost to students to complete edTPA. Goldhaber et al. (2017) also found that Hispanic TCs were 3 times more likely to fail the edTPA assessment than non-Hispanic White TCs after it became consequential in Washington state.

Nonetheless, the participants discussed positive experiences they encountered during the study. For instance, some TCs felt that edTPA provided another perspective for them to evaluate and analyze themselves in detail, such as how they provided feedback to their students, which subsequently helped them to become better educators. Likewise, Huston (2017) reported that the process of completing edTPA strengthened TCs' understanding of their educational experience, thus suggesting a broader awareness and appreciation of the complexities of learning to become a better educator. The TCs also commented that completing edTPA during student teaching gave them the opportunity to practice and better prepare themselves for the TEAM program, for which successful completion is required for eligibility to advance from an Initial Educator Certificate to a Provisional Educator Certificate in the state. The participants mutually agreed that support from the cooperating teachers and USs was key to the success of TCs' edTPA completion. The TCs also mentioned that they received support from their peers in terms of clarifying any questions they had regarding the edTPA. Furthermore, the TCs mentioned that having good organizational and time management skills was important to facilitate the edTPA process. Olson et al. (2019) suggested that breaking edTPA into smaller, more manageable tasks makes it less overwhelming for TCs.

Additionally, starting the edTPA process early with the planning task as soon as TCs have a placement for student teaching will reduce anxiety in completing edTPA (Olson et al., 2019). Other effective strategies mentioned by the participants included being well versed with the rubrics for grading edTPA, providing specific video recording instructions to the cooperating teachers, and being part of a peer support system (Treadwell et al., 2017). Furthermore, constant communication between the USs, cooperating teachers, and TCs on the clear procedures of edTPA, as well as administrators allowing video recording and giving permission for any necessary paperwork in the schools, would provide the TCs with further support in edTPA (Treadwell et al., 2017).

During the focus group discussions, the TCs mentioned that university courses that integrated edTPA helped orient them to edTPA, but they would like edTPA to be incorporated into courses earlier in the program curriculum. Treadwell et al. (2017) suggested that it is important for PETE faculty to identify the similarities between the PETE curriculum and the edTPA, then evaluate where gaps need to be filled to better prepare TCs for edTPA. In an action research project, Burns et al. (2015) reported using an approach that successfully supported TCs on their edTPA in a New York State college, which consisted of four initiatives: placements, partnerships, practice, and practical support. Specifically, TCs were placed in student teaching at the same schools as their pre–student teaching experiences, college faculty partnered with cooperating teachers to engage in constant conversation on edTPA, TCs practiced edTPA extensively during pre–student teaching experiences, and full-time faculty gave weekly practical support on edTPA to TCs during student teaching (Burns et al., 2015). More specific to a PETE program, a Northeastern university reported that the use of a clinically rich model, in which TCs participated in an additional 15-week practicum the semester before student teaching, produced favorable ratings among TCs and cooperating teachers in edTPA (Seymour et al., 2018). Finally, the participants suggested that having exemplars of edTPA portfolios of varying scores would help them understand the rubrics used for scoring edTPA. Although the USs in this study felt minimally prepared in supporting the TCs in edTPA, with more in-depth training

and experience, they would feel more competent in supporting their TCs in edTPA in the future.

Limitation and Future Directions

Although the results of this study expand our knowledge on the experiences of TCs and USs in completing edTPA during student teaching, the study is limited to experiences of a small number of participants from a university in the Northeastern United States. Therefore, the experiences shared by the participants may be relevant to members of a PETE program that is guided by certain existing policies and norms. Future research may explore the experiences of TCs and USs within other university PETE programs from other parts of the United States, to gather information of best practices in implementing edTPA in PETE curricula.

Implications for Teacher Education

From the perspective of the university, it is important to incorporate components of edTPA into PETE programs early in the curriculum and provide opportunities for TCs to gain practical knowledge and skills to complete edTPA. Based upon the results of this study, these are our suggestions for consideration to be implemented in PETE programs:

- Implement Tasks 1, 2, and 3 of the edTPA sequentially in three separate courses during TCs' sophomore and junior years.
- Implement all three tasks of the edTPA in a senior-level course before the TCs student teach so that TCs will gain the practical knowledge and skills to complete the entire portfolio during student teaching.
- Incorporate academic language and research connections into courses throughout the PETE program. Specifically, provide opportunities for TCs to understand and apply academic language and research connections into physical education lessons on campus and/or in the field.
- Provide a technology workshop for the TCs within or outside a course to teach the TCs how to use video equipment (including where to position the video camera and how to use a wireless microphone), as well as skills for video processing.

- Provide an edTPA submission workshop to help the TCs on the submission process.
- Teach TCs essential organizational and time management skills to help them structure a timeline/goal plan while working on their edTPA during student teaching.
- Communicate with the CTs on effective strategies to supervise and support TCs to complete edTPA during student teaching.

Conclusion

In view of the increasing need for TCs to be equipped with the knowledge and skills to complete edTPA, PETE programs around the country are devising best practices to prepare their TCs in edTPA. Though TCs felt that the completion of edTPA diminished their student teaching experience, they shared that edTPA allowed them to analyze themselves in detail, which subsequently helped them to improve their pedagogical skills in planning, instruction, and assessment. PETE programs should consider incorporating edTPA early and throughout the program to prepare TCs to successfully complete edTPA before and during student teaching. Additionally, having USs, course instructors, and cooperating teachers trained and be well versed in edTPA would facilitate TCs' success in edTPA completion.

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PEDAGOGY

Significance of High-Quality Physical Education Teachers

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Abstract

This study investigated the extent to which public school K–12 staff in the United States teaching physical education were certified in physical education and had an academic major in physical education during the 2015–2016 school year. Data were collected from a nationally representative sample of public school teachers in the United States. Descriptive statistics were used in the description of physical education teachers' certification and academic major. These characteristics were investigated with regard to school grade level, census region, urbanicity, and newly hired. Results showed that over 30% of public high school physical education teachers did not have an undergraduate or graduate degree in physical education. Nearly 20% of physical education teachers were not certified in physical education. Furthermore, less than 70% of physical education teachers had both characteristics of a qualified teacher. Results from this study show the need for an increase in the percentage of high-quality physical education teachers who have both teaching certification and an academic major in physical education, which would positively impact public health in the United States.

The impact of high-quality teachers on student success has been an area of interest to educational researchers and policy makers. There are several characteristics of quality teachers, often referred to as qualified teachers, that have been identified in the literature.

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For example, teachers of high quality demonstrate knowledge and skills that have allowed them to obtain an undergraduate or graduate degree from a higher education institution. In addition, these teachers have also obtained teacher certification (also called licensure or endorsement) from the certification agent in their state (Darling-Hammond, 2006; Elfers et al., 2004; Ingersoll, 2002; Napper-Owen et al., 2008; National Association for Sport and Physical Education [NASPE], 2007; Stronge, 2018; U.S. Department of Education, 2015).

Specific to quality physical education teachers, You (2011) indicated that certified physical education teachers have physical education pedagogical content knowledge in six domains including curricular knowledge, understanding of instructional methods, knowledge of how students learn physical education, understanding assessments, knowledge of instructional environments, and knowledge of physical education content. In addition, Napper-Owen et al. (2008) described four dimensions of a highly qualified physical educator. First, highly qualified physical educators have good pedagogical knowledge that includes management, lesson planning, assessment, and technology. Second, they possess content knowledge that is accurate as well as current. Third, they have had extensive preparation that has included a variety of field-based experiences. Finally, they have professional dispositions that allow them to develop "a trusting and respectful rapport with students" (p. 27).

Professional preparation is another area that contributes to the development of qualified physical education teachers. The Centers for Disease Control and Prevention (CDC, 2014) summarized, physical education teacher education programs provide teacher candidates with the ability to manage course content; to motivate students; and to help students obtain the knowledge, skills, and confidence needed to develop lifelong physical activity practices (NASPE, 2007; SHAPE America, 2017).

Professional preparation in physical education ensures that teachers will develop content area knowledge, pedagogical knowledge (i.e., classroom management), and pedagogical content knowledge (i.e., teaching specific topics) that is specific to teaching physical education. Research results have supported the importance of this professional knowledge and its influence on student learning. Childs and McNicholl (2007) reported that the level of subject area

knowledge influenced pedagogical practice and effectiveness of a lesson. Similarly, Wenglinsky (2002) indicated that teacher academic major and pedagogical knowledge (i.e., professional development in higher order thinking skills) was positively associated with student achievement. In addition, results from a study by Yeh and Santagata (2015) conveyed that teaching effectiveness required a combination of content knowledge and pedagogical content knowledge (i.e., ability to analyze student thinking).

Research results have indicated that teacher qualifications such as having a bachelor's or master's degree and teacher certification in the area they are teaching positively impacts student academic success (Childs & McNicholl, 2007; Darling-Hammond, 2000; Darling-Hammond et al., 2005; Goldhaber & Brewer, 2000; Laczko-Kerr & Berliner, 2002; Stronge, 2018; Yeh & Santagata, 2015). With regard to teacher certification, Darling-Hammond et al. (2005) found that uncertified teachers generally had negative effects on student achievement in comparison to certified teachers who completed traditional teacher certification programs. Feng and Sass (2013) reported similar findings. They reported lower student achievement among students who were taught by teachers with out-of-subject certification; however, they reported greater student achievement among students who were taught by teachers who were certified in the area they were teaching. Moreover, these results were consistent with other research findings that subject-specific teacher certification positively influenced student achievement (Andersson et al., 2011; Clotfelter et al., 2007; Darling-Hammond, 2000; Wayne & Youngs, 2003).

Finally, the CDC (2014) provided a summary of research results that emphasized the importance of teacher knowledge and subject-specific teacher certification. The CDC (2014) summarized, "Certified physical education teachers instruct longer lessons, spend more time developing motor and movement skills, impart more knowledge, and provide more moderate and vigorous physical activity to students relative to classroom teachers with little or nonspecialized physical education training" (p. 3). In summary, teachers who have the content knowledge, are knowledgeable about how students learn, and can implement principles of content-specific instruction are more likely to have a positive impact on student learning.

While there is robust evidence regarding the connection between teacher qualifications and effective teaching, questions still remain regarding physical education teacher qualifications. Specifically, how common is it in the United States for a physical education teacher to be certified and have an academic major in physical education? It is vital to answer this question because of the importance of content knowledge and pedagogical content knowledge related to physical education teacher effectiveness, which serves as a cornerstone for quality physical education programs (CDC, 2015; SHAPE America, 2016).

Therefore, the purpose of this study was to determine if physical education teachers had either characteristic of high-quality teachers, by investigating if they were certified, licensed, or endorsed to teach physical education and if they had an academic major in physical education during the 2015–2016 school year. In addition, we investigated these characteristics of quality teachers with regard to the categories of school grade level, census region, urbanicity, and newly hired. We also investigated the extent to which public school K–12 staff in the United States teaching physical education had both certification, licensure, or endorsement and an academic major in physical education during the 2015–2016 school year.

Method

Participants

Data for this study were derived from the National Center for Education Statistics (NCES) 2015–2016 National Teacher and Principal Survey (NTPS). This study is a secondary analysis of a large national survey of K–12 public schools[1], principals, and teachers performed by the U.S. Department of Education (Goldring et al., 2017). For the purpose of this analysis, "teachers" were defined as staff members in United States public schools who teach regularly scheduled classes to students from public schools within the 50 states and the District of Columbia, not including territories (N = 31,950). Teachers were selected for inclusion in this analysis on the basis of their teaching at least one class of physical education during the 2015–2016 school year; therefore, a total sample size of 1,540 public school physical education teachers was used for analysis.

[1] Public schools include traditional public and charter schools

Instrumentation

The NTPS was redesigned from the Schools and Staffing Survey (SASS), which was a comprehensive national survey conducted by the NCES (n.d.). The NTPS was administered as a large nationally representative sample survey of traditional public and public charter school teachers. The teacher survey contained items related to preservice education, certification, classroom organization, beliefs and attitudes, working conditions, and professional development (NCES, 2015).

Sampling Procedure

The NCES was the primary federal entity responsible for collecting and reporting NTPS data. Details regarding NTPS data collection and reporting were provided by Goldring et al. (2017) and are briefly described in the next sections as they pertain to this study. The initial sample frame of the 2015–2016 NTPS data collection consisted of 87,600 entities identified as traditional public schools and 6,500 entities identified as public charter schools operating in 2015.

As Goldring et al. (2017) described, the NTPS used a complex sampling design to systematically oversample certain identified units based on urbanicity (city, suburban, town, and rural), grade span (primary, middle, high, and K–12 combined), type of public school (traditional and charter), and poverty status (more or less than 75% of students receiving free and reduced lunch). The NCES used a probability to size sampling algorithm wherein full-time equivalent teachers for each school was the measure for size. After application of the algorithm, 7,100 traditional public schools and 1,200 public charter schools were sampled with this method and the initial sample of buildings created. Within each building, a roster of teachers was obtained and individual teachers were sampled from the roster, stratified by subject taught and with equal probability within the subject area strata. Schools in Alaska, District of Columbia, Hawaii, Rhode Island, Vermont, and Wyoming were oversampled to compensate for the small number of schools in these states (Taie & Goldring, 2017). Greater details regarding the estimation domains are provided in the document titled *Survey Documentation for the 2015–16 National Teacher and Principal Survey* (Cox et al., n.d.). In the end, a maximum of 20 teachers per building were sampled for

a total of 43,700 traditional public school teachers and 5,300 public charter school teachers (Goldring et al., 2017).

Data were collected utilizing United States mail and the internet to administer the Teacher Questionnaire (NCES, 2015). Schools that were flagged as having a higher nonresponse rate based on characteristics of schools that were nonresponders to prior SASS questionnaires were given "priority" status. These priority schools were given more proactive attention to avoid nonresponse bias. Even so, city schools and those with enrollments over 1,000 had response rates of approximately 65%. To address low response rates in city schools, the NCES undertook post hoc analysis and applied weighting variables to correct for unit nonresponse for some survey strata (Goldring et al., 2017).

Of interest to this study, NTPS data were collected related to state teacher certification and degree completion. These were coded into categorical variables including major field of study for the bachelor's degree, master's degree, second bachelor's degree, and additional degrees beyond the master's degree. Data were also collected related to teachers' subject-area certifications, licensures, or endorsements. Respondents reported the content area of their teaching certificates. In addition, various categories were included in the data analysis, such as grade level, census region, urbanicity, and newly hired. Geverdt (2015) explained boundaries for each category and these are described in the following paragraphs.

The grade level categories were based on grade levels provided by the school, which resulted in four categories: (a) primary, (b) middle, (c) high, and (d) K–12 combined. Primary schools had at least one grade lower than fifth and no grade higher than eighth. Middle schools had no grade lower than fifth and no grade higher than eighth. High schools had no grade lower than seventh and at least one grade higher than eighth. Finally, K–12 combined schools had at least one grade lower than seventh and at least one grade higher than eighth. Schools with only ungraded classes (i.e., students were not organized into grade levels) were included with combined schools (Geverdt, 2015).

In addition to the grade level categories, data were also examined in relation to regions of the United States where high-quality physical educators reside. This census region variable was coded as Northeast

(Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont); Midwest (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin); South (Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia); and West (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming; Geverdt, 2015).

Another variable that was investigated regarding high-quality physical education teachers was urbanicity. Urbanicity was derived utilizing the 2013–2014 NCES Common Core of Data Elementary/Secondary Locale Code. This variable represents a collapsed 12-level urbanicity code that includes the categories of (a) city, (b) suburb, (c) town, and (d) rural. A city was defined as a territory inside an urbanized area and inside a principal city. A suburb included territories outside a principal city but inside an urban area. Towns were characterized as areas that were inside an urban cluster but outside of the urbanized area. Rural areas were defined by the census as a territory outside an urbanized area and a territory away from an urban cluster (Geverdt, 2015).

The final variable that was investigated was newly hired teachers who had characteristics of high-quality teachers. For this study, newly hired teachers indicated they began teaching at any point during the 2011–2012 school year through the 2015–2016 school year (NCES, 2015).

Data Analysis

Data were analyzed using statistical weights to account for nonresponse bias due to the stratified sample design. In addition, the weighted measures were also used to approximate the national population of teachers (N = 31,950) at the time of the survey within a known error band. The final weighted sample of the public school teachers in the United States was 3,827,076. These weighted samples were nationally representative of public school teachers and generalizable to the nation with a measurable chance of making a type I error. Data were further analyzed utilizing the weighted measures to

create an approximate national population of staff teaching physical education (n = 1,540) with a final weighted sample of 174,856.

Data were also analyzed using the jackknife methodology. This procedure developed a series of 200 individual replicate weights, which allowed the standard errors calculated to reflect those that would be observed in the larger population of teachers (Goldring et al., 2017). Finally, Stata version 15 statistical software was used to produce the corrected frequencies presented in this study.

Results

Overall among staff who were teaching at least one physical education class during the 2015–2016 school year (n = 174,856), approximately 61% were male. The percentage of physical education teachers who identified as White was nearly 83%.

Concerning research questions investigating specific characteristics of qualified teachers related to teacher certification and academic major, Table 1 shows that approximately 82% of K–12 staff in the United States teaching physical education were certified, licensed, or endorsed to teach physical education and close to 25% did not have an academic major in physical education. Among school grade levels, physical education teachers at the high school level had the lowest percentage of staff (79.8%) who were certified in physical education. Furthermore, at the high school level, respondents were least likely have an academic major (67.8%) in physical education.

Regional locations throughout the United States showed differences in the percentage of physical education teachers who were certified. Close to 90% of physical education teachers in the Northeast and Midwest regions reported they were certified in physical education as compared to just three quarters of physical education teachers in the South and West regions of the United States. Similar trends among regions were found with regard to respondents majoring in physical education. Approximately 67% of physical education teachers from the South and West regions of the United States had an academic major in physical education as compared to over 80% in the Midwest and Northeast.

Regarding urbanicity, city and rural locations showed the least qualified physical education teachers as measured by certification status and academic major as compared to towns and suburbs. Approximately 20% of staff teaching physical education in city and

Table 1
Percentage of Physical Education Staff (weighted n = 174,856) With Teaching Certification and Academic Major in Physical Education: NTPS 2015–2016

	Certified in PE		Academic major in PE	
School category	**%**	**95% CI**	**%**	**95% CI**
School grade level				
Elementary	84.8	[80.2, 88.5]	79.0	[74.0, 83.2]
Middle	83.9	[79.0, 87.8]	75.7	[70.6, 80.1]
High	79.8	[75.0, 83.0]	67.8	[62.6, 72.6]
K–12 combined	81.3	[76.7, 85.1]	74.5	[69.7, 78.8]
All schools	82.2	[79.9, 84.2]	73.6	[71.1, 76.0]
Census region				
Midwest	89.6	[86.0, 92.3]	83.1	[79.0, 86.5]
Northeast	92.5	[87.3, 95.7]	87.4	[81.8, 91.5]
South	77.7	[73.9, 81.2]	66.9	[62.7, 70.8]
West	75.7	[70.4, 80.3]	66.9	[61.2, 72.1]
Urbanicity				
City	79.3	[74.6, 83.4]	71.3	[66.1, 76.1]
Rural	80.8	[76.6, 84.4]	72.5	[68.0, 76.5]
Suburb	83.7	[79.8, 87.0]	76.2	[71.5, 80.3]
Town	85.7	[80.5, 89.7]	72.9	[67.1, 78.0]
Newly hired				
2011–2012 through 2015–2016	80.2	[74.3, 85.0]	69.8	[63.5, 75.4]

Note. Design adjusted 95% confidence interval for population estimate boundaries (upper, lower).

rural areas were not certified in physical education as compared to about 15% in suburbs and towns. Likewise, roughly 5% less of physical education teachers working in cities reported having a major in physical education as compared to physical education staff in suburbs.

The School Health Policies and Practices Study (SHPPS; CDC, 2017) indicated that 78.2% of districts adopted staffing policies that newly hired elementary physical education staff should be certified to teach physical education. In addition, 86.0% of school districts adopted the same policy for newly hired middle school physical education teachers, and 89.6% of the school districts adopted the policy that newly hired high school physical education teachers would be certified to teach physical education. Results from this study show that close to 80% of all newly hired physical education teachers were certified in physical education.

Moreover, the SHPPS (CDC, 2017) reported many districts adopted policies regarding academic training for newly hired teachers. The SHPPS results showed that school districts reported having policies stating newly hired elementary (70.6%), middle, (74.2%), and high (81%) school physical education staff should have undergraduate or graduate training in physical education or a related field. Results from this study indicate that approximately 70% of all newly hired physical education teachers had an academic major in physical education. In general, results from this study suggest a disconnect between the SHPPS (CDC, 2017) physical education staffing policy report and the NTPS 2015–2016 responses with respect to qualifications of newly hired physical education teachers in terms of certification status and academic major in physical education.

Table 2 displays results regarding the number of public school K–12 staff in the United States teaching physical education who were high-quality teachers. High-quality teachers were defined as having both certification, licensure, or endorsement in physical education and an academic major in physical education (Darling-Hammond, 2006; Elfers et al., 2004; Ingersoll, 2002; Napper-Owen et al., 2008; NASPE, 2007; Stronge, 2018; U.S. Department of Education, 2015; You, 2011). Results from this study revealed that over 30% of physical education staff were not high-quality teachers who possessed both subject-specific teaching certification and an undergraduate or a graduate degree in physical education. Moreover, over 13% of physical educations teachers in U.S. public schools during the 2015–2016 school year had neither a degree nor certification in physical education.

Table 2
Percentage of Physical Education Staff (Weighted n = 174,856) With Both Teaching Certification [a] and an Academic Major [b] in Physical Education: NTPS 2015–2016

Certification in PE	Academic major in PE	%
Yes	Yes	68.9
Yes	No	4.7
No	Yes	13.3
No	No	13.1
Total		100.0

[a] Certification includes state teaching certificate, licensure, and endorsement.
[b] Academic major includes graduate and undergraduate degrees.

Discussion

The NTPS 2016–2017 survey was conducted by NCES, the primary federal entity for collecting and analyzing data related to education in the United States (NCES, n.d.). For this study, we analyzed NTPS 2016–2017 data. These data provided the most current estimates regarding certification and academic major among teachers and we used these data to determine if physical education teachers in the United States have characteristics of high-quality or qualified teachers (Darling-Hammond, 2006; Elfers et al., 2004; Ingersoll, 2002; Napper-Owen et al., 2008; NASPE, 2007; Stronge, 2018; U.S. Department of Education, 2015; You, 2011). Specifically, all teachers in the NTPS 2016–2017 sample population reported subjects they taught during each class period, their areas of teacher certifications, and academic majors.

Findings from this study indicate that during the 2015–2016 school year, 82% of public school staff teaching physical education were certified in physical education; however, just 74% of physical education teachers reported having an academic major in physical education. Therefore, findings suggest that certification requirements, which are determined at the state level, may not include all elements of a high-quality teacher such as an academic major in physical education. This is contrary to recommendations by NASPE (2007) that highly qualified physical education teachers are certified

to teach and have completed an accredited physical education teacher education program. Other notable documents that support this recommendation include the Physical Education Curriculum Analysis Tool (CDC, 2015); *Shape of the Nation* report (SHAPE America, 2016); and the Whole School, Whole Community, Whole Child model (CDC, 2018).

Research has provided additional support for the recommendation that physical education teachers should be certified to teach and have completed an accredited physical education teacher education program. For example, Napper-Owen et al. (2008) indicated that having an academic major in the area of certification enhances a teacher's subject-specific content knowledge. They also emphasized that the special demands of physical education require a preparation program with both specific pedagogical knowledge and deep content knowledge of physical education. To ensure that K–12 students have quality physical education teachers, state departments of education should consider certification requirements that include an academic major in physical education.

The need for an academic major in physical education was greatest for high school physical education teachers. Results from this study revealed that nearly 30% of high school physical education teachers did not have an undergraduate or graduate degree in physical education, which is one characteristic of a qualified teacher. Additionally, high school physical education teachers were the least likely to be certified in physical education as compared to physical education teachers in elementary, middle, and K–12 combined schools.

States with the lowest percentage of physical education teachers with an academic major in physical education were located in the South and West. These two regions of the United States also employed fewer physical education teachers who were certified to teach physical education. Findings from this study suggest that efforts to increase the number of physical education teachers who are certified to teach physical education and have an academic major in physical education should target states located in the South and West regions of the United States.

Another priority for targeted efforts to ensure K–12 students in the United States have high-quality physical education teachers

is to focus on teachers working in schools located in cities and rural areas. Results from this study indicated that physical education teachers employed in cities and rural communities were least likely to be certified in physical education. This finding has ramifications for school districts regarding compliance with the Every Student Succeeds Act (ESSA, 2016). ESSA (2016) legislation requires that states with Title I schools must meet the certification requirements set by the state. In fact, ESSA legislation has indicated state certification in the subject area being taught is a characteristic of an effective teacher, which is problematic for districts that have a high percentage of staff teaching physical education who do not hold a teaching certification in physical education. Another issue related to physical education staff teaching without certification in physical education is that ESSA legislation ensures equitable distribution of effective teachers; therefore, districts that employ physical education teachers without certification in physical education risk being out of compliance with ESSA legislation. Findings from this study suggest cities and rural areas have a greater need to attend to ESSA requirements for effective physical education teachers who are certified in physical education as compared to suburbs and towns.

Policies at the district level may facilitate the hiring of high-quality physical education teachers who have both certification and an academic major in physical education. The SHPPS 2016 questionnaire (CDC, 2017) asked if districts had specific staffing policies for newly hired staff who teach physical education, by school level. High schools were the most likely to have specific staffing policies to hire physical education teachers who have an undergraduate or graduate degree in physical education or related field (81.2%) and who are certified, licensed, or endorsed to teach physical education (89.6%). However, results from this study indicated that high schools were the least likely to have certified physical education teachers (79.8%) and physical education teachers with an academic major in physical education (67.8%). Hopefully, more high schools will adopt and implement policies that all newly hired physical education teachers are certified and have an academic major in physical education.

Results from this study have implications for the CDC's (2013) Comprehensive School Physical Activity Program (CSPAP) initiative. One CSPAP policy signifies a certified physical education teacher

should teach physical education. School districts that employ staff to teach physical education who are not certified in physical education risk implementing CSPAP programs that are not effective and/or lack the quality needed to increase school-aged children's physical activity levels. Moreover, the results of this study suggest that efforts to improve the percentage of high-quality physical education teachers with a teaching certification and academic major in physical education are needed if current CSPAP programs are to positively impact public health in the United States.

Limitations

Subjects self-reported the data used to measure postsecondary education and state certification. Data were subjected to a series of computer edits related to consistency of responses and deletion of questions that should have been skipped as per questionnaire directions. These edits were reviewed by external analysts. External analysts also imputed missing data. Imputed data underwent computer edits for verification that inputs were consistent with existing questionnaire data (Cox et al., n.d.).

Conclusion

The effect of teacher qualifications on student success is hard to ignore. Results from this study indicate that attempts to increase the percentage of staff teaching physical education who are certified to teach physical education and have an academic major in physical education have implications for student learning. In addition, there are far-reaching consequences in relation to ESSA compliance for districts that do not employ physical education teachers with a physical education teaching certificate. Finally, there are potential repercussions regarding the CDC's work to increase the amount of physical activity in which school-aged children engage on a daily basis. A lack of physical education teachers with proper credentials will make it difficult for the CDC to achieve their goals of increasing physical activity and creating behavior change that results in school-aged children voluntarily engaging in physical activity outside of the school day.

Future research should investigate if teacher qualifications influence student success differently depending on the location of the school (e.g., urban, suburban, rural). In addition, it would be

interesting to examine if factors related to geography and/or socio-economic status correlate with teacher qualifications and student success. Furthermore, studies should be implemented to determine if schools that successfully implemented CSPAPs, which include qualified physical education teachers, increased physical activity levels among youth as compared to schools that do not implement CSPAPs.

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PHYSICAL ACTIVITY

Incorporation of Physical Activity Challenges Within a Sport Education–Based Physical Education Class

Hairui Liu and Peter Hastie

Abstract

This study examined the impact of including a formal requirement of achieving predetermined energy expenditures as part of students' participation grades during a Sport Education–based college physical education class. Calorie consumption was measured using the Heart Zones Blink 3.0 sensor, and the percentage of students who reached the lesson target was calculated across a 15-week semester. The instructor kept a weekly journal and students participated in interviews at mid and end of term. Results showed that the average calorie consumption across the semester well exceeded the daily targets, while the percentage of students who reached the daily challenge cutoff ranged from 77% to 100% (average = 87%). Analysis of the journal entries and interviews resulted in the generation of four themes: students' commitment to reaching the activity targets, group-based strategies for achieving physical activity targets, activity consequences of officiating roles, and activity challenges problematized skill development for some.

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For over 100 years, colleges and universities in the United States have offered physical education or physical activity programs to their students for course credit. Although these programs have been given different titles, from basic instruction programs (Lumpkin & Jenkins, 1993), to general instruction program in physical education (Trimble & Hensley, 1984), to perhaps the more contemporary higher education physical activity programs (Stapleton et al., 2017), the goals throughout this long history have essentially been to educate students about the benefits of physical activity and lifetime fitness (Adams & Brynteson, 1995). Specifically, as Casebolt et al. (2017) noted, these programs are designed to "provide skills and knowledge to students that encourage physical activity in what is sometimes referred to as conceptual physical education" (p. 101).

While the content focus of these courses has seen a "to and fro" in emphasis from health and fitness to more psychomotor objectives, and then back toward fitness and lifetime activities, there have been more similarities than differences in the general structure across time (Stapleton et al., 2017). Accordingly, in 2007, the National Association for Sport and Physical Education (NASPE) presented a position paper on university physical activity programs, stating that they should teach empirically supported behavior change methods to highlight and nuture motivation to engage in physical activity.

While there has been some consistency in mission, Stapleton et al. (2017) suggested there is a need for strategies that allow these programs to survive and flourish in times of decreased public funding, rising tuition costs, and concerns with student retention. These include a rebranding of these programs from a public health perspective, innovative course presentation, and a renewed focus on learner-centered approaches. Although there has been a general move toward more lifetime and fitness activities and reduction in sport-based course offerings, one particular innovation has been the adoption of the Sport Education curriculum model for teaching team sports.

Sport Education was designed to provide students with authentic and enjoyable sport experiences through a season-long program that places them into small-sided teams and takes them through a series of skill practices (planned and carried out by teachers and peer coaches), and through developmentally appropriate games

conducted as authentic competition (Siedentop et al., 2020). During a Sport Education season, students take on significant responsibility for the conduct of the unit. That is, within their teams, they may take roles that include coaches, captains, managers, publicists, or members of a sports organizing board. In addition, students participate in officiating and scorekeeping duties during competitions. In essence, Sport Education is designed to offer students a more complete sport experience than that of simply an isolated player.

The research on Sport Education at the university level has produced very positive responses from students. One theme that comes from these papers is that Sport Education provides a more complementary (in contrast to adversarial) link between the students' quest for good grades and their socializing strategies (Sinelnikov & Hastie, 2012). Indeed, this idea of being a member of a persisting team has been the most attractive aspect of courses using Sport Education. The feeling of "relatedness," an innate psychological need to interact, be connected to, and experience caring for others (Ryan & Deci, 2000) that is so pervasive within the Sport Education experience, seems to be a critical factor in students reporting that they engage at higher rates in this class than in previous activity courses (Bennett & Hastie, 1997) and believing they make significant progress in acquiring skills (Mohr et al., 2012).

As part of the trend toward university physical education courses taking a public health perspective, there has been increased attention to the potential of physical activity measurement technologies (e.g., digital pedometers, accelerometers, heart rate monitors) being included in courses for students to track their activity levels. The key outcome is that simply having students wear the activity trackers (without any specific accountability for energy expenditure) does not seem to be an effective behavior change strategy (Kim et al., 2018). What does seem to be effective is having a formal accountability system in which part of a student's grade is dependent upon reaching a specific activity target (Brock et al., 2016).

Given the potential of Sport Education to offer a positive learning experience in a university sport-based physical education setting, and given the recommendation for these classes to adopt physical activity measures, the purpose of this study was to examine the impact of including a formal requirement of achieving predetermined energy

expenditures as part of students' participation grades during a Sport Education–based college physical education class. This question is compatible with the call for future research on sport-based physical education to move away from "versus" designs to those that provide a "deeper understanding of the dynamics of teachers' and students' interactions" (Hastie & Mesquita, 2016, p. 80). Specifically, this study focused on the implementation of a specific pedagogical approach (including an energy expenditure requirement) to identify the key factors that made this approach successful and the problems perceived by the various participants (Metzler, 2011).

Method

Participants and Setting

The participants in this study were 18 university students (6 females, 12 males, M_{age} = 20.72 years, SD = 1.67) enrolled in a tennis class at a land grant university in the Southern United States. The students' class standing ranged from freshmen to senior, while the ethnicities of participants included Caucasian (n = 16) and Asian American (n = 2). These participants had not engaged regularly in tennis prior to the course, and none had experience with the Sport Education model.

The instructor in this study had extensive experience with respect to tennis. As a former major in physical education during his studies, he had studied and played tennis for over 7 years and had taught tennis for more than 5 years. Within the current setting, this was the ninth occasion in which he had been the instructor of a physical education tennis course. In addition, the instructor had conducted several seasons of Sport Education at the college physical education level and had been involved in planning and conducting a number of Sport Education projects both in the United States and overseas.

All participants provided informed consent to participate in the study. The study was approved by the university's Institutional Review Board for Human Subjects Research.

Lesson Content

The course took place over a 15-week semester. Classes met three times each week on Monday, Wednesday, and Friday and lasted

50 min, for a total of 45 lessons. In terms of the Sport Education season design, the "progressive competition format" (Siedentop et al., 2020, p. 99) was followed. This format involves teams moving through three phases where they first learn skills, rules, and aspects of officiating, then participate in nonconsequential practice games (which we call scrimmages), and then finally take part in a formal competition and a culminating event.

In the first phase, following team formation, the content included the development of skillful groundstrokes (forehand and backhand), serving, and volleying. The instructor provided whole-class instruction related to the mechanics of the strokes and to the key movement patterns. Students also practiced within their teams under the leadership of a more skillful player who they nominated as their "coach." The environment in which the skills were used gradually become more open and dynamic as the students mastered the essential object control skills.

The second phase, the preseason, saw lessons in which teams played informal games whose scores did not count toward the league table and whose focus was on the development of competency in officiating and maximizing team function. Following the concept of "graded competition" (Siedentop et al., 2020), which is a way of arranging competitions so that students of similar skill levels are matched against one another, each team selected players to participate in either the "advanced" or "recreational" competitions. While games in the advanced competitions followed the official tennis scoring protocols, the recreational games in this class adopted a "seven-score" system. That is, the first player to reach 7 points wins the game, with an unreturnable winner counting for 2 points but an error (hit into the net or out of court) counting for -1 point. This format reinforced the use of consistent groundstrokes and decreased the impact of the serve as a rally begins only when the receiving player decides to return the serve.

The third phase, the formal competition, involved lessons in which match results from both "advanced" and "recreational" competitions were formally recorded in a league table together with the fair play points allocated by the officiating team. The season concluded with a series of playoff matches and a festive culminating event.

Instruction and Treatment Validity

Given that this study served to determine the influence of a pedagogical model on student learning, it was critical to validate that the instruction was indeed consistent within the accepted standards for that model. According to Metzler (2005), to achieve this, researchers need to itemize the key teacher and/or learner processes designed in the model and then verify that those processes were sufficiently present in the unit. With respect to this verification, in this study, Hairui Liu and Peter Hastie, who had a significant research and publication record relating to Sport Education, attended six randomly selected lessons and completed the 10-item checklist developed by Pritchard et al. (2008). They reached 100% agreement that the essential elements of Sport Education were present in each lesson.

Incorporation of Physical Activity

A physical activity challenge was integrated into the Sport Education season and accounted for 10% of each student's final grade. To earn these "activity points," students were required to achieve a specific calorie consumption during classes. Following a familiarization period, the cutoff scores increased throughout the semester. In addition to the individual student's accountability, a group-oriented contingency was also offered to each team. That is, students who doubled or tripled the required energy expenditure cutoff for a specific day could add 2 or 3 points, respectively, to their team's total score on the league table.

The cutoff scores for the physical activity challenge were based upon the findings of Anthanont et al. (2017), who determined that healthy sedentary adults burn approximately 170 kCal/hour. By consequence, the physical activity challenge began with a target of 120 kCal/lesson for a practice week, then progressed to a maximum of 260 kCal/lesson. Table 1 shows the weekly physical activity targets across each Sport Education season phase.

Data Collection

Energy Expenditure

Calorie consumption was measured using the Heart Zones Blink 3.0 (Sacramento, CA, USA). The Blink 3.0 heart rate monitor is a tool for managing heart rate, calories burned, distance, and pace. In

Table 1
Physical Activity Targets

Weeks	kCal target	Sport Education season phase
1–3	no target	Training camp
4	120	
5	140	
6	160	Preseason
7	200	
8	240	
9	250	
10	250	
11	250	Formal competition and final series
12	250	
13	260	
14	260	
15	no target	

this intervention, the instructor used an iPad that connected with a bridge to links to all sensors. The iPad display allowed all students easy access to their heart rates and calories while they progressed through the lessons.

Instructor Journal

In addition to the measure of energy expenditure, the instructor kept a weekly journal in which he reflected upon the students' in-task behaviors and their responses to the Sport Education intervention. The journal entries included aspects of the students' engagement, their responses to the content and teaching, skill development, and learning activities, specifically as related to the inclusion of the energy expenditure requirements. Across the term, over 25 pages of text were produced.

Student Interviews

All students were provided the opportunity to participate in interviews at midterm and at the end of the semester, with the participation rate being 70% and 65%, respectively. Interviews were

conducted in a classroom near the tennis courts, were recorded on a digital device, and later transcribed. Group interviews were used in preference to individual interviews for several reasons. These included (a) the interactions between students, which would have been absent in a one-on-one situation; (b) the social support peers could provide during the interview; and (c) the possibility of responses emerging that probably would not have if individual interviews had been conducted (see Carey & Asbury, 2016).

Interviews were conducted by Hastie (not the course instructor), with participants signing up for any 20-min block that suited their schedules. Typical groups consisted of either three or four students. The participants were assured that the comments would not be made available to the instructor until after final grades were posted. In addition, they were also guaranteed that any personally identifiable information would not be shared outside the research team.

A standard protocol was used in all interviews. Interviews began with a series of general questions about the course. Sample questions included "What were some of the reasons for enrolling in this class?" and "Tell me about how you are finding the structure of the class (with teams and competitions etc.)." While not specifically related to the purpose of the study, these questions helped the students feel comfortable in their answers and provided them with opportunities to actually respond, thereby promoting their engagement in the interview process. These questions were followed by those related to the wearing of sensors. A funneling technique (Smith, 2016) was used where the students' general views were sought first, followed by more specific questions that addressed the central research question. In particular, the students were asked to comment about if and how the sensors had an impact on their perceptions of their development of skills, feelings about team affiliation, and their nonplaying responsibilities such as umpiring and scorekeeping.

Data Analysis

Energy Expenditure

All energy expenditure data were exported in an Excel file from the iPad after each lesson. Weekly class means were then calculated from all participants. The percentage of students who reached the target score was also calculated for each lesson.

Instructor Journal

The transcripts of the instructor's journal were subject to a deductive analysis (Gilgun, 2011). In contrast to an inductive approach that aims to generate new theory that emerged from the data, deductive thematic analysis uses a structure or predetermined framework to analyze data. In this deductive form of analysis, the basis of student motivation within Sport Education (see Wallhead, 2012) served as that initial theory, and the data from the journals were subjected to the five-phase model outlined by Braun et al. (2017), starting with familiarization and coding, then moving to theme development, refinement, and naming. The results from this analysis were examined in terms of whether they confirmed, added to, or provided negative cases of the original theory (Elo & Kyngäs, 2008; Gilgun, 2011).

Student Interviews

Like the instructor journal, interviews were subjected to deductive analysis, again focusing on their feelings concerning the utility, value, and participation implications of the physical activity challenges. The same protocol for theme development was adopted for interviews.

Trustworthiness of the Qualitative Analysis

Two coders participated in developing the themes, and a number of peer debriefing sessions were included, promoting the credibility and confirmability of the findings (Shenton, 2004). Liu and Hastie repeatedly read field notes and interview transcripts, which were reduced to meaningful units and then collated to form broader themes. Evidence from both journals and interviews was sought to provide a strong association.

Results

Energy Expenditure

Figure 1 shows the calorie consumption across the season. In all weeks following the introduction of formal accountability, the class mean exceeded the baseline requirement. Figure 2 shows the percentage of students who reached the daily challenge cutoff. As an overall score, the students reached the daily required score 87.4% of the time.

Figure 1
Average Calorie Consumption Across Weeks

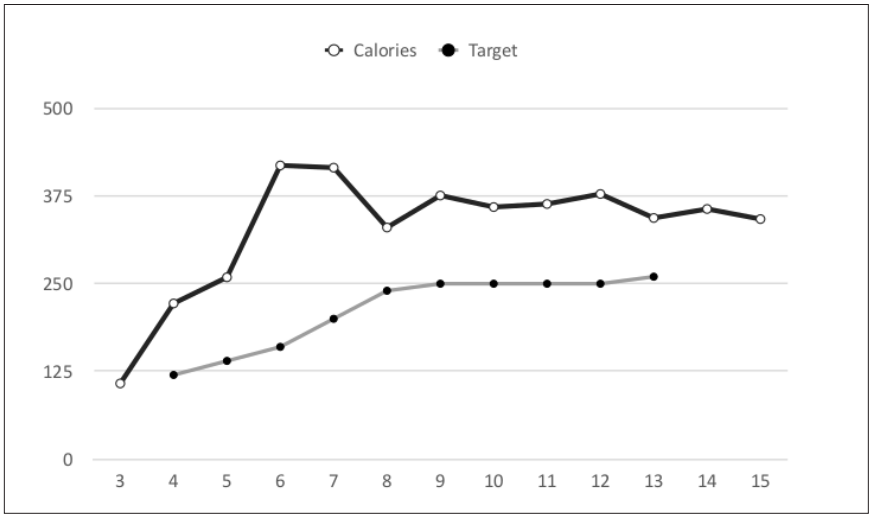
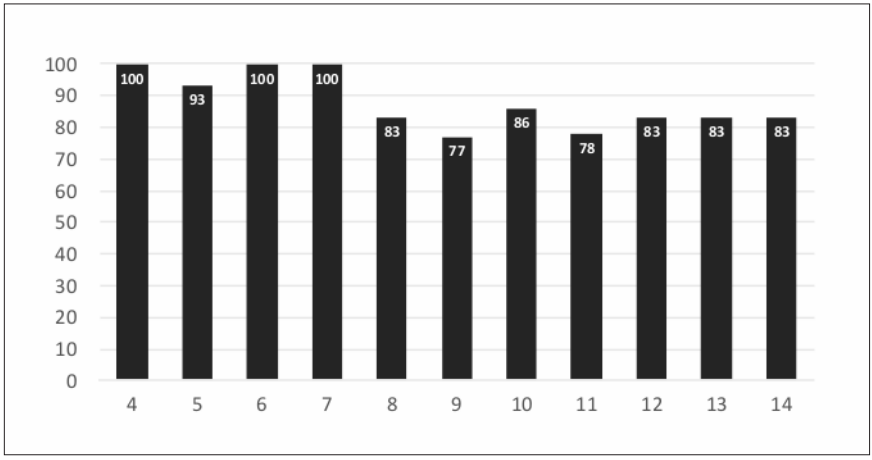


Figure 2
Percentage of Students Achieving the Weekly Targets



Journal and Interview Themes

The analysis of the instructor's journal entries and the students' interviews led to the generation of four themes. The content of these themes was consistent across the two data sources and as a result were put together to provide a more comprehensive account of the class. In order from general to more specific, the themes are students' commitment to reaching the activity targets, group-based strategies for achieving physical activity targets, activity consequences of officiating roles, and activity challenges problematized skill development for some.

Students' Commitment to Reaching the Activity Targets

There were significant findings within the instructor's log and student interviews that described the student behaviors that led to their high levels of energy expenditure. For example, as early as Week 2, he mentioned how a number of students "wanted feedback about their progress towards the calorie target." He further noted that

> the feedback certainly encouraged students to play more and run more during team practice. They were always asking, "How many calories do I have so far?" They will immediately run, jump, or playing more intense tennis once I told them their calories were low. For example, Collins's team had one person missing so that his team already lost one point in the PA challenge. He tried to save every stroke when he heard his calorie count was only 85. He was moving back and forth, left and right to cover every shot. When I returned later he asked again and had reached 190. I told him he could double his calories to earn one more point for his team. By the end of the lesson he had over 400 and also earned two points for his team. (Week 4 log)

The instructor reported in nine of his journal entries the extent to which students were showing high levels of effort and intensity in team practices and even more during competitive matches. One entry from the preseason is typical of the support students showed in match play:

> Minions (the #1 team in the competition) were playing today against the Mean Girls. However, they lost their advanced singles, leaving Charlie and Chris needing to win. Hannah (their singles player) was watching her teammates and cheered for them throughout the match: Go, Minions, you guys can do this!"

Later in the season, the following excerpt from the instructor's journal shows further evidence of this commitment:

> Amazing rally appeared in this advanced single match. Charlie was giving all he could in this epic match: lob, backhand attack, and strong serve. Anthony was in trouble at the beginning. However, he was determined and patient in dealing with the attacks from Charlie. The A-Team was highly motivated to play in the final, especially after last Friday when they spent a couple of hours practicing after class in order to qualify in second place.

This level of investment and intensity was something the instructor had not experienced in other tennis courses he had taught that were not conducted using a team-based format.

From the students' perspective, all who were interviewed concurred that the physical activity challenges changed their behavior in class and were motivating. One student commented during the midterm interviews,

> The watches are motivating—sure—Now like I run a lot more in class—we check our scores and make sure we get the target. For example, when we round up the balls I run instead of walking to get them. Without the sensors I certainly would have walked.

Group-Based Strategies for Achieving Physical Activity Targets

Prior to the competition phase, all teams had already begun to create strategies to ensure they reached the day's designated activity target. As early as Week 4, the instructor's journal showed evidence that "all teams [were] trying to boost their calories in their PA

challenge." These varied in their sophistication, with the simplest including teams "doing jumping-jacks while one player is presenting the strategy for the upcoming practice." More complex strategies included specific player assignments during practices. For example, "Team of Orange has three people. The team coach has scheduled that two people play together and another one student running around their tennis court. After two laps they will switch to another runner." As another example, "Team Blue was playing double games on their home court (4 people). The student that makes a mistake in the rally runs a quick penalty lap." In still another case, Anthony, the captain of the "A-Team," scheduled a one against two tennis game for his teammate Abby, because her calorie count was low during the first 20 min of the class. Anthony explained to the instructor that he hoped "the adapted tennis play could help his teammate be more active in the rest of 30 minutes." This strategy of deliberately creating imbalanced games to promote possibilities for great energy expenditure was also reported by members from Team Orange and the Mean Girls team during interviews.

Activity Consequences of Officiating Roles

The students mentioned in 60% of weekly entries that the physical activity challenges made it difficult for them to achieve their daily target when their teams were officiating. As can be appreciated, this element of Sport Education placed students in more passive roles such as scorekeeping and umpiring and the slightly more active role of ball retriever. The instructor noted that a frequent question from students during the first lessons when officiating was "Do we need to finish our physical activity challenge if we are the referee?" Indeed, a number of students reported during interviews that they felt surprised when the instructor first told them the officiating team still needed to complete the physical activity challenge. They also acknowledged that "it was hard to get to the calorie target when you were essentially standing around."

Despite these difficulties, there was evidence in the instructor's journal entries about how several students initiated physical activity strategies during their officiating duties. Examples include "The Orange team's players are all doing jumping-jacks while officiating" and "Anthony is running across the net to pick up the ball between rallies. Abby is jumping and running in place as she keeps score." The

students acknowledged that while it seemed pretty "artificial" in the role of an official, they did consciously, "out of pragmatism," perform "some form of exercise in between rallies."

Activity Challenges Problematized Skill Development for Some

There were, however, negative cases with respect to the formal accountability inherent in wearing the sensors. Particularly in the early phases of the season, as reflected in the midterm interviews, three students commented that the physical activity requirement compromised their tennis development. Comments included "It gets to where I focus more on meeting the calorie goal for the goal for the day than doing anything else" and "I spend more time running laps than actually playing tennis." These students then faced a double jeopardy situation. Believing they were at a level of tennis competence at which they were unable to achieve the daily activity target solely through practicing skills and playing games, they had to exercise outside the practice context. This in turn limited their ability to improve. For those with higher skill, the situation was different: "It was a chore at the beginning, and we were practicing and didn't have much activity—but now we are playing games we can do it." One student who identified as higher skilled noted during an interview, "It is crazy, the gameplay was great because I have to run a lot to cover the court. I was easily getting over double the daily target."

The instructor also noticed where the overall experience in the Sport Education season was potentially compromised for lower skilled students by the inclusion of the energy expenditure requirement. He noted during the formal competition where "one recreational player worried about their PA challenge decided to play with another classmate rather than cheering for their team."

Discussion

The purpose of this study was to examine the perceptions of students and their instructor to a specific pedagogical approach to teaching a university physical education class. In this case, that approach was a tennis class organized around the principles of Sport Education with the inclusion of a physical activity requirement. The students demonstrated significant buy-in to the course and its requirements, and most students achieved the daily cutoff targets.

This finding adds to the literature that shows the strong potential of Sport Education to produce positive outcomes in terms of college and university students' physical activity behaviors (Mohr et al., 2012). Further, the use of a group-oriented contingency as presented to students in this study (i.e., being able to earn extra points that counted toward the season's league standings) is an authentic and effective means of promoting in-class physical activity.

It is also clear from the research on Sport Education (in school and university settings) that the persistent team membership and the peer teaching responsibilities have the potential to foster physical engagement within classes. That is,

> the focus of a holistic game-play evaluation, together with the added provision of individual role responsibilities within the team fosters an individual accountability for achieving group goals. As a result, students see that their own individual efforts are critical to the success of the team. (Hastie & Wallhead, 2015, p. 134)

It is clear from the outcomes of this study that the students embraced this team aspect, which was clearly demonstrated by the extent to which they practiced volitionally outside of class hours.

With respect to engagement in classes, Doyle (1983) commented that "students tend to take seriously only that work for which they are held accountable" (p. 186). While this in part can provide the answer to why a majority of students reached the activity targets a majority of the time, it does not explain the significant gap between the required target and those achieved by many students. In particular, it should be noted that doubling or tripling the challenge targets was irrelevant to a student's final grade. Rather, they were only relevant to promoting team rankings. As such, these challenges became more of a "bonus" rather than a "burden." It is our contention in this study that the focus on group goals and the resultant positive interactions between students provide a plausible explanation for the high levels of energy expenditure that were achieved. That is, Sport Education is known to include an element of "content-embedded accountability" (Hastie, 2000). Because games "count" in Sport Education toward a season outcome, team practices tend to be taken more seriously, a factor we know from accountability research to be crucial.

Nonetheless, the negative case in this conclusion related to the limited possibilities for activity accrual came during officiating duties and in games in which the students had fewer opportunities to perform tennis abilities. While some students were successful in creating strategies to become active during refereeing roles, it may be prudent to have differential activity targets in these cases.

These findings supporting the positive outcomes of Sport Education may provide a useful incentive for universities where physical activity courses are offered only on an elective basis. Kim and Cardinal (2019) noted, where courses are elective, it seems that only the most competent, motivated, and physically active students tend to enroll. That Sport Education offers potentially positive experiences for students who are less competent and offers a high degree of relatedness among class members, thereby promoting activity engagement, might well be a strong advocacy element for those responsible for these courses. This is particularly relevant given the findings that graduates who participated in activity courses during their higher education reported higher levels of physical activity in adulthood in comparison to those who did not participate in these types of courses (Casebolt et al., 2017).

This article is not without limitations, the major one being that the data came from one instructor with one class. While the general findings concerning the students' responses to Sport Education in this study mirror those from previous works in university courses, the addition of the energy expenditure requirement created a novel course. Replication of this study would be a valuable addition to research in university-based physical education.

A second limitation is the profile of the sample in this study. There was little diversity among the students in terms of their identified ethnicity, their level of tennis skill (most were novices), and their history with university physical education. This general conformity confines the degree of generalizability of the findings. Again, a replication of this study with a more varied sample of students is warranted. A class in which the students were more skillful in the selected sport might experience the competition aspect differently, while a group of students with more experiences in university physical education may be able to make more sophisticated comparisons between these experiences and the current course.

A final limitation lies in the reliance of only two sources of data in the generation of the themes. While the analysis of these data sources was thorough and reliable, both rely on the perceptions of the participants (both instructor and students). Video records of student engagement during classes (which may or may not be analyzed quantitatively) and field notes taken by an independent observer are two potential additions. Both of these sources would allow for an expanded data set, which would make the generalizability of the findings more robust.

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PHYSICAL ACTIVITY

Implementing Structured Curriculum in an After-School Physical Activity Program

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Abstract

The purpose of this study was to evaluate the influences of a structured after-school program on student physical activity for third- through fifth-grade students at five schools in southern Colorado. The study utilized a pretest–posttest intervention design in which six elementary schools in a low socioeconomic status school district in southern Colorado were recruited to implement a structured curriculum into their existing after-school physical activity program. Four observations at each school were taken approximately 6 weeks apart during the 2014–2015 academic year. Randomly selected students (n = 187) were measured for height and weight at each observation and wore accelerometers during after-school physical activity. Descriptive statistics and independent sample t tests were calculated for a comparison of physical activity before and after the implementation of the structured after-school program. Students wore accelerometers an average of 45.72 ± 10.28 min/session. Total physical activity increased significantly from 36.21 ± 6.41 to 41.14 ± 6.76 min/session ($p < 0.001$). Moderate physical activity increased significantly from 9.29 ± 3.84 to 12.10 ± 5.96 min/session ($p < 0.001$), whereas vigorous activity

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significantly decreased from 8.02 ± 4.39 to 5.54 ± 5.32 min/session ($p < 0.001$). Overall, implementing a structured after-school program may be beneficial in increasing total physical activity, though its role in improving physical activity intensity is questionable.

The literature has well established that physical activity (PA) is necessary for a person to maintain health and wellness. Regular PA can contribute to a person maintaining a healthy weight (Centers for Disease Control and Prevention, 2016) and decreases the risk of chronic diseases such as osteoporosis, heart disease, and type 2 diabetes (Csabi et al., 2000; Flynn et al., 2006; Twisk, 2001). Performing less than adequate amounts of PA has also been linked to negative mental health effects such as decreased self-esteem, reduced psychological well-being, diminished academic performance, and decreased attention (Biddle & Asare, 2011; Lees & Hopkins, 2013; Liu et al., 2015). Additionally, regular PA has even been found to decrease the risk of early death (Healthy People 2020, 2016). It is evident that regular PA is crucial to a person maintaining health throughout life.

Children are especially affected by a lack of regular PA as their bodies continue to develop, a process that is heavily influenced by lifestyle factors. Furthermore, a lack of PA in childhood can contribute to lifelong negative health effects, as children who struggle with obesity in their childhood are more likely to be obese as adults (Kann et al., 2014). The onset of many chronic physical and mental diseases can begin in early childhood, and thus, childhood is a critical time to instill preventive strategies and establish healthy habits (Twisk, 2001). Unfortunately, the levels of PA throughout childhood and adolescence are declining (Dumith et al., 2011; Nader et al., 2008). In an increasingly sedentary society, it is important that youth are encouraged to engage in daily PA.

The recommended guidelines regarding PA for youth is 60 min/day of moderate-to-vigorous PA (MVPA; Twisk, 2001). Less than 20% of adolescents are achieving the recommended amount of PA daily (Herrick et al., 2012). Research has demonstrated that underrepresented groups often engage in less MVPA than Caucasian groups, and females tend to engage in less MVPA than males (Brockman et al., 2010; Loprinzi et al., 2012). One study found that the higher the intensity of vigorous PA (VPA), the stronger the

inverse association with adiposity (Steele et al., 2009). Interventions for increasing youth PA should target raising MVPA for the most beneficial health outcomes (Saunders et al., 2016).

As the central social institution in a child's life, school is where youth spend a majority of their waking time. Thus, the school atmosphere may be the most optimal setting to successfully intervene and encourage PA for children. At school, there are many opportunities for PA such as recess, physical education classes, before- and after-school activities, and active transportation to and from school. A commonly targeted and researched area to increase PA has been after-school programs (ASP; Beets et al., 2009; Gesell et al., 2013; Trost et al., 2008). Approximately 8.4 million children in the United States attend an ASP regularly, and the parents of over 18 million additional children reported that they would like their children to participate in an ASP if one was available to them (Afterschool Alliance, 2009). Clearly, there is an opportunity to increase the PA of a large group of children by focusing on ASP.

Further cementing the after-school time as an ideal opportunity to increase PA, findings have indicated that students engage in most MVPA immediately following school, with reports of being up to twice as active during this time than during the school day (Brockman et al., 2010). Since this is also the time in which ASP are offered, this may be an effective place to increase MVPA. During the hours immediately following school, students who go home instead of participating in an ASP will engage in, on average, 2 more minutes of sedentary behavior per hour (Taverno Ross et al., 2012). Furthermore, underrepresented females in ASP had higher MVPA levels and lower reports of sedentary behavior compared to those who went home, whereas MVPA for Caucasian females was not influenced by after-school settings (Taverno Ross et al., 2012). This demonstrates that interventions in ASP may be especially beneficial to underrepresented groups. There are many approaches to increasing PA during this after-school time.

Although it is known that ASP are associated with higher PA, it is less known if structured curriculums are more effective than unstructured free play in increasing MVPA in ASP (Gesell et al., 2013; Trost et al., 2008). The purpose of this study was to contribute to the growing body of literature related to the effectiveness of different

ASP. Particularly, this study observed the PA of children participating in an ASP that utilizes a structured curriculum, Five for Life, compared to the baseline observation of PA for students engaging in free play.

Method

Participants

Institutional Review Board approval from Northern Arizona University was obtained for all data reported in this study. The school obtained consent from the students to participate in the data collection method. This study received the deidentified data from the school and conducted the data analysis. The study utilized a pretest–posttest intervention design in which six elementary schools in a low socioeconomic status school district in southern Colorado were recruited to implement a structured curriculum into their existing ASP. Because individual household income data were not available, this study used free and reduced lunch information as a proxy for socioeconomic status (Trost et al., 2008). The district selected has an overall average of 70% of students qualifying for free and reduced lunch, with the sites observed having a range of 79% to 91% (average 82%) of the students qualified for free and reduced lunch. This group of schools consisted of 10.83% of the total district population.

The analysis included students measured at the initial (n = 107) and final (n = 80) observations, for a total of 187 observed students. Most students were Hispanic (n = 74), followed by Caucasian (n = 46) and African American (n = 33). Students ranged between third and fifth grade, and most were 9 or 10 years of age (65%). More males (n = 115, 60%) participated than females. Students were randomly selected to participate at each observation, and the students observed during the initial observation were not necessarily the same students who were observed in any following observations.

Protocol

The selected sites previously implemented an unstructured afterschool program, Keep It Moving!, to allow students at the elementary schools opportunity to accumulate additional PA outside of traditional school physical education hours (Behrens et al., 2016; Schuna et al., 2013). We recruited these schools to implement a structured

curriculum (Five for Life) into the Keep It Moving! after-school program to assess whether the structured curriculum of Five for Life would provide opportunity for additional PA versus a nonstructured ASP. Six schools in the district were selected to participate in the study. One school dropped out of the study after baseline measurements, leaving five schools for analysis.

Height was measured to the nearest 0.5 cm with a portable stadiometer (Seca Road Rod #214; Seca GmbH & Co. KG., Hamburg, Germany). Weight was measured to the nearest 0.5 lb with a digital scale (Model 498KL; Health o Meter Professional Scales, Alsip, IL). Accumulated PA during the observations was objectively assessed with the ActiGraph GT3X accelerometer (ActiGraph LLC, Pensacola, FL). The ActiGraph demonstrated acceptable reliability and validity.

Five for Life is a fitness educational curriculum designed in accordance with physical education standards to keep students moving while engaging in structured activities. Contrary to free play, Five for Life utilizes a variety of specific activities and circuits designed to increase fitness for kindergarten through 12th-grade students, with different sets of curricula tailored for elementary, intermediate, and high school students. The program targets the "five" components of fitness: cardiorespiratory endurance, muscular strength, muscular endurance, flexibility, and composition. The Five for Life curriculum-based program was implemented into schools that already had the unstructured after-school Keep It Moving! program. Keep It Moving! sessions are typically led by a PE teacher and do not follow a specific curriculum.

We scheduled observations with the site supervisors, one baseline observation with three follow-up observations. The baseline observations were during the Fall 2014 semester (October), with subsequent observations spaced approximately 6 weeks apart. Posttest observation was approximately 18 weeks from pretest. Site supervisors were trained in the curriculum and given binders containing the PA portion of the curriculum and sample lesson plans prior to the school year beginning.

During each observation, we collected demographic information including age, grade, ethnicity, height, and weight. Three questions were verbally asked of the students prior to being fitted

with an accelerometer and participating in PA: (1) How old are you? (2) What grade are you in? and (3) What ethnicity do you consider yourself? After collecting demographic data, we measured the student's height using the portable stadiometer to the nearest 0.5 cm and weight using the portable scale to the nearest 0.5 lb. Following the height and weight measurements, accelerometers were fit to each child and mounted at the right side of the waist. The time each accelerometer was placed on the student and the accelerometer identification number were recorded. We used the accelerometers to collect data in 30-s intervals during the program observations. Following the lesson, we collected the accelerometers and recorded the ending time of the lesson.

Statistical Analysis

Data were entered into an Excel spreadsheet and checked for data entry errors. SPSS version 22 was used for data analysis. One school withdrew from the intervention following the baseline measurements; the data presented do not include the baseline data for this site in the analysis. During the data cleaning process, we found seven participants who reported grade levels outside those included for this study and they were omitted from the analysis. Descriptive statistics were calculated for grade and ethnicity of the students. Means of height and weight were calculated. We used Evenson et al.'s (2008) cut points in conjunction with the accelerometer data to determine the PA levels of the students who were outfitted with the accelerometers. Independent groups *t* tests were conducted for differences in PA measurements at baseline (pretest) and at the last follow-up (posttest). Because multiple *t* tests were performed, a Bonferroni correction was calculated at $p < 0.01$. We computed total PA by creating a composite variable that included measurements of light, moderate, and vigorous activity. We computed MVPA by summing moderate PA and VPA. Degrees of freedom were adjusted for tests that violated assumptions of equality of variances as indicated by a significant Levene's test. Effects sizes were calculated with Cohen's *d* (Cohen, 1992).

Results

Minutes of PA showed a significant increase from pretest to posttest, $t(185) = -5.08$, $p < 0.001$. This represented a medium-large effect,

d = .75 (Cohen, 1992), suggesting that the structured ASP increased PA levels. Conversely, MVPA at pretest did not significantly differ at posttest, $t(114.75) = -2.65$, $p = 0.791$. Individual analysis of each activity level showed that moderate activity increased from pretest to posttest, $t(126.38) = -3.68$, $p < 0.001$. However, vigorous activity significantly decreased, $t(185) = 3.48$, $p = 0.001$. The increase in moderate activity represented a medium effect, d = .56. Additionally, there was no significant difference in sedentary behavior during the structured curriculum at posttest measurements, $t(185) = .431$, $p = 0.667$. Light activity significantly increased from pretest to posttest, $t(185) = -4.01$, $p < 0.001$. See Table 1.

Table 1
Means and Effect Sizes for Minutes of Measured Physical Activity Levels

	Pretest	Posttest	Cohen's
Activity level	***M* (*SD*)**	***M* (*SD*)**	***d***
Sedentary	5.57 (4.25)	5.28 (4.93)	.06
Light PA	18.89 (6.77)	23.49 (8.93)	0.58*
Moderate PA	9.29 (3.84)	12.10 (5.96)	0.56*
Vigorous PA	8.02 (4.39)	5.54 (5.32)	0.51*
Moderate-vigorous PA	17.31 (5.56)	17.64 (10.07)	0.04
Total PA	36.21 (6.41)	41.14 (6.76)	0.75*

Note. Pretest n = 107, posttest n = 80.
*$p < 0.001$.

Discussion

The purpose of this study was to investigate whether implementing a structured curriculum would increase overall PA and MVPA that students performed after school. As expected, adding the structured curriculum Five for Life to the unstructured afterschool program Keep It Moving! resulted in a significant increase in overall PA from the baseline measurements to the final follow-up measurements (approximately 18 weeks). Although moderate PA significantly increased, VPA significantly decreased, which kept MVPA stable across time measurements.

These findings support studies that have examined PA and MVPA in structured curricula (Gesell et al., 2013; Trost et al., 2008). According to these studies, PA in a structured curriculum appears to successfully increase total PA, but VPA may decrease, keeping MVPA stable. On the other hand, unstructured curricula or free play may lead to less overall PA, but students who choose to engage in activity tend to perform more VPA (Gesell et al., 2013; Trost et al., 2008). These findings contribute to a growing body of literature regarding increasing PA after school.

A study examined two after-school programs: one that had organized activity and one that allowed free play for students. The program with structured activity led to students engaging in 225 more minutes of PA each week (Gesell et al., 2013). Another study, however, found MVPA levels were 24–55% lower during organized activity compared to free play (Trost et al., 2008). Although research in this area is underdeveloped, the research thus far depicts a contradictory pattern. The most effective approach to increasing PA and MVPA in youth participating in ASP remains unclear. Future research should specifically focus on increasing PA and MVPA in all youth during ASP.

Additional factors, besides the program structure, related to the implementation of curricula may influence PA levels and MVPA. For example, a study that investigated PA in ASP across a variety of contexts found that MVPA was significantly higher in structured activity indoors compared to outdoors, although the MVPA for the structured activity was still significantly less than unorganized activity regardless of setting (Trost et al., 2008). Another potential influence on PA is weather and environmental factors. One study that looked at PA and nutrition in a structured curriculum in youth reported decreased MVPA during fall and increased MVPA during spring, indicating the winter months may affect activity levels and motivation (Crouter et al., 2015). To address the stable or decreasing MVPA and VPA that tends to be characteristic of structured curricula, future research should explore whether alternating or hybridization of unstructured and structured curriculums would successfully increase high-intensity activity, for example, providing structured curricula that include time for free play or providing several structured options for children to "free play" within (Crouter

et al., 2015). Additional factors such as the incorporation of nutrition programs, frequency of implementation, and types of activities influence PA and MVPA results, but Beets et al. (2009) could not determine a "best" design from their findings.

To increase the intensity of PA among children and adolescents, studies have also looked at the role of autonomy and self-selection of activities to produce results. One study found that adolescents who self-selected their exercise intensity, compared to those who were assigned PA, performed at a higher intensity (Sheppard & Parfitt, 2008). Another study expanded on this and investigated if adolescents who did not report participating in sports and were at risk for sedentary lifestyles would also choose higher intensity activity (Schneider & Schmalbach, 2015). It found that when asked to select an intensity that feels good, adolescents reported positive mood shifts and worked at a higher intensity without perceiving harder work, which replicates the previous results (Schneider & Schmalbach, 2015).

One particularly important component of this study was specifically recruiting adolescents who were not already active and therefore may be more averse to high-intensity exercise. This may relate to the sample of this study, because low socioeconomic status youth are at higher risk for sedentary lifestyles and therefore may perform higher intensity PA if they are encouraged to make autonomous choices regarding PA. Promoting choice and control in youth PA programs, perhaps even within the model of structured ASP, is one promising way to increase intrinsic motivation and engagement of high-intensity activity. Implementing structured curricula may be one method of increasing overall PA in youth ASP, though additional research needs to determine the ideal ASP structure to increase both overall PA and MVPA.

One inherent limitation is that students may have altered behavior while participating in PA due to our presence and having the accelerometers attached to them. We attempted to minimize the limitations by instructing the site supervisors to execute their lesson plans as they would if we were not present. Additionally, the results may not be generalizable because the sample is within one school district, within a highly active state and thus may not be an accurate representation of all low socioeconomic status schools in the United States. However, because it is known that low socioeconomic status

environments and ethnic minorities are at higher risk for not meeting PA recommendations, a strength of the study is implementing interventions in schools that will reach youth who primarily fall into these at-risk categories.

Conclusion

ASP that implement structured PA curriculums appear to be a successful way to increase overall PA in elementary-aged children. In this study, the students who participated in the structured curriculum showed a large and significant increase in overall PA. Furthermore, aside from vigorous activity, all activity levels increased from baseline to the final posttest. MVPA remained stable and should remain a target research focus in future studies. According to these findings, structured after-school PA programs can increase student activity levels and the after-school period can provide a great opportunity to increase childhood PA. School administrators and education policy makers should focus on making after-school PA programs, especially structured programs, available to students. Future research should focus on increasing the intensity of PA performed by students participating in ASP.

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YOU AND THE LAW

Going Down the River: Legal Concerns of a Tourist Injured While Inner Tubing

John J. Miller, Tucker L. Paschen, Kelvin D. Doss

Pellham v. Let's Go Tubing, Inc., 199 Wn. App. 399, 398 P.3d 1205, Washington Court of Appeals, Division III (June 27, 2017)

The case of *Pellham v. Let's Go Tubing, Inc.* (2017) is the result of the plaintiff striking a fallen log in the river after he fell off an inner tube he had rented from the defendants. The plaintiff sustained a ruptured eardrum, lower-disk problems in his back, a radiating foot pain, and eventually a neck fusion. The plaintiff alleged the defendants owed him a duty to warn about a fallen log in the river that was unseen but close to the entry site to the river that the defendants had chosen. The trial court provided summary judgment against the plaintiff that was later upheld in the Court of Appeals in the state of Washington.

Facts of the Case

Brian Pellham was invited to an unguided tubing excursion down the Yakima River in Washington state with some friends. Immediately before the start of the tubing activity, each member of the group, including a rushed Pellham, signed both an assumption of risk form and a release of liability form (*Pellham v. Let's Go Tubing,*

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Inc., 2017). These forms explicitly stated how hazardous river tubing is by listing rocks, logs, other watercraft, variations in speed, and depth of current as possible obstacles existing in the river environment (*Pellham v. Let's Go Tubing, Inc.*, 2017). Most importantly, they released, held harmless, and indemnified Let's Go Tubing, Inc., its agents, and subsidiaries from any and all liability claims connected with their equipment. It is important to note that not only had Pellham previously signed waivers for other activities, including rafting trips, but he also used release forms in his business (*Pellham v. Let's Go Tubing, Inc.,* 2017).

On the way to the launch site, Let's Go Tubing bus driver Steff Thomas informed members of Pellham's group to paddle to the center of the river as soon as possible as a tree had fallen into the river but could not be seen from the launch site. However, Pellham was not part of the group that was informed about the fallen tree (*Pellham v. Let's Go Tubing, Inc.,* 2017). Each person of the group was given a Frisbee to use as a paddle at the departure area. Additionally, Pellham had asked Thomas, the organization's bus driver, for a life jacket, but his request was disregarded.

After they entered the river, Pellham and his group tied their inner tubes together. However, they were soon confronted with fast-moving currents. As the group came around the river bend, they noticed a fallen tree, with numerous branches extending, that reached more than halfway across the river (*Pellham v. Let's Go Tubing, Inc.,* 2017). The group members frantically used their Frisbees to avoid the tree with no success. When Pellham grabbed the tree, the current jolted the inner tubes causing him to fall backward into the river (*Pellham v. Let's Go Tubing, Inc.,* 2017). As a result of the fall, Pellham incurred a ruptured eardrum. Moreover, the rapids pushed Pellham underwater, and when he resurfaced, he struck his head on one of the large branches, which caused a whiplash injury. After Pellham made it to shore, he informed Thomas about the incident. Although Thomas knew about the fallen tree, Let's Go Tubing was prohibited from removing it by law (*Pellham v. Let's Go Tubing, Inc.,* 2017).

Due to the incident, Pellham suffered damage to a lower disc in his spine, which generated pain to his left foot. He also had neck fusion surgery performed as a result of the episode (*Pellham v. Let's Go Tubing, Inc.,* 2017). Pellham filed a legal complaint against

Let's Go Tubing for negligent failure to warn. Furthermore, Pellham contended that he did not waive liability for the reason that Let's Go Tubing committed gross negligence. Additionally, he disputed that he expressly or impliedly assumed the risk of floating into a hazard (*Pellham v. Let's Go Tubing, Inc.*, 2017).

The trial court ruled that the inner tube rental company did not owe a duty to warn the renter about the fallen log because Pellham voluntarily participated in the tubing activity (*Pellham v. Let's Go Tubing, Inc.*, 2017). Additionally, the court pronounced that the rental company, Let's Go Tubing, did not have a duty to warn about or to prevent injury suffered by Pellham from trees in the river. As a result, the court reasoned that Pellham assumed the risks inherent in river tubing. The Court of Appeals later upheld the trial court's judgment (*Pellham v. Let's Go Tubing, Inc.*, 2017). Several issues were brought forth in this case: negligence, inherent risk, and assumption of risk.

Negligence

For a negligence claim to be litigated, four elements must be proven: (1) the existence of a duty owed; (2) a breach of duty occurred; (3) a proximate cause between the breach and the injury; (4) the party to whom a duty was owed was injured (*Tincani v. Inland Empire Zoological Society*, 1994). First is that a duty of care is owed. A duty is a special relationship between two or more parties that may be created by statute, contract, or common law (Dobbs, 2000). Duty may be denoted in other terms such as the duty of care, the standard of care, or standard of conduct (*Bitar v. Rahman*, 2006). According to the Restatement (Second) of Torts (2010), negligence is the inability to use reasonable care under every circumstance. Specifically, negligence is

> the failure of one owing a duty to another to do what a reasonable and prudent person would ordinarily have done under the circumstances, or doing what such a person would not have done, which omission or commission is the proximate cause of injury to the other. (§ 3)

The second element, breach of duty, refers to the failure to use ordinary care. In other words, a person is negligent when they fail

to act as a reasonably prudent person would have performed under the same or similar circumstances (Miller & Schoepfer, 2018). The third element is the proximate cause. If an injury would not have occurred without the defendant's conduct, then the proximate cause is met. Proximate cause is referred to as "but for" test as in "but for the wrongful acts of the defendant, the injury would not have occurred." In the Let's Go Tubing case, Pellham alleged the organization knew of the danger in the form of the underwater log but did not warn him about it. As a result, he contended that his injury would not have taken place. Finally, for Pellham to claim negligence against Let's Go Tubing, he needed to have suffered significant harm, either physically or emotionally, to have a viable negligence claim (Miller & Schoepfer, 2018). While he was able to prove he was injured, when individuals voluntarily participate in an activity they assume the inherent risk of the activity. They are not allowed to recover from the activity's provider (Centner, 2006).

Inherent Risk

Inherent risks are those risks that are integral functions of any given sport or recreational pursuit (Miller & Wendt, 2012). Furthermore, inherent risks are foreseeable and often strongly connected with sport or recreational activities (*Morgan v. Ohio Conference of the Church of Christ*, 2012). Specifically, the Morgan court elucidated that the "rationale behind the doctrine is that certain risks are so intrinsic in some activities that the risk of injury is unavoidable" (p. 3).

Individuals participating in sportsand recreation activities may pursue litigation even though they either know or have reason to know the inherent risks that may occur in all sport and recreation activities (VerSteeg, 2013). Certain courts have addressed the comprehension of inherent risks by implementing legal guidelines that do not enforce tort liability for negligence in sport and recreation events (Spengler & Burket, 2001). Instead, liability occurs in the sport and recreation environment when individuals suffer an injury as a result of reckless or intentional behavior on the part of the defendant. Centner (2006) stated, "Although most sport responsibility statutes do not prevent plaintiffs from bringing a lawsuit, plaintiffs with injuries caused by inherent risks of the sport may be expected

not to file suit because, under the statute, they cannot recover their damages" (p. 35).

The subject of inherent risk is meant to put the responsibility on individuals who voluntarily assume the risks. To that extent, the court in *Crace v. Kent State University* (2009) contended that "whenever gravity is at play with the human body, the risk of injury is inherent" (p. 913). Thus, unless Pellham could have shown that he involuntarily took part in the tubing activity or someone from Let's Go Tubing intentionally pushed him into the water, the gravity that pulled him off the tube and into the water may be perceived as an inherent risk.

Assumption of Risk

The doctrine of assumption of the risk is a defense whereby a defendant does not owe a duty to protect a plaintiff against risks that are so inherent that they cannot be removed from the activity (*Bundschu v. Naffah*, 2002). Assumption of risk maintains that sport or recreation service providers are accountable for the damages incurred by the participants if and only if the injury is produced by reckless or intentional conduct (Hansen-Stamp, 1998). The rule asserts that when a plaintiff voluntarily participates with the knowledge of existing risks, that individual will not be permitted to seek recovery for damages that were suffered (Miller & Schoepfer, 2018). According to the Restatement (Second) of Torts (1965), "the word 'known' denotes not only knowledge of the existence of the condition or activity itself, but also an appreciation of the danger it involves" (§ 343A). Horton (2004) summarized the doctrine of assumption of risk to be "shorthand way of saying that a defendant owes no duty to protect plaintiffs from an activity's inherent risks" (p. 612).

The assumption of risk defense may take two forms: express or implied. An implied assumption of risk occurs when a defendant does not owe a plaintiff a duty of care for an injury that arose from an inherent risk of a sport (Miller & Schoepfer, 2018). Implied assumption of risk happens when the plaintiff assumes a risk but behaves in a reasonable manner (*Kirk v. Washington State University*, 1987). An express assumption of risk takes place when participants must sign an assumption of risk form before being permitted to participate. Specifically, express assumption of risk arises when an individual explicitly consents to relieve another of a duty regarding specific

known risks (*Gleason v. Cohen*, 2016). It is notable that the Pellham court indicated that express assumption of risk as well as implied assumption of risk prevented any type of recovery by the plaintiff.

Conclusion

It is no secret that when individuals will incur injuries when they choose to participate in sport and recreation activities. Centner (2006) stated, "American sports participants experiencing a mishap are more likely to blame the sport provider for not implementing greater safety precautions" (p. 40). Since individuals increasingly blame others for their injuries, society has become more litigious. In fact, those involved in sport and recreation activities sue even though they either know or have reason to know the risks that are naturally inherent in all sport and recreation activities (Miller & Schoepfer, 2018). As such, participants need to understand that while a duty is owed to them, they may waive the right to pursue litigation because of the inherent risks in the activity and their assumption of risk.

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