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PEDAGOGY

Group Size in Physical Education: Teachers' Perspectives

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Abstract

The physical education context is fun yet challenging. There is the potential for teachers to offer a multitude of games and activities for students. Thus, PE teachers should put the students in the best position to learn the content. One method involves PE teachers putting students in small-sided groups during games and activities. The purpose of this study was to investigate K–12 physical education teachers' perceptions of small-sided games and activities in their PE lessons. Thirty-one K–12 physical educators from five states participated in this study. The PE teachers were emailed a survey. The questions were structured to produce short answers to the survey. Analysis of the interview data revealed five themes concerning small-sided games and activities in physical education lessons: (1) the importance of small-sided groups, (2) PE teachers' observations of students in 2v2 and 3v3 games and activities, (3) how do PE teachers know small-sided groups are better than large-sided groups, (4) small-sided groups and classroom management, and (5) small-sided groups' effect on student attitudes. The data show that small-sided games and activities are helpful and important to student learning, that students have more interaction with the equipment, and that students feel more comfortable participating in small-sided games and activities.

Educators in all content areas want to put their students in the best position to learn and be successful. A topic of interest that has received much attention is class size. It is believed that smaller class

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sizes in K–12 schools allow teachers to give students the needed attention to help students learn the content. Cho et al. (2012) stated that the education policy of small class sizes allows the teacher to provide more attention to each student, thus resulting in increased student learning. For example, Rivkin et al. (2005) studied class size in Texas schools. They found that class size seems to have a significant negative impact on student test scores in reading and math among students in Grades 4 and 5, but not on students in Grades 6 and 7. They continued to state that the impact of a smaller class size is quite small; a reduction in class size of 10 students would increase test scores by only about 0.1 standard deviations. Another study that looked at class size and its effect on student learning analyzed and examined a dataset from Florida's class-size reduction policy (Chingos, 2012). Chingos (2012) looked at a number of variables in regard to class size that could have affected student learning. For example, the researcher analyzed Grades 3 to 5 and Grades 6 to 8, schools in different districts in the state of Florida, and the math and reading content areas. After a thorough analysis of the dataset, Chingos concluded that the class-size reduction policy for the state of Florida has small at best and most likely close to zero effect on student learning. These results correspond to a relative reduction in class size of two or three students. With these results from these studies, the concept of small class size will continue to be debated. In regard to physical education (PE), class size has also been debated.

PE lessons have the potential to provide a multitude of teaching–learning situations during the diverse games and activities planned for the students. As a result of the variety of games and activities, teachers use many methods to engage students. For example, in a normal basketball game, participants compete in a 5v5 game. In many cases, the five players who play the game have equal opportunities to dribble, pass, and shoot the basketball. In a PE class, as a result of the dynamics of combining students, a 5v5 basketball game may not offer all participants an equal opportunity to dribble, pass, and shoot the basketball. The reasons for this inequality could be as simple as the differing skills of a homogeneously grouped class of students, a classmate who does not pass the ball to teammates (a ball hog), or the student not enjoying playing basketball. Whatever the reason for students not having equal opportunities with the basketball, the

PE teacher can design the teaching–learning experience to necessitate students to be in a position to have plenty of interaction with a ball, tactical skill, or piece of equipment. Thus, the PE teacher can employ the pedagogical method of putting students on small-sided teams or groups. As a direct result of fewer participants, students have to be more involved to make the game work. Unfortunately, for reasons outside the control of the PE teacher, classes could have as many as 60 students at one time. In elementary PE, schools combine classes, creating classes of 50 or more students (Pangrazi & Beighle, 2013). When this happens, PE teachers may feel overwhelmed when students participate in large group games and activities. For PE teachers, it is easier to put students in large group games and activities.

The National Standards for K–12 Physical Education touch upon group size in PE. Standard 4 states, "The physically literate individual exhibits responsible personal and social behaviors that respect self and others." The essence of the "respect" component in this national standard is maximized by a decrease in group size, which requires the smaller number of individuals to work together. This allows "problem solving with a small group of classmates during adventure activities, small-group initiatives, or game play" (SHAPE America, 2014, p. 9). This is one example from the national standards illustrating how small group games and activities in PE can teach students to constructively work together in a positive and meaningful way in an effort to engage in practice that requires the use of the instructional component.

The literature regarding the aspect of group size in PE classes has investigated physical activity and the number of touches a student has with the equipment or ball. Katis and Kellis (2009) examined the movement actions in regard to heart rate during two small-sided games. For this study, 34 junior high school–aged students in three groups participated in 3v3 and 6v6 games of soccer. The researchers found that students who played in the 3v3 games displayed higher exercise intensity compared to students who played in the 6v6 games. The researchers concluded that the students in the 3v3 game had higher exercise intensity because they had more interaction with the soccer ball. These students were dribbling and passing the ball more than the students who played in the 6v6 games. Bell et al. (2013) studied the effects of participation in small- (3v3), medium- (6v6),

and large-sided (12v12) throwing and catching games on physical activity and actual ball touches of 10- to 11-year-old elementary school children in PE class. These students were more physically active in 3v3 games compared to 12v12 games. Bell et al. also reported the students in the 3v3 games had more touches with the ball. The researchers felt that these elementary-aged students had more opportunities for technical improvement when playing 3v3 games.

One other study investigated California law regarding time required for PE (Lafleur et al., 2013). The law requires 200 min of PE instruction by a qualified teacher every 10 school days for students in Grades 1 to 6 and 400 min of PE instruction by a qualified teacher every 10 days for students in Grades 7 to 10. In this study, Lafleur et al. (2013) looked at class duration and frequency, percentage of class time in moderate to vigorous activity, and class size in regard to the state law. The results pertaining to class size were mixed. Some of the schools implemented smaller class sizes, resulting in better moderate to vigorous activity for the students. On the other hand, some schools persisted in having large class sizes in PE. The results showed a statistically significant decrease in moderate to vigorous activity. The researchers concluded that these negative results may have been due to concerns regarding the quality of PE offered to students in these California schools.

The use of small-sided teams is of great pedagogical advantage during practice. Students become actively involved as a participant, thus gaining opportunities to learn through increased active-learning involvement. One study that looked at group size in the PE setting studied PE teacher education (PETE) majors' knowledge of appropriate instructional practices used in PE (Barney & Strand, 2006). This study identified PETE majors' knowledge of which commonly used PE practices are either appropriate or inappropriate to use as they teach PE. Two survey questions dealing specifically with size of groups were incorrectly answered. The first was "Teachers may organize full-sided or large-sided games (e.g., the class of 30 split into 2 groups of 15 that play against each other)." The other incorrectly identified survey question was "Teacher may use large groups in which student participation is based in individual competitiveness." For the first survey question, 67% of the PETE students incorrectly answered the survey question. For the second survey question, 50%

of the PETE students incorrectly answered the question. The results from the Barney and Strand study should give PETE faculty reason to pause and think about their role in preparing future professional students to become PE teachers and why it is important. Pajares (1992) stated, "[Students] have had experiences as [K–12] students that are carried with them into their teaching" (p. 322). These PETE majors have spent many hours in school PE classes. They have been exposed to appropriate and inappropriate instructional practices in their many hours of being in PE classes, and in their mind, as a direct result of their success as well as enjoyment, this is how PE lessons and games and activities should be taught. As a result of this, clear instructions need to expel the inappropriate practices. PETE faculty have a great responsibility to expose PETE majors to appropriate instructional practices in PE and teach these future professionals that K–12 students are better served when appropriate instructional practices are used as a backdrop in all instructional settings. There is a resource that can assist them in this significant responsibility.

The National Association of Sport and Physical Education (NASPE) has prepared Appropriate Instructional Guidelines documents for teaching PE. There are guidelines for elementary (NASPE, 2009a), middle school (NASPE, 2009b), and high school (NASPE, 2009c). The appropriate instructional practices documents have five sections including Learning Environment, Instructional Strategies, Curriculum, Assessment, and Professionalism. Within each section, while the list is not exhaustive, there are two specific instructional practices presented, one practice being appropriate with an example of how the concept is applied and the other practice being inappropriate with an example of how the same concept might be wrongly applied. The purpose of these document is to give

> specific guidelines for recognizing and implementing developmentally appropriate physical education activities and practices . . . practices that are in the best interests of children (appropriate) and those that are counterproductive or even harmful (inappropriate) need to be identified for the benefit of the students. (NASPE, 2009b, p. 7)

An example of an appropriate instructional practice regarding group size is "Teachers create a mastery-learning environment that

encourages students to compete against previous personal performance." The example of the inappropriate instructional practice is "Teachers focus on producing full-scale competition and limit skill instruction (e.g., playing 11v11 soccer instead of modifying the game to 3v3). The focus is on activities that produce winners and losers." Another example of an appropriate instructional practice from the document is "The physical educator uses small-sided games (1v1, 2v2) or mini-activities to allow students ample opportunity to participate." The inappropriate practice is "The physical educator consistently uses only one ball for most ball-oriented activities (e.g., soccer, softball)." These brief statements from the appropriate instructional practices documents reinforce the concept of the use of small-sided games and activities in PE and its importance to student learning. Thus, the purpose of this study was to investigate K–12 PE teachers' perceptions of small-sided games and activities in their PE lessons.

Method

Participants

Thirty-one PE teachers (14 males, 17 females) from five states (California, 2; Nevada, 4; North Dakota, 4; Oklahoma, 3; Utah, 18), representing 16 schools (3 elementary schools, 9 junior high schools, 4 high schools) participated in the study. The participants for this study were a sample of convenience. Teaching experience ranged from 1 to 26 years. The University Institutional Board (IRB) approved the study before implementation. Participants provided their informed consent for voluntary participation before study implementation.

Instrument

No instrument was identifiable in the literature that examined physical educators' perceptions of group size in games and activities and the benefits of group size to students. As such, we constructed a survey instrument from the literature regarding group size in games and activities. The instrument was further strengthened as a result of

pretrials with follow-up conversations with K–12 physical educators. A 14-item survey was constructed of 11 open-ended questions and three demographic questions (Table 1).

Content validity on constructed and readability of survey items was established with four experienced K–12 physical educators. The survey was pilot-tested with six experienced K–12 physical educators who did not participate in the study. The survey was sent electronically to the participants via Qualtrics Survey Company.

Data Analysis

We used framework analysis methodology for participant responses, as outlined in Check and Schutt (2011), to correlate and review participants' open-ended responses to generate preliminary coding categories. Framework analysis incorporated four stages: (1) familiarization, (2) thematic, (3) identification, and (4) charting and interpretation (Rabiee, 2004).

Group-Size Content Themes

We read and reread the interview transcripts to identify key themes and phrases. From all survey responses, the most frequent group-size themes were (1) The importance of small-sided groups, (2) PE teachers' observations of students in 2v2 and 3v3 games and activities, (3) How do physical education teachers know small-sided groups are better than large-sided groups, (4) Small-sided groups and classroom management, and (5) Small-sided groups' effects on student attitudes (Table 2).

Results

The Importance of Small-Sided Groups

A majority of the PE teachers felt that having students participate in small groups was important. One of the thoughts that came from this was the learning that takes place for the students. Sarah stated, "The more time the students practice and the more repetition they have, the faster their skill level will improve." John said, "Vital, only way to have any hope of learning." Ann stated,

Table 1
Physical Education Teachers' Perceptions of Small-Sided Games and Activities Survey

As a physical educator, you have probably seen firsthand how group-size activities can affect your class and the activities they participate in. The following survey questions will ask you your opinions, experiences, and perceptions of group size in PE class. For many of the questions, you will be asked to briefly explain your thoughts and feelings regarding group size in PE classes. I would appreciate your help with this survey. Thank you.

1. In your opinion, do you feel students like participating in large groups or small groups? Please explain your answer.
2. How important is it for students to have ball (equipment) touches? Please explain your answer.
3. In what activities do you use small-sided games (e.g., basketball, soccer, . . .)?
4. From your experience, why would you want students to have a piece of equipment (ball, Hula-Hoop, bean bag, etc.) during class activities. Please explain your answer.
5. From your experience, as a PE teacher, what have you witnessed when there are two teams (15v15) and one ball for an activity. Please explain your answer.
6. From your experience, what have you noticed when students have to stand in line to take their turn at an activity? Please explain your answer.
7. From your experience, what happens when there is a 2v2 or 3v3 game for the students? Please explain your answer.
8. From your experience, what do students learn when they participate in a 2v2 or 3v3 game/activity? Please explain your answer.
9. Do you feel small-sided games keep or hold students' interest in the game/activity? Please explain your answer.
10. How do you know small-sided games are better for student learning than large-sided games? Please explain your answer.
11. Do you feel small-sided games and activities affect student attitudes toward PE? Please explain your answer.

Gender	Male ____		Female ____		
Years teaching:	1–5	6–10	11–15	15–20	20+
	____	____	____	____	____
Grades you teach:	k–6	7–9	0–12		
	____	____	____		

Table 2
Benefits of Small-Sided Groups in Physical Education

Theme	Benefits
The importance of small-sided groups	• More practice opportunities • More repetitions • Helps build confidence in students • Students are more engages
Physical education teachers' observations of students in 2v2 and 3v3 activities	• Improve social skills • Have to communicate with peers • Students are more comfortable in small-sided groups • Develop friendships • More touches with the equipment
How physical education teachers know small-sided groups are better than large-sided groups	• Students are on-task more • Students more engaged • Students grasp skill concepts quicker
Small-sided groups and classroom management	• Small-sided groups lower misbehavior • Students are not bored or on-task • Students have to pay attention
Small-sided groups' effects on student attitudes	• Students enjoy the activities • Have more fun • Students don't feel pressured

> Crucial! If a teacher is going to assess learning they have to give students the opportunity to learn. Physical skills take repetitions in order for muscle memory and learning to take place. If a student does not have the equipment with which to try, fail, try again, practice, and learn, [assessing learning] is impossible!

Physical Education Teachers' Observations of Students in 2v2 and 3v3 Games and Activities

A second theme that emerged from the data was PE teachers' observations of their students in 2v2 and 3v3 games and activities. One thought from this theme was the students have to work together. Seth stated, "I feel the students learn better social skills because they are in smaller groups and are forced to communicate with their peers on a more personal level." Susan said, "Students learn to work more efficiently. They develop skills and friendships faster. Better collaborative skills and improve skill levels." Fred stated, "Students learn how to be a good teammate." A second thought from this theme was the students have higher rates of participation in the activity. Frank stated, "These more intimate settings seem to be more comfortable for my students and they not only participate way more, but they also seem to enjoy it more." Cindy said, "When games are 2v2 or 3v3, every player is crucial. When this is the case, not only do the 'All-Stars' participate, but so does everyone else. They have to!" John stated, "Students are engaged more in the activity and skill levels improve faster! Students have more fun."

How Do Physical Education Teachers Know Small-Sided Groups Are Better Than Large-Sided Groups?

The PE teachers perceived that small-sided groups are better for student learning than large-sided groups. Frank stated, "I know this because I can actually see a student do the skill many more times and see improvement instead of only touching the ball or piece of equipment once in a long while." Ann said, "I equate student learning in PE with highly active students. In small-sided games, students are more active and therefore are learning more because their brains and bodies are more engaged in participation." Richard concluded,

> Through my experience as a PE teacher, I have had class sizes ranging from 12 to 68. In my early years, I have attempted larger size groups or whole class activities to try and include all students at once and I have noticed that the timid step aside and let the aggressive students take control of the activity. Too many students end up never touching the equipment when groups are too large. Thus, they are not learning.

Small-Sided Groups and Classroom Management

A fourth theme from the data highlighted the effects of small-sided groups on classroom management. Susan said, "I have noticed that when students are in large groups they tend to get bored, mess around more, and because they aren't paying attention, they generally are in more danger of getting hurt than those participating." John stated, "[The students] touch each other or aren't paying attention when it is their turn. Management becomes harder." Another PE teacher mentioned how equipment can be of assistance. Brenda stated,

> I want students to have a piece of equipment for a few reasons. One of which is classroom management. When all students have a piece of equipment and something they are supposed to be doing, there is less time or opportunity for poor behavior. I also want every student to have a piece of equipment at all times so I can ensure that learning is taking place. I always tell my administrators that they will see two things in my classroom any day: 1) a lot of movement and 2) a lot of learning. I can't say students are learning if they are misbehaving and not working with the equipment to learn the skill.

Small-Sided Groups' Effects on Student Attitudes

The final theme from this study was the effects of group size on student attitudes. Calvin stated, "I do think small-sided games affect student attitudes toward PE. I feel when they are more active and engaged that they feel more success because they are given more opportunity to try." Julie said,

> The more students enjoy the activities in PE and are engaged, the more they enjoy PE. Small groups tend to lead to more engaged students, more learning, and more enjoyable PE experience. I've had not only students, but parents tell me how they (or their child) have enjoyed the class.

Cindy stated,

> I think it does affect student attitudes toward PE. I think the more competitive ones are able to learn how to cooperate with others at lower skill levels. And those with lower skills levels are able to have a safe environment where they are needed in the activities and can also have a fun time with other students.

Ann concluded,

> I think students tend to have more fun in PE when they feel comfortable playing with a small group of peers they trust and don't feel pressure to perform to a certain standard, or feel like they're being judged by the whole group (all-eyes-on-me perception). If students don't feel that threat, I think they're more willing to put forth a better effort and if they feel successful and they're having fun, they definitely have a better attitude.

Discussion

The purpose of this study was to investigate K–12 PE teachers' perceptions of small-sided games and activities in their PE lessons. Five major themes of this study arose from PE teachers' perceptions of small-sided games and activities: (1) The importance of small-sided groups, (2) PE teachers' observations of students in 2v2 and 3v3 games and activities, (3) How do PE teachers know small-sided groups are better than large-sided groups, (4) Small-sided groups and classroom management, and (5) small-sided groups' effects on student attitudes.

PE teachers indicated that small-sided groups were important because students learn a skill better. For example, Frank stated, "I have observed students that have more touches with the ball, learn

the skill better." Darst and Pangrazi (2002) suggested that student learning is more effective when learners are placed in small-sided groups. They feel that student learning takes place in small-sided groups as a direct result of the student having more opportunities to interact with the equipment. Bell et al. (2013) studied the effects that group size in elementary PE has on ball touches. The students participated in group games of 3v3, 6v6, and 12v12. The researchers concluded that when the students participated in 3v3 games, they had significantly more opportunities for technical improvement. The students also accumulated higher numbers of passes, kicks, and shots on goal compared to when they played in the larger-sided games. Participants in this study stated, "I've had more success with equipment touch activities," "The more time with the equipment, the better the student feels about the task," and "For PE skills and lifetime activity classes, ball touches are vital for the development of skills."

A second theme the PE teachers discussed dealt with their observations of students participating in small-sided games and activities. One of the thoughts from this theme was the benefits of the students interacting with each other. For example, a few of the PE teachers stated, "[The students] learn to work together, they learn better strategy, they learn that they are valued and do matter, they also make better friends," "Students learn to work more efficiently. They develop skills and friendships faster. Better collaborative skills," and "They learn how to be a good teammate and work together. They also have to practice sportsmanship." These responses from the PE teachers strongly align with the fourth standard from the SHAPE America National Standards: "The physically literate individual exhibits responsible personal and social behaviors that respects self and others" (SHAPE America, 2014, p. 12). The National Standards from 2004 (NASPE, 2004) state, "The intent of this standard is achievement of self-initiated behaviors that promote personal and group success in activity settings. These include safe practices, adherence to rules and procedures, etiquette, cooperation and teamwork, ethical behavior, and positive social interaction" (p.14).

A third theme PE teachers revealed dealt with small-sided or large-sided games and activities. They overwhelmingly felt that small-sided games and activities are better for student learning. Much of the literature has touched upon the idea that small-sided

games are great for students being more physically active (Arnett & Lutz, 2003; Bell et al., 2013; Foster et al., 2010; Katis & Kellis, 2009; Rampinini et al., 2007). As discussed, students in small-sided games and activities have more ball touches (Bell et al., 2013; McCormick et al., 2012; Prusak & Barney, 2014). The responses from this study were not the same as in previous research. Yet the responses from the PE teachers were more favorable for small-sided games and activities than large-sided games. Some of the comments were "Students grasp the skills much quicker in small-sided games and more enjoy and want to keep participating" and "As a PE teacher, you are able to see when students are grasping the concepts of an activity. It is very easy to see the difference between one big game and more little games."

The fourth theme was small-sided groups and classroom management. For this theme, many of the PE teachers believed that small-sided groups had a significant effect on classroom management. Barney and Prusak (2016) surveyed K–12 school administrators regarding their knowledge of instructional practices in PE. One finding from this study was that school administrators felt the use of full-sided or large-sided games and activities (30 or more students) is an appropriate instructional practice in PE classes, which in reality is an inappropriate instructional practice in PE classes. These results from this study suggest that putting students in large-sided games and activities can be a classroom management nightmare for the PE teacher. PE teachers' responses to this question strongly suggested that the use of small-sided groups leads to fewer classroom management problems with students. Many of the PE teachers mentioned that when they put students in small-sided groups, there is less misbehavior and more opportunities to learn because students are on task with the assigned games and activities.

Finally, the PE teachers discussed how small-sided games and activities affect student attitudes toward PE. One PE teacher stated, "Yes, when a student can participate and have unlimited turns, they have a more positive attitude about the class, the game, and their own abilities." Another PE teacher said,

> I do feel small-sided games and activities affect student attitudes toward PE, as they keep students engaged in an activity rather than giving the students to feel like they aren't given a chance to learn anything.

One of the most important aspects of teaching PE is the planning and preparation for a lesson. The results of this study strongly endorse that small-sided games and activities can create positive attitudes toward PE in students. When planning their lessons, PE teachers need to consider games and activities for small-sided groups. Many of the PE teachers in this study mentioned students having more fun in small-sided groups. The PE teachers continued to state that when their students are having fun, they are learning the desired skills and there are not as many classroom management issues to contend with during their lessons. Hopefully, PE teachers will seriously consider all the positives that can come from putting students in small-sided games and activities.

Study Limitations

This study represents PE teachers from five states. Thus, the findings and conclusions are mostly germane to those environments. As a direct result of the impact on the instructional theme of classes as well as of the nature of the study, the findings have the potential to provide practical application to K–12 PE teachers and PE teacher education (PETE) programs.

Conclusion

The purpose of this study was to investigate K–12 PE teachers' perceptions of small-sided games and activities in their PE lessons. Class size has been debated for many years in all educational content areas. Many proponents of small group size feel that when put in small classes or groups, students have a better chance of success with what they are being taught. This same idea has been discussed in the PE setting. From much of the literature, the research has focused on physical activity, more specifically moderate to vigorous physical activity and the number of ball touches a student has in small-sided games and activities. The literature confirms that the use of small-sided games and activities is beneficial for students in the PE context. The results from this study are positive from a PE teacher's perspective in regard to having students participate in games and activities in small-sided groups. They help strengthen and add to the literature regarding the positive effects of students participating in small-sided games and activities.

The results from this study coincide with the literature in regard to putting students in a better situation to learn skills. Bell et al. (2013) found that when students are in small-sided groups, there are greater opportunities to learn because the student is interacting more with the equipment. Another result from this study was that when students are put into small-sided groups, there is an environment of mastery learning. From the Appropriate Instructional Practices document (NASPE, 2004), this instructional practice is recommended to benefit students during PE lessons. We hope that K–12 PE teachers and PETE faculty will promote, educate, and implement putting students in smaller groups to benefit students.

References

Arnett, M. G., & Lutz, R. B. (2003). Measurement of moderate to vigorous physical activity of middle school girls, using Tritrac activity monitors during small-sided, games-based lessons. *Measurement in Physical Education and Exercise Science*, *7*(3), 149–159. https://doi.org/10.1207/S15327841MPEE0703_02

Barney, D., & Prusak, K.A. (2016). Do school administrators know what practices are appropriate in physical education? *Asian Journal of Physical Education and Recreation*, *22*, (1), 53–63. https://doi.org/10.24112/ajper.221797

Barney, D., & Strand, B. (2006). Appropriate practices in elementary physical education: Create a foundation for physical education majors. *Teaching Elementary Physical Education*, *17*(5), 20–23.

Bell, K., Johnson, T., Shimon, J., & Bale, J. (2013). The effects of game size on the physical activity levels and ball touches of elementary school children in physical education. *Journal of Kinesiology and Wellness*, *2*, 13–19.

Check, J., & Schutt, R. (2011). R*esearch methods in education.* SAGE Publications.

Chingos, M. W. (2012). The impact of a universal class-size reduction policy: Evidence from Florida's statewide mandate. *Economics of Education Review*, *31*(5), 543–562. https://doi.org/10.1016/j.econedurev.2012.03.002

Cho, H., Glewwe, P., & Whitler, M. (2012). Do reductions in class size raise students' test scores? Evidence from population variation in Minnesota's elementary schools. *Economics of Education Review*, *31*(3), 77–95. https://doi.org/10.1016/j.econedurev.2012.01.004

Darst, P. W., & Pangrazi, R. P. (2002). *Dynamic physical education for secondary school students.* Benjamin Cummings.

Foster, C. D., Twist, C., Lamb, K. L., & Nichols, C. W. (2010). Heart rate responses to small-sided games among elite junior rugby league players. *The Journal of Strength and Conditioning Research*, *24*(4), 906–911. https://doi.org/10.1519/JSC.0b013e3181aeb11a

Katis, A., & Kellis, E. (2009). Effects of small-sided games on physical conditioning and performance in young soccer players. *Journal of Sports Science and Medicine*, *8*(3), 374–380. https://jssm.org/volume08/iss3/cap/jssm-08-374.pdf

Lafleur, M., Cole, B. L., Banthia, R., Sivasubramanian, R., Samuels, S., & Garcia, R. (2013). Physical education and student activity: Evaluating implementation of a new policy in Los Angeles public schools. *Annuals of Behavioral Medicine*, *45*(Suppl. 1), S122–S130. https://doi.org/10.1007/s12160-012-9431-0

McCormick, B.T., Hannon, J. C., Newton, M., Shultz, B., Miller, N., & Young, W. (2012). Comparison of physical activity in small-sided basketball games versus full-sided games. *International Journal of Sports Science & Coaching*, *7*(4), 689–697. https://doi.org/10.1260/1747-9541.7.4.689

National Association for Sport and Physical Education. (2004). *Moving into the future: National standards for physical education* (2nd ed.). NASPE Publications

National Association for Sport and Physical Education. (2009a). *Appropriate instructional practice guidelines for elementary school physical education.*

National Association for Sport and Physical Education. (2009b). *Appropriate instructional practice guidelines for middle school physical education.*

National Association for Sport and Physical Education. (2009c). *Appropriate instructional practice guidelines for high school physical education.*

Pajares, M. F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research*, *62*(3), 307–332. https://doi.org/10.3102/00346543062003307

Pangrazi, R. P., & Beighle, A. (2013). *Dynamic physical education for elementary school children.* Benjamin Cummings.

Prusak, K. A., & Barney, D. (2014). Skill progressions that maximize learning and motivation: Reflections for the classroom. *Global Journal of Health and Physical Education Pedagogy*, *3*(1), 69–80.

Rabiee, F. (2004). Focus-group interview and data analysis. *Proceedings of the Nutrition Society*, *63*, (4), 655–660. https://doi.org/10.1079/PNS2004399

Rampinini, E., Impellizzeri, F. M., Castagna, C., Abt, G., Chamari, K., Sassi, A., & Marcora, S. M. (2007). Factors influencing physiological responses to small-sided soccer games. *Journal of Sports Sciences*, *25*(6), 659–666. https://doi.org/10.1080/02640410600811858

Rivkin, S. G., Hanushek, E. A., & Kain, J. F. (2005). Teachers, schools, and academic achievement. *Econometrica*, *73*(2), 417–458. https://doi.org/10.1111/j.1468-0262.2005.00584.x

SHAPE America. (2014). *National standards & grade-level outcomes for K–12 physical education.* Human Kinetics.