

HOMEWORK

in Physical Education?



A Review of Physical Education

HOMEWORK LITERATURE

KORY HILL

The perceived value of assigning homework as a learning tool has fluctuated from one decade to the next. Historically, social and political forces have influenced the amounts and types of homework assigned to students (Gill & Schlossman, 2004; Maltese, Tai, & Fan, 2012). The often contentious debate about the efficacy of homework persists today. Some have argued that it is a vital learning tool that can help students master necessary content while fostering skills such as time management and self-direction (Bembenuddy, 2011). Others, such as Kohn (2006), have maintained that homework leads to a loss of interest, and that it merely forces rote practice while failing to promote higher-order cognitive skills. Kohn

further contended that time devoted to homework could be better spent engaging in activities that truly interest students without exacerbating the achievement gap observed between students who have a lot of parental support versus those who do not (Kohn, 2006). While intense debates regarding homework for academic classes continue, the use of homework in physical education classes has not inflamed such passions. Homework has not traditionally been used as a learning tool in physical education to any significant

Kory Hill (khill@jsu.edu) is an associate professor in the Department of Health, Physical Education and Recreation at Jacksonville State University in Jacksonville, AL.

degree (Mitchell, Stanne, & Barton, 2000). Consequently, the efficacy of physical education homework has received little attention from researchers.

Given the limited amount of time typically set aside for physical education and the increasing need to document evidence of student achievement, some physical educators have proposed an expanded role for homework in physical education (Hill, 2009; Novak & Lynott, 2015; St. Ours & Scrabis-Fletcher, 2013). Many of the characteristics of active homework, that which requires physical activity, are likely to increase physical activity levels. For example, levels of physical activity tend to increase when there is parental involvement, activity choice, encouragement of extracurricular participation, and the acquisition of motor skills (Baranowski et al., 1997), all of which are characteristics of active homework (M. A. Smith & Claxton, 2003). As more schools incorporate comprehensive school physical activity programs (CSPAPs), there should be more opportunities for physical educators to involve parents and classroom teachers through the assignment of homework that promotes physical activity (Castelli & Ward, 2012).

Physical educators should have as complete an understanding as possible about the current research regarding the use of homework in their discipline. The aim of this article is to explore the efficacy of using homework as a teaching tool in physical education. Reviewed studies address the perceptions and practices of teachers, parents and students related to physical education homework and the influence of homework across multiple learning domains.

Selection of Literature

This review includes peer-reviewed articles dating back to 2000. Omitted studies included those pertaining to adults, populations with specific disabilities, or those where homework was inconsequentially referenced. Studies that merely referenced the inclusion of a homework component with no substantial description of the type of homework or without any data relating directly to homework completion were deemed “inconsequentially referenced.” Ultimately, the pool of studies to be reviewed was reduced to 11. The articles were organized into themes for comparison and discussion. Studies are presented as those evaluating (1) attitudes and beliefs about physical education homework, (2) the use of homework to promote physical activity, and (3) the use of homework for the promotion of knowledge. Table 1 provides a summary of the included research articles.

Attitudes toward Homework in Physical Education

Even if homework is determined to be a useful tool to enhance the learning process, its implementation will likely fail if the stakeholders maintain unfavorable attitudes toward it. Behaviors are influenced by attitudes (Ajzen & Fishbein, 2005), and since teachers make the important decisions about the use of homework as a teaching/learning tool, teacher attitudes and perceptions are important. Mitchell et al. (2000) reported that 80% of the high

Table 1.
Summary of Reviewed Studies

| Source | Subjects/Setting | Aims/Goals | Study Summary Regarding Homework |
|-----------------------------|--|---|--|
| Barney & Strand (2008) | U.S. high school students. <i>N</i> = 369. | Investigate knowledge of physical education appropriate practices | <ul style="list-style-type: none"> • Survey study • 83% of the students surveyed incorrectly identified out-of-class homework as “inappropriate.” • Conclusions: <ul style="list-style-type: none"> ○ Teachers need to model best practices. ○ Teachers need to explain the value of homework to students. |
| Duncan et al. (2011) | New Zealand school children ages nine to 11. <i>N</i> = 97. | Examine the influence of mandatory homework on physical activity levels and eating habits | <ul style="list-style-type: none"> • Experimental study • Health-related homework resulted in a statistically significant increase in step counts. • Conclusion: Active homework was effective for increasing physical activity. |
| Fairclough et al. (2013) | 10- and 11-year-olds in the United Kingdom. <i>N</i> = 420. | Investigate the effectiveness of a comprehensive school wellness intervention program | <ul style="list-style-type: none"> • Intervention study • A significant intervention effect was found for light-intensity physical activity. • Conclusion: The program was effective, particularly for overweight youth. |
| Kinchin & O’Sullivan (2003) | Ninth- and 10th-grade volunteers in an alternative school in a low social economic status neighborhood. <i>N</i> = 25. | Describe students’ reactions to a cultural studies unit in PE | <ul style="list-style-type: none"> • Qualitative study • Students appreciated the freedom to discuss relevant topics in PE. • Seatwork and homework were met with resistance by many students. |

(continued)

Table 1.
(Continued)

| Source | Subjects/Setting | Aims/Goals | Study Summary Regarding Homework |
|---|---|--|--|
| Kriemler et al. (2010) | First- and fifth-grade students in Switzerland. <i>N</i> = 540. | Assess effectiveness of school-based physical activity intervention | <ul style="list-style-type: none"> • Experimental study • Physical activity increased • Adiposity decreased • Conclusion: Homework, when part of a multi-component school-based intervention, can be effective. |
| Michael, Dittus, & Epstein (2007) | Nationally representative sample of PE teachers in the United States. <i>N</i> = 1194. | Describe findings from the School Health Policy Program Study (SHPPS) about family and community involvement | <ul style="list-style-type: none"> • Descriptive study • Phone interviews and/or mail-in questionnaires revealed that in 55.5% of health classes and 30.8% of PE classes, homework was assigned. • Conclusion: PE programs need to better communicate with families and communities at all levels. |
| Mitchell, Stanne, & Barton (2000) | High school physical education teachers involved in either the first or second year of inservice training. <i>N</i> = 54. | Explore attitudes toward and practices relating to homework in PE | <ul style="list-style-type: none"> • Descriptive study • In contrast to PE teachers, parents <i>do not</i> believe homework should be part of PE classes. • Teachers were most likely to support the use of homework in the cognitive domain only. • Conclusion: More study of the value of homework for motor skill learning and fitness application is needed. |
| Pantanowitz, Lidor, Nemet, & Eliakim (2011) | Israeli high school students. <i>N</i> = 95. | Explore compliance and attitudes toward PE homework | <ul style="list-style-type: none"> • Experimental study • The majority of students and parents viewed homework as valuable in PE. • Very few students completed the homework. • Conclusion: PE homework should start at earlier grades and be short and focused. |
| Smith & Madden (2014) | Eighth-grade students in an urban school located in the Rocky Mountain region. <i>N</i> = 83. | Examine the design and delivery of active homework in PE | <ul style="list-style-type: none"> • Case study • There was a disconnect between teacher objectives and student understanding. • Conclusion: Teachers must better align in-class instruction with homework if it is to be used successfully. |
| Smith, Cluph, & O'Connor (2001) | Third-, fourth- and fifth-grade students in the United States. <i>N</i> = 607. | Pilot test a research design that would examine the effect of PE homework on physical activity | <ul style="list-style-type: none"> • Descriptive study • Grade level had no effect on completion rates. • Girls were more likely to complete homework than boys. • The homeroom teacher had the greatest influence on completion rates. • Conclusion: Incentives and weekly reporting can bolster homework adherence. |
| Williams, McGladrey, Silva, & Hannon (2013) | High school Fitness for Life class. <i>N</i> = 178. | Compare cognitive knowledge retention for homework versus lecture | <ul style="list-style-type: none"> • Experimental study • Student test scores improved even when lecture time was replaced with homework only, or when using a homework and lecture format. • Conclusion: Homework can be used as an effective tool for promoting cognitive skills while simultaneously freeing up class time for more physical activity. |

school teachers surveyed in a physical education inservice program reported using homework in some form, but the majority claimed to use it mainly as makeup work to account for absences. Conversely, when Burt (2012) surveyed all levels of K–12 physical education teachers (not in an inservice program), they found that only 17% of the teachers said that they assigned homework to students. Michael, Dittus and Epstein (2007) observed that 31% of the physical education teachers surveyed, from all levels of K–12, indicated that they assigned homework; however, this survey specifically asked about homework involving the rest of the family.

Thom and Yun (2012) did not report the percentage of teachers who assigned homework in physical education, but through multiple regression analysis they did identify three factors that can predict homework assignment behavior. Knowledge of how to assign homework, attitudes toward homework, and the expectations of significant others were identified as the main factors influencing the choice of whether or not to assign homework (Thom & Yun, 2012). The conclusion is that teachers will be more likely to assign homework in physical education if they are encouraged and provided with instruction and supportive resources.

The greatest amount of attention seems to have been given to the examination of student attitudes toward physical education homework. Scrutiny of homework compliance rates is appropriate because attitudes will definitely influence behavior (Ajzen & Fishbein, 2005). Kinchin and O’Sullivan (2003) reported that the high school students participating in an intervention involving a cultural-studies physical education unit had a low compliance rate for homework. The students often refused to complete the homework at all, or they completed it very quickly just before the start of class. Interview responses revealed beliefs that physical education is not a “real class,” and that homework is “unreasonable” for such a class (Kinchin & O’Sullivan, 2003). Smith and Madden (2014) reported student comments such as “homework in gym is stupid.” The authors also found that compliance was not robust, and students were willing to falsify physical activity logs

(M. Smith & Madden, 2014). Studies that recorded and reported actual compliance rates provide even more evidence of poor homework compliance. One study reported that only 32% of the girls and only 22% of the boys in an elementary school intervention completed the homework (J. Smith, Cluph, & O’Connor, 2001), and another involving high school participants reported that only 4% completed all the assignments, while 53% completed none of them (Pantanowitz, Lidor, Nemet, & Eliakim, 2011).

Physical Education Homework for the Promotion of Physical Activity

Motivating students to engage in regular physical activity is arguably one of the most formidable challenges faced by physical educators. In an effort to meet this challenge, experts have recently suggested the use of homework to promote physical activity. The first theme of consideration should be of particular interest to physical educators (Castelli & Ward, 2012; Hill, 2009; Novak & Lynott, 2015). Several authors addressed the use of physical education homework in promoting physical activity. Duncan et al. (2011) found that fifth and sixth graders in New Zealand logged significantly more pedometer steps after a school-based intervention that included physical activity logs as the main form of homework. The treatment effect amounted to 2,830 steps per day and was consistent across day type (weekend vs. weekday), sex, and school (Duncan et al., 2011). Fairclough et al. (2013) reported similar results from a cross-curricular, school-based intervention that included active homework and resulted in self-reported increases in moderate physical activity. The study was unique because the reporting included various subgroups; the authors noted that girls appeared to benefit more than boys, and students who were obese seemed to benefit more than those of normal body weight (Fairclough et al., 2013). A third study, which was similar in design, produced comparable results. When first and fifth graders were placed in an intervention group that included active homework, they showed increases in moderate-to-vigorous physical activity as measured by accelerometers (Kriemler et al., 2010).

Physical Education Homework for the Promotion of Knowledge

A high-quality physical education program will promote development in the cognitive learning domain. Logically, physical educators might want to consider the use of homework for enhancing cognitive skills in addition to psychomotor skills. To that end, multiple studies were located regarding physical activity homework, but only a few dealt with cognitive content. Most of those came from studies of collegiate health and fitness courses. The only study found relating to K–12 students focused on high school students. Williams, McGladrey, Silva, & Hannon (2013) separated students in a weight-training unit into three treatment groups: lecture only, homework only, and



© iStockphoto/Albina Kidimova

lecture with homework. Following the intervention, the students in all three groups performed equally well on a written test covering muscular strength and endurance knowledge. These students were not questioned about their opinions regarding the use of homework as a learning tool (Williams et al., 2013).

Strategies for Incorporating Homework into Physical Education

Experts have supported the use of homework in physical education (Novak & Lynott, 2015; St. Ours & Scrabis-Fletcher, 2013), but as the research indicates, compliance is an issue (Kinchin & O'Sullivan, 2003; Piech, Nowak, Birontiene, & Bula-Biteniece, 2013; M. Smith & Madden, 2014). And if homework is to be effective, physical educators should use research to employ homework practices that are likely to succeed. Particularly in the area of active homework, the practice of giving students choices about the activities they can become engaged in seemed to be beneficial (Novak & Lynott, 2015; St. Ours & Scrabis-Fletcher, 2013). Also, teachers need to ensure that homework is tied to learning objectives and that students understand the connection. When homework is given in physical education, there is reason to believe that students do not always understand why it is being given (M. Smith & Madden, 2014). If students are able to make the connection between homework and important learning objectives, they may be less likely to believe that the homework is just busy work or an attempt by the teachers to pretend that physical education is a *real* class (M. Smith & Madden, 2014). If homework is tied to objectives, it will be easier to incorporate it into the class assessment and evaluation plan, and for students to be held accountable for its completion.

Summary and Recommendations

The limited research suggests that knowledge can be gained through the completion of homework in physical education (Claxton & Wells, 2009; Jenkins, Jenkins, Collums, & Werhoni, 2006; Williams et al., 2013). Some evidence indicates that using homework to help students acquire knowledge is equal, if not superior, to lecture-only methods (Jorgenson & George, 2001; Williams et al., 2013). Limiting the amount of class time devoted to lecture-type instruction should allow more time for physical activity and the acquisition of fitness and motor skills. As such, *flipping the classroom* has been suggested as a useful strategy for physical education (Osterlie, 2016). If the goal of a flipped classroom is to free up more class time for time on task, there may be no subject more appropriate than physical education. Physical activity outside of school should also be promoted if students are to truly lead physically active lifestyles. Again, though limited, research suggests that active homework can be effective in increasing levels of physical activity (Duncan et al., 2011; Fairclough et al., 2013; Kriemler et al., 2010). Whether measured by pedometer, accelerometer or self-report, the majority of the reviewed studies showed an increase in physical activity levels as a result of active homework (Claxton & Wells, 2009; Duncan et al., 2011; Fairclough et al., 2013; Kriemler et al., 2010).

The majority of the studies included for review also reported on attitudes and behaviors related to homework in physical education. Student attitudes toward physical education homework vary, but in general it is apparent that many students believe homework

does not belong in physical education (Barney & Strand, 2008; Kinchin & O'Sullivan, 2003; J. Smith et al., 2001; M. Smith & Madden, 2014). Across the literature students were documented as making comments indicating that physical education is not a *real* class. The poor completion rates reported in virtually all of the studies that were reviewed seemed to further support the notion that students do not believe in the importance of homework for learning in physical education. Many of the attitudes and beliefs about homework in physical education may be due to a history of marginalization of the subject (Henry, 1964; James, 2011). Perhaps appropriately assigned homework could help to reverse some of the marginalization; well-thought-out, intelligently administered homework could help students reinforce what is learned in class and make connections to the real world (St. Ours & Scrabis-Fletcher, 2013).

The physical education profession would benefit from a closer investigation of best practices regarding physical education homework. No studies were found where students were specifically assigned homework that involved motor skill practice with the goal of reinforcing the skills presented in class. The most frequently assigned homework in physical education appears to be related to the promotion of physical activity or the reinforcement of knowledge about health and fitness concepts. Promoting physical activity and fitness knowledge is important, but acquiring motor skills is also crucial for producing physically literate individuals (SHAPE America – Society of Health and Physical Educators, 2016).

With respect to methodology and design issues that could add to the body of knowledge, one logical suggestion is the isolation of homework as an independent variable. Most of the experimental studies detail interventions involving homework as one of several components. Additional studies in which other factors are better controlled and homework is the only difference between the treatment and control groups would provide useful information.

When examining physical activity levels, it would be helpful to determine whether there is a difference in compliance when using devices such as pedometers and accelerometers compared to using pen-and-paper methods to record/recall physical activity. Apparently, while many students enjoy regular bouts of physical activity, they do not enjoy taking time and effort to record all the details on paper (Duncan et al., 2011; Fairclough et al., 2013). Compliance rates were poor in a majority of the studies (Kinchin & O'Sullivan, 2003; Piech et al., 2013; J. Smith et al., 2001; M. Smith & Madden, 2014), so any means of improving them should be explored. Finally, there is also a need for research that attempts to establish appropriate amounts of homework. How much time and effort can teachers reasonably expect students to give? There is a point where too much homework becomes overly burdensome and thus counterproductive (Williams & Hannon, 2013). These are questions that classroom teachers have been asking (Gill & Schlossman, 2004; Maltese et al., 2012); perhaps it is time that physical education teachers begin to ask them as well.

Generalizations should be cautiously limited when synthesizing the studies presented. The diverse methods and populations are certain to influence the results and any conclusions one might draw. Attitudes will likely be influenced by cultural experiences that are sure to differ across country and school environments. For instance, homework expectations for elementary students and high school students may differ greatly. Undoubtedly, the role of homework in any class varies greatly from one teacher to the next.

Conclusion

Compared to many other teaching practices, the use of homework in physical education has received relatively little attention. Some researchers have studied the use of homework to promote physical activity outside of class (Duncan et al., 2011; Fairclough et al., 2013; Kriemler et al., 2010). Others have examined the influence of physical education homework on the acquisition of physical or cognitive skills (Jorgenson & George, 2001; Williams et al., 2013). Still others have sought to gather and explain attitudes related to the use of homework in physical education (Burt, 2012; Michael et al., 2007; Pantanowitz et al., 2011; Piech et al., 2013). Though sparse, the existing literature does indicate potential for helping students as they seek to achieve a variety of physical education goals. Based on the literature, the author believes that when and if homework is used as a learning tool in physical education, care must be taken to provide thoughtful explanations and to address possible negative attitudes. Clearly, there is a need to further examine the use of homework in physical education settings to better understand and detail homework-related best practices.

References

- Ajzen, I., & Fishbein, M. (2005). The influence of attitudes on behavior. In D. Albarracín, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 173–221). Mahwah, NJ: Erlbaum.
- Baranowski, T., Bar-Or, O., Blair, S., Corbin, C., Dowda, M., Freedson, R., ... Saunders, R. (1997). Guidelines for school and community programs to promote lifelong physical activity among young people. *Morbidity & Mortality Weekly Report*, 50(RR-6), 1–36.
- Barney, D., & Strand, B. (2008). Do high school students know what practices are appropriate in physical education. *High School Journal*, 92, 33–40.
- Bembenutty, H. (2011). The last word: An interview with Harris Cooper — Research, policies, tips, and current perspectives on homework. *Journal of Advanced Academics*, 22, 340–350.
- Burt, D. (2012). The prevalence, beliefs, and instruction of using physical education homework as reported by physical educators in Arkansas (Doctoral dissertation). Theses and Dissertations. 485. <http://scholarworks.uark.edu/etd/485>
- Castelli, D. M., & Ward, K. (2012). Physical activity during the school day. *Journal of Physical Education, Recreation & Dance*, 83(6), 20–29.
- Claxton, D., & Wells, G. M. (2009). The effect of physical activity homework on physical activity among college students. *Journal of Physical Activity & Health*, 6, 203.
- Duncan, S., McPhee, J. C., Schluter, P. J., Zinn, C., Smith, R., & Schofield, G. (2011). Efficacy of a compulsory homework program for increasing physical activity and healthy eating in children: The healthy homework pilot study. *International Journal of Behavioral Nutrition and Physical Activity*, 8, 127.
- Fairclough, S. J., Hackett, A. F., Davies, I. G., Gobbi, R., Mackintosh, K. A., Warburton, G. L., ... Boddy, L. M. (2013). Promoting healthy weight in primary school children through physical activity and nutrition education: A pragmatic evaluation of the CHANGE! randomized intervention study. *BMC Public Health*, 13, 626.
- Gill, B. P., & Schlossman, S. L. (2004). Villain or savior? The American discourse on homework, 1850–2003. *Theory into Practice*, 43, 174–181.
- Henry, F. M. (1964). Physical education: An academic discipline. *Journal of Health, Physical Education, Recreation*, 35(7), 32–69.
- Hill, G. (2009). Motivating students to be active outside of class: A hierarchy for independent physical activity. *Journal of Physical Education, Recreation & Dance*, 80(1), 25–30. <https://doi.org/10.1080/07303084.2009.10598264>
- James, A. R. (2011). The marginalization of physical education: Problems and solutions, Part 1 — Introduction. *Journal of Physical Education, Recreation & Dance*, 82(6), 15–16.
- Jenkins, J. M., Jenkins, P., Collums, A., & Werhonic, G. (2006). Student perceptions of a conceptual physical education activity course. *Physical Educator*, 63, 210–221.
- Jorgenson, S. M., & George, J. D. (2001). The efficacy of infusing homework assignments into traditional physical education activity classes. *Physical Educator*, 58, 14.
- Kinchin, G., & O'Sullivan, M. (2003). *Incidence of student support for and resistance to a curricular innovation in high school physical education*. Retrieved from <http://ulir.ul.ie/handle/10344/3187>
- Kohn, A. (2006). Abusing research: The study of homework and other examples. *Phi Delta Kappan*, 88, 8.
- Kriemler, S., Zahner, L., Schindler, C., Meyer, U., Hartmann, T., Hebestreit, H., ... Puder, J. J. (2010). Effect of school based physical activity program (KISS) on fitness and adiposity in primary schoolchildren: Cluster randomized controlled trial. *British Medical Journal*, 340, c785–c785. doi:10.1136/bmj.c785
- Maltese, A. V., Tai, R. H., & Fan, X. (2012). When is homework worth the time?: Evaluating the association between homework and achievement in high school science and math. *High School Journal*, 96, 52–72.
- Michael, S., Dittus, P., & Epstein, J. (2007). Family and community involvement in schools: Results from the school health policies and programs study 2006. *Journal of School Health*, 77, 567–587.
- Mitchell, M., Stanne, K., & Barton, G. V. (2000). Attitudes and behaviors of physical educators regarding homework. *Physical Educator*, 57, 136.
- Novak, B. E., & Lynott III, F. J. (2015). Homework in physical education: Benefits and implementation. *Strategies*, 28, 22–26.
- Østerlie, O. (2016). Flipped learning in physical education: Why and how? In D. Novak, B. Antala, & D. Knjaz (Eds.), *Physical education and new technologies* (pp. 166–176). Zagreb, Croatia: Croatian Kinesiology Association.
- Pantanowitz, M., Lidor, R., Nemet, D., & Eliakim, A. (2011). The use of homework assignments in physical education among high school students. *ICHPER-SD Journal of Research*, 6, 48–53.
- Piech, K., Nowak, K., Birontiene, Z., & Bula-Biteniece, I. (2013). Physical exercises for pre-school children with homework and parents mobilization around these tasks. *Polish Journal of Sport and Tourism*, 20, 217–221.
- SHAPE America – Society of Health and Physical Educators. (2016). *Shape of the nation*. Retrieved from www.shapeamerica.org/advocacy/son/2016/upload/Shape-of-the-Nation-2016_web.pdf
- Smith, J., Cluph, D., & O'Connor, A. J. (2001). Homework in elementary physical education: A pilot study. *Perceptual and Motor Skills*, 92, 133–136.
- Smith, M. A., & Claxton, D. B. (2003). Using active homework in physical education. *Journal of Physical Education, Recreation & Dance*, 74(5), 28–32.
- Smith, M., & Madden, M. (2014). Middle school students' reactions to the implementation of active homework in physical education. *Global Journal of Health and Physical Education Pedagogy*, 3(2), 121–136.
- St. Ours, E., & Scrabis-Fletcher, K. A. (2013). Implementing active homework in secondary physical education. *Strategies*, 26(6), 23–27.
- Thom, S. C., & Yun, J. (2012). Factors affecting physical educators' assigning physical education homework. *Research Quarterly for Exercise and Sport*, 83(Suppl. 1), A65–A66.
- Williams, S. M., & Hannon, J. C. (2013). Physical education homework that involves the family. *Strategies*, 26(3), 3–8.
- Williams, S. M., McGladrey, B. W., Silva, A., & Hannon, J. C. (2013). Comparison of classroom instruction versus use of homework assignments on cognitive knowledge acquisition in physical education. *Physical Educator*, 70, 206–220. 