

Factors Impacting Physical Education Teachers' Abilities to Motivate Secondary School
Students to be More Physically Active

A Synthesis Project

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The Impact of Physical Educators on Student Motivation to Increase
Physical Activity in Students

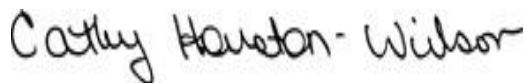


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Abstract

Physical movement is an essential part of human life. Without it, we would not be able to move objects, move ourselves, or engage in activities or sports that we love to play. However, analysis of previous research has shown that secondary school students have become more sedentary and their engagement in physical activity over the past decades has decreased. Physical educators have the opportunity to introduce, instruct, and engage students in physical activity from their first days in school all the way up until they graduate from high school. The goal is to not only engage students in physical activity while they are in school but also to build lifelong healthy habits that these students can engage in, far after graduation. Helping students to find the motivation within students to be physically active may be difficult, but physical educators have a great opportunity to accomplish this goal. The purpose of this synthesis project, then, is to review the literature on the different methods by which high school physical education teachers can motivate secondary students to be more physically active.

Chapter 1: Introduction

Physical activity is the basis for all movement but physical inactivity seems to be growing rapidly. Physical activity is defined by the Center for Disease Control and Prevention (CDC) as “any bodily movement that is produced by the contraction of skeletal muscle and that substantially increases energy expenditure” (CDC, 2017). Physical activity allows adolescents to improve bone health, improve cardiorespiratory and muscular fitness, decrease levels of body fat, reduce symptoms of depression, improve cognitive skills, and improve their ability to concentrate and pay attention (ODPHP, 2020). However, physical inactivity prevents adolescents from obtaining these health benefits.

Insufficient physical activity (i.e., physical inactivity) has been identified as the fourth leading risk factor for global mortality, increasing the prevalence of non-communicable diseases (NCDs) and affecting general health worldwide (Úbeda-Palomares and Hernández-Álvarez, 2020). Obesity, cardiovascular diseases, colon cancer or type-2 diabetes, together with other psychosocial factors, have dramatically increased over the last decades leading to an important social, health, and educational challenge (Úbeda-Palomares and Hernández-Álvarez, 2020). The Office of Disease Prevention and Health Promotion (ODPHP, 2021) found that more than 80% of adults do not meet the guidelines for both aerobic and muscle-strengthening activities. Likewise, more than 80% of adolescents do not do enough aerobic activity to meet the guidelines for youth (ODPHP, 2020). One solution to these problems lies in school-based Physical Education programs. As Sulz et al. (2016) states, “It is widely supported and acknowledged that school-based physical education programs present a tremendous opportunity to positively influence the attitudes and patterns of physical activity participation among adolescents (p. 531).

Increasing student motivation has the ability to create a domino effect. When students become more motivated to be physically active, they will seek out and find ways to be more active and participate in these activities. In doing so, students will reap the benefits of physical activity and decrease the likely of dealing with the risk factors that were previously mentioned. As the education system changes, schools and physical educators must also adapt and change in order to motivate students to participate in physical activity and life-long activity. Educators hold the tools necessary to become the change agent within a student's life. Students learn healthy habits throughout their educational career through various outlets but physical educators have a great opportunity to foster life-long habits through sports, activities, games, and other active tasks.

Self-determination theory (SDT) claims that providing students with a social context which satisfies the three innate psychological needs of autonomy, relatedness, and competence can be positively influence motivation (Sulz et al., 2016). In SDT, competence refers to the satisfaction for ones' abilities and feelings of being effective in an activity. Autonomy is the degree to which an individual perceives her/himself as the origin or source of a behavior and as being responsible for the initiation of the behavior. Relatedness is defined as the extent to which an individual may feel connected to others, the senses of belonging both with one's community and with other individuals (Sun et al., 2017).

Assessing the three psychological needs of motivation will illustrate where students are lacking and where physical education teachers can step up and provide the drive to be motivated. Researchers are able to assess the SDT through experimental design, questionnaires, and observations. When individuals evaluated their Physical education (PE) teachers as being autonomy-supportive, as opposed to controlling, the more competent, autonomous, and related

they felt; in turn, this increased their motivation to be physically active (Raabe, Schmidt, Carl, & Höner, 2019). Physical education teachers have the ability to adjust the way they instruct their classes in order to increase student engagement and promote these life-long healthful habit.

Students tend to prefer classes that are more task-involving rather than ego-involving. Achievement-goal theory describes an ego-involving classroom as one that includes competition, comparisons, and evaluation on the basis of normative competence criteria. A PE classroom environment that focuses on tasks for the students to complete revealed a positive correlation with enjoyment, extrinsic motivation, intrinsic motivation and perceived physical competence (Gråsten et al., 2012). Physical activity isn't the problem, it's the solution.

All students are different; different personalities, different families, different environments, and different beliefs. Physical educators face a great challenge when it comes to motivating all students in all classes each day (Sparks et al., 2016). What curricular models and programs have been shown to increase students' motivation to participate in physical activity during PE class? What instructional and other practices are used by teachers to increase students' motivation to participate in physical activity during PE class? What is the relationship between students' motivation to participate in physical activity in Physical Education and their involvement in leisure-time physical activity? Analyzing research based around these questions will introduce ideas and interventions into motivating students to be physically active.

Statement of the Problem

Chen et al. (2021) found that for the past decade, prevalence and patterns suggest that school-based and other strategies for all adolescents may be needed to supplement sports and PE in promoting high school youth physical activity. There is a decreasing trend in male and female students meeting physical activity guidelines and attending their physical education classes. In

2019, a nationally representative, school-based survey was conducted on students in grades 9-12. The results found that 31.0% of males and 15.4% of females met the aerobic guideline, 59.0% of males and 39.8% of females met the muscle strengthening guideline, and 23.1% of males and 10.2% of females met both (Chen et al., 2021) Analyzing factors which impact students' motivation to take part in physical activity and identifying curricular and instructional practices that increase physical activity will allow physical educators to motivate their students to be more physically active.

Presenting students with a task-involving environment will give students an opportunity to work together, be successful, and build healthful habits. Reversing the trend of demotivation and increasing the motivation of our youth introduces the opportunity for increased physical activity. Students are more than capable to produce movement but the goal is to find the drive within them to keep them going. This synthesis will dive deeper into the understanding of student motivation, what needs to change, and most importantly, how this change can occur.

Purpose of Synthesis

The purpose of this synthesis project is to review the literature on the different methods by which high school physical education teachers can motivate secondary students to be more physically active.

Operational Definitions

1. Motivation: a force or influence that causes someone to do something (Merriam-Webster, n.d.).
2. Physical activity: any bodily movement produced by skeletal muscles that requires energy expenditure (World Health Organization, n.d.).

3. Autonomous Motivation: Self-control of their own behaviors and goals; independent from outside factors
4. Relatedness: the extent to which an individual feels connected to others, the senses of belonging both with one's community and with other individuals
5. Competence: the need to gain mastery of tasks and learn different skills

Research Questions

The following research questions will be the primary focus explored for this literature review:

1. What curricular models and programs have been shown to increase students' motivation to participate in physical activity during PE class?
2. What instructional and other practices are used by teachers to increase students' motivation to participate in physical activity during PE class?
3. What is the relationship between students' motivation to participate in physical activity in Physical Education and their involvement in leisure-time physical activity?

Delimitations

1. The articles used in the literature review of the synthesis were both peer reviewed and full text.
2. The review included articles between 2011-2021.
3. Participants are secondary school students that are 12-18 years old.
4. Peer reviewed scholarly articles focused on the impact that physical education teachers have on student motivation, education models to increase PA, and increasing physical activity outside the physical education classroom.

Chapter 2: Methods

The purpose of this synthesis project is to review the literature on the different methods by which high school physical education teachers can motivate students to be more physically active. A detailed search surrounding this topic was conducted in order to gather data necessary to complete this synthesis. This chapter details the process used to acquire data for this synthesis.

Literature obtained for this synthesis project began with a search from the SUNY Brockport's Drake Memorial Library website. In the SUNY Brockport website, databases guides are broken down by subject. For this specific search, the "Kinesiology, Sport Studies & Phys. Ed." database guide was used. This database guide included SPORTDiscus with Full Text and Academic Search Complete. Using these three databases resulted in thousands of results.

Keywords were next used in order to focus on the articles that were most specific and relevant to the research topic. The keywords used in this search included *physical education*, *motivation*, *secondary*, *models*, *physical activity*, and *leisure time*. These keywords were selected based on their significance to the research questions. *Physical education* and *motivation* were the two most important terms identified to begin the search. These keywords gave a broad sense of understanding to *physical education* and *motivation* before refining the search using *secondary*, *models*, *physical activity*, *instructional* and *leisure time activity*. *Secondary* was identified as a keyword because this research focused on students in middle and high school rather than students at the elementary level.

The first main search used took place in the SPORTDiscus and Academic Search Complete databases using the keywords physical education and motivation; this resulted in 5,451 articles. By using a date limiter to refine the search, research articles were then limited to being full text, peer-reviewed articles from 2010-2021. This narrowed results to 1,748 possible articles.

From these results, a second limiting search was conducted. The keyword *model* was added to the search, resulting in 574 scholarly articles. Results still seemed to be too broad so another keyword was added to the search. For that reason, the keyword *secondary* was added; this narrowed down the search to 69 articles. From these results, there were six articles selected for this synthesis review of literature. These specific articles were chosen because they either included a variety of teaching models or offered analysis on a specific teaching model and the motivation surrounding them.

For the third search, the keyword *physical activity* was added to the search previously conducted using *physical education* and *motivation* as keywords. Using the SPORTDiscus and Academic Search Complete databases, results went down to 1,265 articles. To refine this search, *instructional* was added to the search which led to 29 total articles. From these results, two of the articles were added this review of literature based on their quasi-experimental design.

To delve deeper into the literature, a fourth search was conducted. The key word *leisure time* was added to the search in addition to *physical education* and *motivation*. Using the SPORTDiscus and Academic Search Complete databases, this search resulted in 16 total articles. Of those 16 articles, one was a duplicate and four additional articles were added to the synthesis of this topic.

Thus, a total of 10 scholarly articles were selected throughout refined searches of the SPORTDiscus and Academic Search Complete databases. In order for the articles to be included in this selection it was important that the articles met certain relevant indicators. The articles must have studied secondary students in a physical education setting and their motivation levels towards physical education or physical activity. Some of the articles included were also looking at motivation to be physically active during leisure-time activity.

The critical mass for this synthesis is comprised of 5,408 individuals, all of which were students 13-18 years of age. All participants were enrolled in physical education classes that included a mix of genders, PE teachers, and varied PE teaching methods. Data were derived from studies that were conducted across the world. The studies that were collected conducted research in a variety of countries which included: United States of America, Spain, Singapore, Estonia, and Australia (Sydney).

The articles selected for research included a mix of qualitative and quantitative approaches. The literature review included three articles that were quantitative, one article that was qualitative and eight articles that were a mix of both methods. The studies collected information using a variety of methods such as interviews, questionnaires, surveys, and article reviews. Data were analyzed using descriptive statistics, statistical analysis, inter-group gender analysis, exploratory analyses, computer programs, mixed model analysis, and transcriptions (of open-ended questions).

The primary challenge faced when conducting this research was that motivation in physical education is a highly researched topic among scholars. There is a plethora of research conducted surrounding this topic but it can become difficult to decipher which articles are most relevant to this synthesis. To overcome this issue, keywords were used to refine the searches so articles were relevant to this synthesis and that articles discovered would provide the information needed to answer the research questions. While sifting through all the research articles, it was clear to see that there is vast amount of research surrounding the curricular models, other practices used, and how student motivation to be physically active can also affect student involvement in leisure-time physical activity.

Chapter 3: Review of Literature

The focus of this chapter is to review the literature regarding the analysis of various methods by which physical education teachers can motivate students to be more physically active in both secondary schools and during their leisure time. In particular the following topics will be explored: the power of personal choice, how building connections can be significant, and how new changes in PE pedagogy influence student motivation. An analysis of literature found that these three themes emerged as being essential to discovering how PE teachers can motivate students to be more physically active.

When the thought of physical activity comes to mind there can be mixed feelings. Some individuals may feel excited, happy, focused, or ready to participate in physical activity. On the other hand, physical activity may make some individuals feel scared, nervous, overwhelmed, or hesitant participate in physical activity. The first component on the analysis of methods used by PE teachers to motivate students to be more physically active discussed in this review is the power of personal choice.

Autonomy

Are students more motivated to be physically active if they have more choice in the physical activity they engage in? To help answer this question, Franco and Coteron (2017) conducted a quantitative study that aimed to investigate the effect of an intervention to support the basic psychological needs (BSN), intrinsic motivation, intention to be physically active and enjoyment-related outcomes in Physical Education. They conducted a quasi-experimental study with two groups of second year Secondary Education students from schools located in Madrid, Spain. The subjects were 53 students (30 males and 23 females; mean age = 13.35 years, SD = .62) who were divided into an experimental group (n = 30) and a control group (n = 23).

Teachers of students in the experimental group attended two training programs prior to and during the intervention. These trainings included strategies to help teachers support basic psychological needs of their students as well as practical training. Lessons which the teachers taught were videotaped and later reviewed by the teachers and two experts, as a means of strengthening the implementation of the trainings.

The intervention was implemented over 24 PE sessions lasting for three months during a Rugby unit. Questionnaires were administered during the PE class by a member of the research group and completed without the presence of a physical education teacher. To statistically investigate the data, the Wilcoxon test was performed to verify the intra-group differences between the pre-test and post-test data collection. A Mann-Whitney test was conducted to analyze the inter-group differences between the two groups after the intervention. Results revealed that the students from the experimental group showed a significant increase in their perception of autonomy and competence. The experimental group showed a higher perception of learning, suggesting that contexts in which students feel autonomous and responsible for some decisions related to their own educational process may facilitate learning. Ultimately, researchers found that an intervention that incorporates strategies aimed at supporting BPN on autonomy satisfaction, competence satisfaction and intrinsic motivation could influence student motivation towards PA.

Similarly, researchers have tested new ways to improve student motivation and student autonomy. Úbeda-Palomares, and Hernández-Álvarez (2020) conducted a quasi-experimental design to study the effects of a school-based intervention with extra physical education lessons per week on intrinsic motivation and perceived motor self-efficacy among Spanish secondary school students. The study sample was comprised of 375 first-year secondary school students

(mean age = 12.44 years, SD = .67) from state schools located in Madrid who were split in to an experimental group (n = 266) and a control group (n = 109). Three control and three experimental schools located in Madrid were selected. Researchers took two groups and engaged the experimental group in four PE lessons per week whereas the control group only engaged in two PE lessons per week. Contacts of each participating school (i.e., PE teachers) provided qualitative information based on individual face-to-face interviews. Intrinsic motivation and perceived motor self-efficacy were tested before and after the intervention (pre and post-test, respectively) in both control and experimental groups. Intra-group differences between pre and post-test data were analyzed using T-Test for related samples. Inter-group differences for post-test data were analyzed using ANOVA. Results showed that both intrinsic motivation and perceived motor self-efficacy were significantly higher in the experimental group than the control group. In other words, increases in PE classes per week appeared to increase adolescents' perceived motor self-efficacy, autonomy support, and intrinsic motivation for PE and therefore potentially would help them to practice PA regularly throughout their lives.

Along these same lines, Tilga et al. (2020) conducted a study to test associations of perceived autonomy-supportive and controlling behavior of PE teachers with adolescents' leisure-time physical activity (LT PA) participation, and the role of need satisfaction and autonomous motivation. Subjects were 381 secondary school students (157 boys and 224 girls) aged between 12 and 15 years (mean age= 13.64, SD = 1.19) from Estonia. Questionnaires were administrated online and designed that adolescents had to fill in all the items. Questionnaires included questions geared toward perceived autonomy-supportive behavior, perceived autonomous and controlled motivation, perceived controlling behavior, perceived need satisfaction and need frustration, perceived effort, and leisure-time physical activity.

Statistical packages were used to analyze the data. A series of separate confirmatory factor analyses (CFA) were used to estimate fit of the proposed factor structure of the scales with the data among the current sample. Researchers found that the effect of perceived autonomy-supportive behavior on adolescents' LT PA participation was mediated by experiences of need satisfaction and autonomous motivation in PE, and perceived effort towards LT PA. Furthermore, researchers highlight that the reason for these findings might be that autonomy-supportive environment offers more opportunities for experiencing need satisfaction, which, in turn, will result in shaping the autonomous motivation towards PE.

Wang and Chen (2020) aimed to determine the extent to which a concept-based physical education curriculum, specifically the Science of Healthful Living (SHL) curriculum, influenced middle school students' knowledge, motivation for PE and PA, and out-of-school PA. The participants were 394 eighth grade students. Among this sample, 168 students (42.6%) received PE under the experimental condition (SHL curriculum) during sixth grade and 226 students (57.4%) received PE under the control condition (Traditional Multiactivity PE curriculum). This sample consisted of 51.0% boys ($n = 201$) and 49.0% girls ($n = 193$). The ethnicity composition of this sample was as follows: 30.5% Hispanic ($n = 120$), 25.6% Black ($n = 101$), 24.6% White ($n = 97$), 5.3% Asian/Pacific Islander ($n = 21$), 0.8% American Indian ($n = 3$), 0.5% Arabic American ($n = 2$), and 12.7% mixed race ($n = 50$). Students in the experimental group experienced the SHL curriculum during their sixth grade PE program, whereas the students in the comparison group experienced the state-sanctioned PE program reflective of a traditional multiactivity curriculum during their sixth grade PE program. A static group comparison design was adopted to analyze the differences on fitness knowledge, autonomous motivation for PE and PA, and out-of-school PA between eighth-grade students who studied the

SHL curriculum (the experimental condition). A MANOVA was conducted with curricula (SHL vs. Traditional) as the independent variable and knowledge, autonomous motivation for PE, and autonomous motivation toward PA as the dependent variables. The data revealed that the students who experienced the SHL curriculum had a significantly higher knowledge and autonomous motivation than students who experienced the Traditional Multiactivity PE curriculum after a year interval. Students who experienced the SHL curriculum spent more time on PA during out-of-school hours than students who had only experienced the Traditional PE curriculum.

Relatedness

Relatedness support in a physical education setting can be seen in a variety of ways. These supports may include: individual conversation, task-related support, cooperation and teamwork, teacher enthusiasm, awareness, teacher care, and general friendly communication. Sparks et al. (2016) conducted one study where they looked at 656 PE students (males = 509, females = 147; mean age = 13.93, SD = 1.04) who reported the extent to which their teachers engaged in relatedness-supportive behaviors. The students were recruited from four independent schools within the Sydney, Australia Metropolitan Area, from a total of 32 different PE classes in grades 7, 8, and 9. In their follow-up study, Sparks et al. looked at 570 high-school PE students (males = 200, females = 370; mean age = 13.93, SD = 1.04) who reported their motivational regulations for PE, as well as the extent to which their teacher engaged in relatedness-supportive behaviors, and satisfied their need for relatedness. Students were given the opportunity to ask questions before they provided their informed consent and completed the questionnaire.

In study one, there were seven measures that researchers looked at: individualized conversation, task-related support, promoting cooperation and teamwork, teacher enthusiasm,

teacher awareness, teacher care, and general friendly conversation. In study two, there were seven other measures that researchers looked at: relatedness support, agreeableness, need to belong, relatedness need satisfaction, autonomy support, competence support, and motivation. Descriptive statistics and item-level analyses were used to analyze the data. The research concluded that students reported satisfaction of their need for relatedness when they felt relatedness support from their teacher and relatedness need satisfaction was in turn positively related to intrinsic motivation.

Similarly, Koka and Hagger (2010) tested the effects of specific dimensions of perceived teaching behaviors on students' self-determined motivation in physical education. In this mixed methods study, researchers used questionnaires and informal interviews to gather data from their students. The participants within this study were 498 secondary school students (287 girls and 211 boys; $M = 13.76$, $SD = .77$) ages 12–17 years from Estonia completed two questionnaires. One questionnaire was used to assess students' perceptions of various teaching behaviors while the other questionnaire assessed students' perceptions regarding the type of feedback their PE teachers give in response to their performances. The questionnaire looked at: democratic behavior, autocratic behavior, teaching and instruction, situation consideration, positive general feedback, positive nonverbal feedback, and negative nonverbal feedback. Descriptive statistics and internal reliability coefficients were calculated for all measures. The effects of perceived autocratic behavior and negative nonverbal feedback were direct and negative, whereas the effects of teaching and instruction and situation consideration were direct and positive. Results suggest that feedback, situation consideration, and teaching and instruction are essential antecedents to self-determined motivation. The research concluded that students felt relatedness

support from positive feedback whereas students who received negative feedback did not feel relatedness support.

Mehmeti and Halilai (2018) conducted a study to explore motivational profiles for physical activity in current students of secondary schools. In their mixed methods study, a total of 526 participants (8th grade and 9th grade students (males = 267 females = 259; mean age = 14.28 years, SD = 1.47) from the four secondary schools in central and northern Kosovo participated in focus group discussions and completed a Likert-scale style questionnaire. The questionnaire and discussions were used to better understand students' perceptions on motivation and participation in PE and extracurricular PA activities. Questionnaire data were analyzed using three computerized programs. Excel was used to organize data from the open-ended questions. Through this, researchers discovered that schools are not creating supportive and attractive school environments for students to participate in physical activities and sports. Many schools (PE Teachers) make a mistake requiring every child to become an athlete, by suppressing child motivation and enjoyment for sport and creative physical activities. Focus should be on giving the opportunity to every child to excel their own skill level, and integrate teaching strategies for maximum movement for maximum kids. PE teachers need to create a learning environment that emphasizes skill development, personal and team success and having fun, and reduce performance-destroying anxiety and fear of failure.

Likewise, motivation to be physically active may not only affect physical education classes but it could also affect motivation to be physically active during leisure time. Jackson et al. (2013) examined the motivational pathways through which students' relational efficacy and self-efficacy beliefs in PE were predictive of their leisure-time physical activity. In this study 990 students (males = 528, females = 462; mean age= 13.95 years, SD = 1.02) from Singapore

completed instruments assessing efficacy beliefs, perceptions of teacher relatedness support, and autonomous motivation toward PE. Two weeks later they reported their motivation toward, and engagement in, leisure-time physical activity. Using questionnaires, researchers included items referencing perceived relatedness support, tripartite efficacy beliefs, autonomous motivation for PE, autonomous motivation for LT PA, and LT PA. In this study, researchers developed the idea that students develop a level of confidence in their teacher's capabilities, as well as estimating how confident they think their teacher is in their (i.e., the students') ability. A nonstandard structural equation model incorporating latent and non-latent variables was specified to analyze the data. Students reported stronger efficacy beliefs when they felt that their teacher created a highly relatedness-supportive environment. In turn, the students' relational efficacy beliefs supported their confidence in their own ability, directly and indirectly predicted more autonomous motives for participation in PE, and displayed evidence towards a positive effect toward LT PA.

In order to try and encourage change, Kerner and Goodyear (2017) explored whether wearable healthy lifestyle technologies impacted adolescents' motivation for physical activity. In this study, 84 adolescent participants (44 females, 40 males) from the United Kingdom were issued with a Fitbit to wear for eight weeks and completed pre-test and post-test questionnaires that assessed motivational regulation and psychological need satisfaction. Adolescents also engaged in focus group interviews after wearing the Fitbit for eight weeks. Quantitative data were analyzed using a repeated measure multivariate analysis of variance (MANOVA) to explore differences between gender and time. Qualitative data analysis was conducted deductively using self-determination theory. The quantitative findings identified significant reductions in need satisfaction and autonomous motivation and significant increases in

amotivation after eight weeks. Qualitative evidence suggested short-term increases in motivation through feelings of competition, guilt, and internal pressure. Data from this study demonstrated that though clear potential exists, healthy lifestyle technologies negatively impact young people's motivation for physical activity. Competition, peer comparison, and social comparison to normative predetermined targets result in only short-term motivational effects. Therefore, utilizing physical activity goals and encouraging self-referenced comparisons of performance may be more beneficial than engagement in normative comparisons with peers or established public health discourses.

Competence

There a variety of teaching styles, education models, and pedagogy methods used in physical education classes. Méndez-Giménez et al. (2015) compared the effects of three different instructional models: Traditional, Sport Education and Sport Education with Self-Made Materials on physical education students' motivation and sportsmanship. They involved 295 secondary school students (males = 159, females = 136) who were 12-17 years old (mean age = 14.2 years, SD= 1.68) from Spain in a quasi-experimental design. Pre-test and post-test scores on achievement goals, friendship, psychological needs and sportsmanship were obtained after the implementation of a learning unit of Ultimate-Frisbee. Two qualified PE teachers, both with more than 10 years of teaching experience, taught all the lessons of three instructional approaches. The two main researchers met weekly with the participant teachers to monitor the process. The intervention program lasted the same in all groups: 12 sessions of 50 minutes each. All data was analyzed using SPSS and exploratory analyses. Results showed that mastery-approach and friendship-avoidance goals obtained the highest scores, while both performance goals obtained the lowest scores in this group of students. Friendship-avoidance high scores

suggest that the fear to be rejected is very relevant for adolescents' motivation in physical education settings. Using these results, researchers were able to conclude that the Sports Education (SE) model proved to be more efficient than a Traditional teaching approach to develop the best achievement goals and social goals, to fulfil students' basic psychological needs and to promote fair play.

To delve deeper into the Sport Education model, Wallhead et al. (2014) examined the effect of a high school Sport Education curriculum program on students' motivation for physical education and leisure-time physical activity. Participants were 568 high school students (males = 258, females = 310; $M = 14.75$ years, $SD = 0.48$) enrolled in the required physical education programs at two high schools in the midwestern United States. One group was taught using the Sport Education model and the second using a multiactivity model of instruction. A motivational profile survey which included students' psychological need satisfaction, autonomous motives, perceived effort and enjoyment in physical education, and physical activity intention and behavior was completed by all participants prior to and at the end of the two-year physical education program. Descriptive statistics and Pearson correlations for variables were calculated to analyze the data. Results indicated that Sport Education facilitates more internalized forms of student motivation in required physical education programs, but without the provision of an appropriately designed extracurricular outlet, the potential of transfer to leisure-time physical activity may not be achieved.

Mayorga-Vega and Viciano (2014) conducted a study to evaluate the differences in adolescents' objective physical activity levels and perceived effort in physical education, school recess, and extra-curricular organized sport. A sample of 102 students (52 boys, 50 girls) from Spain who were 11 to 16 years old ($M = 12.5$, $SD = 1.6$) completed a self-report questionnaire

assessing self-determined motivation toward physical education. Body mass and height measurements were taken during the first PE lesson. Then, during the second PE lesson, the Sport Motivation Scale questionnaire was administered by a trained research assistant in quiet conditions in classrooms after a short introduction and instructions. PE classes and extra-curricular organized sport sessions were taught by the same teacher, with the same content (introduction to basketball) and in the same sports facilities, for all participants. Descriptive statistics were calculated for all the variables. A cluster analysis identified a two-cluster structure: “Moderate motivation toward physical education profile” and “High motivation toward physical education profile.” Researchers found that students with higher motivation toward PE showed greater PA levels and perceived effort than their peers with lower motivation. With that being said, PE teachers should continue to promote motivation toward PE, encouraging the students to achieve healthy moderate-to-vigorous PA levels during their free time regardless of their perceived effort in PE.

Summary

Research has shown that multiple variables can impact the methods used to motivate students towards physical activity in physical education classes. Throughout this review of literature there are plenty of examples that highlight a variety of means by which physical educators have the opportunity to increase their student's motivation towards physical activity in PE and LT. Is there a ‘one-size fits all’ model that PE teachers can use to resolve this issue? Most likely not but there are a variety of means by which they can differentiate their instruction to better motivate their students towards being physically active.

In order to make the most of opportunities for students to be physically active it's important that teachers are able to adapt and be willing to differentiate instruction. Experienced

teachers have had the opportunity to teach their curriculum for years and years but there is a chance that their pedagogical methods may be outdated. Newer teachers don't have the same experience in the classroom as the teachers who have been there for a while. However, they have the ability to implement teaching strategies that will increase student motivation towards PA in PE right from the start of their careers.

Creating an environment that is conducive to most students will elicit a setting that will allow students to engage in physical activity during PE. Teachers need to be able to create an autonomous environment where students have the ability to choose activities, games, equipment, partners, and much more. In doing so, students will feel that they have a decision in their physical activity, in turn, increasing their motivation and engagement in physical activity.

In a PE setting, it may seem natural for students to compete against each other. However, it is imperative that PE teachers are able to incorporate relatedness and team building rather than a competitive environment. Working hard and doing your best should be highly encouraged; if a student doesn't finish first or 'win' the activity, it does not mean that they are inferior. Being physically active and engaged for the majority of time during PE class is the goal.

Physical activity in the classroom is important but so is leisure-time physical activity. If students are able to find activities, games, or sports that they can engage in during their free time then PE teachers are building lifelong habits for their students. Introducing these activities, games, and sports in an optimal learning environment has the ability to build lifelong physically active individuals.

Chapter 4: Results, Discussions, and Recommendations for Future Research

The purpose of this chapter is to present the results of the review of literature on the various methods by which physical education (PE) teachers can motivate secondary school students to be more physically active in secondary school and in their leisure time. Furthermore, this section will illustrate how these results align with the research questions which guided this synthesis project. Additionally, recommendations for future research as it relates to increasing secondary students' motivation to be physically active in physical activity (PA) and leisure-time physical activity (LT PA) are included.

The result of this review of literature displayed mixed results as to the best way to motivate secondary school students to be more physically active, both in and out of the school setting. This is because students are unique in their own way (culture, ethnicity, beliefs, etc.) as are their physical education (PE) teachers. It became clear that physical education teachers hold the greatest potential in positively influencing students' motivation towards being physically active. The majority of studies in this review also demonstrated that students' motivation to be physically active was significantly influenced by their perceptions of autonomy, relatedness, and competence in physical activities. Of the three basic psychological needs, research showed that autonomy had the biggest influence on student motivation towards PA. Teachers who create an environment where students are able to make choices towards their PA are more likely to have students engage in PA. Additionally, research has shown the students whose basic psychological needs are met in PE also have a higher chance of engaging in LT PA. The Sports Education Model, specifically, allowed teachers to create a student-led learning environment. Students were in charge of creating teams, strategies, warm-ups, and competing together as a team. Research indicated that the Sports Education model has been proven more efficient than a Traditional

teaching approach to develop the best achievement and social goals, fulfill students' basic psychological needs, and promote fair play. Students enjoyed this model because it eliminated the feeling of rejection from their peers and allowed them to refine their skills as team.

The literature review has also revealed that development of national-level strategies and large-scale initiatives to increase the time devoted to building and adjusting PE curriculum at school would allow physical educators to create an environment that best suits students to be physically active.

Discussion

Interpretations

Several research questions were posed prior to the review of literature. The first research question synthesized was, what curricular models and programs have been shown to increase in secondary students' motivation to participate in physical activity during PE class? The results of this literature review show that specific curricular models and programs have the ability to increase student's motivation to participate in PA during PE class. For example, Franco and Coterón (2017) showed that an intervention which incorporated strategies aimed at supporting basic psychological needs of autonomy satisfaction, competence satisfaction, and intrinsic motivation could positively influence student motivation towards PA. An example of this would include integrating a program that gave students personal choice, understanding of the task, and being self-motivated. The work of Mayorga-Vega and Viciano (2014) found that the difference in PA levels between motivation types was greater in school recess than the supervised PE lesson, thus providing preliminary evidence that the benefits of self-determined motivation toward PA may be greater in unstructured school contexts. Additionally, researchers proved that students with higher motivation toward PE showed greater PA levels and perceived effort than

their peers with lower motivation during PE and LT PA. Úbeda-Palomares and Hernández-Álvarez (2020) also concluded that both intrinsic motivation and perceived motor self-efficacy were significantly higher when students participated in extra PE classes.

Méndez-Giménez et al. (2014) studied the Sport Education model. The Sport Education model seems to offer more advantages than a traditional teaching method to develop adolescents' achievement and social goals, as well as sportsmanship, in physical education. The researchers found the SE model has been proven more efficient than a Traditional teaching approach to develop the best achievement goals and social goals, to fulfil students' basic psychological needs, and to promote fair play. Méndez-Giménez et al. also found that friendship-avoidance goals suggest that the fear of being rejected was very relevant for adolescents' motivation to be active in physical education settings. This was minimized by use of the Sports Education model, as it allows students to work together as a team rather than individuals where students may feel more pressure to perform well, especially in front of the entire class.

The second research question that was examined was, what instructional and other practices are used by teachers to increase students' motivation to participate in physical activity during PE class? The results shown throughout several studies displayed various teaching practices and instructional methods to increase student motivation towards physical activity. Sparks et al. (2016) noted that students reported feeling more connected with others (relatedness) when they were able to connect with their teacher. When teachers were able to provide individualized conversation, positive feedback, enthusiasm, and general friendly conversations it allowed students to feel a stronger connection with their teacher. In turn, this illustrated that relatedness (need satisfaction) was positively related to intrinsic motivation.

Mehmeti and Halilaj (2018) found that many schools (PE teachers) make a mistake requiring every youth to become an athlete, by suppressing youths' motivation and enjoyment for sport and creative physical activities. Physical education teachers should offer the opportunities for different physical activities that people can do for a life time. PE and sports curricula should be focused on giving the opportunity to every child to excel their own skill level, and integrate teaching strategies for 'maximum movement for maximum kids'. Researchers found that students were engaged and more motivated when they were engaging in activities that they could partake in their whole life. Koka and Hagger (2010) were able to portray the effects of negative nonverbal feedback (such as rolling their eyes, shaking their head, or displaying an angry expression) as direct and negative. The effects of positive nonverbal feedback (such as clapping hands, smiling, or patting a shoulder) and instruction/situation consideration (time, individual, environment, and game) were direct and positive. When teachers are able to give positive feedback to their student rather than negative feedback then students will be more motivated to be physically active. Giving students reassurance that what they're doing is correct elicits a boost of confidence and increase feeling of competence. Results suggest that feedback, situation consideration, and teaching and instruction are essential to increasing motivation towards physical activity. .

The final research question explored was, what is the relationship between students' motivation to participate in physical activity in Physical Education and their involvement in leisure-time physical activity? The results of this literature review show that there are multiple opportunities in physical education classes for teachers to positively influence their students' participation in LT PA. Tilga et al. (2020) found that the effect of perceived autonomy-supportive behavior on adolescents' LT PA participation was mediated by experiences of need

satisfaction and autonomous motivation in PE, and perceived effort towards LT PA. In other words, researchers found that when teachers provided opportunities for students to be autonomous in their learning their motivation towards physical activity increased. For example, when students were able to choose which activity they wanted to do, what equipment they wanted to use, or which peers they would like to work with (or working individually) they were more likely to engage in physical activity. The reason for these findings might be that autonomy-supportive environments offer more opportunities for experiencing need satisfaction, which, in turn, will result in students engaging in physical activity both in and out of school.

Wang and Chen (2020), in their study on the Science of Healthful Living (SHL) curriculum, found that students who experienced (SHL) curriculum for a year had a significantly higher knowledge level (in terms of fitness and PA) than students who experienced the Traditional Multiactivity PE curriculum. In addition, students who experienced the SHL curriculum spent more time on PA during out-of-school hours than students who had only experienced the Traditional PE curriculum. Students were much more motivated to be physically active when they understood the benefits they were receiving from engaging in physical activity; which is exactly what the SHL curriculum taught students. In another study, Jackson et al. (2013) displayed that students in their study reported stronger self-efficacy when they felt that their PE teacher created a high relatedness-supportive environment. In turn, their relational efficacy (their perception of their teachers' belief in their abilities) supported their confidence in their own ability. As a result, relational efficacy directly predicted more autonomous motives for participation in PE and displayed positive effects in relation to leisure-time variables. Wallhead et al. (2014) found that the Sport Education curricular model facilitated more internalized forms of student motivation in required physical education programs, but the potential of transfer to

leisure-time physical activity may be achieved with the provision of an appropriately designed extracurricular outlet. The Sport Education Model is a student-lead model that has shown positive results in PE and with more research in leisure-time PA there is potential for students to be more motivated to engage in PA during their leisure time.

Implications

Previous research on the methods used to motivate students to be more physically active in and out of PE show that physical education teachers strongly influence students, based on their teaching styles, pedagogy, and implementation of curricula. Many of the conclusions of the results are intertwined. The results of this synthesis offer practical means by which physical educators may accommodate to students in order to help them increase physical activity levels in the classroom and in their leisure-time.

First, it is imperative that physical educators look at their students' autonomy satisfaction, competence satisfaction, and intrinsic motivation. Creating an autonomous learning environment (in PE) can leverage students to make choices towards the physical activities in which they want to participate. Both physical educators and students would benefit from these highly autonomous learning environments by keeping students on track and allowing them to reap the benefits of physical activity. Furthermore, increasing competence among students opens opportunities for students to better understand games, activities, and movements that they can engage in for a lifetime. In turn, students will feel more confident in their ability to choose the activities they enjoy, understand (and be competent) in those activities, thereby resulting in an increase in intrinsic motivation towards physical activity.

Second, the importance of the differentiation in instruction during PE classes and the importance of building leisure-time habits should not be overlooked. Simply teaching students

using one pedagogical teaching method will not be effective because students all learn in different ways. Being able to differentiate instruction and make accommodations will allow PE teachers to engage their students and create a positive learning environment. Studies have shown that students with higher motivation toward PE showed greater PA levels and perceived effort than their peers with lower motivation. (Mayorga-Vega and Viciano, 2014). All students can benefit from physical activity so it is imperative to reach all students. To reach all students, positive reinforcement and engagement can be used while using teaching styles that include Traditional, Teaching Games for Understanding, Game Sense, Cooperative Learning, and Sports Education. Studies have shown that if students are able to connect and engage in physical activities that they enjoy then there is potential for them to engage in leisure-time physical activity. If students are able to engage in leisure-time physical activity then they are able to find lifelong activities that will allow them to reap the benefits of physical activity.

Understanding the importance of what motivates students to be physical active is critical to creating positive learning environments in physical education classes. Physical educators should understand the importance of their pedagogical methodologies in order to positively influence their students towards a life with physical activity.

Limitations & Recommendations for Future Research

Following a thorough review of data available regarding the motivation of students to be more physically active, the following limitations were noted within the literature. The studies were limited to changes in student motivation across the course of the studies. It is possible that different types of activities (e.g., cooperative games vs. team sports vs. individual sports) may have elicited fluctuations in student motivation for physical education/physical activity that were not effectively captured within the research design. Another limitation of the work previously

displayed is the possibility that students' motivational orientations may affect the way teachers behave. Each teacher has their own teaching style and pedagogical methods that could be influenced by the students (participants). In addition, another limitation to the research is that class size and participants within the class could affect results. Student motivation may differentiate in smaller or larger classes; also if classes are coed there may be other variables that will influence motivation towards PA.

Based on these limitations, future research should consider the following recommendations:

1. Future research should continue to develop ideas into the different type of activities used during physical education classes and how motivation can fluctuate based on those activities. Rather than focusing on one specific teaching method and comparing it to another, researchers can look at how motivation changes from unit-to-unit, teaching style-to-teaching style, or activity-to-activity.
2. Further researched could be broadened to cover the impact of the physical education teacher's personality, communication, and people-skills has on student motivation towards PA.
3. Future research should look at the influence of male teachers teaching all males, female teachers teaching all males, males teaching all females, females teaching all females, and both males or females teaching coed classes. This may yield additional results and insights.
4. Future research should look at the size of the classroom. Taking a deeper look at whether students typically perform better in smaller group settings or larger group settings.

Summary

The purpose of this synthesis is to review literature that analyzed various methods by which physical education teachers can motivate students to be more physically active in and out of secondary schools. A thorough search of online databases using specific delimiting techniques and key words revealed 11 article that were selected for this synthesis. These articles were synthesized to determine how physical education teachers can better motivate students to be physically active using curricular models, other instructional methods, and their involvement in LT PA.

Research revealed that a variety of important variables can impact student motivation towards physical activity which included supporting basic psychological needs, creating movement-based environments that are enjoyable, and finding opportunities for students engage in LT PA. It is clear that physical educators who do not satisfy their students' basic psychological needs are more likely to not motivate their students towards physical activity. It is clear that taking advantage of differentiated instruction, adding a variety of activities/games, and allow autonomy throughout instruction will boost motivation towards physical activity.

Further research and enhanced analytic research from researchers will only help to expand on the list of significant variables that will motivate students towards physical activity in physical education classes. This information will help physical educators across the world to build physically active, effective, and enjoyable physical education classes. This information will not only benefit the physical education teachers but the students will also reap the benefits of classroom that is teaching them lifelong physical activity and enjoying it while they do it.

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Appendix A
Synthesis Article Grid

Author	Title	Source	Purpose	Methods & Procedures	Analysis	Findings	Recommendations
Úbeda-Palomares, A. B., & Hernández-Álvarez, J. L. (2020).	Incremento desesiones de educación física, motivación y eficacia motriz percibida en adolescentes [Extra physical education lessons, motivation and motor self-efficacy in adolescents].	<i>Revista Internacional de Medicina y Ciencias de La Actividad Física y Del Deporte</i> , 20(77), 37–54.	To evaluate the effects of a school-based intervention with extra physical education lessons per week on intrinsic motivation and perceived motor self-efficacy among Spanish secondary school students.	Quasi-experimental. Qualitative and Quantitative. Both interviews and questionnaires were used. Students from the control group (n=109) had two PE lessons per week while students from the experimental group (n=266) had four. Two groups (control vs. experimental) Group A (experimental) engaged in 4 days of PE while group B (control) engaged in 2.	Pre-test and post-test questionnaires. Inter-group gender analysis by the researchers.	Both intrinsic motivation and perceived motor self-efficacy were significantly higher in the experimental group than the control group. intrinsic motivation was significantly higher in girls between control groups and experimental groups.	Development of more national strategies and large-scale initiatives to increase the time devoted to curricular PE at school. This would increase Spanish adolescents' perceived motor self-efficacy and intrinsic motivation for PE and would help them to practice PA regularly throughout their lives.

<p>Franco, E., & Coterón, J. (2017). The effects of a physical education intervention to support the satisfaction of basic psychological needs on the motivation and intentions to be physically active. <i>Journal of Human Kinetics</i>, 59(1), 5–15.</p>	<p>The aim of the study was to investigate the effects of an intervention to support the basic psychological needs on the satisfaction of these needs, intrinsic motivation, intention to be physically active and some enjoyment-related outcomes in Physical Education.</p>	<p>Quasi-experimental study. The sample comprised 53 students (30 males and 23 females) from two Secondary Education school classes in Madrid (Spain) between the ages of 13 and 15 years. Control group had 23 participants while the experimental had 30. Experimental group PE teacher was trained in improving strategies to improve basic psychological needs and practical training. The Basic Psychological Needs in Exercise Scale, Intention to be Physically Active Questionnaire, and Ad Hoc Questionnaire were used. Responses were answered using the Likert-scale.</p>	<p>Statistical analysis—Kolmogorov-Smirnov test was performed to verify the normality of the data. Significant differences were found between the groups after the intervention.</p>	<p>Significant differences were found between the groups after the intervention. The control group showed higher scores in the satisfaction of autonomy. The experimental group showed significantly lower levels of previous knowledge about the contents that were developed and higher levels of learning and enjoyment during the intervention.</p>	<p>The experimental condition in this study did not result in a change in students' intentions to be physically active in the future in spite of previous studies testing the association between motivational processes in the PE class and the promotion of extra-curricular physical activity which suggested that levels of intention to be active in the future could be expected to improve in the experimental group. Researchers found that an intervention that incorporates strategies aimed at supporting BPN on autonomy satisfaction, competence satisfaction and intrinsic motivation could influence student motivation towards PA.</p>
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<p>Mayorga-Vega, D., & Viciano, J. (2014). Adolescents' physical activity in physical education, school recess, and extra-curricular sport by motivational profiles. <i>Perceptual & Motor Skills</i>, 118(3), 663–679.</p>	<p>The main purpose of this study was to evaluate the differences in adolescents' objective physical activity levels and perceived effort in physical education, school recess, and extra-curricular organized sport by motivational profiles in physical education.</p>	<p>Quantitative and Qualitative. A sample of 102 students 11–16 yr. old completed a self-report questionnaire assessing self-determined motivation toward physical education. The methods and objectives in each session were related to the context, meaning both were structured sessions, but the PE classes had an educational approach whereas the extra-curricular organized sport sessions had a technique/ tactical approach.</p>	<p>Descriptive statistics were calculated for all the variables. a one-way multivariate analysis of variance (MANOVA) and a one-way univariate analysis of variance (ANOVA) were used to test the differences between the motivation toward PE profiles (clusters).</p>	<p>Students with higher motivation toward PE showed greater PA levels and perceived effort than their peers with lower motivation. Additionally, the difference in PA levels between motivational profiles was greater in school recess than the supervised PE lesson, thus providing preliminary evidence that the benefits of self-determined motivation toward PE may be greater in unstructured school contexts.</p>	<p>PE teachers should promote motivation toward PE, encouraging the students to achieve healthy moderate-to-vigorous PA levels during their free time.</p>
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<p>Méndez-Giménez, A., Fernández-Río, J., & Méndez-Alonso, D. (2015). Sport education model versus traditional model: Effects on motivation and sportsmanship. / Modelo de educación deportiva versus modelo = Tradicional: Efectos en la motivación y deportividad. <i>Revista Internacional de Medicina y Ciencias de La Actividad Física y Del Deporte</i>, 15(59), 449–466.</p>	<p>The goal of the present project was to compare the effects of three different instructional models: (Traditional, Sport Education and Sport Education with Self-Made Materials) on physical education students' motivation and sportsmanship.</p>	<p>A quasi-experimental design with three levels of treatment was used. Pre-test and posttest scores on achievement goals, friendship, psychological needs and sportsmanship were obtained after the implementation of a learning unit of Ultimate-Frisbee in a school in the northern part of Spain. A total of 295 secondary school students, ages 12-17, agreed to participate.</p>	<p>All data was analyzed using SPSS 19.0. Exploratory analyses were conducted to establish whether data met parametric assumptions. The Kolmogorov–Smirnov test showed that most dependent variables were not normally distributed in any of the study groups of all the courses/levels included in this project</p>	<p>Results showed that mastery-approach and friendship-avoidance goals obtained the highest scores, while both performance goals obtained the lowest scores in this group of students. Friendship-avoidance high scores suggest that the fear to be rejected is very relevant for adolescents' motivation in physical education settings.</p>	<p>The Sports Education (SE) model has been proven more efficient than a Traditional teaching approach to develop the best achievement goals and social goals, to fulfil students' basic psychological needs and to promote fair play.</p>
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<p>Sparks, C., Dimmock, J., Lonsdale, C., & Jackson, B. (2016). Modeling indicators and outcomes of students' perceived teacher relatedness support in high school physical education. <i>Psychology of Sport and Exercise</i>, 26, 71–82.</p>	<p>To investigate a set of relatedness-supportive teacher behaviors previously identified by identifying existing instruments that adequately represent each teacher behavior.</p>	<p>Study 1: 656 PE students reported the extent to which their teachers engaged in relatedness-supportive behaviors. Study 2: 570 high-school PE students reported their motivational regulations for PE, as well as the extent to which their teacher engaged in relatedness-supportive behaviors, and satisfied their need for relatedness</p>	<p>Data examined for univariate and multivariate outliers, descriptive statistics were computed using IBM SPSS Version 22, second-order confirmatory factor analysis was conducted using M-plus Version 7.3.</p>	<p>Students reported satisfaction of their need for relatedness when they felt relatedness support from their teacher and relatedness need satisfaction was in turn positively related to intrinsic motivation.</p>	<p>Research was conducted based on self-report surveys from PE students. Using observations or video to further analyze how a PE teacher created an autonomous environment would be beneficial. It's important to identify other variables such as peer support. Additionally, separating male and females.</p>
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<p>Mehmeti, I., & Halilaj, B. (2018). How to increase motivation for physical activity among youth. <i>Sport Mont</i>, 16(1), 29–32.</p>	<p>The primary aim of this study was to explore motivational profiles for physical activity in current students of secondary schools.</p>	<p>Qualitative and quantitative study. The participants included 267 males and 259 females (N=526) in 8th and 9th grade. Data was collected through focus group discussions for students, in order to better understand students' perceptions on motivation and participation in PE and extracurricular PA activities. Participants also complete a questionnaire using the Likert-scale.</p>	<p>Questionnaires were analyzed using three computerized programs to provide mean and standard deviations from the Likert-scale questions. Open-ended questions were transcribed and organized using Excel.</p>	<p>Schools are not creating supportive and attractive school environments for students to participate in physical activities and sports. Many schools (PE Teachers) make a mistake requiring every child to become an athlete, by suppressing child motivation and enjoyment for sport and creative physical activities.</p>	<p>Focus should be on giving the opportunity to every child to excel their own skill level, and integrate teaching strategies for “maximum movement for maximum kids”. PE teachers need to create a learning environment that emphasizes skill development, personal and team success and having fun, and reduce performance-destroying anxiety and fear of failure.</p>
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<p>Koka, A., & Hagger, M. S. (2010). Perceived teaching behaviors and self-determined motivation in physical Education: A test of self-determination theory. <i>Research Quarterly for Exercise & Sport</i>, 81(1), 74–86.</p>	<p>In the present study, researchers tested the effects of specific dimensions of perceived teaching behaviors on students' self-determined motivation in physical education.</p>	<p>Quantitative-Use of questionnaire. Informal interviews. Secondary school students (N = 498) ages 12-17 years completed measures of perceived teaching behaviors for seven dimensions: democratic behavior, autocratic behavior, teaching and instruction, situation consideration, positive general feedback, positive nonverbal feedback, and negative nonverbal feedback.</p>	<p>A path-analytic model revealed a positive, indirect effect of perceived positive general feedback on self-determined motivation.</p>	<p>The effects of perceived autocratic behavior and negative nonverbal feedback were direct and negative, whereas the effects of teaching and instruction and situation consideration were direct and positive.</p>	<p>Results suggest that feedback, situation consideration, and teaching and instruction are essential antecedents to self-determined motivation.</p>
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<p>Tilga, H., Kalajas-Tilga, H., Hein, V., Raudsepp, L., & Koka, A. (2020). How does perceived autonomy-supportive and controlling behaviour in physical education relate to adolescents' leisure-time physical activity participation? <i>Kinesiology</i>, 52(2), 265–272.</p>	<p>The aim of the current study was to examine whether the effect of perceived autonomy-supportive and controlling behavior of PE teachers on adolescents' LT PA participation have unique pathways mediated by experiences of need satisfaction, autonomous motivation and adolescents' effort towards LT PA, and need frustration, controlled motivation and adolescents' effort towards LT PA, respectively</p>	<p>Participants were 381 secondary school students (157 boys and 224 girls) aged between 12 and 15 years. The participants were randomly selected from different schools in Estonia. Information regarding this survey was provided to adolescents by their class teachers. The questionnaires were administrated online and designed that adolescents had to fill in all the items.</p>	<p>In this model, direct relationships of autonomy-supportive and controlling behavior with LT PA were not significant. The relationship between perceived autonomy-supportive behavior and LT PA was mediated by need satisfaction, autonomous motivation towards PE, and effort towards LT PA, but not by need frustration, controlled motivation towards PE, and effort towards LT PA</p>	<p>Researchers found that the effect of perceived autonomy-supportive behavior on adolescents' LT PA participation was mediated by experiences of need satisfaction and autonomous motivation in PE, and perceived effort towards LT PA.</p>	<p>The reason for these findings might be that autonomy-supportive environment offers more opportunities for experiencing need satisfaction, which, in turn, will result in shaping the autonomous motivation towards PE.</p>
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<p>Wallhead, T. L., Garn, A. C., & Vidoni, C. (2014). Effect of a Sport Education Program on Motivation for Physical Education and Leisure-Time Physical Activity. <i>Research Quarterly for Exercise & Sport</i>, 85(4), 478–487.</p>	<p>The purpose of this study was to examine the effect of a high school sport education curriculum program on students' motivation for physical education and leisure-time physical activity.</p>	<p>Participants were 568 high school students enrolled in the required physical education programs at 2 schools, 1 taught using sport education and the 2nd using a multiactivity model of instruction. A motivational profile survey, which included student psychological need satisfaction, autonomous motives, perceived effort and enjoyment in physical education, and physical activity intention and behavior, was completed by all participants prior to and at the end of the 2-year physical education program.</p>	<p>Mixed-model analysis of variance tests revealed that the students in the sport education program reported greater increases in perceived effort and enjoyment of the program compared with the students taught within the multiactivity model. Hierarchical multiple regression analyses showed that these positive affective outcomes were facilitated by the development of more autonomous forms of motivation. Results revealed limited support for the direct transfer of motivation from a sport education program to increases in leisure-time physical activity behavior.</p>	<p>Sport education facilitates more internalized forms of student motivation in required physical education programs, but without the provision of an appropriately designed extracurricular outlet, the potential of transfer to leisure-time physical activity may not be achieved.</p>	<p>Designing a required high school physical education program around the structural features of sport education, by itself, seems insufficient to foster increased motives for leisure-time physical activity. Without the provision of an appropriately designed extracurricular outlet, the potential for transformation may not manifest.</p>
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<p>Wang, Y., & Chen, A. (2020). Effects of a concept-based physical education on middle school students' knowledge, motivation, and out-of-school physical activity. <i>Journal of Teaching in Physical Education</i>, 39(3), 407–414.</p>	<p>This study aimed to determine the extent to which a concept-based physical education curriculum, specifically the Science of Healthful Living (SHL) curriculum, influenced middle school students' knowledge, motivation for physical education (PE) and physical activity (PA), and out-of-school PA.</p>	<p>The participants were 394 eighth grade students. Students in the experimental group experienced the SHL curriculum during their sixth grade PE program, whereas the students in the comparison group experienced the state-sanctioned PE program reflective of a traditional multiactivity curriculum during their sixth grade PE program. A typical lesson of this multiactivity PE program started with about 10–15 min of teacher-directed warm-up and fitness activities, followed by 15–25 min of skill development or scrimmage game play, and then about 5 min of lesson closure and/or cooldown activities.</p>	<p>A static group comparison design was adopted to analyze the differences on fitness knowledge, autonomous motivation for PE and PA, and out-of-school PA between eighth-grade students who studied the SHL curriculum (the experimental condition, n = 168) and their peers who studied a multiactivity PE (the control condition, n = 226) 1 year earlier.</p>	<p>Data from this study demonstrated that the students who experienced the SHL curriculum had a significantly higher knowledge than students who experienced the Traditional Multiactivity PE curriculum after a year interval. Students who experienced the SHL curriculum spent more time on PA during out-of-school hours than students who had only experienced the Traditional PE curriculum.</p>	<p>This study implies that a concept-based PE curriculum is effective to increase students' knowledge gain and the knowledge advantage obtained sustains 14 months later after the intervention. Additionally, this study indicates that a concept-based PE approach may be an effective curriculum model to promote students' PA behavior outside of the school</p>
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<p>Jackson, B., Whipp, P. R., Chua, K. L. P., Dimmock, J. A., & Hagger, M. S. (2013). Students' tripartite efficacy beliefs in high school physical education: Within- and cross domain relations with motivational processes and leisure-time physical activity. <i>Journal of Sport & Exercise Psychology, 35</i>(1), 72–84.</p>	<p>This study examined the motivational pathways through which students' relational efficacy and self-efficacy beliefs in PE were predictive of their leisure-time physical activity.</p>	<p>Qualitative. Singaporean students (N = 990; age M = 13.95, SD = 1.02) completed instruments assessing efficacy beliefs, perceptions of teacher relatedness support, and autonomous motivation toward PE, and 2 weeks later they reported their motivation toward, and engagement in, leisure-time physical activity.</p>	<p>A nonstandard structural equation model incorporating latent and non-latent variables was specified to analyze the data, using M-plus Version 6.12.</p>	<p>Students reported stronger other-efficacy and RISE beliefs when they felt that their teacher created a highly relatedness-supportive environment. In turn, their relational efficacy beliefs (a) supported their confidence in their own ability, (b) directly and indirectly predicted more autonomous motives for participation in PE, and (c) displayed prospective trans contextual effects in relation to leisure-time variables.</p>	<p>There appears to be significant potential for future research in pedagogical settings that explores the motivational and health-related implications of students' tripartite efficacy perceptions.</p>
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