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How Do Interventions through the Self-Determination Theory Affect Middle and High School Student's Participation in Physical Education Class?

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How Do Interventions through the Self-Determination Theory Affect Middle and High
School Student's Participation in Physical Education Class?

A Synthesis Project

Presented to the

Department of Kinesiology, Sport Studies, and Physical Education

The College at Brockport

State University of New York

In Partial Fulfillment

of the Requirements for the Degree

Master of Science in Education

(Physical Education)

by

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Title of Synthesis Project: How Do Interventions through the Self-
Determination Theory Affect Middle and High
School Student's Participation in Physical Education Class?

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Abstract

Students today seem less likely to participate in physical education class because they are either disinterested, unmotivated, or are disengaged in the activity. At the secondary level, students' disengagement in class may be due to lack of motivation. The self-determination theory has been used to help increase students' motivation to participate in physical activity. The purpose of this synthesis research is to examine how middle and secondary students' participation in physical education class is impacted by interventions based on the self-determination theory. It will include three different motivational conditions; psychological needs (competence, autonomy, and relatedness) in an autonomy support environment, perceived autonomy-supports, and motivational climate (mastery-oriented). Results indicated that students showed significant needs in relatedness, and competency, but not autonomy. Students in autonomy support environments showed increases in perceived autonomy, but some studies showed students weren't motivated. When physical education (PE) teachers provide choice for students, it enhanced student engagement. In the motivational climate, some students demonstrated increased motivation within a mastery-oriented climate focused on personal competency. Older adolescents, especially females, displayed less engagement in activity. Thus, the need for teachers to select activities that are suitable for all students is crucial. PE teachers help influence student's motivation to participate in physical education. It's important for PE teachers to setup an environment where students feel connected, where they have the ability to complete the task, and where they are given an opportunity for choice.

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Chapter 1: Introduction

Students today seem less likely to participate in physical education class because they are either disinterested, unmotivated, or are disengaged in the activity. Students' lack of physical activity may lead to health problems.

According to the National Center for Health Statistics, (2015), obesity prevalence rates were stable between 2003-2004 and 2013-2014, but overall numbers remain high: 32% of children and adolescents (ages 2-19) are overweight or obese. In addition, obesity prevalence increases with age: 8.4 % for 2-5 year olds, 17.7 % for 6-11 year olds, and 20.5 % among 12-19 year olds (Carroll, Fiegal, Fryar, & Ogden, (2015). Obesity can lead to health problems such as heart disease and diabetes. In contrast, physical activity (PA) has many health benefits such as reducing the risk of cardiovascular disease and Type 2 diabetes and providing strength to your muscles and bones (Centers for Disease Control and Prevention, 2015). Moreover, PA is also related to positive mental health and enhanced quality of life (Parish & Treasure, 2003). These benefits can help provide a healthy and fulfilling life. Thus, it is important to have students participate in physical activity.

SHAPE America and the American Heart Association (2008) support the U.S. Department of Health Services recommendation that children and adolescents (ages 6-17) engage in 60 minutes or more of daily physical activity, most of which should be aerobic activity. However, only 42% of children (ages 6-11) and 8% of adolescents (ages 12-19) engaged in recommended 60 minutes of physical activity most days (SHAPE America, 2016). Also, according to the U.S.

Department of Health and Human Resources (2012) only 25% of children and adolescents (ages 12-15) met recommended levels of daily physical activity. Recognizing the importance of physical activity, Healthy People 2010 recently reported that only 65% of adolescents in grades 9-12 engaged in the recommended levels of physical activity, namely 20 minutes of vigorous activity 3 days a week (U.S. Department of Health and Human Services, 2000). The goal of Healthy People 2010 is to increase the percentage of recommended levels of vigorous of physical activity to 85% for adolescents.

Physical Education

Physical education is a field of study, whereby the major goal is to develop a student who will engage in a lifetime of physical activity (National Association for Sport and Physical Education, 2004). Physical education class is a place where students can engage in physical activity and help learn ways to stay active outside of school. Students becoming active can help provide a healthy lifestyle. Despite holding such promise, interest and participation in PE as well as physical activity levels have declined with age (Hagggar & Koka, 2010). A study done by Simons-Morton, Taylor, Snider, Wei Huang, and Fulton (1994) reported that, in a sample of an elementary school physical education classes, students spent only 8.6% time participating in moderate-to-vigorous physical activity. At the middle school level, physical education classes consisted of 16.4% moderate-to-vigorous physical activity (Perish & Treasure, 2003). The statistics were below the estimated national average of 27%. Also, this was below the minimum recommendation of 50% of class time being active (USDHHS, 1997). The

significance of this is astounding. The need to increase student's physical activity levels is a must. Thus, it is vital for teachers to get students to participate in physical education class and to provide an environment that engages them.

Motivation

A concept deemed critical and strongly associated with engagement in physical activity is motivation (Parish & Treasure 2003; Perlman 2013). As stated earlier, students may not participate in physical education class because they may feel disinterested, unmotivated, or are disengaged in the activity. The need for students at a young age to participate in physical activity is very crucial.

Motivation has been shown to be a helpful way to increase student's physical activity levels. While motivation is important to the development of students, the teacher plays a role in creating a setting that can either support or thwart motivational levels (Perlman, 2015). Physical education teachers are a great asset to help motivate students to participate in physical activity. Teacher's positive feedback, demeanor and the way they set the climate of the classroom may determine how a student participates in the activity.

Self-Determination Theory

The self-determination theory acknowledges that human behavior is guided by different motivational regulations that vary in their levels of self-determination (SDT; Deci & Ryan, 2000). According to Deci and Ryan (2000), motivation is viewed as the desire to improve oneself by engaging in behaviors which an individual deems important or meaningful toward his/her development.

There are three types of motivation, namely intrinsic motivation, extrinsic motivation and amotivation to account for the different reasons why individuals engage in activities. Intrinsic motivation is the most self-determined type of motivation and is defined as the involvement in an activity for inherent satisfaction and pleasure (Deci & Ryan, 2000a). Intrinsically motivated people are moved to act for the fun, challenge and excitement of doing so (Niemi & Ryan, 2009). Extrinsic motivation is often associated with external factors which reinforce the individual's performance. In terms of extrinsic motivation, externally regulated motivation has been associated with fulfillment of external rewards and/or avoidance of punishment (Deci and Ryan, 2000). Other extrinsic motivations include introjected regulation which reflects participation due to self-control, ego-involvement, rewards, and punishments. Identified regulation refers to personal importance and conscious valuing. Lastly, integrated regulation refers to congruence, awareness, and synthesis with self (Deci & Ryan, 2000b). Finally, amotivation, is defined as the lack of intention to act and reflects the absence of both intrinsic and extrinsic motivation (Deci & Ryan, 2000).

Three psychological needs in the self-determination theory are autonomy, competence, and relatedness. Autonomy refers to a sense of feeling free from pressures and having the possibility to make choices among several courses of action (Guay, Vallerand, & Blanchard, 2000). This helps play in the role of one's motivation by giving the students the opportunity to make their own decision and gives them a sense of ownership for their work. Competence refers to the ability to effectively carry out certain planned behavior (Dimmock, How, Jackson, &

Whipp, 2013). When a student feels competent in a skill, they will feel more motivated to do that skill in the future. Relatedness represents one's need for interpersonal security and connectedness (Dimmock, et al., 2013). A student who feels connected to the class and is comfortable in the environment (PE class), will most likely feel motivated to participate. If an environment provides an encouraging atmosphere, it most likely can help increase the chance for the student to engage in the activity.

Research has revealed that self-determined motivation is predictive of positive outcomes in a number of contexts, including children's physical activity, education, and health care (Parish & Treasure, 2003). The three psychological needs in the self-determination theory, autonomy, competence, and relatedness may affect how a student is motivated to participate in physical education class. A look into this may help to understand more about the influence the self-determination theory has among middle and secondary students.

Statement of the Problem

The purpose of this synthesis research is to examine how middle and secondary student's participation in physical education class are impacted by interventions based on the self-determination theory. This synthesis will examine multiple literature on the self-determination theory. It will include different conditions such as autonomy, autonomy-supports, and motivational climate. It will display the results of what was found in the research articles. It will draw conclusions to what conditions have helped increased participation in physical education class using the self-determination theory. Lastly, it will provide

suggestions and considerations to implement the self-determination theory in physical education classes.

Operational Definitions

Autonomy. Autonomy refers to a sense of feeling free from pressures and having the possibility to make choices among several courses of action (Dimmock, How, Jackson, & Whipp, 2013).

Autonomy-support. Autonomy supportive contexts provide choice and opportunity for self-direction with minimal pressured evaluations, imposed goals, and demands. Autonomy-supportive environments provide greater positive informational feedback and a context which the learner's opinion is considered. An autonomy-supportive teacher might, for instance, provide students with necessary information while encourage them to use this information to solve a problem in their own way (Shen, 2010).

Amotivation. A lack of motivation characterized by a belief that success is not possible and that the activity is not valuable (Dimmock, How, Jackson, & Whipp, 2013).

Competence. Competence refers to the ability to effectively carry out certain planned behavior (Dimmock, How, Jackson, & Whipp, 2013).

Relatedness. Relatedness represents one's need for interpersonal security and connectedness (Dimmock, How, Jackson, & Whipp, 2013).

Mastery-oriented climate. A task or mastery-involved environment is one where students demonstrate their ability by mastering a task and comparisons are self-referenced. In this environment, students in physical education are more likely to be intrinsically motivated, believe that there are no gender disparities, and believe that success is the result of effort (Solomon, 2012).

Summary

With the declining numbers of participation in physical activity, it is a must to find a way to increase student participation. Physical education class is the place where students participate in physical activity, learn cognitively about a skill or activity, and socially interact with others. The hope is that students will use what they learned outside of school and beyond to their adult lives. Motivation is a positive way to help increase student's participation in class. The self-determination theory is a strategy that may help students to become more motivated in physical education class. An encouraging environment set for students is important for student's motivation in class. Examining the research articles carefully will help provide the information on how middle and secondary student's participation in physical education class are impacted by interventions based on the self-determination theory.

Chapter 2: Methods

The online data bases I used to locate articles relevant to my topic were the Physical Education Index, SPORTDiscus, and Academic Search. Research articles that pertained to the self-determination theory, physical education, middle

and secondary students were obtained. The database was provided by the College at Brockport. As I was researching the articles, I found articles that were published between the years 2003-2015. There were a variety of words used to search the articles. The first term that I searched was the “self-determination theory”, and I received 1,235 hits. Adding the term “physical education” to the first search, I received 715 hits. To focus on a specific population to research, I added the term, “middle and secondary students” and received 192 hits. Other terms I searched on the database included “physical activity”, “motivation”, “participation”, “amotivation”, “strategy”, “increases”, “high school”, and “autonomy”. The total amount for critical mass narrowed to 10 articles. This was after evaluating each article basing it to my inclusion criteria. There were seven studies within the critical mass that were quantitative studies, and three that were qualitative studies.

The articles selected for the critical mass were selected based on the following criteria. I limited the articles that pertained particularly to the self-determination theory in physical education class. I also limited the articles that involved middle and secondary students. I have included the 3 different motivational conditions used in the research; psychological needs in an autonomy-support environment, perceive autonomy-support, and motivational climate (mastery oriented). As I examined the qualitative and quantitative articles, I analyzed the information by how the different conditions affected student’s participation in physical education class. Conclusions will be made based on the research found in the critical mass.

Chapter 3: Results

The following section will provide an explanation of the results found in the critical mass. The results are organized into the following themes:

psychological needs in an autonomy support environment, perceived autonomy support, and motivational climate (mastery-oriented).

Psychological Needs in an Autonomy Support Environment

As stated earlier, the three psychological needs in self-determination include autonomy, competence and relatedness. The autonomy-support environment is where students are provided choice, and opportunity for self-direction with minimal pressure demands. Autonomy support environment provides greater positive informational feedback where the learner's opinion is considered (Shen, 2010). In one study, 498 students (12-17 years old) were tested on the effects of perceived teaching behaviors on student's self-determined motivation in physical education (Haggard & Koka, 2010). Students were given multiple questionnaires focusing on the psychological needs. Autonomy Need Satisfaction, Competence Need Satisfaction, and Relatedness Need Satisfaction. A path analysis was used to test the relationships between self-determined motivation, perceived teaching behaviors, and the psychological needs. The path analysis looks at the relationship between perceived teaching behaviors, satisfaction of psychological needs for competence, autonomy, and relatedness, and self-determination motivation in physical education.

Results indicated that perceived competence and relatedness were significant and positively associated with the Self-Determination Index (SDI)

(Haggard & Koka, 2010). The SDI assesses how individuals are relatively autonomous versus controlled when performing a behavior. There were a total of seven teaching behaviors; democratic, autocratic, teaching and instruction, situation consideration, positive general feedback, positive non-verbal feedback, and negative non-verbal feedback. All of these behaviors showed positives related to the SDI except autocratic behavior and negative nonverbal feedback. Positive feedback on perceived competence showed an increase of intrinsic motivation. Interestingly, perceived autonomy was not positively associated with SDI. Ntoumanis (2001) claimed that PE teachers are usually required to follow a prescriptive curriculum that doesn't allow them to provide much choice and opportunities for students' initiatives. This may be the case why the student's autonomy showed low results due to teachers not providing supportive instruction.

Previous SDT-based instructional studies have reported that teachers who are more supportive have students who report positive experiences (Langan, Blake, and Lonsdale, 2013) and are more physically active (Perlman, 2013). Perlman (2015b) examined how different forms of teacher instruction, based on the SDT can influence amotivated students' motivational responses. Ninth graders were randomly assigned to a control group or an intervention group that consisted of an autonomy-supportive environment. Results showed that students' perceptions of teachers' autonomy-support posted higher posttest scores compared to the control group. However, according to the SDI, students engaging in the intervention group showed a high need for relatedness compared to the control group. Students who were amotivated in physical education class

showed a high need for relatedness. Teachers presenting themselves as caring and empathetic helped students to feel comfortable and connected in the class. Relatedness support is strongly associated with a teacher who is receptive and acknowledges that students may not enjoy an activity (Perlman and Webster, 2011). There was a lack of autonomy and competence needs in the study (Perlman, 2015b). Although, the teacher acknowledged student accomplishments during the task and gave students the opportunity to complete the task on their own students weren't successful, which may have caused the lack of autonomy and competence to be significant.

Another study done by Duda, Ntoumanis, and Standage (2006), focused on the physical education student's motivational processes and the ratings of their effort by the PE teacher. There were a total of 394 British secondary students, ages 11-14 years. Results indicated that perceptions of autonomy support were positively associated with the needs of autonomy, competence, and relatedness. This finding is consistent with the theoretical tenets of self-determination theory, which hold that perceptions of autonomy support provide the social conditions required to foster self-determined motivation by satisfying the three innate psychological needs (Deci & Ryan, 2000b). Competence in this study emerged as the main predictor of self-determined motivation. It may be that competencies in physical education is more visible and striking than autonomy and relatedness.

Perceived Autonomy Support

Students in physical education class may need support or assistance when participating in physical education. It's important for the teacher to provide an environment that helps motivate students by providing the students with choice or an

opportunity to complete the task on their own. To investigate this idea, Perlman (2015) randomly assigned 62 preservice physical education teachers to an intervention or control group. The intervention group consisted of an autonomy-supportive intervention. Pre and posttest scores from the Problems in School (PIS), Learning Climate Questions (LCQ), and Sport Motivation Scale (SMS) were obtained from the participants. Results indicated that the preservice teachers exposed to the intervention demonstrated higher frequency of autonomous interactions and reported higher levels of perceived autonomy support compared to the control group. The findings show that implementing an autonomy-supportive environment can help bring more motivational instruction. However, there was a lack of significant changes in student motivation. A plausible reason for the lack of motivation change could be associated with the limited time (i.e., 4 weeks) students were engaged in each unit of study (Perlman, 2015). A longer timeframe for the study should be done to see any changes in motivation.

Another study done by Dimmock, How, Jackson, Whipp (2013), examined eighth graders in physical education class. Students were randomly selected and put into a control and intervention group. The intervention group was given three possible choices and the control group was given no choices. The three possible choices the intervention group was given were; participate in the class, act as a PE development officer (ex. Peer teacher), and lastly plan their own personal activity program. The control group weren't offered these choices and were told to participate just participate in PE. The objective of the study was to see if choice helped increase autonomous motivation, perceived autonomy support, and physical activity (PA) levels. Results indicated that providing choice

in PE, rather than no choice, increased perceptions of autonomy support for students. Students in the intervention group also showed a greater display of moderate to vigorous physical-activity (MVPA) levels than the control group. However, student's self-determination showed that those who were offered choice did not display greater motivation in comparison to those without choice (Dimmock et al., 2013). This finding is contrary to the current SDT literature, which suggests that when educational settings and teachers' pedagogical practices satisfy students' psychological needs of autonomy, competence, and relatedness, students' motivation, achievement, and well-being are enhanced (Alfi et al., 2004; Deci et al., 1996; Reeve et al., 2004). Other results show that student's perceived autonomy support was high when being provided with choice. The students in the no-choice condition appeared to experience some decline in their perceptions of autonomy support across the period of the study. Students who aren't receiving choice in class, due to a traditional instruction class setting, may be hindered by the lack of autonomy. Providing choice to students can help them be creative and learn to figure out how to accomplish a task on their own.

Shen (2010), looked at a ninth grade students participating in a mandatory physical education class and how the impact of perceived autonomy support impacted their decision to enroll in an elective PE course the following year. The sample size consisted of 545 participants. Students had a 90 minute block rotation where physical education class was every other day. Results showed that on average, participants perceived moderate autonomy support from their mandatory physical education teachers. However, intention to enroll in elective physical

education was only 25% for the following school year. There were weak-to-moderate connections between physical education enrollment and perceived autonomy support. This result is similar to the findings of Shen (2007), who also found no association between perceived behavior control and physical activity engagement for adolescents.

Finally, Antoniou, Barkoukis, Gourgoulis, Karagiannidis, & Kosta (2015), had 630 adolescents complete questionnaires measuring perceived autonomy support and autonomous motivation in PE. Results indicated that perceptions of autonomy-supportive climate positively predicted enjoyment, whereas students participating in a controlling environment showed high boredom and no effects on enjoyment. Examples of the autonomy supportive strategies the teachers used included time for listening to students, asking students what they want, and communication with students during PE. In this study, the autonomy supportive climate seems to consistently have positive influence on students' responses during physical education lesson. This suggests that physical education teachers should provide an environment that promotes autonomous motivation among students to help increase engagement in PE class. When students are given an opportunity with choice, they will most likely show enjoyment and be motivated to participate in the activity.

Motivational Climate (Mastery-Oriented)

Motivational climate (mastery-oriented) is a task or mastery-involved environment wherein students demonstrate their ability by mastering a task and comparisons are self-referenced (Solomon, 2012). An ego-involved environment

implies that children demonstrate their ability by having a superior performance over another individual (Nicholls, 1984). According to Treasure (1997) the mastery-oriented climate students are more likely to be intrinsically motivated, with no gender disparities, and success is based on effort. However in the ego-involved environment, Treasure believes that this climate causes boredom, decrease in intrinsic motivation, students attempt to win or succeed through deception or cheating, and ability is valued over effort. The mastery-oriented climate gives students the opportunity to increase their chances to be intrinsically motivated. This links with the SDT on aiming students to become intrinsically motivated along the continuum.

In one study, Solomon (2012), used surveys to measure self-reported physical activity levels, attitude, motivation, and perceptions of the motivational climate among 6th-8th graders. The motivational climate instruments used a variety of instruments in the study. They included the Learning and Performance in Physical Education Classes Questionnaire (LAPOPECQ), Situational Motivation Scale (SIMS) and the Physical Activity Questionnaire for Children (PA-QC), and pedometers. The Situational Motivational Scale measures the self-determination motivation levels. The PA-QC measures the self-reported levels of physical activity. Pedometers were used as an objective measure of physical activity for three physical education days and a one 24-hour count. Results indicated that the perceptions of the motivational climate and levels of self-determination were not related to the measures of physical activity. Other results showed that perceptions of mastery oriented climate were related to positive attitudes regarding both

usefulness and enjoyment of physical education, as well as high levels of self-determined motivation. This suggests that positive attitudes about engaging in activity in physical education classes are fostered when a task-involved environment is salient (Solomon, 2012).

The levels of self-determination had no significant effects for grade, gender, or the grade by gender interaction (Solomon, 2012). However, the 6th graders displayed lower levels of amotivation and external regulation than 7th and 8th graders. Looking at pedometers during physical education classes, results showed that 6th graders took more steps than 7th graders and the 7th graders took more steps than the 8th graders. Moreover, girls took fewer steps than boys during physical education classes and during the 24-hour count. This may be related to the stereotypical “male” activities that consisted of soccer and capture the flag, which may have hindered girls to participate in class.

Parish & Treasure (2003), found similar results when examining 6-8th grade students in physical education class. When examining the impact of perceptions of the motivational climate, perceived ability on situational motivation and the physical activity behavior, the authors found that physical activity declined for both male and female students from 6th to 8th grade. The decline was more dramatic for female students, particular between 6th and 7th grade than for the male students for total steps (pedometers), which mirrors the results of Solomon (2012), in which girls showed a less amount of physical activity than boys. Also, the class activity selected by the teacher was ultimate football, which may have hindered the girl’s results due to lack of interest and

engagement. As for self-determination, forms of situational motivation (identified regulation and intrinsic motivation) showed strong relations with the mastery-oriented climate. However, performance-oriented climate related strongly with external regulation and amotivation. This displays that students who show nonself-determination motivation are less likely to engage in physical activity.

Finally, Jaakola, Leskinen, Liukkonen, & Yli-Piipari (2012) had students from grade 6 up to grade 9 self-report PA five times throughout the grades 6 through 9 in order to determine if self-determination and role orientations were related to PA development. Results showed that the self-determination among grade 6 predicted grade 7 physical activity levels for both genders. Furthermore, boy's task orientation at grade 6 positively predicted their grade 7 PA levels. The findings that were shown were weak; however, it was found that self-determination and task orientation provide importance in physical education class.

Summary

The studies have shown that psychological needs of relatedness and competence were enhanced in an autonomy supportive environment. Students felt connected and comfortable in the environment as well as capable of performing the task. Students perceived autonomy support showed positive significance, however, student motivation wasn't effected within the environment. When students were given choices it helped increase student engagement and provided enjoyment. Although, some students demonstrated increased motivation within a mastery-oriented climate focused on personal competency, older adolescents,

especially females displayed less engagement in activity. Thus, the need for teachers to select activities that are suitable for all students is crucial.

Chapter 4: Discussion

The purpose of this synthesis project was to examine how middle and secondary student's participation in physical education class are impacted by interventions based on the self-determination theory. Based on the findings in the results section, the psychological needs, perceived autonomy-support, and motivational climate showed a different array of results. Each psychological need was impacted differently based on the findings of the article. The perceived autonomy-supportive environment showed signs for students to become more autonomous. The motivational climate presented mix results of impact on students based on grade levels and gender.

Relatedness & Competency

The psychological needs in the autonomy support environment on student's self-determination motivation varied. In the one study done by Haggard et. al. (2010), results indicated that perceived competence and relatedness showed positive effects on self-determination among student's ages 12-17 years old. However, perceived autonomy did not show self-determination among physical education students. This effect may be due to the physical education teachers not allowing much choice for students to make. Without allowing students to have a choice, it will most likely decrease the students chance to be autonomous. Another study done by Perlman (2013), comparing an autonomy supportive environment compared to a control group revealed relatedness to be significant. It seems that students wanted to feel that the physical education teacher cares for

them and feel that they are empathetic. Students who feel like they are a part of the class or interacts with others in class, may most likely get motivated to engage in physical education class. However, the need for autonomy showed a lack of significance. This may be due to students not being engaged in the teacher's strategy in the environment.

One study revealed positive perceptions of autonomy-support for the needs of autonomy, competence, and relatedness. Duda and colleagues (2006), indicated this finding among secondary students ages 11-14. However, competence showed to be the main psychological need for self-determined motivation. It may be that competence in this study is more visible and striking than the other two needs. Looking at these different research articles, they have shown that different needs impacted student's self-determination motivation in an autonomy supportive environment. It seems that depending on how the teacher engages the student in the activity may determine how a student may be impacted on the needs. The information shows that in some studies students are more impacted on being connected to the environment and part of the class than being autonomous or competent. On the other hand, other studies show that students show more competence, or show both competence and relatedness. Depending on how the students are being delivered the activity, by the teacher does impact their needs in self-determination.

Perceived Autonomy-Support

The perceived autonomy-supportive environment showed signs for students becoming more autonomous. Creating an autonomy support environment helped increase perceived autonomy support for students, however this did not

always increase motivation. For example, Dimmock and colleagues (2013), looked at Grade-8 students that consisted of an intervention group that was given a choice and control group with no choice. Students in the intervention group indicated high levels of perceived autonomy support and displayed high levels of MVPA compared to the control group. However, student's self-determination in the intervention group did not display greater motivation compared to the control group. This is interesting since usually when the teacher satisfies students' psychological needs, student motivation tends to be higher. Teacher's providing students with choice is important because it gives students the opportunity to make their decisions and to be creative with it. It is important to let students make a choice that impacts themselves because they are the ones that are impacting themselves. As educators, it is important to give students the tools and strategies they need to support them, but also give them opportunity to do on their own.

A similar study done by Perlman (2015), looked at an intervention group with students who were exposed to the autonomy-supportive environment and the control group were students who didn't received autonomy-support. Students in the intervention group perceived a higher level of autonomy support. Students in this group however did show a lack of change in their motivation. It could be that students weren't given enough time in the environment that last only 4 weeks. The need for more exposure to this environment may enhance student's motivation. It is very crucial for teachers to give students enough time to buy into the instructional strategy to help establish motivation.

Perceptions of autonomy supportive climate have shown to predict enjoyment. Antoniou and colleagues (2015), results indicated that listening, communicating, and asking students what they want helps with the enjoyment in PE. Giving students the opportunity to make decisions or come up with creative ways to make class enjoyable is crucial. Teachers must provide opportunities for students to make decisions on their own to help increase their autonomy. Allowing students to create or make choices on their own in physical education class helps provide independence students need in the real world.

Selection of Activity

It is important to provide a selection of activities that will help increase the chance for students to participate. The selection of activities can affect how students are motivated to engage in the activity. For example, Solomon (2012) found that a mastery-oriented climate was related to positive attitudes regarding usefulness and enjoyment of physical education and high levels of self-determination motivation. However, females displayed lower step counts than males during the activities (soccer and capture the flag), which tend to be more stereotypical male sports. Similarly, Parish (2003) found a decline in female engagement in the activity compare to males. This study assessed the perceptions of the mastery-oriented environment through self-determination forms of situational motivation. The choice of the activity was ultimate football in which it may have caused girls not to participate.

It's important that the selection of activities are suitable for both genders. Providing activities that will increase interest and engagement. The teacher must establish

an environment where all students have the opportunity to engage an activity that isn't gender dominated. Looking at this it is clear that girls are showing low levels of physical activity due to lack of engagement in the activity. It is important to provide both genders activities that both can enjoy and provide choice to increase student's motivation to participate in the activity.

Limitations

In my research, there were two major limitations found within the articles. The first limitation is that one of the studies had preservice teachers providing the instructional strategies. These preservice teachers were in a methods class and learning about autonomy-support. If they were certified teachers teaching the autonomy support strategy, then possibly the results may have differed. The second limitation is the amount of time the studies took place. One study took three days and another took four weeks. The studies didn't give enough time for the teacher strategies to be established, which may have affected students' motivation to engage in the activities.

Future Research and Recommendations

Future research should look at comparing interventions based on self-determination theory to interventions based on other theories, such as goal theory. The self-determination theory showed ways that it helps to increase student participation in physical education class, however, comparing the self-determination to other theories may help provide more insight into effective means of increasing student motivation. Another area of future research is to examine the effectiveness of these interventions with

individuals with disabilities. It is important to include all students with many different ability levels especially given the emphasis on inclusive physical education. It is also worth examining how the psychological needs may be impacted for students in this population. Lastly, I recommend examining gender differences and age by gender interactions. It is important to see how these different participant characteristics might impact the effectiveness of SDT interventions on physical activity participation levels.

Conclusion

Overall, the research examined in this synthesis indicated that interventions based on the self-determination theory positively impacted student's participation in physical education class. Not every study had shown students becoming more autonomous, but did show steps to take to get students to be autonomous. The psychological needs were impacted based on student's perceived autonomy support; however, results were varied based on student engagement in the activity. Teachers play a big role in student motivation and engagement, and their behaviors and demeanor towards the activity may affect how students participate. Teachers should provide an opportunity for student choice to increase autonomy for students. It is important to give students the opportunity to make a choice in class as they would when they leave school to make their own decisions in their life. Physical education teachers can help students along the way, but it is the student that needs to learn to make their own decisions and choices. Students also need to feel connected in class. When students feel comfortable in the class, they most likely will be motivated to engage in the activity. Moreover, when students understand what the task is and

are given confidence to achieve it, they are more likely to be successful. It's important that the teacher sets up an environment that provides students the chance to achieve and feel connected to the activity. As shown in some studies, it's important for the teacher to select activities that students will engage in. Only providing activities that are perceived as "male" sports, may decrease female's participation. Thus, it is crucial for the physical educator to establish activities that are suitable for both male and females. Lastly, physical education teachers need to invest more time into strategies they want to establish. Whether creating an autonomy-support or mastery-oriented environment, it is essential that physical education teachers give students the opportunity to learn what the task is and are able to achieve the goals that are set for them.

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Appendix A

Synthesis Article Grid

| Author | Title | Source | Purpose | Methods & Procedures | Analysis | Findings | Recommendations |
|---|---|--------------------|--|--|--|--|--|
| Antoniou, Panagiotis, Barkoukis, Vassilis, Gourgoulis, Vassilis, Karagiannidis, Yannis & Kosta, George (2015) | The role of motivation and metacognition on the development of cognitive and affective responses in physical education lessons: A self-determination approach | <i>Motricidade</i> | The purpose of the study is to investigate the role of motivation and metacognition in the formation of cognitive and affective outcomes from participation in physical education lessons within the framework of self-determination theory. | A sample of 630 adolescent students (M age=14.06) participated in the study. There were 313 girls, 314 boys, and 3 who did not report their gender from two junior high schools located in Southern Greece. Majority of the participates were native Greek nationals and 4% were immigrants from countries of Balkans and former Soviet Union. | Using a Perceived Autonomy Support Scale for Exercise Settings (PASSES). Students were asked to rate PE teachers that supported their autonomy. Another is Perceived Locus of Casualty scale (PLOC), which measured four motivational regulations. Metacognitive Processes in Physical Education Questionnaire (MPIPEQ), knowledge and regulation of cognition. "Interest Enjoyment" | Indicated that perceptions of autonomy supportive motivational climate significantly predicted enjoyment, boredom and intentions towards leisure-time physical activity. Autonomous motivation and metacognition significantly predicted enjoyment, boredom and intentions, whereas controlling motivation was a significant predictor of boredom. | The research doesn't allow casual inferences to be made. Future research should examine the effect of training programs involving teaching strategies on students' responses, and the mediating role of metacognition. |

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| | | | | | subscale of the Intrinsic Motivation Inventory. A Boredom Scale in PE was provided in the study. Intention for Leisure-Time Physical Activity was provided. | | |
| Dimmock, James, How Meng Yew, Jackson, Ben, & Whipp, Peter (2013) | The Effects of Choice on Autonomous Motivation, Perceived Autonomy Support, and Physical Activity Levels in High School Physical Education | <i>Journal of Teaching in Physical Education</i> | The purpose of this study was to examine whether the provision of choice in physical education enhanced students' autonomous motivation, perceived autonomy support, and physical activity levels, relative to a "regular PE" control group. | 8 intact Year 8 PE classes (4 male and 4 female classes) were selected from an independent school in Western Australia. There was a total of 257 students (M age= 12.91 years), who were assigned to 4 control (n=137) and 4 intervention classes (n=12). The control and intervention groups each included 2 male and 2 female PE classes. | Students were measured using the Sport Motivation Scale (SMS), referred as SMSPE, this measured motivation. This included 7 domains of SMSPE. 50 ACTi Graph GTIM accelerometers were used 15 times in the control group, while the intervention group selected based on their choice. Learning Climate Questionnaire, | Indicated that providing choice in PE aligned with increased perceptions of autonomy support for students. Selected students in the intervention group displayed greater in-class MVPA levels. | Teachers experimenting with timeframe that they used within choice-based protocols, according to the breadth and depth of learning would like their students to achieved. Providing an authentic, real-world school conditions required the protocol to adhere to the schools' PE curriculum and schedule. The lack of significances of the SDI data. Options were limited to 3 alternative choices. |

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| | | | | | LCQ, examine degree of which students perceived their PE lessons to be autonomy supportive. Cronbach's alpha is used to examine internal consistency of corresponding items. | | |
| Duda, Joan L., Ntoumanis, Nikos, & Standage, Martyn (2006) | Students' Motivational Processes and Their Relationships to Teacher Ratings in School Physical Education | <i>Research Quarterly for Exercise and Sport</i> | The purpose of this study was to use a model of motivation grounded in the self-determination theory to examine the relationship between physical education students' motivational processes and ratings of their effort and persistence as provided by their P.E. teacher. | Participants were 394 (M age= 11.97 years). There were 204 boys, 189 girls, and 1 didn't specify gender. Year 7 (ages= 11-12 years) and Year 8 (ages= 13-14 years). Secondary school children and 9 teachers (5 men and 4 women) from two state schools located in southeast England participated. Data were collected from 12 PE classes. | A questionnaire was given prior to student that lasted 20 minutes to take. A Learning Climate Questionnaire was given for Autonomy Support, Autonomy, Competence (Intrinsic Motivation Inventory), Relatedness (Relatedness Scale), and Motivational Regulations (Perceived Locus of Casualty Scale. | Perceptions of autonomy support positively predicted autonomy, competences, and relatedness. Perceptions of autonomy support proved the social conditions required to foster self-determined motivation by stratifying the three innate psychological needs. | Research would need to move toward objectively assessed levels of physical activity within and outside of school PE classes. Testing the predictive use of each distinct motivational regulation on teacher ratings and other markers of student motivated-behaviors. |

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| | | | | | <p>A Self-Determination Index (SDI) weighted the motivational items in the SEM. Teacher Rating of Academic Motivation, teachers rated each student in their class with respect to the motivated behaviors. SEM using Version of the statistical program AMOS. Maximum Likelihood Analysis used to examine the normality of the data.</p> | | |
| <p>Hagger, Martin S. & Koka, Andre (2010)</p> | <p>Perceived Teaching Behaviors and Self-Determined Motivation in Physical Education</p> | <p><i>Research Quarterly for Exercise and Sport</i></p> | <p>The purpose of this study was to test the effects of specific dimensions of perceived teaching behaviors on students' self-determined motivation in</p> | <p>There were 498 secondary students (287 girls and 211 boys) ages 12-17 years (M age= 13.76 years) from a town of 100,000 inhabitants located in southeastern Estonia. Sample consisted of completely of</p> | <p>Perceived Teaching Behaviors (items used from the RLSS) assess student's perceptions of various teaching behaviors. Perceptions of the Teacher Feedback</p> | <p>Indicated that satisfying the psychological needs for competence and relatedness, but not autonomy, were related to students' self-determined</p> | <p>Teachers should focus on the behaviors that had a significant impact on students' self-determined motivation in PE by testing central SDT. Teachers should avoid negative gestures in response to a poor</p> |

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| | | | physical education. | Caucasians. Questionnaires were given to students in their homerooms during regular school day. Questionnaire took about 15 minutes to complete. | questionnaire, Intrinsic Motivation Inventory, Assessment perceived autonomy in sport setting, Relatedness Need Satisfaction and Behavioral Regulations in Exercise Questionnaire, and Factor structure scales were examined via CFA prior to main analysis. Cronbach's alpha. | motivation. Lack of significant relationship between autonomy and self-determined motivation, this supported one of the central tenets of SDT, which supported by others in a sport setting. | performance and avoid rigid decision-making style, as behaviors tend to decrease students self-determined motivation toward PE. |
| Jaakkola, Timo, Leskinen, Esko, Liukkonen, Jarmo, & Yli-Piipari, Sami (2012) | Predictive Role of Physical Education Motivation | <i>Research Quarterly for Exercise and Sport</i> | The purpose of this study was to examine adolescents' physical activity stability as well as individual differences in physical activity among 7 th -9 th graders. Also, examined the | There were a total of 822 participants (430 boys and 392 girls) from eight junior high schools (40 physical education classes) during their transition from grades 7 to 9. Students were 12-13 years old (M age= 12.31 years) at the beginning of the study (Time 0). | Health Behavior in School-aged Children Research Protocol, Relative Autonomy Index (Sport Motivation Scale), Perception of Success Questionnaire, SPSS expectation- | Simple complex modeling has been found to provide more accurate estimates of change than methods such as one-factor modeling. Boy's individual PA differences diminished | PA stability between measurements indicated that junior high school may be a difficult time point for the successful design of PA enhancements programs. PA-related behavior and to design more successful PA interventions. |

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| | | | <p>predictive role of adolescents' self-determination and goal orientations in physical education at 6th grade in relation to their physical activity development.</p> | <p>Examined self-reported PA five times, twice during grade 7. Time 1: n= 801 Time 2: n= 805 Time 3: n= 792 Time 4: n= 786, Once during grade 9. Time 5: n= 766. Adolescents' motivational variables, self-determination, and goal orientations were assessed. Time 0: n= 580.</p> | <p>maximization algorithm, Mplus statistical package, Benters's comparative fit index (CFI), and Tucker (TLI).</p> | <p>across the junior high school years. Girl's individual PA differences decrease during the beginning of junior high school but increased between spring of grade 8 and fall of grade 9.</p> | <p>Longer and more frequent follow-up, and truly longitudinal statistical analysis.</p> |
| <p>Parish, Loraine E. & Treasure, Darren C. (2003)</p> | <p>Physical Activity and Situational Motivation In Physical Education: Influence of the Motivational Climate and Perceived Ability</p> | <p><i>Research Quarterly for Exercise and Sport</i></p> | <p>The purpose of this study was to examine the influence of perceptions of the motivational climate and perceived ability on situational motivation and the physical activity behavior among adolescent students over a 3-day period.</p> | <p>There were 442 6th, 7th, and 8th graders physical education students (213 male M age= 12.7 years and 229 female (M age= 12.5 years) attending the same middle school in an urban community in the southwestern region of the United States participated in the study. Participants were drawn from 24 (12 boys and 12 girls) single gender</p> | <p>Pedometers were used in the study to assess physical activity. Learning and Performance Orientations in Physical Education Questionnaire (LAPOPECQ). Children and Youth Physical Self-Perceptions Profile (CY-PSPP) to assess perceived physical ability.</p> | <p>The findings found that girl's physical activity declined in 6th and 8th grade whereas boys increased. It showed boys were more active than girls. Ultimate Frisbee was used in the activity and may of affected how students participated if</p> | <p>Look to develop strategies and guides to assist practitioners in developing mastery-oriented climates and focus on examining the relationship between perceptions of the motivational climate, situational motivation, and physical activity over time.</p> |

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| | | | | <p>physical education classes: 4 classes per gender from the 6th, 7th, and 8th grade. There were 5 total physical educators at the middle school in the present study teaching 6 physical education periods for a total of 30 physical education classes, 10 per grade level, on any given day. Classes selected were taught by 2 male and 2 female teachers. Consisted of 63% White, 8% Hispanic, 5% Asian, 4% African American, 4% Mexican, 2% Native American, 14% other and 21 students didn't report their race.</p> | <p>Situational Intrinsic Motivation Scale, to assess situational motivation in field and laboratory settings. Body Mass Index was used in the study.</p> | <p>it was perceived as a gender based sport.</p> | |
| <p>Perlman, Dana (2015)</p> | <p>Assisting Preservice Teachers Toward More Motivationally Supportive Instruction</p> | <p><i>Journal of Teaching in Physical Education</i></p> | <p>The purpose of this study was to examine the influence of an intervention grounded in Self-Determination</p> | <p>There were 62 participants (32 Male and 30 Female) physical education PT' enrolled in a secondary physical education content</p> | <p>Problems in Schools Questionnaire, Learning Climate Questions, and Sport Motivation</p> | <p>The PTs within the treatment group significantly changed perceptions of the social</p> | <p>Use of online intervention limited the ability to model autonomous behaviors. Use a qualitative approach to gain insight into rich</p> |

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| | | | <p>Theory on preservice teachers' instructional behaviors and the motivational responses of their students.</p> | <p>and methods course for an accredited tertiary university in the United States. This was a 16 week course Field Experience conducted 752 Year 9 students (384 Males and 368 Females) from 3 local schools. Year 9 program focused on "Team Sports" using a combined Sport Education and Tactical Approach. There was a 2 week observation/teacher assistance and delivering an 8 lesson sport-based unit. 31 PTs were assigned to either the autonomy-supportive intervention or the control group.</p> | <p>Scale. Pretest and posttest scores from the PIS, LCQ, and SMS. Cronbach and Intraclass Correlation Coefficients were conducted to examine whether the individual or group should be the unit of analysis.</p> | <p>context while measures of student motivation were found to be insignificant. Intervention brought positive changes. Interventions that promote teachers' ability to use autonomy-supportive instruction.</p> | <p>and robust data that go beyond information gathered from surveys and observations, and provide follow-up of each PT to investigate lasting impact of the intervention.</p> |
| <p>Perlman, Dana J. (2015b)</p> | <p>Help motivate the amotivated by being a supportive teacher</p> | <p><i>Physical Education and Sport Pedagogy</i></p> | <p>The purpose of this study was to examine how different forms of teacher</p> | <p>A total of 48 amotivated students, across 14 Year-9 classes (18 Male and 30 Female). They</p> | <p>Learning Climate Questionnaire, Basic Psychological Needs Scale in</p> | <p>Autonomy-supportive teaching within physical education were</p> | <p>Needs for a larger scale studies, more is needed to understand instructional pedagogical aspects</p> |

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| | | | instruction, based within the self-determination theory, can influence amotivated students' motivational responses within secondary physical education. | were identified from a high school in the mid-western region of the United States. To identify students as amotivated, all Year-9 students (N=392) completed a battery of surveys to assess their level of motivation towards physical education. Classes were randomly assigned to either a treatment (N= 24; Male= 9, Female= 15) or control group (N=24; Male 9, Female= 15). Treatment group was using a high level of autonomy-support, while the control group was provided a consistent level of autonomy-supportive and controlling instruction. | Physical Education, Sport Motivation Sale, and Self-Determination Index. Intra-class correlations calculated pretest and posttests dependent variables. Repeated Measures ANOVA's were calculated for SDI, autonomy, competence and relatedness. | supported. Amotivated students engaged in the autonomy – supportive classes had higher levels of self-determined motivation and support for relatedness. The need to be caring and empathetic supports with relatedness. There was a lack of autonomy and competence. Students might need to feel connected to the class to help facilitate motivation within the target group. | needed to support all three psychological needs, and examine additional benefits or outcomes for amotivated students while engaged in an autonomy-supportive setting. |
| Shen, Bo (2010) | How Can Perceived Autonomy Support | <i>Research Quarterly for Exercise and Sport</i> | The purpose of this study was to examine the influence of | There were 545 9 th Grade U.S. students (305 boys and 240 girls; age | A Learning Climate Questionnaire was used to | The students' personal attitudes toward | The study was based on similar cultural background |

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| | <p>Influence Enrollment in Elective Physical Education? A Prospective Study</p> | | <p>high school students' perceived teacher autonomy support in mandatory physical education on their intention and actual enrollment in elective physical education.</p> | <p>range 14-16 years, M age= 14.66 years) participants from three suburban high schools in a major Midwestern metropolitan area. Demographics show 82% Caucasian and 18% Minority. Schools used a 90-minute rotation block schedule. Physical education class was every other day throughout the semester. There were 3 certified physical education teachers in each school. The physical education curriculum was focused on lifetime fitness activities. Students final grade was based on health-related fitness improvements and summative written tests on the units covered (e.g., technique, rules,</p> | <p>assess student autonomy support provided by the teachers. The Theory of Planned to enroll in elective education, attitudes towards elective physical education, subjective norms, and perceived control over elective physical education using the TPB scale. Behavior was used Questionnaires data reliability was examined using Cronbach's. Factor Analytic-Structural Equation Modeling approach was used in the EQS program to analyze data.</p> | <p>elective courses, perceived social pressures, and perceived control over enrolling in the courses indicative were all predictive of intention to participate. The perceived control to enrollment status however wasn't significant. Attitudes and subjective norms were the most valuable predictors of intention. Perceived autonomy support had a direct impact on TPB variables in fully and partially mediated models.</p> | <p>socioeconomic status. Needing to branch out to other backgrounds and socioeconomic statuses. Additional variables from social, psychological, and biological perspectives need to be considered for future study. Indirect effect of the perceived autonomy support should be examined. Since this was tested in the second year, it should look at the third and fourth year to provide more information.</p> |
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| | | | | fitness principles, etc.). | | Students with positives attitudes were much more likely to report strong behavioral intentions to participate in elective courses, compares to students with less favorable attitudes. | |
| Solomon, Melinda A. (2012) | Student Motivation in Physical Education and Engagement in Physical Activity | <i>Journal of Sport Behavior</i> | The purpose of this study was to examine relationships between perceptions of the learning climate, attitudes, levels of self-determination, and engagement in physical activity in order to determine the role each plays in student motivation toward physical | There were 114 participants in the study. 6 th Grade (n= 30; 16 boys and 14 girls) 7 th Grade (n= 30; 18 boys and 12 girls) 8 th Grade (n=54; 23 boys and 31 girls). The students were enrolled in a suburban school. Students participated in 90-minute physical education classes every other day on a block schedule. Certified physical education specialist taught the classes. | Learning and Performance Orientations in Physical Education Questionnaire (LAPOPECQA), Subramanian and Silverman Likert scale was used for scoring on attitude, Situational Motivation Scale, The Physical Activity Questionnaire for Children (PAQC), pedometers used for physical | When students are given opportunities to progress at their own pace, students attitudes and motivation toward physical education may improve. The perception of the climate showed a stronger influence on attitudes than on their levels of self-determination. Pedometers | Check for better reliability of students using pedometers to help provide accurate data. Using accelerometers may provide more accurate information and reliability. Provide a variety of physical activities and allowing some level of autonomy where students can make choices regarding activities they like to participate in. |

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| | | | <p>education.</p> | <p>Curriculum was based on team sports, organized games, and fitness activities. 1 class of 6th graders, 1 class of 7th graders, and 2 classes of 8th graders participated in the study.</p> | <p>activity, Statistical Package for the Social Sciences (SPSS) was used to analyze information. Multivariate analyses of variance (MANOVA) determined the perceptions of motivational climate, attitudes, self-determination, and physical activity.</p> | <p>counts have no relationship to the self-report measure of physical activity. Motivational climate and students' attitudes exhibited a marked decline from 6th to 8th grade. The number of steps were decreased in taken during physical education classes. There is downward trend in both motivational constructs and physical activity.</p> | |
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Appendix B

Coding Table

| Self-Determination Theory | | | |
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| Interventions Used | Psychological Needs in an Autonomy-Supportive Environment | Perceived Autonomy Support | Motivational Climate (Mastery- Oriented) |
| Article 1 | Duda, Joan L., Ntoumanis, Nikos, & Standage, Martyn (2006). Students Motivational Processes and Their Relationships to Teacher Ratings in School Physical Education | Antoniou, Panagiotis, Barkoukis, Vassilis, Gourgoulis, Vassilis, Karagiannidis, Yannis & Kosta, George (2015). The role of motivation and metacognition on the development of cognitive and affective responses in physical education lessons: A self-determination approach. | Parish, Loraine E. & Treasure, Darren C. (2003). Physical Activity and Situational Motivation In Physical Education: Influence of the Motivational Climate and Perceived Ability |
| Article 2 | Haggar, Martin S. & Koka, Andre (2010). Perceived Teaching Behaviors and Self-Determined Motivation in Physical Education | Dimmock, James, How Meng Yew, Jackson, Ben, & Whipp, Peter (2013). The Effects of Choice on Autonomous Motivation, Perceived Autonomy Support, and Physical Activity Levels in High School Physical Education | Jaakkola, Timo, Leskinen, Esko, Liukkonen, Jarmo, & Yli-Piipari, Sami (2012). Predictive Role of Physical Education Motivation |
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