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Understanding the factors that influence motivation and experiences in high school physical education

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Understanding the Factors that Influence Motivation and Experiences in High School

Physical Education

Brenna Cosgrove

A thesis submitted to the Graduate Faculty of JAMES MADISON UNIVERSITY

In

Partial Fulfillment of the Requirements

for the degree of

Master of Science Kinesiology

Department of Kinesiology

May 2017

FACULTY COMMITTEE:

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Dedication

I would like to dedicate this thesis to my family. To my mom for your motivation and support these last two years; our daily phone calls were the highlight of my days. To my dad for always expressing your pride in my accomplishments. Those confidence boosts were vital to my success. To my sisters, Fallon and Kylie, thank you for providing me with plenty of smiles and laughs throughout this process. To all my relatives (grandparents, aunts, uncles, and cousins), thank you for taking an interest in my work. Your encouragement fueled my desire to continue my education. Finally, I would like to dedicate this thesis to my boyfriend, Chad. You have been such a wonderful source of inspiration; watching you chase your dreams has motivated me do the same. Thank you all for the love and support – I would not be where I am today without each of you!

Acknowledgements

I would like to acknowledge my thesis committee – I could not have made this project a reality without you. To my committee chair, Dr. Elizabeth Edwards, thank you for your continuous support. Working with you on this thesis and with the Morrison Bruce Center has been a highlight of my graduate studies. You have been an outstanding role model for what I aspire to be both professionally and as a person. To Dr. Susan Nye, thank you for collecting the data and for allowing me to analyze it for my thesis. I also want to thank you for welcoming me into the PHETE family; being in your class solidified that I belong in the field of physical education. And to Dr. Trent Hargens, thank you for the time and effort you put into this thesis. Your perspective was instrumental in the improvement of my project; I really enjoyed working with you.

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Abstract

Intro: In comparison to children, adolescents achieve significantly less physical activity (PA). Additionally, activity differences exist among genders and race/ethnicities. One way to influence the PA habits of adolescents is through high school physical education (PE). Though PE class reaches students of all ages, genders and races, motivation and experiences across these groups appear to differ.

Purpose: The purpose of the present study is to determine if physical education descriptors, motivators, and experiences in ninth and tenth grade students differ across gender, race/ethnicity, and grade.

Methods: Students completed a questionnaire about the factors that influence their motivation and experiences in PE class. Responses were compared across gender, race/ethnicity, and grade.

Results: Primary findings show that boys and freshmen had more positive experiences in PE class than girls and sophomores, respectively. Additionally, Caucasian students had more negative experiences in PE class in comparison to students of any other race/ethnicity.

Discussion: These findings illustrate the necessity for PE teacher sensitivity when teaching students of different genders, grades, and ethnic backgrounds and for attention to the social aspect of PE classes among females. Also, the results demonstrate the need for future research in this area.

Chapter I

Introduction

The American College of Sports Medicine recommends that adolescents participate in at least 60 minutes of physical activity (PA) each day (American College of Sports Medicine, 2013; Janssen & LeBlanc, 2010). PA levels drop drastically during the transition from childhood to adolescence (Allison, Adlaf, Dwyer, Lysy, & Irving, 2007; Belcher et al., 2010; Caspersen, Pereira, & Curran, 2000; Chung, Skinner, Steiner, & Perrin, 2012; Duncan, Duncan, Strycker, & Chaumeton, 2007; Gordon-Larsen, Nelson, & Popkin, 2004; Gordon-Larsen, McMurray, & Popkin, 2000; Nader, Bradley, Houts, McRitchie, & O'Brien, 2008; Pate et al., 2009; Sallis, 2000; Trost et al., 1997) making adolescence an essential time to encourage PA. In a study comparing activity levels based on age and BMI, researchers found that regardless of weight status, a greater percentage of younger subjects met the guidelines for PA than older subjects (Chung et al., 2012). Specifically, in a nationally representative sample of United States youth, the only group that met the recommendation was the six to eleven-year-olds who participated in an average of 88 minutes of PA per day. Young people aged 12-15 and 16-19 participated in 33 and 26 minutes of PA, respectively (Belcher et al., 2010). Reductions in PA from childhood to adolescence were so great that they exceeded the decline from adolescence into adulthood (Caspersen et al., 2000); one author even went as far as stating that adolescence itself was a risk factor for physical inactivity (Rowland & President's Council on Physical Fitness, and Sports, 1999). Reductions in PA have also been found within adolescence (Allison et al.,

2007; Gordon-Larsen, Adair, & Popkin, 2002; Song, Carroll, & Fulton, 2013); younger adolescents reported more days of PA than older adolescents (Allison et al., 2007). The factors influencing this reduction in PA during adolescence need to be better understood to identify effective strategies to prevent this decrease.

PA levels in adolescence tend to persist into adulthood, therefore maintaining levels of PA from childhood to adolescence may aid in preserving lifetime activity (Caspersen et al., 2000; Gordon-Larsen et al., 2004; Telama et al., 2005). PA from the ages of nine to eighteen significantly predicted activity levels into adulthood, and sustained PA throughout youth increased the likelihood of adult PA (Telama et al., 2005). Continued PA confers lifelong benefits, positively affecting body composition, cholesterol and blood pressure levels, and self-esteem, all while decreasing the risk of premature death and chronic diseases, such as heart disease, diabetes, stroke, and cancer (American College of Sports Medicine, 2013; Janssen & LeBlanc, 2010) In order to improve health and decrease risk of disease, it is imperative to promote an active lifestyle during adolescence as PA habits carry over into adulthood (Caspersen et al., 2000; Gordon-Larsen et al., 2004; Telama et al., 2005).

Gender Differences in PA

Despite increases in female participation in organized sport following the passage of Title IX (Kennedy, 2010), gender differences in adolescent PA levels persist (Carroll & Loumidis, 2001a; Caspersen et al., 2000; Gordon-Larsen et al., 2004; Sallis, 2000; Yli-Piipari, Barkoukis, Jaakkola, & Liukkonen, 2013). In general, boys participate in more PA than girls (Belcher et al., 2010; Carroll & Loumidis,

2001b; Caspersen et al., 2000; Chung et al., 2012). In a study evaluating a nationally representative sample of youth, adolescent girls were identified as the least active group (Chung et al., 2012). This has been supported by several other studies (Belcher et al., 2010; Carroll & Loumidis, 2001b; Caspersen et al., 2000). Due to the disparity in PA between the genders and potential related health implications, it is important to understand whether motivators for PA differ between adolescent girls and boys and how to effectively address these differences, as these activity differences persist into adulthood (Caspersen et al., 2000).

Race/Ethnicity Differences in PA

In addition to gender differences, PA among adolescents appears to differ across racial/ethnic lines (Gordon-Larsen, McMurray, & Popkin, 1999; Gordon-Larsen et al., 2000; Gordon-Larsen et al., 2002; Kimm et al., 2002; Pate et al., 2009; Sallis, 2000). In general, Caucasian adolescents participate in more PA than minority adolescents (Gordon-Larsen et al., 2004; Gordon-Larsen et al., 1999; Gordon-Larsen et al., 2000; Gordon-Larsen et al., 2002; Pate et al., 2009; Sallis, 2000). One study examined ethnic differences in PA; researchers found that moderate-to-vigorous physical activity (MVPA) was greatest in Asian and Caucasian boys, while MVPA was lowest in African American and Hispanic girls (Gordon-Larsen et al., 2002). Specific to girls, a longitudinal study comparing Caucasian and African American girls found that there were decreases in PA in both races from childhood to adolescence; however, decreases among African American girls were twice as great as those of Caucasian girls (Kimm et al., 2002). Unsurprisingly, the racial/ethnic groups with the least amount of PA have the greatest prevalence of obesity (Centers for Disease

Control and Prevention, 2015; Freedman, Khan, Serdula, Ogden, & Dietz, 2006; Gordon-Larsen et al., 2002; Kimm et al., 2002), highlighting the potential health implications of the differences in levels of PA. African American and Hispanic youth have the highest rates of obesity: approximately 17% and 16%, respectively (Centers for Disease Control and Prevention, 2015). Asian and Caucasian youth have the lowest rates of obesity: approximately 6% and 12%, respectively (Centers for Disease Control and Prevention, 2015). More research is needed in this area to determine strategies to motivate adolescents of diverse ethnic backgrounds to be physically active. More research is needed in this area to determine strategies to motivate adolescents of diverse ethnic backgrounds to be physically active.

Physical Education

One way to increase PA in adolescents is through engaging school physical education (PE) programs. PE can significantly increase total PA in youth (Chen et al., 2014) by increasing activity during the school day and by promoting increases in PA outside of school (Sallis et al., 1991, Telama et al., 1997), which hopefully leads to lifelong activity. Unfortunately, students do not always have adequate access to PE (Lee, Burgeson, Fulton, & Spain, 2007; Sallis et al., 2012). In a study that assessed PE policy at the state, district, school, and classroom levels, the percentage of schools that required PE dropped from 55.3% to 20.4% between 9th and 12th grade, and only 2.1% of high schools offered daily PE (Lee et al. 2007). One cause for reductions in PE class time is due to greater emphasis on academics (Center on Education Policy, 2008; Sallis et al., 2012); on average, PE class time was reduced by

35% in an effort to devote more instructional time to English language arts and mathematics (Center on Education Policy, 2008). Of the time allocated for PE class, much of it was not spent being physically active. Many studies have assessed activity time during PE class and have found that the majority of class time was not spent in MVPA (Fairclough & Stratton, 2005; Simons-Morton, Taylor, Snider, & Huang, 1993). Specifically, in a comprehensive review, only between 27% and 47% of PE class time was spent being physically activity (Fairclough & Stratton, 2005).

While any activity is better than none, it's not only about the total time spent in PA, as some activities translate into later PA better than others (Haerens, Kirk, Cardon, & De Bourdeaudhuij, 2011; Sallis & McKenzie, 1991; Telama, Yang, Laakso, & Viikari, 1997). Team sports are at the core of many PE curriculums (Fairclough, Stratton, & Baldwin, 2002; Haerens et al., 2011; Sallis & McKenzie, 1991), yet there is conflicting evidence on the effectiveness of these sport-themed PE programs to encourage the adoption of active lifestyles outside of the gymnasium. Evidence proposes that PE during childhood leads to watching sports, rather than participation, in adulthood (Sallis & McKenzie, 1991). It has been suggested that PE programs focus more on health-related activities, such as fitness and lifetime sports, in order to induce greater amounts of PA into adulthood (Haerens et al., 2011; Sallis & McKenzie, 1991). Despite the call for lifetime fitness focused PE curriculums, team games were taught significantly more than lifetime activities (Fairclough et al., 2002). In order to maximize activity time in PE class and promote lifelong PA, it is important to discover what students enjoy, what motivates them to move in PE class, and what activities translate into a lifelong appreciation of movement.

Many studies have identified factors that motivate participation in PE class. Factors include but are not limited to enjoyment, perceived competence, self-efficacy, goal orientation, self-esteem, teacher influence, lesson design, type of activity, school facilities, family PA and support, classmates, participation in after school activities and sports, media, social preconceptions, and cultural values (Barr-Anderson et al., 2007; Barr-Anderson et al., 2008; Biddle & Wang, 2003; Fairclough, 2003; Hassandra, Goudas, & Chroni, 2003; Klint & Weiss, 1987; McClain, 2008; Sallis, Prochaska, Taylor, Hill, & Geraci, 1999; Sallis, 2000) This review's focus is primarily on PE class enjoyment, effort, perceived competence, social influences, teacher influences, personal fitness level, competitiveness, environmental influences, apparel, fun, socialization, health promotion and outcomes, and how these factors differ between gender, race/ethnicity, and grade.

Enjoyment

Increasing enjoyment of physical education motivates participation (Bengoechea, Sabiston, Ahmed, & Farnoush, 2010; Carroll & Loumidis, 2001b; Dishman et al., 2005; Sallis et al., 1999; Trost et al., 1997; Wallhead & Buckworth, 2004; Woods, Tannehill, & Walsh, 2012; Yli-Piipari et al., 2013) A primary goal of PE class is to ignite an interest in PA that transcends beyond participation just during class time (SHAPE America, 2016) Enjoyment of PE was one of three strongest variables associated with overall PA; adolescents who enjoyed PE more were more physically active, while those who enjoyed PE less were less active (Yli-Piipari et al., 2013) Specifically, PE enjoyment was significantly related to adolescent PA among boys in grades 7-9 and boys 10-12 ($p < 0.05$), girls in grades 7-9 ($p < 0.01$), and girls

in grades 10-12 ($p < 0.001$) (Sallis et al., 1999) Enjoyment of PA and PE is vital to participation (Bengoechea et al., 2010; Carroll & Loumidis, 2001b; Dishman et al., 2005; Sallis et al., 1999; Wallhead & Buckworth, 2004; Woods et al., 2012; Yli-Piipari et al., 2013); in order to increase participation in and outside of class, enjoyment should be a primary focus.

Gender Differences in Enjoyment

It is no coincidence that enjoyment of PA and PA levels are related, as enjoyment plays a major role in motivating an individual's participation in PA (Bengoechea et al., 2010; Salmon, Owen, Crawford, Bauman, & Sallis, 2003; Woods et al., 2012; Yli-Piipari et al., 2013) Enjoyment of PA appears to differ by gender, as boys report greater enjoyment of PE than girls (Cairney, Kwan, Velduizen, Hay, & Bray, Steven R., Faught, Brent E., 2012; Carroll & Loumidis, 2001b; Treanor, Graber, Housner, & Wiegand, 1998; Woods et al., 2012; Yli-Piipari et al., 2013) Enjoyment in both genders, especially in girls, needs to be emphasized in order to balance the gender inequalities of PA levels in adolescents.

Race/Ethnicity Differences in Enjoyment

Similar to gender's influence on activity levels and enjoyment, race/ethnicity might also influence both. Race/ethnicity influences PA in adolescents (Gordon-Larsen et al., 1999; Gordon-Larsen et al., 2000; Gordon-Larsen et al., 2002; Kimm et al., 2002; Pate et al., 2009). The literature, however, is inconclusive regarding enjoyment between different racial/ethnic backgrounds. To demonstrate the conflicting evidence, one study found that African American girls enjoyed PE more than Caucasian girls (Barr-Anderson et al., 2008) while another study reported

race/ethnicity did not impact enjoyment (Prochaska, Sallis, Slymen, & McKenzie, 2003). The inconsistent findings illustrate the need for further research in this area.

Other Factors

Psychological factors, such as perceived competence, are related to PA (Carroll & Loumidis, 2001b; Neumark-Sztainer, Story, Hannan, Tharp, & Rex, 2003; Sallis, 2000; Wallhead & Buckworth, 2004). In a PA context, perceived competence is an individual's evaluation of his or her capabilities in a particular activity. In a review of over 108 studies, of a possible 17 psychological factors, perceived competence was one of the few factors consistently related to PA (Sallis, 2000). High perceived competence in PE class is related to more time being spent being physically active in sports (Carroll & Loumidis, 2001b). Additionally, a relationship between perceived competence and enjoyment was discovered, as girls who experienced low enjoyment of PE also reported low perceived competence (Cairney et al., 2012). The current literature suggests that perceived competence influences both PA levels (Carroll & Loumidis, 2001b) and enjoyment of PE class (Cairney et al., 2012).

Peer, family, and teacher influences are the most consistently associated social factors with PA levels (Barr-Anderson et al., 2008; Hassandra et al., 2003; Neumark-Sztainer et al., 2003; Prochaska, Rodgers, & Sallis, 2002; Sallis, 2000). Parental and peer support were significantly associated with PA, and after controlling for variables, support from peers had the greatest association (Prochaska et al., 2002), which is supported by similar findings (Neumark-Sztainer et al., 2003). Social support is one of the greatest predictors of PA (Barr-Anderson

et al., 2008; Hassandra et al., 2003; Neumark-Sztainer et al., 2003; Sallis, 2000), which makes it an essential factor in the complex equation of adolescent PA.

Environmental factors might also be related to PA levels in adolescents (Sallis, 2000); however, more in depth research on environmental factors has been done in children. The authors found no prior research examining the relationship between the specific environmental factors studied in the present study and PA. The present study analyzes environmental factors of the PE setting (i.e. location and weather) based on gender, race/ethnicity and grade, and how they motivate participation in PE class.

Purpose/Research Question

The purpose of the present study is to determine if physical education descriptors, motivators, and experiences in ninth and tenth grade students differ across gender, race/ethnicity, and grade. Factors specifically analyzed in this study are enjoyment, effort, perceived competence, social influences, teacher influences, personal fitness level, competitiveness, environmental influences, apparel, fun, socialization, outcomes and knowledge gained, and how these factors differ between gender, race/ethnicity, and grade.

Assumptions:

It is assumed that the students in this study will be honest when completing the questionnaires.

Limitations:

Limitations of this study is that the students will need to be present in school on the days each questionnaire is given and only students from one high school were included. An additional limitation is that only one school will be evaluated; the findings that result in this suburban school district may not translate to students in other high school settings.

Delimitations:

A delimitation of this study is that only ninth and tenth grade students enrolled in physical education class were studied.

Definition of Terms:

Enjoyment – The state of taking pleasure in physical education.

Perceived competence – An individual's evaluation of his or her abilities in physical education.

Chapter II

Methodology

Subjects

During the fall of the 2014-2015 school year, students in the ninth and tenth grades from a high school in Richmond, Virginia were selected to participate in the present study. Potential subjects were recruited from the 989 students that make up the freshmen and sophomore student body.

Study Design

After acquiring both student assent and parental consent as approved by the James Madison University Internal Review Board, students completed a questionnaire. Following completion of the questionnaire and for analysis purposes, the students were grouped by gender (male or female), race/ethnicity (African American, Asian, Caucasian, Hispanic, Native American, or other race/ethnicity), and grade (ninth or tenth). The students used school-issued laptops to complete the questionnaire during PE class time. The students who opted out of the study still participated in PE as usual, but were given an online assignment to complete on their laptops in place of the questionnaire, as to not make them feel left out.

Questionnaire

The questionnaire used in this study was designed with the specific population in mind. Questions have been categorized as descriptors, motivators, and experiences. Descriptor questions addressed enjoyment, effort, and perceived competence. Motivator questions addressed social influences, teacher influences,

personal fitness level/competitiveness, environmental influences, and apparel. Experiential questions addressed fun, socialization, health promotion, and health outcomes (Table 1). Descriptors, motivators, and experiences were compared by gender, race/ethnicity, and grade.

Statistical Analysis

Statistical analyses were done using SPSS version 24. Mann-Whitney U tests were done to analyze gender and grade differences, and a Kruskal-Wallis Test was done to analyze ethnicity differences. Statistical significance was set a priori at $p < 0.05$.

Chapter III

Introduction

The American College of Sports Medicine recommends that adolescents participate in at least 60 minutes of physical activity (PA) each day (American College of Sports Medicine, 2013; Janssen & LeBlanc, 2010). PA levels drop drastically during the transition from childhood to adolescence (Allison et al., 2007; Belcher et al., 2010; Caspersen et al., 2000; Chung et al., 2012; Duncan et al., 2007; Gordon-Larsen et al., 2004; Gordon-Larsen et al., 2000; Nader et al., 2008; Pate et al., 2009; Sallis, 2000; Trost et al., 1997) making adolescence an essential time to encourage PA. Reductions in PA from childhood to adolescence exceed the decline from adolescence into adulthood (Caspersen et al., 2000), with some proposing adolescence itself as a risk factor for physical inactivity (Rowland & President's Council on Physical Fitness, and Sports, 1999). In addition to decreases in PA from childhood to adolescence, PA reductions have been found within adolescence (Allison et al., 2007; Gordon-Larsen et al., 2002; Song et al., 2013); younger adolescents reported more days of PA than older adolescents (Allison et al., 2007). The factors influencing this reduction in PA during adolescence need to be better understood to identify effective strategies to prevent this decrease.

PA levels in adolescence tend to track into adulthood, therefore maintaining levels of PA from childhood to adolescence may aid in preserving lifetime activity (Caspersen et al., 2000; Gordon-Larsen et al., 2004; Telama et al., 2005). Continued PA confers lifelong benefits, positively affecting body composition, cholesterol, blood pressure, and self-esteem, while decreasing the risk of premature death and

chronic diseases, such as heart disease, diabetes, stroke, and cancer (American College of Sports Medicine, 2013; Janssen & LeBlanc, 2010) In order to improve health and decrease the risk of chronic disease, it is imperative to promote an active lifestyle during adolescence as PA habits carry over into adulthood (Caspersen et al., 2000; Gordon-Larsen et al., 2004; Telama et al., 2005).

PA Differences

Despite increases in female participation in organized sport following the passage of Title IX (Kennedy, 2010), gender differences in adolescent PA levels persist (Carroll & Loumidis, 2001a; Caspersen et al., 2000; Gordon-Larsen et al., 2004; Sallis, 2000; Yli-Piipari et al., 2013). Boys participate in more PA than girls (Belcher et al., 2010; Carroll & Loumidis, 2001b; Caspersen et al., 2000; Chung et al., 2012). In addition to gender differences, PA among adolescents appears to differ across racial/ethnic lines, with Caucasian adolescents participating in more PA than minority adolescents (Gordon-Larsen et al., 2004; Gordon-Larsen et al., 1999; Gordon-Larsen et al., 2000; Gordon-Larsen et al., 2002; Pate et al., 2009; Sallis, 2000). More research is needed in this area to determine strategies to motivate adolescents of different genders and diverse ethnic backgrounds to be physically active.

Physical Education

One way to increase PA in adolescents is through engaging school physical education (PE) programs. PE can significantly increase total PA in youth (Chen et al., 2014) by increasing activity during the school day and by promoting increases in PA outside of school (Sallis et al., 1991, Telama et al., 1997), which hopefully leads to

lifelong activity. Unfortunately, students do not always have adequate access to PE (Lee et al., 2007; Sallis et al., 2012), as only 2.1% of high schools offer daily PE (Lee et al., 2007). One cause for reductions in PE class time is due to greater emphasis on academics (Center on Education Policy, 2008; Sallis et al., 2012).

While any activity in PE is important, the kind of activity is also important, as some activities translate into PA outside the classroom better than others (Haerens et al., 2011; Sallis & McKenzie, 1991; Telama et al., 1997). Team sports are at the core of many PE curriculums (Fairclough et al., 2002; Haerens et al., 2011; Sallis & McKenzie, 1991), yet there is conflicting evidence on the effectiveness of these sport-themed PE programs to encourage the adoption of active lifestyles outside of the gymnasium (Sallis & McKenzie, 1991). PE programs that focus more on health-related activities, such as fitness and lifetime sports, may result in greater amounts of PA into adulthood (Haerens et al., 2011; Sallis & McKenzie, 1991). Despite the call for lifetime fitness focused PE curriculums, team games were taught significantly more than lifetime activities (Fairclough et al., 2002). In order to maximize activity time in PE class and promote lifelong PA, it is important to discover what students enjoy, what motivates them to move in PE class, and what activities translate into a lifelong appreciation of movement.

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transcends beyond participation just during class time (SHAPE America, 2016).. Enjoyment of PE is one of three strongest variables associated with overall PA; adolescents who enjoy PE more are more physically active, while those who enjoy PE less are less active (Sallis et al., 1999; Yli-Piipari et al., 2013). Enjoyment of PA and PE is vital to participation (Bengoechea et al., 2010; Carroll & Loumidis, 2001b; Dishman et al., 2005; Sallis et al., 1999; Wallhead & Buckworth, 2004; Woods et al., 2012; Yli-Piipari et al., 2013); in order to increase participation in and outside of class, enjoyment should be a primary focus.

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In addition to enjoyment, other factors have been identified that influence participation in PE class. Additional factors include but are not limited to perceived

competence, self-efficacy, goal orientation, self-esteem, teacher influence, lesson design, type of activity, school facilities, family PA and support, classmates, participation in after school activities and sports, media, social preconceptions, and cultural values (Barr-Anderson et al., 2007; Barr-Anderson et al., 2008; Biddle & Wang, 2003; Fairclough, 2003; Hassandra et al., 2003; Klint & Weiss, 1987; McClain, 2008; Sallis et al., 1999; Sallis, 2000). Much like enjoyment, these factors might differ based on an individual's gender or race/ethnicity (Cairney et al., 2012; Carroll & Loumidis, 2001b; Standiford, 2013). More research is needed to identify if and why differences exist.

The purpose of the present study is to determine if physical education descriptors, motivators, and experiences in ninth and tenth grade students differ across gender, race/ethnicity, and grade. Factors specifically analyzed in this study are enjoyment, effort, perceived competence, social influences, teacher influences, personal fitness level, competitiveness, environmental influences, apparel, fun, socialization, outcomes and knowledge gained, and how these factors differ between gender, race/ethnicity, and grade.

Methodology

Subjects

During the fall of the 2014-2015 school year, students in the ninth and tenth grades from a high school in Richmond, Virginia were selected to participate in the present study. Potential subjects were recruited from the 989 students that make up the freshmen and sophomore student body.

Study Design

After acquiring both student assent and parental consent as approved by the James Madison University Internal Review Board, students completed a questionnaire. Following completion of the questionnaire and for analysis purposes, the students were grouped by gender (male or female), race/ethnicity (African American, Asian, Caucasian, Hispanic, Native American, or other race/ethnicity), and grade (ninth or tenth). The students used school-issued laptops to complete the questionnaire during PE class time. The students who opted out of the study still participated in PE as usual, but were given an online assignment to complete on their laptops in place of the questionnaire, as to not make them feel left out.

Questionnaire

The questionnaire used in this study was designed with the specific population in mind. Questions have been categorized as descriptors, motivators, and experiences. Descriptor questions addressed enjoyment, effort, and perceived competence. Motivator questions addressed social influences, teacher influences, personal fitness level/competitiveness, environmental influences, and apparel.

Experiential questions addressed fun, socialization, health promotion, and health outcomes (Table 1). Descriptors, motivators, and experiences were compared by gender, race/ethnicity, and grade.

Statistical Analysis

Statistical analyses were done using SPSS version 24. Mann-Whitney U tests were done to analyze gender and grade differences, and a Kruskal-Wallis Test was done to analyze ethnicity differences. Statistical significance will be set a priori at $p < 0.05$.

Results

Participants

705 of 989 students enrolled in the ninth and tenth grades participated in the study. Seven subjects were excluded from the analyses because of incomplete responses, creating a final sample of 698 subjects. Additionally, due to low numbers, the data for Native American subjects were combined with the data for those subjects identifying as other race/ethnicity. Table 2 presents the descriptive data for the participants.

Descriptors

Enjoyment

Figure 1 displays the students' enjoyment ratings. Significant differences were observed across genders and grades; however, no significant differences were found between different ethnic groups (Table 1).

Effort – *Lower rating indicates greater effort.*

Significant differences in effort were only observed between grades; freshmen (2.33 ± 0.96) self-reported exerting more effort in PE class than sophomores (2.56 ± 0.97 , $p = 0.001$). No differences resulted between genders and ethnicities (Table 1).

Perceived Competence – *Lower rating indicates greater perceived competence.*

Significant differences in perceived competence were only observed between genders. Males (1.53 ± 0.52) self-reported greater perceived competence than females (1.79 ± 0.49 , $p < 0.001$). No differences were reported between grades and ethnicities (Table 1).

Motivators

Social Influences – *Lower rating indicates a more positive impact of motivator.*

Social influences varied considerably between genders. Figure 2 displays the differences in social influences between males and females. No significant differences were found among the social influences between grades (Table 1). For students of differing ethnicities, working with friends and working with others (not friends) showed significant differences. Working with friends encouraged Caucasian (1.18 ± 0.41) students to participate in PE more than other race/ethnicity (1.29 ± 0.46 , $p = 0.020$) and African American (1.34 ± 0.54 , $p = 0.006$) students. Working with others (not friends) discouraged Caucasian (2.24 ± 0.66) students from participating in PE more than other race/ethnicity (2.03 ± 0.65 , $p = 0.011$) students.

Teaching Influences

No significant differences were found in impact of the teacher's gender among any groups (Table 1).

Personal Fitness/Competitiveness – *Higher rating indicates a more negative impact of motivator.*

The only significant differences among personal fitness/competitiveness were between genders. Getting out of breath discouraged females (2.53 ± 0.63) from participating in PE more than males (2.10 ± 0.62 , $p < 0.001$). Being aggressive also discourages females (2.07 ± 0.73) from participating in PE class more than males (1.74 ± 0.68 , $p < 0.001$). No significant differences were observed across grade and ethnicity (Table 1).

Environmental Influences – *Higher rating indicates more negative impact of motivator.*

Between genders, significant differences were observed in regards to doing PE outside. Doing PE outside in cold weather and doing PE outside in hot weather encouraged males (1.98 ± 0.72 and 2.29 ± 0.70 , respectively) to participate more than females (2.43 ± 0.73 and 2.68 ± 0.58 , $p < 0.001$ and $p < 0.001$, respectively). No significant differences occurred between grades in regards to environmental influences (Table 1). For ethnicities, doing PE outside in hot weather encouraged other race/ethnicity (2.26 ± 0.70 , $p = 0.001$), Hispanic (2.25 ± 0.77 , $p = 0.023$), and African American (2.28 ± 0.71 , $p = 0.004$) students to participate more than Caucasian (2.53 ± 0.65) students. Other environmental factors did not show significant differences between ethnicities (Table 1).

Apparel – *Higher rating indicates more negative impact of motivator.*

Significant differences in apparel were observed between genders and ethnicities. Wearing the proper PE uniforms and dressing out of uniform discouraged girls (2.43 ± 0.73 and 2.68 ± 0.58 , respectively) from participating in PE class more than boys (1.98 ± 0.72 and 2.29 ± 0.70 , $p < 0.001$ and $p = 0.001$, respectively). For ethnicities, wearing the proper PE uniform discouraged Caucasian (2.05 ± 0.53) students from participating in PE more than African American (1.76 ± 0.55 , $p < 0.001$), Asian (1.80 ± 0.53 , $p = 0.002$), and other race/ethnicity (1.91 ± 0.59 , $p = 0.034$) students. Dressing out of uniform also discouraged Caucasian (2.17 ± 0.60) students from participating in PE more than

African American (1.96 ± 0.59 , $p = 0.008$) and Hispanic (1.94 ± 0.72 , $p = 0.047$) students. No significant differences occurred between grades (Table 1).

Experiences

Fun – *Higher rating indicates greater perception of fun.*

Much like the results of enjoyment (Figure 1), significant differences were observed across genders and grades. Males (4.47 ± 1.27) experienced more fun in PE class than females (4.02 ± 1.25 , $p < 0.001$), and freshmen (4.44 ± 1.26) experienced more fun than sophomores (4.12 ± 1.28 , $p = 0.001$). No significant differences occurred between ethnicities (Table 1).

Social – *Higher rating indicates greater social experiences.*

No significant differences occurred between genders in regards to social experiences (Table 1). Significant differences were observed across grades and ethnicities. Freshmen (4.30 ± 1.25) reported that they make new friends in PE more than sophomores (3.98 ± 1.27 , $p = 0.001$). Hispanic (4.53 ± 1.50 , $p = 0.009$) and Asian (4.59 ± 0.83 , $p = 0.009$) students reported that they make new friends in PE more than Caucasian (4.07 ± 1.24) students.

Outcomes

Significant differences in outcomes were observed across all groups. There were many differences, and males and freshmen had more positive outcome experiences than female and sophomore students, respectively. Furthermore, Caucasian students reported more negative outcome experiences as a whole than any race/ethnicity group. Table 3 displays the results.

Things I Learned in PE

No significant differences occurred between genders in regards to things the students learned in PE class (Table 1). Significant differences were observed across grades and ethnicities. Specifically, freshmen reported more positive experiences, while Caucasian students reported more negative experiences in this question category. Table 4 displays the results.

Discussion

The present study examined student factors that influence PE class. Descriptor factors of enjoyment, effort, and perceived were assessed. Motivational factors of social influences, teacher influences, personal fitness/competitiveness, environmental influences, and apparel were also evaluated. Additionally, experiential factors were included to measure fun, socialization, outcomes, and knowledge gained. These student factors were analyzed to see if differences exist across gender, race/ethnicity, and grade. This large data set found that, in fact, there were significant differences in many categories. In general, males reported more positive feelings about PE. In regards to race/ethnicity, the present study contributes to the mixed findings already in the literature, with the findings that Caucasian students' experiences were the least positive among the racial/ethnic groups, but that there was only one small difference among the minority racial/ethnic groups. Lastly, the authors hypothesized that differences between students in the ninth and tenth grades would be minimal because of their closeness in age; yet, significant differences were evident in all categories except for motivators. In all instances, freshmen reported more positive descriptors and experiences than sophomores.

Gender

Unsurprisingly, male students reported greater enjoyment of PE and higher perceived competence in PE than girls did, which is in agreement with previous literature (Cairney et al., 2012; Carroll & Loumidis, 2001b; Fairclough, 2003; Treanor et al., 1998; Yli-Piipari et al., 2013). There were greater differences in

motivators across gender than there were across racial/ethnic divides or different grade levels. The findings on the impact of social motivators between genders were in agreement with previous literature (Duncan et al., 2007; Neumark-Sztainer et al., 2003; Prochaska et al., 2002; Sallis et al., 1999; Standiford, 2013; Van Der Horst, Paw, Twisk, & Van Mechelen, 2007). Social motivators had a greater impact on female students than male students, which is in agreement with a recent review article that identified peer support as a significant motivator for activity in adolescent girls (Standiford, 2013).

Experiences as a whole were more positive for males than for females. As expected, male students reported more fun in PE than female students, which agrees with previous findings (Cairney et al., 2012; Carroll & Loumidis, 2001b; Treanor et al., 1998; Yli-Piipari et al., 2013). Outcome experiences in PE class were more positive for males than were for females. Male students perceived greater health benefits from PE class than girls did, and girls experienced more tiredness in PE than boys did, which caused them to feel badly. These findings may indicate potential areas that physical educators could specifically address among their female students to increase participation in PE.

Ethnicity

The present study found no significant differences in enjoyment, effort, or perceived competence. This supports the findings of Prochaska et al. (2003), while conflicting with the findings of Barr-Anderson et al. (2007, 2008). Though limited by a lack of diversity, the present study illustrates the persistent inconclusiveness of

the literature in this area; future research with a greater minority presence is needed.

Experiences between racial/ethnic groups were more negative for Caucasian students than students of any other race/ethnicity. Much like social motivators, significant differences in social experiences most commonly occurred with Caucasian students; Asian and Hispanic students reported that they more commonly make friends in PE class than Caucasian students. Additionally, outcome and learning experiences were also less positive for Caucasian students. An explanation for these less positive experiences in PE class for Caucasian students is difficult to determine, as these findings are not echoed in the literature. One thing to consider with the ethnicity data is the lack of diversity in the sample. A great majority of the students were Caucasian, which could lead to skewed results.

Grade

Results from the current study are interesting in that the only significant differences with grade occurred in descriptors and experiences; there were no significant differences in any of the categories of motivators. Specifically, the descriptor categories of enjoyment and effort showed significant differences, where freshmen both enjoyed PE more and exerted more effort while in PE class than sophomores. Additionally, freshmen students cited better experiences in PE class than sophomore students. The timing of data collection was important as the questionnaire was administered early in the fall, shortly after the freshmen students entered into high school. This transition from middle school to high school has been found to be a period of time in which PA levels drop significantly (Knowles, Niven,

& Fawkner, 2011). However, no prior research has addressed student experiences in PE class during this transition. These results in conjunction with the timing of the study indicate that incoming freshmen students had positive PE experiences in middle school, and/or the sophomore students had less positive PE experiences during their first year of high school. Future research should expand on these findings to identify when and why student perceptions of PE class change.

Conflicting Results

While many of the findings agree with previous studies, teacher influences in the present study conflicted with those done prior (McClain, 2008), whereas the teacher, regardless of his or her gender, did not significantly impact student motivation across gender, race, or ethnicity. A cause for these differences in results could be the specific teacher characteristics assessed. The present study looked at teacher gender while the previous literature focused on teaching styles and teacher support for physical activity (McClain, 2008).

Practical applications

The findings from the present study help confirm previous literature regarding the gender differences among motivators for physical activity and highlight the need for further research across racial/ethnic groups and in the transition to middle and high school. Girls relied more heavily on social influences, so interventions could focus on the social environments in PE class for female students. Furthermore, high school teachers should be well-informed of the protocols and routines employed by their middle school PE programs to ensure a smooth transition from middle to high school PE.

While generalizability is limited given that these data are only from one school, they are from a relatively large sample. Therefore, educators could use these results as evidence that differences exist among these groups and heighten their sensitivity for issues concerning gender, race/ethnicity, and grade level.

Limitations

A limitation of this study was the need for greater numbers of diverse populations. A primary purpose of this investigation was to examine the differences in descriptors, motivators, and experiences across racial/ethnic lines. The majority (67%) of the sample was Caucasian students with the next greatest representation from students categorized in the other race/ethnicity group at only 11%. However, this is among one of the more diverse samples in the current literature. Additionally, in comparison to current census data, this sample is relatively close: slightly overrepresented by Asian and Caucasian students, overrepresented by other race/ethnicity students, marginally underrepresented by African American students, and underrepresented by Hispanic students (United States Census Bureau, 2015). Another limitation of the present study is that only one school was evaluated. While the findings are very valuable to this particular PE program, which may limit generalizability, PE programs across the country employ a variety of curriculums and teaching methods; these differences make it difficult to generalize the results to PE classes as a whole. A final limitation of the present study is the lack of participation data. While many of the descriptors, motivators, and experiences are correlated with participation in PE class, no measures of actual participation (e.g. steps per class, activity time, MVPA, etc.) were collected.

Directions for future research

Future research should look to specifically target more student diversity and more schools, as well as link these perceptions to objective measures of physical activity. More diversity is necessary as the majority of students who participated in the present study were Caucasian; increasing diversity could also add stronger findings to the inconclusive literature. Recruiting more schools would help to strengthen the results and make them more generalizable. The school involved in the present study was in a suburban area; data could be improved by including rural and urban school districts. Additionally, recruiting more schools would allow for further analyses and comparisons in regards to curriculum model, which may also impact these findings. For example, the school used in the present study was in the early stages of implementing a choice program; are PE experiences greater in a school with a choice program or at another school that implements a different curriculum model?

Little evidence in the literature exists in regards to differences across grade levels. The present study found that freshmen students' descriptors and experiences in PE class were much greater than those of sophomore students, while no differences occurred across motivators. This difference could be caused by many things: the transition from middle to high school, negative middle school PE experiences for the freshmen students, positive high school experiences for the freshmen students, or negative high school experiences for the sophomore students. To address this gap in the literature, future studies should employ a longitudinal study design where a cohort of students are tracked throughout many grade levels

to evaluate PE descriptors, motivators, and experiences. When do changes occur? This information would be valuable to teachers as they can make appropriate modifications to maintain positive feelings towards PE class, which will hopefully instill positive feelings about physical activity outside of class.

Findings in the literature and the present study support that social influences play a large role in adolescent girls' motivation to participate and experiences in PE; future directions should focus on female socialization in PE class. Finally, one thing that would support the results of the present study and the results of many of the suggested future directions would be adding qualitative data. This information would allow researchers to dig a little deeper into why the students responded they way they did.

In conclusion, the present study demonstrated how students of differing demographic backgrounds are motivated and experience PE class. These findings should be taken into consideration by PE teachers to appropriately design and implement lessons that are engaging for all students, as a means of increasing overall physical activity in adolescents.

Tables

Table 1. Question category, questionnaire questions, responses and response values, and aggregate data for each question.

Descriptor – Enjoyment of PE Class	Gender	Mean	SD	Grade	Mean	SD	Ethnicity	Mean	SD
<i>How do you feel about physical education class?</i> 1. I always enjoy them. 2. I nearly always enjoy them. 3. I sometimes enjoy them. 4. I hardly ever enjoy them. 5. I never enjoy them.	Male	2.46	0.96	Freshmen	2.52	0.94	African American	2.51	1.02
	Female	2.90*	0.93	Sophomore	2.77**	0.99	Asian	2.53	1.07
							Caucasian	2.68	0.94
							Hispanic	2.42	1.03
							Other	2.72	1.03
Descriptor – Effort during PE Class	Gender	Mean	SD	Grade	Mean	SD	Ethnicity	Mean	SD
<i>How hard do you try during physical education class?</i> 1. I always try hard. 2. I usually try hard. 3. I sometimes try hard. 4. I don't try hard very often. 5. I don't ever try hard.	Male	2.43	0.99	Freshmen	2.33	0.96	African American	2.42	1.14
	Female	2.45	0.94	Sophomore	2.56**	0.97	Asian	2.25	0.74
							Caucasian	2.48	0.95
							Hispanic	2.31	1.06
							Other	2.38	0.98
Descriptor – Perceived Competence in PE Class	Gender	Mean	SD	Grade	Mean	SD	Ethnicity	Mean	SD
<i>Would you say you are good at physical</i>	Male	1.53	0.52	Freshmen	1.65	0.53	African American	1.63	0.55

<i>education?</i> 1. Good 2. Depends on the activity 3. Poor	Female	1.79*	0.49	Sophomore	1.63	0.52	Asian	1.78	0.54
							Caucasian	1.63	0.52
							Hispanic	1.61	0.49
							Other	1.59	0.55

Motivator – Social Influences	Gender	Mean	SD	Grade	Mean	SD	Ethnicity	Mean	SD
<i>Working with friends</i> 1. Encourages me to do PE 2. Doesn't make a difference 3. Puts me off during PE lessons	Male	1.23	0.44	Freshmen	1.20	0.44	African American	1.34 ^a	0.54
	Female	1.18*	0.43	Sophomore	1.22	0.43	Asian	1.18	0.39
							Caucasian	1.18	0.41
							Hispanic	1.25	0.55
						Other	1.29 ^a	0.46	
<i>Working with others (not friends)</i> 1. Encourages me to do PE 2. Doesn't make a difference 3. Puts me off during PE lessons	Male	2.11	0.66	Freshmen	2.16	0.67	African American	2.10	0.63
	Female	2.28*	0.67	Sophomore	2.20	0.67	Asian	2.14	0.63
							Caucasian	2.24	0.66
							Hispanic	2.00	0.83
						Other	2.03 ^a	0.65	
<i>Working on my own</i> 1. Encourages me to do PE 2. Doesn't make a difference	Male	2.11	0.64	Freshmen	2.17	0.64	African American	2.06	0.65
	Female	2.24*	0.65	Sophomore	2.15	0.65	Asian	2.12	0.52

<p>3. Puts me off during PE lessons</p>						<p>Caucasian 2.18 0.66</p>
						<p>Hispanic 2.17 0.66</p>
						<p>Other 2.18 0.69</p>
<p><i>Doing sports in front of others</i></p> <p>1. Encourages me to do PE 2. Doesn't make a difference 3. Puts me off during PE lessons</p>	<p>Male 1.87 0.61</p>	<p>Freshmen 1.98 0.69</p>				
						<p>African American 1.87 0.74</p>
						<p>Asian 2.06 0.68</p>
						<p>Caucasian 2.04 0.67</p>
						<p>Hispanic 1.94 0.72</p>
						<p>Other 1.93 0.68</p>
<p><i>Being in class with boys</i></p> <p>1. Encourages me to do PE 2. Doesn't make a difference 3. Puts me off during PE lessons</p>	<p>Male 1.84 0.43</p>	<p>Freshmen 1.84 0.43</p>				
						<p>African American 1.90 0.47</p>
						<p>Asian 1.82 0.39</p>
						<p>Caucasian 1.85 0.42</p>
						<p>Hispanic 1.83 0.51</p>
						<p>Other 1.83 0.41</p>
<p><i>Being in class with girls</i></p> <p>1. Encourages me to do PE 2. Doesn't make a difference 3. Puts me off during PE lessons</p>	<p>Male 1.76 0.48</p>	<p>Freshmen 1.82 0.47</p>				
						<p>African American 1.79 0.51</p>
						<p>Asian 1.94 0.42</p>
						<p>Caucasian 1.83 0.48</p>
						<p>Hispanic 1.86 0.59</p>

							Other	1.86	0.45
Motivator – Personal Fitness / Competitiveness	Gender	Mean	SD	Grade	Mean	SD	Ethnicity	Mean	SD
<i>Getting out of breath</i> 1. Encourages me to do PE 2. Doesn't make a difference 3. Puts me off during PE lessons	Male	2.10	0.62	Freshmen	2.26	0.66	African American	2.28	0.71
	Female	2.53*	0.63	Sophomore	2.29	0.66	Asian	2.22	0.70
							Caucasian	2.29	0.64
							Hispanic	2.08	0.69
							Other	2.32	0.68
<i>Being competitive (trying to win)</i> 1. Encourages me to do PE 2. Doesn't make a difference 3. Puts me off during PE lessons	Male	1.50	0.63	Freshmen	1.52	0.65	African American	1.37	0.60
	Female	1.60	0.69	Sophomore	1.57	0.67	Asian	1.51	0.61
							Caucasian	1.55	0.66
							Hispanic	1.61	0.69
							Other	1.67	0.68
<i>Being aggressive</i> 1. Encourages me to do PE 2. Doesn't make a difference 3. Puts me off during PE lessons	Male	1.74	0.68	Freshmen	1.84	0.72	African American	1.84	0.73
	Female	2.07*	0.73	Sophomore	1.91	0.73	Asian	2.00	0.72
							Caucasian	1.85	0.71
							Hispanic	1.83	0.81
							Other	1.99	0.76

Motivator - Environmental Influences	Gender	Mean	SD	Grade	Mean	SD	Ethnicity	Mean	SD
<i>Doing PE outside in cold weather</i> 1. Encourages me to do PE 2. Doesn't make a difference 3. Puts me off during PE lessons	Male	1.98	0.72	Freshmen	2.14	0.77	African American	2.39	0.76
	Female	2.43*	0.73	Sophomore	2.19	0.74	Asian	2.22	0.70
							Caucasian	2.14	0.76
							Hispanic	2.08	0.73
							Other	2.14	0.78
<i>Doing PE outside in hot weather</i> 1. Encourages me to do PE 2. Doesn't make a difference 3. Puts me off during PE lessons	Male	2.29	0.70	Freshmen	2.42	0.70	African American	2.28 ^a	0.71
	Female	2.68*	0.58	Sophomore	2.48	0.65	Asian	2.35	0.69
							Caucasian	2.53	0.65
							Hispanic	2.25 ^a	0.77
							Other	2.26 ^a	0.70
<i>Doing PE inside in cold weather</i> 1. Encourages me to do PE 2. Doesn't make a difference 3. Puts me off during PE lessons	Male	1.85	0.58	Freshmen	1.81	0.61	African American	1.88	0.64
	Female	1.81	0.61	Sophomore	1.86	0.58	Asian	1.67	0.59
							Caucasian	1.84	0.59
							Hispanic	1.89	0.52
							Other	1.83	0.64
<i>Doing PE inside in hot weather</i>	Male	1.88	0.64	Freshmen	1.83	0.66	African American	1.84	0.67

<ol style="list-style-type: none"> 1. Encourages me to do PE 2. Doesn't make a difference 3. Puts me off during PE lessons 	Female	1.82	0.68	Sophomore	1.89	0.65	Asian	1.76	0.62
							Caucasian	1.87	0.66
							Hispanic	1.86	0.64
							Other	1.84	0.69

Motivator – Apparel	Gender	Mean	SD	Grade	Mean	SD	Ethnicity	Mean	SD
<i>Wearing the proper PE uniform</i> <ol style="list-style-type: none"> 1. Encourages me to do PE 2. Doesn't make a difference 3. Puts me off during PE lessons 	Male	1.92	0.51	Freshmen	1.96	0.57	African American	1.76 ^a	0.55
	Female	2.07*	0.59	Sophomore	2.00	0.53	Asian	1.80 ^a	0.53
							Caucasian	2.05	0.53
							Hispanic	1.89	0.58
							Other	1.91 ^a	0.59
<i>Dressing out of uniform</i> <ol style="list-style-type: none"> 1. Encourages me to do PE 2. Doesn't make a difference 3. Puts me off during PE lessons 	Male	1.99	0.56	Freshmen	2.13	0.65	African American	1.96 ^a	0.59
	Female	2.29*	0.65	Sophomore	2.10	0.58	Asian	2.04	0.66
							Caucasian	2.17	0.60
							Hispanic	1.94 ^a	0.72
							Other	2.07	0.60

Experiences – Fun	Gender	Mean	SD	Grade	Mean	SD	Ethnicity	Mean	SD
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6. Strongly agree							Other	4.24	1.43
<i>In PE, I keep healthy</i> 1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	Male	4.29	1.37	Freshmen	4.31	1.40	African American	4.43 ^a	1.51
	Female	4.05*	1.31	Sophomore	4.07**	1.28	Asian	4.61 ^a	1.04
							Caucasian	4.08	1.32
							Hispanic	4.53 ^a	1.44
							Other	4.26	1.43
<i>In PE, I control my body shape</i> 1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	Male	4.15	1.41	Freshmen	4.19	1.40	African American	4.37 ^a	1.51
	Female	3.95*	1.33	Sophomore	3.95**	1.34	Asian	4.41 ^a	1.13
							Caucasian	3.94	1.34
							Hispanic	4.61 ^a	1.40
							Other	4.14	1.50
<i>In PE, I get tired</i> 1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	Male	3.72	1.46	Freshmen	3.92	1.43	African American	3.93	1.68
	Female	4.13*	1.28	Sophomore	3.86	1.37	Asian	4.06	1.21
							Caucasian	3.88	1.36
							Hispanic	4.03	1.58
							Other	3.75	1.46
<i>In PE, I feel good because I have done</i>	Male	4.08	1.37	Freshmen	4.16	1.38	African American	4.15 ^a	1.50

<i>exercise</i> 1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	Female	4.00	1.35	Sophomore	3.92**	1.32	Asian	4.53 ^a	1.05
							Caucasian	3.91	1.34
							Hispanic	4.58 ^a	1.40
							Other	4.21 ^a	1.40
<i>In PE, I feel bad because I feel tired</i> 1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	Male	2.77	1.46	Freshmen	2.92	1.53	African American	2.94	1.66
	Female	3.32*	1.53	Sophomore	3.08	1.49	Asian	2.94	1.32
							Caucasian	2.98	1.48
							Hispanic	3.14	1.76
							Other	3.11	1.55

Experiences – Thing I Learn in PE	Gender	Mean	SD	Grade	Mean	SD	Ethnicity	Mean	SD
<i>In PE, I learn how to keep fit</i> 1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	Male	4.42	1.27	Freshmen	4.42	1.32	African American	4.57 ^a	1.46
	Female	4.31	1.20	Sophomore	4.33	1.16	Asian	4.61	0.92
							Caucasian	4.28	1.24
							Hispanic	4.64	1.25
							Other	4.50	1.22
<i>In PE, I learn how to keep healthy</i>	Male	4.46	1.25	Freshmen	4.48	1.28	African American	4.43	1.51

1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	Female	4.36	1.16	Sophomore	4.35**	1.14	Asian	4.49	1.47
							Caucasian	4.35	1.20
							Hispanic	4.69	1.24
							Other	4.54	1.18
<i>In PE, I learn new skills</i> 1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	Male	4.48	1.24	Freshmen	4.55	1.26	African American	4.52	1.43
	Female	4.38	1.15	Sophomore	4.32**	1.12	Asian	4.67	0.86
							Caucasian	4.37	1.19
							Hispanic	4.78 ^a	1.17
							Other	4.53	1.24
<i>In PE, I get ideas for a sport outside of school</i> 1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	Male	3.98	1.47	Freshmen	4.12	1.47	African American	4.28 ^a	1.57
	Female	3.96	1.37	Sophomore	3.80**	1.36	Asian	4.25	1.20
							Caucasian	3.86	1.41
							Hispanic	4.56 ^{ab}	1.36
							Other	3.91	1.52

*Significantly different ($p < 0.05$) than males.

**Significantly different ($p < 0.05$) than freshmen.

^a Significantly different ($p < 0.05$) than Caucasian students.

^b Significantly different ($p < 0.05$) than other race/ethnicity students.

Table 2. Participant demographics recorded as percent of the sample and absolute number.

<u>Participant Demographics</u>									
	<u>Gender</u>		<u>Grade</u>		<u>Ethnicity</u>				
	Males	Females	Freshmen	Sophomores	African American	Asian	Caucasian	Hispanic	Other
Percent	59.3	40.4	52.4	47.6	9.6	7.3	67.0	5.2	11.0
Absolute Number	414	282	366	332	67	51	468	36	76

Table 3. Mean responses for *Outcomes* across all groups.

	Outcomes (Higher rating indicates greater agreement)								
	<u>Gender</u>		<u>Grade</u>		<u>Ethnicity</u>				
	Males	Females	Freshmen	Sophomores	African American	Asian	Caucasian	Hispanic	Other
In PE, I keep fit.	4.24 ± 1.38	4.14 ± 1.25	4.31 ± 1.36	4.08 ± 1.28**	4.48 ± 1.41 ^a	4.53 ± 1.03 ^a	4.10 ± 1.31	4.44 ± 1.48	4.24 ± 1.43
In PE, I keep healthy.	4.29 ± 1.37	4.05 ± 1.31*	4.31 ± 1.40	4.07 ± 1.28**	4.43 ± 1.51 ^a	4.61 ± 1.04 ^a	4.08 ± 1.32	4.53 ± 1.44 ^a	4.26 ± 1.43
In PE, I control my body shape.	4.15 ± 1.41	3.95 ± 1.33*	4.19 ± 1.40	3.95 ± 1.34**	4.37 ± 1.51 ^a	4.41 ± 1.13 ^a	3.94 ± 1.34	4.61 ± 1.40 ^a	4.14 ± 1.50
In PE, I get tired.	3.72 ± 1.46	4.13 ± 1.28*	3.92 ± 1.43	3.86 ± 1.37	3.93 ± 1.68	4.06 ± 1.21	3.88 ± 1.36	4.03 ± 1.58	3.75 ± 1.46
In PE, I feel good because I have done exercise.	4.08 ± 1.37	4.00 ± 1.35	4.16 ± 1.38	3.92 ± 1.32**	4.15 ± 1.50 ^a	4.53 ± 1.05 ^a	3.91 ± 1.34	4.58 ± 1.40 ^a	4.21 ± 1.40 ^a
In PE, I feel bad because I feel tired.	2.77 ± 1.46	3.32 ± 1.53*	2.92 ± 1.53	3.08 ± 1.49	2.94 ± 1.66	2.94 ± 1.32	2.98 ± 1.48	3.14 ± 1.76	3.11 ± 1.55

*Significantly different ($p < 0.05$) than males.

**Significantly different ($p < 0.05$) than freshmen.

^a Significantly ($p < 0.05$) greater response than Caucasian students.

Table 4. Mean responses for *Things I Learn in PE* across all groups.

	Things I Learn in PE (Higher rating indicates greater agreement)								
	<u>Gender</u>		<u>Grade</u>		<u>Ethnicity</u>				
	Males	Females	Freshmen	Sophomores	African American	Asian	Caucasian	Hispanic	Other
In PE, I learn how to keep fit.	4.42 ± 1.27	4.31 ± 1.20	4.42 ± 1.32	4.33 ± 1.16	4.57 ± 1.46 ^a	4.61 ± 0.92	4.28 ± 1.24	4.64 ± 1.25	4.50 ± 1.22
In PE, I learn how to keep healthy.	4.46 ± 1.25	4.36 ± 1.16	4.48 ± 1.28	4.35 ± 1.13**	4.49 ± 1.47	4.61 ± 0.92	4.35 ± 1.20	4.69 ± 1.24	4.54 ± 1.18
In PE, I learn new skills.	4.48 ± 1.24	4.38 ± 1.15	4.55 ± 1.26	4.32 ± 1.12**	4.52 ± 1.43	4.67 ± 0.86	4.37 ± 1.19	4.78 ± 1.17 ^a	4.53 ± 1.24
In PE, I get ideas for a sport outside of school.	3.98 ± 1.47	3.96 ± 1.37	4.12 ± 1.47	3.80 ± 1.36**	4.28 ± 1.57 ^a	4.25 ± 1.20	3.86 ± 1.41	4.56 ± 1.36 ^{ab}	3.91 ± 1.52

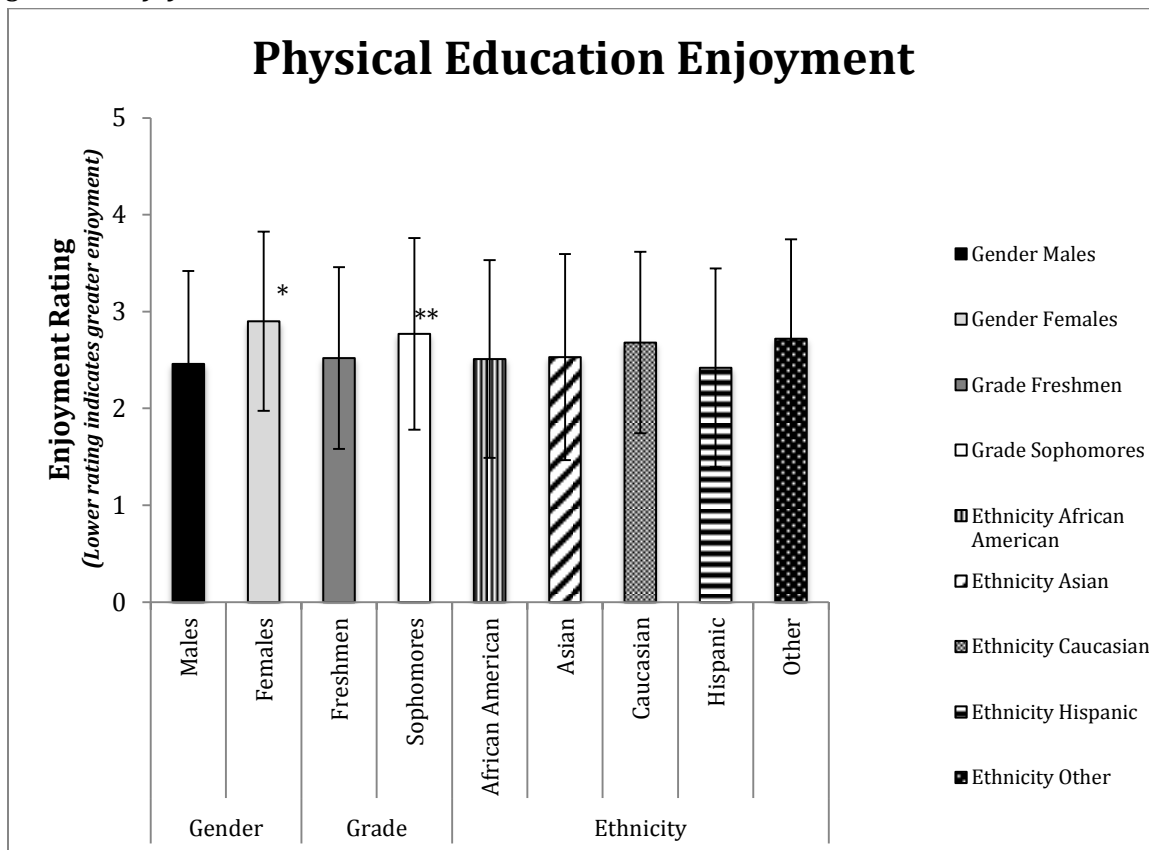
**Significantly different ($p < 0.05$) than freshmen.

^a Significantly different ($p < 0.05$) than Caucasian students.

^b Significantly different ($p < 0.05$) than other race/ethnicity students.

Figures

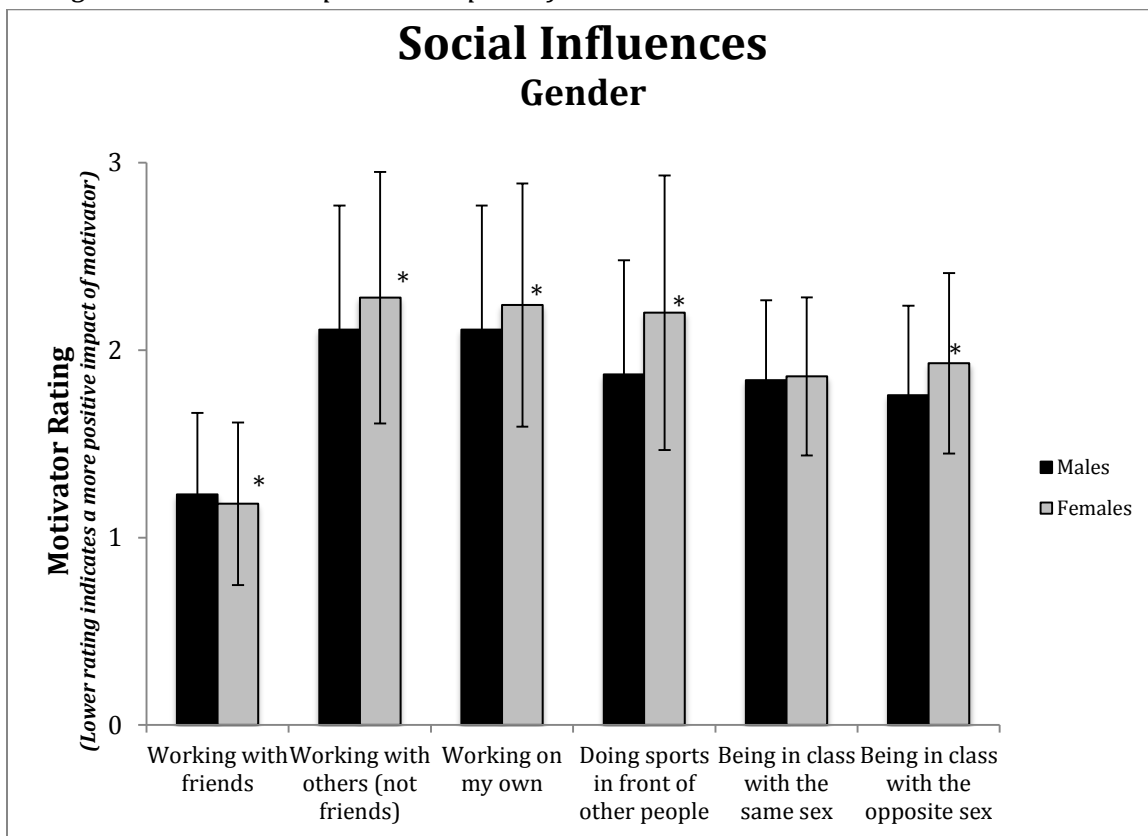
Figure 1. Mean responses for Physical Education Enjoyment. *Lower rating indicates greater enjoyment.*



*Significantly different ($p < 0.05$) than males.

**Significantly different ($p < 0.05$) than freshmen.

Figure 2. Mean responses for the Motivator Social Influences across genders. *Lower rating indicates a more positive impact of motivator.*



*Significantly different ($p < 0.05$) than males.

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Chapter IV

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