The Physical Educator Vol. 79 • pp. 647–666 • 2022
https://doi.org/10.18666/TPE-2022-V79-I6-9810

PEDAGOGY

# Understanding the Factors That Influence Motivation and Experiences in High School Physical Education

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## Abstract

*In comparison to children, adolescents achieve significantly less physical activity (PA). Additionally, activity differences exist among genders and race/ethnicities. One means of influencing the PA habits of adolescents is high school physical education. Although PE class reaches students of all ages, genders, and races, motivation and experiences across these groups appear to differ. The purpose of this study was to determine if PE descriptors, motivators, and experiences in ninth- and 10th-grade students differed across gender, race/ethnicity, and grade. Ninth- and 10th-grade students (n = 698) completed a questionnaire about the factors that influence their motivation and experiences in PE class. Responses were compared across gender, race/ethnicity, and grade. Primary findings show that males and freshmen had more positive experiences in PE class than females and sophomores, respectively. Additionally, Caucasian students had more negative experiences in PE class in comparison to students of any other race/ethnicity. These findings illustrate the necessity for PE teacher sensitivity when they teach students of different genders, grades, and ethnic backgrounds. Special attention should be given to the social aspect of PE classes among females, student transition from middle school to high school, and the varying experiences in PE of students of different races/ethnicities. The results demonstrate the need for future research in this area.*

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The American College of Sports Medicine (2017) recommends that adolescents participate in at least 60 min of physical activity (PA) each day. However, most adolescents do not achieve enough PA with activity levels dropping drastically during the transition from childhood to adolescence (Allison et al., 2007; Belcher et al., 2010; Caspersen et al., 2000; Chung et al., 2012; Gordon-Larsen et al., 2000; Gordon-Larsen et al., 2004; Nader et al., 2008). Furthermore, PA levels in adolescence tend to track into adulthood, so 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, 2017). The factors influencing this reduction in PA during adolescence need to be better understood to identify effective strategies to prevent this decrease, promote lifelong activity, and reduce the risk of chronic disease.

## Differences in Physical Activity Levels

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, 2001; Caspersen et al., 2000; Gordon-Larsen et al., 2004; Yli-Piipari et al., 2013). It has been well established in the literature that males participate in more PA than females (Belcher et al., 2010; Carroll & Loumidis, 2001; 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., 2002; Gordon-Larsen et al., 1999; Gordon-Larsen et al., 2004; Gordon-Larsen et al., 2000).

## Physical Education

One way to increase PA in adolescents is the use of 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 & McKenzie, 1991), 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 a greater emphasis on academics (Center on Education Policy, 2008; Sallis et al., 2012). Compounding the low access to PE is PE class time not always being utilized optimally, with only 27% to 47% of class time spent in physical activity (Fairclough & Stratton, 2005). To maximize the potential benefits of PE and promote lifelong PA, education advocates need to both increase access to and effectively utilize PE time.

## Enjoyment and Other Factors

Increasing enjoyment of PE motivates participation (Bengoechea et al., 2010; Carroll & Loumidis, 2001; Dishman et al., 2005; Sallis et al., 1999; Wallhead & Buckworth, 2004; Woods et al., 2012; Yli-Piipari et al., 2013). A primary goal of PE class is to ignite an interest in PA that transcends beyond participation during class time (SHAPE America, 2016). Enjoyment of PE is one of the three strongest variables associated with overall PA (Sallis et al., 1999); adolescents who enjoy PE more are more physically active (Sallis et al., 1999; Yli-Piipari et al., 2013). This relationship between enjoyment of and participation in PA/PE is evidenced by the variances between genders, wherein adolescent males both participate in more PA (Belcher et al., 2010; Carroll & Loumidis, 2001; Caspersen et al., 2000; Chung et al., 2012) and report greater enjoyment than adolescent females (Cairney et al., 2012; Carroll & Loumidis, 2001; Woods et al., 2012; Yli-Piipari et al., 2013). Though the activity–enjoyment relationship upholds between genders, the literature is less convincing in regard to this relationship between races/ethnicities. PA differs across race/ethnicity in adolescents (Gordon-Larsen et al., 2002; Gordon-Larsen et al., 1999; Gordon-Larsen et al., 2000; Kimm et al., 2002), so it would be expected that enjoyment also differs across race/ethnicity. Despite this expectation, the literature is inconclusive regarding enjoyment across different racial/ethnic backgrounds (Barr-Anderson et al., 2008; Prochaska et al., 2003). The inconsistent findings illustrate the need for further research in this area.

In addition to enjoyment, other factors that influence participation in PE class have been identified. 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., 2008; Barr-Anderson et al., 2007; Fairclough, 2003; Hassandra et al., 2003; Sallis et al., 1999). Much like enjoyment, these factors might differ based on an individual's gender or race/ethnicity (Cairney et al., 2012; Carroll & Loumidis, 2001; Standiford, 2013). More research is needed to identify if and why differences exist.

To address the gaps in the literature regarding PE experiences and motivators between genders and ethnicities, this study was designed. The purpose of this study was to determine if PE descriptors, motivators, and experiences in ninth- and 10th-grade students differed across gender, race/ethnicity, and grade. Factors analyzed in this study include 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.

## Method

### Study Design

During the fall of the 2014–2015 school year, students in the ninth and 10th grades from a high school in Richmond, Virginia, were selected to participate in this study. Potential subjects were recruited from the 989 students that make up the freshmen and sophomore student body. After both student assent and parental consent were acquired as approved by the James Madison University Internal Review Board, students completed a questionnaire. After 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 10th). The students used school-issued laptops to complete the questionnaire during PE class time. The students who opted out of the study were given an online assignment to complete on their laptops in place of the questionnaire, as to not make them feel excluded.

## Questionnaire

The questionnaire used in this study was designed with the specific population in mind. Questions were 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. Descriptors, motivators, and experiences were compared by gender, race/ethnicity, and grade.

## Statistical Analysis

Prior to analyses, data were recoded so that higher values reflected more positive responses. Statistical analyses were done in SPSS version 24. Mann–Whitney *U* tests analyzed differences across gender and grade, and a Kruskal–Wallis test analyzed differences across racial/ethnic groups. Statistical significance was set a priori at $p < 0.05$. Only significant findings are reported in the Results section.

# Results

## Participants

Of 989 students enrolled in the ninth and 10th grades, 705 participated in the study. Seven subjects were excluded from the analyses because of incomplete responses, which created 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 1 presents the demographic data for the participants.

## Descriptors

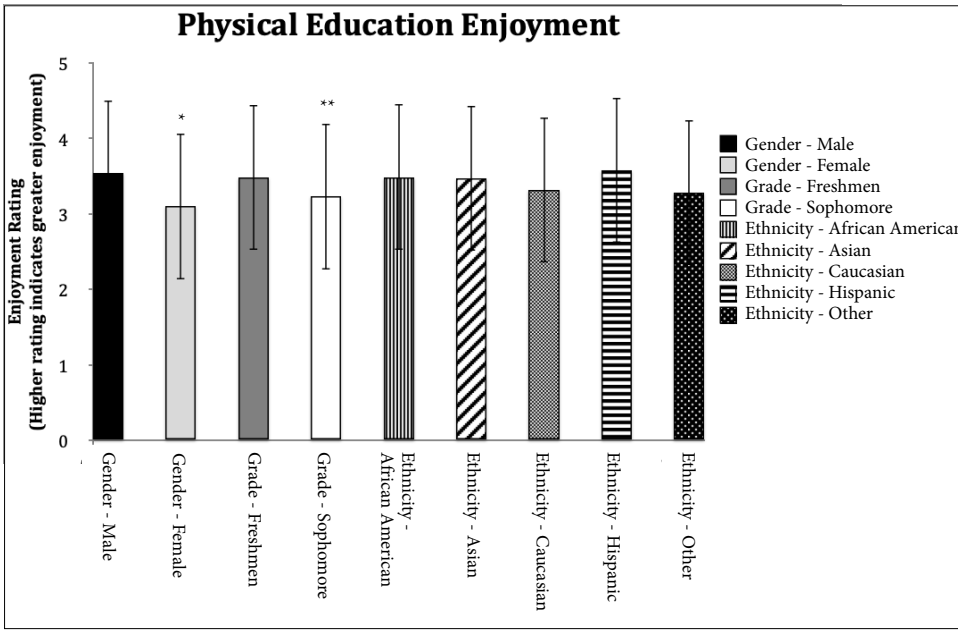
### *Enjoyment*

There was some variation related to the enjoyment of PE. Figure 1 displays the students' enjoyment ratings. Significant differences were observed across genders and grades. Specifically, male students enjoyed PE more than female students, and freshmen enjoyed PE more than sophomores. However, no significant differences were found among different ethnic groups.

**Table 1**
*Participant Demographics Recorded as Percentage of the Sample and Absolute Number*

| | Participant demographics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Gender | | Grade | | Ethnicity | | | | |
| **Value** | **Male** | **Female** | **Freshmen** | **Sophomores** | **African American** | **Asian** | **Caucasian** | **Hispanic** | **Other** |
| Percentage | 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 |

**Figure 1**
*Mean Responses for Physical Education Enjoyment*




*Note.* Higher rating indicates greater enjoyment.

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

### *Effort*

Significant differences in effort were only observed between grades; freshmen (3.67 ± 0.96) reported exerting more effort in PE class than sophomores (3.44 ± 0.97, $p = 0.001$). No differences resulted within genders and ethnicities.

### *Perceived Competence*

Significant differences in perceived competence were only observed between genders. Males (4.46 ± 0.52) reported greater perceived competence than females (4.21 ± 0.49, $p < 0.001$). No differences were found between grades and ethnicities.

## Motivators

### *Social Influences*

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. For students of differing ethnicities, working with friends and working with others (not friends) showed significant differences. Working with friends encouraged Caucasian (2.82 ± 0.41) students to participate in PE more than other race/ethnicity (2.71 ± 0.46, $p = 0.020$) and African American (2.66 ± 0.54, $p = 0.006$) students. Working with others (not friends) discouraged Caucasian (1.77 ± 0.66) students from participating in PE more than other race/ethnicity (1.97 ± 0.65, $p = 0.011$) students.

### *Teaching Influences*

No significant differences were found regarding the teacher's gender among any groups.

### *Personal Fitness/Competitiveness*

The only significant differences among personal fitness/competitiveness were between genders. Getting out of breath discouraged females (1.47 ± 0.63) from participating in PE more than males (1.90 ±0.62, $p < 0.001$). Being aggressive also discouraged females (1.93 ± 0.73) from participating in PE class more than males (2.26 ± 0.68, $p < 0.001$). No significant differences were observed across grade and ethnicity.

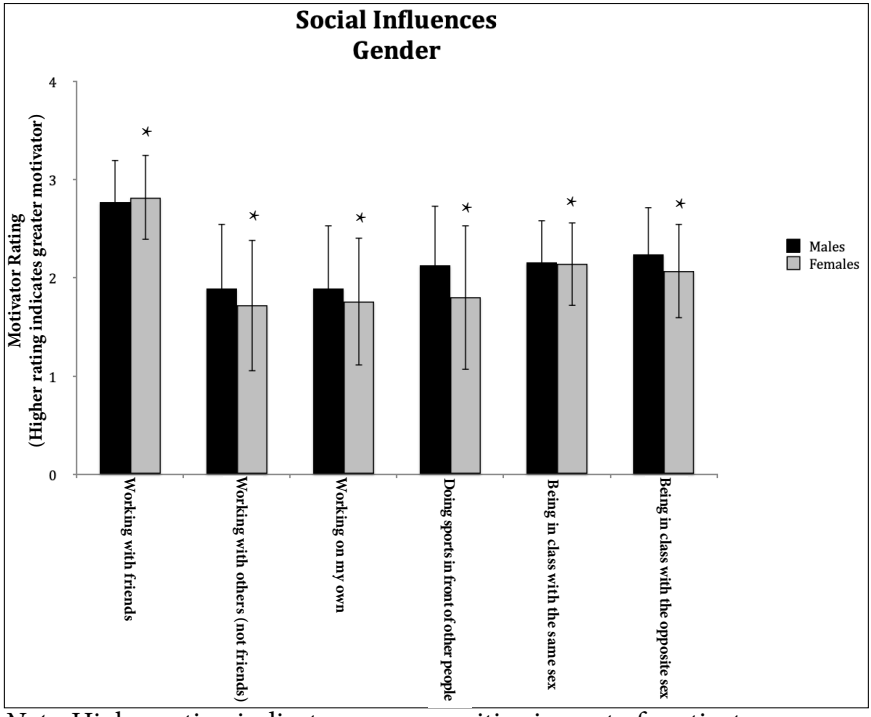
### *Environmental Influences*

Between genders, significant differences were observed in regard to doing PE outside. Doing PE outside in cold weather and doing PE outside in hot weather encouraged males (2.02 ± 0.72 and 1.71 ± 0.70, respectively) to participate more than females (1.57 ± 0.73 and 1.32 ± 0.58, $p < 0.001$ and $p < 0.001$, respectively). No significant differences occurred between grades in regard to environmental influences. For ethnicities, doing PE outside in hot weather encouraged other race/ethnicity (1.74 ± 0.70, $p = 0.001$), Hispanic (1.75 ± 0.77, $p = 0.023$), and African American (1.72 ± 0.71, $p = 0.004$) students to participate more than Caucasian students (1.47 ± 0.65). Other environmental factors did not show significant differences between ethnicities.

### *Apparel*

Significant differences in apparel were observed within genders and ethnicities. Wearing the proper PE uniforms and dressing out

**Figure 2**
*Mean Responses for the Motivator Social Influences Across Genders*




*Note.* Higher rating indicates a more positive impact of motivator.
*Significantly different ($p < 0.05$) than males.

discouraged females (1.93 ± 0.59 and 1.71 ± 0.65, respectively) from participating in PE class more than males (2.08 ± 0.51 and 2.01 ± 0.56, $p < 0.001$ and $p = 0.001$, respectively). For ethnicities, wearing the proper PE uniform discouraged Caucasian students (1.95 ± 0.53) from participating in PE more than African American (2.24 ± 0.55, $p < 0.001$), Asian (2.20 ± 0.53, $p = 0.002$), and other race/ethnicity (2.09 ± 0.59, $p = 0.034$) students. Dressing out also discouraged Caucasian students (1.83 ± 0.60) from participating in PE more than African American (2.04 ± 0.59, $p = 0.008$) and Hispanic (2.06 ± 0.72, $p = 0.047$) students. No significant differences occurred between grades.

## Experiences

### *Fun*

Much like the results of enjoyment (Figure 1), the results for fun showed significant differences 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.

### *Social*

No significant differences occurred between genders in regard to social experiences. 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 students (4.07 ± 1.24) .

### *Outcomes*

Significant differences in outcomes were observed across all groups. There were many differences, and males and freshmen had more positive outcome experiences than females and sophomores, respectively. Furthermore, Caucasian students reported more negative outcome experiences as a whole than any race/ethnicity group. Table 2 displays these results.

### *Things I Learned in PE*

No significant differences occurred between genders in regard to things the students learned in PE class. Significant differences were observed across grades and ethnicities. Specifically, freshmen reported more positive experiences, whereas Caucasian students reported more negative experiences in this question category. Table 3 displays the results.

## Discussion

This large data set found that, in fact, there were significant differences in many categories. The study hypothesis was differences between students in the ninth and 10th grades would be minimal because of their closeness in age. Yet significant differences were

**Table 2**
*Mean Responses for Outcomes Across All Groups*

| | Outcomes (Higher rating indicates greater agreement) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Gender | | Grade | | Ethnicity | | | | |
| Questionnaire item | Males *M* ± *SD* | Females *M* ± *SD* | Freshmen *M* ± *SD* | Sophomores *M* ± *SD* | African American *M* ± *SD* | Asian *M* ± *SD* | Caucasian *M* ± *SD* | Hispanic *M* ± *SD* | Other *M* ± *SD* |
| 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 ± 1.51a | 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 |

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

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

evident in all categories except for motivators. In all instances, freshmen reported more positive descriptors and experiences than sophomores, indicating a significant change in perceptions and influences of PE in just one academic year. In regard to race/ethnicity, this study discovered that Caucasian students' experiences were the least positive among the racial/ethnic groups, despite their tendency to be more physically active (Gordon-Larsen et al., 2002; Gordon-Larsen et al., 1999; Gordon-Larsen et al., 2004; Gordon-Larsen et al., 2000). In agreement with findings of this highly researched area (Cairney et al., 2012; Carroll & Loumidis, 2001; Woods et al., 2012; Yli-Piipari et al., 2013), males reported more positive feelings about PE.

## Grade

Results from this study are interesting in that significant differences between grades occurred in descriptors and experiences, yet there were no significant differences in any of the categories of motivators. In all instances, freshmen students responded more positively. Specifically, the descriptor categories of enjoyment and effort showed significant differences, wherein 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. These differences were unexpected due to the closeness in age of the students. Research has found enjoyment and experience differences between children and adolescents, yet research has not determined if differences exist in students just one grade apart. This novel finding shows that just one year of school can strongly affect students' perceptions of and experiences in PE.

The timing of data collection was especially 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 time in which PA levels drop significantly (Knowles, Niven, & Fawkner, 2011). However, no research has addressed student experiences in PE class during this transition. These results in conjunction with the timing of the study may indicate that incoming freshmen had positive PE experiences in middle school and/or the sophomore students had less positive PE experiences during their first year of high school. PE teachers in both middle and high schools should be well informed of

**Table 3**
*Mean Responses for Things I Learned in PE Across All Groups*

| | Things I learned in PE (Higher rating indicates greater agreement) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Gender | | Grade | | Ethnicity | | | | |
| Questionnaire item | Males *M* ± *SD* | Females *M* ± *SD* | Freshmen *M* ± *SD* | Sophomores *M* ± *SD* | African American *M* ± *SD* | Asian *M* ± *SD* | Caucasian *M* ± *SD* | Hispanic *M* ± *SD* | Other *M* ± *SD* |
| 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.

the protocols and routines employed by one another's PE programs to ensure a smooth transition. Future research should expand on these findings to identify when and why student perceptions of PE class change.

## Ethnicity

This study found no significant differences in enjoyment, effort, or perceived competence across race and ethnic groups. This supports the findings of Prochaska et al. (2003) while conflicting with the findings of Barr-Anderson et al. (2007) and Barr-Anderson et al. (2008). Though limited by a lack of diversity, this study illustrates the persistent inconclusiveness of the literature in this area; future research with a greater minority presence is needed.

A major finding of this study was how experiences as a whole were most negative for Caucasian students. This finding came as a surprise, as studies have found that Caucasian adolescents participate in the greatest amounts of PA (Gordon-Larsen et al., 2002; Gordon-Larsen et al., 1999; Gordon-Larsen et al., 2004; Gordon-Larsen et al., 2000). Specifically, significant differences in social experiences most commonly occurred with Caucasian students. Additionally, outcome and learning experiences were also less positive for Caucasian students. An explanation for these more negative experiences in PE class for Caucasian students is difficult to determine, as these findings are not echoed in the literature.

## Gender

In agreement with the heavily researched findings on gender differences, male students reported greater enjoyment of, higher perceived competence in, and more positive experiences in PE than females did (Cairney et al., 2012; Carroll & Loumidis, 2001; Fairclough, 2003; Yli-Piipari et al., 2013). Additionally, the findings on the impact of social motivators between genders were in agreement with the literature, wherein these motivators had a greater impact on the participation of female students than male students (Sallis et al., 1999; Standiford, 2013). A gender gap in PE experiences and perceptions is evident (Cairney et al., 2012; Carroll & Loumidis, 2001; Fairclough, 2003; Yli-Piipari et al., 2013), and the findings from this study may indicate potential areas that physical educators

could address among their female students to improve PE class experiences and participation.

## Limitations

A limitation of this study was the need for greater representation 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%. Despite this limitation, this sample is among one of the more diverse in the literature. While generalizability is limited given that these data are only from one school, the data are from a relatively large sample. A final limitation of this study is the lack of objectively measured 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) were collected.

## Directions for Future Research

Future research should look to target more student diversity and more schools as well as to link these perceptions to objective measures of PA. More diversity is necessary because the majority of students who participated in this study were Caucasian; increasing diversity could add stronger findings to the inconclusive literature. Recruiting more schools, particularly schools in urban and rural settings, would also help to strengthen the results and make them more generalizable.

Little evidence in the literature exists in regard to differences across grade levels. This study found that freshmen students' descriptors and experiences in PE class were much greater than those of sophomore students. This difference could be caused by the transition from middle school 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 wherein a cohort of students are tracked throughout many grade levels to evaluate PE perceptions and experiences.

In conclusion, this study demonstrates how students of differing demographic backgrounds are motivated and experience PE class. Specifically, these findings help confirm the literature regarding gender differences in PE and highlight the need for further research across racial/ethnic groups and in the transition from middle school to high school, as novel findings were revealed. PE teachers should consider these results when trying to design and implement lessons that are appropriate and engaging for all students and that increase overall PA in adolescents.

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