The Physical Educator Vol. 75 • pp. 210–228 • 2018
https://doi.org/10.18666/TPE-2018-V75-I2-7105

PEDAGOGY

Greek Physical Education Teachers' Gender Biases in Learning and Teaching

Katerina Mouratidou and Vassilis Barkoukis

Abstract

Gender biases have often been observed in physical education (PE) classes, as many teachers adopt a male-biased perspective in teaching and learning. This might affect their evaluation of students' behavior and may lead students to accept and reproduce gender biases in other social contexts. The aim of this study was to examine whether PE teachers in Greece adopt gender biases in teaching and learning, favoring male students. The sample of the study comprised 392 elementary (n = 200) and secondary education students (n = 192) attending typical coeducational schools in Greece (M = 12.56, SD = 1.6). Participants completed the Perceived Physical Education Class Environment With Respect to the Achievement of Boys Questionnaire, which the researchers used to assess students' perceptions of gender inequalities during PE courses. The results revealed that male secondary education students reported higher scores of negative behaviors toward them, as compared to females, as well as compared to students in elementary school. The findings of this study provide valuable information on students' beliefs about gender inequalities in PE courses that may stimulate future research in this area.

Katerina Mouratidou is a professor, Department of Physical Education and Sport Science at Serres, Aristotle University Thessaloniki, Greece. Vassilis Barkoukis is an assistant professor, Department of Physical Education and Sport Science at Thessaloniki, Aristotle University Thessaloniki, Greece. Please send author correspondence to katemou@phed-sr.auth.gr

One of the main objectives of education is to develop and cultivate younger individuals (International Primary Curriculum, 2005; National Association for Sport and Physical Education, 2004). However, gender biases and stereotypes have often been observed in school environments (Azzarito & Solomon, 2005; Opotow, Gerson, & Woodside, 2005; Sarvanaraj, Sudarkodi, & Ramalingam, 2012), affecting teachers' evaluation of students' behavior (Tiedemann, 2002), and resulting in students accepting and reproducing them in other social contexts (Subrahmanian, 2005). Hence, it is important to further study gender inequalities in educational settings, as they can influence academic achievement and social development of students (see Guimaraes, 2015).

Physical education (PE) is among the school disciplines in which gender biases are widely evident (Miller & Budd, 1999; Rich, 2003; Sadker & Sadker, 1994; Velija & Kumar, 2009). For example, PE classes have often been regarded as more appropriate for male than female students (Flintoff & Scraton, 2001; Koivula, 2001; Lentillon, Cogérino, & Kaestner, 2006; Scraton, Fasting, Pfister, & Bunuel, 1999). This might have been ascribed to the fact that sports, as well as most activities taught in PE classes, have been characterized as masculine (Klomsten, Marsh, & Skaalvik, 2005). In addition, PE teachers have been reported to use more masculine teaching approaches (Hutchinson, 1995; Napper-Owen, 1994) and more masculine language, such as addressing students as "you guys" irrespective of their gender (Davis, 2000). Moreover, previous studies indicated that PE teachers were asking male students more frequently to demonstrate physical activities, and they were using more gender-biased criteria for grouping students (Castillo, Romero, González, & Carmen Campos, 2012; Davis, 2000; Hannon & Ratliffe, 2007). In this context, relevant studies have shown that PE teachers were providing more positive feedback and attention to male students (Drudy & Úi Cháthain, 2002; Duffy, Warren, & Walsh, 2001) and were interacting less, either verbally or nonverbally, with female students (Castillo et al., 2012; Hannon & Ratliffe, 2007). Furthermore, as Nicaise, Bois, Fairclough, Amorose, and Cogérino (2007) supported, female students were not praised for performance and achievement, but for exerting effort. Moreover, PE teachers were offering less support and

were assigning females lower grades compared to males (Lentillon et al., 2006; Nicaise, Cogérino, Bois, & Amorose, 2006).

Despite the identified differences in PE teachers' behaviors, there is scarce evidence on the perceived experiences of male and female students related to inequalities in PE courses. Macdonald (1990) argued that both male and female students perceived females as not being favored in their interactions with the teacher, whereas Solmon, Lee, Belcher, Harrison, and Wells (2003) reported that female students who perceived an activity as masculine were less likely to feel competent and exert effort. Additionally, class type (coeducational or single-gender) influenced students' perceived competence (Derry & Phillips, 2005; Lyu & Gill, 2011; Slingerland, Haerens, Cardon, & Borghouts, 2014). Recent evidence is in support of coeducational PE classes, showing increased positive interactions and shared experiences between males and females (Beasley, 2013; Hills & Croston, 2012). However, evidence indicates that females demonstrated lower perceptions of competence in coeducational PE classes compared to single-gender classes (Constantinou, Manson, & Silvermann, 2009; Lyu & Gill, 2011; Slingerland et al., 2014). On the contrary, females in single-gender classes reported greater satisfaction with their effort in PE; perceptions of a more supportive environment; more opportunities for participation, learning, and feedback; and better interaction with teachers than did those in coeducational classes (Derry & Phillips, 2005; Hannon & Ratliffe, 2007; Macdonald, 1990; Treanor, Graber, Housner, & Wiegand, 1998).

Furthermore, there is only limited evidence regarding students' perceptions about PE teachers' behavior. Students' perceptions of PE teachers' behavior and feedback, and teacher-initiated climate are particularly important for their learning and performance (Behets, 1997; Fredenburg & Lee, 2001; Shen, 2015). Ryan and Patrick (2001) argued that students' perceptions of their teachers' support were associated with their motivation and engagement. For instance, perceptions about teachers' behavior could determine students' quality of motivation (Amorose & Horn, 2000; Cox & Lavon, 2008; Koka & Hagger, 2010; Koka & Hein, 2003; Treasure & Robert, 2001) and cognitive, affective, and behavioral outcomes from participation in PE courses (Nicaise et al., 2007; Standage, Duda, & Ntoumanis, 2003). Accordingly, gender bias negatively influenced students' perceived

competence in PE and, hence, their motivation in the educational context (Nicaise et al., 2006; Slingerland et al., 2014).

The aforementioned literature indicates that PE is a gender-bias course, and this is evident in measurements of teachers' behaviors and students' perceptions. Past research revealed no differences in males' and females' perceptions of injustice (Lentillon et al., 2006). This finding might imply that students have assimilated the gender stereotypes about the nature of activities in sport and PE. Still, there is only scarce evidence that substantiates this assumption. In line with this, there is only limited evidence with respect to whether students' perceptions are differentiated as a function of gender and educational level (i.e., elementary vs. secondary education). Past evidence indicates that (a) enjoyment in PE courses and perceived competence decline over time for females, but remain constant for boys (Cairney et al., 2012; for motivational differences between the genders toward physical activity, see also Lauderdale, Yli-Piipari, Irwin, & Layne, 2015), and (b) gender differences, in terms of participation and offensive tactical behavior during invasion games, became more evident in classes with older students compared to those with younger ones (Gutierrez & Garcia-Lopez, 2012). However, there is no past evidence regarding students' perceptions about gender inequalities in PE courses. Therefore, the aim of this study was to investigate students' perceptions about gender inequalities in PE courses and, more specifically, to test whether these perceptions are influenced by the students' gender and educational level. Based on prior literature, the researchers assumed that junior high school female students would display higher perceptions of inequality compared to male junior high school students and elementary school students of both genders.

Method

Sample

The researchers used a stratified sampling approach to randomly select four school units from an urban city and a suburban city in Northern Greece. The schools were selected from the official list of schools provided by the Ministry of Education. Based on the location of the selected schools and the description of school principals, all

schools were considered to be typical coeducational schools including students of middle socioeconomic status.

Three hundred ninety-two students were recruited from both elementary schools ($N = 200$, $M_{age} = 11.55$, $SD = .71$) and high schools ($N = 192$, $M_{age} = 13.78$, $SD = .91$). One hundred ninety-six of the participants (50.9%) were girls, 189 were boys, and the remaining seven participants did not report their gender. The students' mean age was 12.56 years ($SD = 1.6$)

Instruments

Demographic characteristics. The demographic questionnaire included items about participant age, gender, level of education, class, and city.

Perceptions of gender equality. The researchers used the Perceived Physical Education Class Environment With Respect to the Achievement of Boys Questionnaire (PPECE-BG; Papaioannou, 1998) to assess students' perceptions of gender equality in PE classes. The PPECE-BG includes 74 items; seven of these items corresponded to PE teachers' negative behavior toward boys (e.g., "The PE teacher prefers to order the boys"), six items represented teachers' focus on the learning of boys (e.g., "The PE teacher informs the boys how to exercise"), five items reflected teachers' encouragement toward the boys (e.g., "The PE teacher encourages the boys"), five items represented the motivation of boys (e.g., "The boys really exercise"), three items reflected autonomy of boys (e.g., "The PE teacher lets the boys to make up their own exercise program"), and three items corresponded to adjustment of the lesson for boys (e.g., "The lesson is cut out for the boys"). Responses were given on a 7-point Likert scale ranging from *always* (1) to *never* (5). Participants responded to the stem "During the physical education lesson...." A composite score was computed for each scale factor, with higher scores demonstrating higher levels of gender equality. Internal consistency was acceptable for all factors ($\alpha > 72$; see Table 1). Papaioannou (1998) used exploratory factor analysis to provide evidence on the factorial validity of the scale. In the present study, the researchers further investigated the factorial validity of the questionnaire with the use of more sophisticated analytical procedures to substantiate the validity of the scale.

Table 1
Means and Standard Deviations of the Study's Variables

		Total sample		Elementary school		High school		Females		Males	
Variable	**α**	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***
Negative behavior	.72	5.04	1.20	5.31	1.17	4.72	1.16	4.81	1.27	5.28	1.06
Focus on learning	.88	3.17	1.70	2.08	1.07	4.42	1.41	3.02	1.63	3.29	1.76
Encouragement	.86	3.61	1.73	2.71	1.42	4.60	1.49	3.60	1.73	3.58	1.73
Motivation	.84	2.59	1.47	2.15	1.27	3.14	1.52	2.49	1.34	2.68	1.60
Autonomy	.74	4.22	1.71	4.77	1.56	3.62	1.66	4.35	1.67	4.12	1.74
Lesson adjustment	.73	5.38	1.56	5.80	1.39	4.89	1.6	5.42	1.45	5.32	1.68

Note. Cronbach's alpha was calculated in the total sample.

Procedure

Principals of the selected schools were informed of the aim and procedure of the study, and they granted permission for the researchers to perform the study. Parental consent was obtained via a preprint form delivered by students. Parents had to sign and return the form to the class teacher. Students were informed of the aim and procedure of the study, and those who agreed to participate (97%) completed the questionnaire in a quiet classroom under the supervision of a trained research assistant. Students were reassured about the anonymity and confidentiality of their responses. The researchers provided oral and written instructions to enhance the comprehension of the items. The completion of the questionnaire lasted approximately 10 min.

Data Analysis

The researchers conducted six 2 × 2 ANOVAs to investigate the effect of gender (male vs. female) and level of education (elementary vs. secondary) on students' perceptions of gender equality in PE classes. The level of significance was set at .05. The factorial validity of the scale was investigated with confirmatory factor analysis. Due to normal distribution of the data (skewness and kurtosis values were between –1.00 and 1.00), the researchers employed the maximum likelihood method. They used absolute and incremental indices to examine model fit. The comparative fit index (CFI) was used as the main indicator model fit due to its standardized 0–1 range, small sample variability, and stability across various sample sizes (Bentler, 1990; Jöreskog & Sörbom, 1981). CFI scores exceeding .95 indicate excellent model fit, with scores above .90 suggesting adequate model fit (Battin-Pearson, Newcomb, Abbott, Hill, & Catalano, 2000; Bentler, 1990; Yeung et al., 2000). In addition to CFI, the SRMR and the RMSEA were also used to test for goodness of fit, with scores below .08 and .06, respectively, which indicate adequate model fit (Hu & Bentler, 1999).

Results

Preliminary Analyses

Table 1 presents means and standard deviations and internal consistency coefficients. Table 2 shows the Pearson correlation coefficients among the dimensions of the perceptions of gender equality.

Table 2
Analysis of Correlation

Variable	1	2	3	4	5	6
1. Negative behavior		-.27**	-.30**	-.30**	-.03	.27**
2. Focus on learning			.76**	.53**	-.12*	-.16**
3. Encouragement				.57**	.11*	.03
4. Motivation					.13*	-.05
5. Autonomy						.42**
6. Lesson adjustment						

*$p < .05$. **$p < .01$.

Psychometric Properties of the Scale

The results of the confirmatory factor analysis supported the factorial structure of the scale ($\chi^2 = 733.391$, $p < .001$, $df = 358$, $\chi^2/df = 2.04$, NNFI = .896, CFI = .909, SRMR = .066, RMSEA = .057). All factor loadings exceeded the .50 level and were statistically significant at $p = .01$.

Gender Equality, Gender, and Level of Education

To test the effect of students' gender and level of education, the researchers performed six 2 × 2 ANOVAs, one for each of the PPECE-BG dimensions. With respect to teachers' negative behavior toward boys, the findings revealed no statistically significant interaction between gender and educational level, although a significant main effect of students' gender emerged, $F(1, 349) = 13.83$, $p < .001$, $\eta^2 = .03$. Elementary school students scored statistically significantly higher in perceptions of teachers' negative behavior toward boys than did secondary school students, $F(1, 349) = 22.71$, $p < .001$, $\eta^2 = .06$.

Analysis of variance indicated a statistically significant Gender × Educational Level interaction with respect to perceptions of teachers' focus on boys' learning (Figure 1), $F(1, 369) = 8.38$, $p < .01$,

$\eta^2 = .06$. A statistically significant main effect of gender emerged, $F(1, 369) = 8.08$, $p < .001$, $\eta^2 = .02$, indicating that males reported statistically significantly higher scores compared to females. In addition, students in secondary education reported statistically significantly higher scores on teacher's focus on boys' learning compared to those in elementary education, $F(1, 369) = 337.75$, $p < .001$, $\eta^2 = .48$.

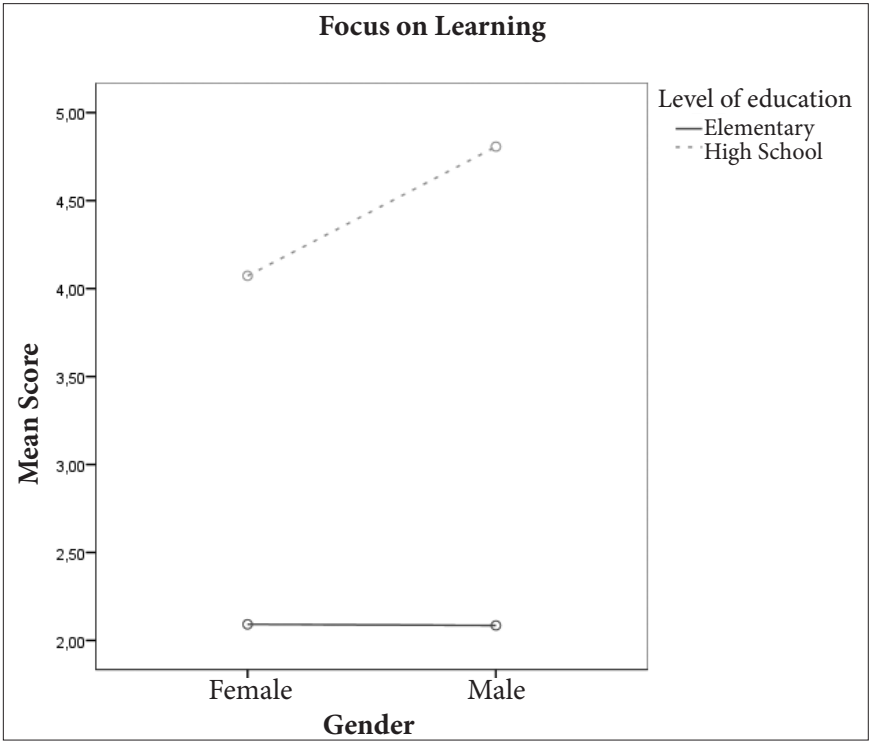

Figure 1. Gender × Educational Level interactions on focus on learning.

Similar results emerged for teachers' motivation toward boys. The analysis indicated a statistically significant Gender × Educational Level interaction (Figure 2), $F(1, 352) = 14.21$, $p < .001$, $\eta^2 = .03$. A statistically significant main effect for gender emerged, $F(1, 352) = 3.93$, $p < .05$, $\eta^2 = .01$, indicating that males reported statistically significantly higher scores than females in motivation. In addition, a statistically significant main effect of the educational level emerged, $F(1, 352) = 48.17$, $p < .001$, $\eta^2 = .12$, indicating that secondary education students reported statistically significantly higher scores of teachers' motivation toward boys than did elementary education students.

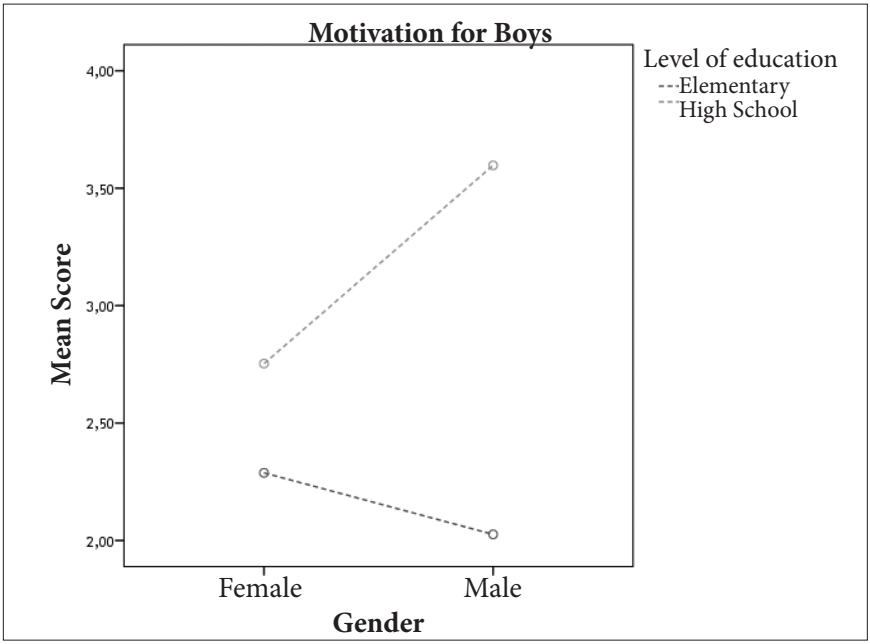

Figure 2. Gender × Educational Level interactions on motivation for boys.

With respect to teachers' encouragement toward boys, the results of the analysis indicated a statistically significant Gender × Educational Level interaction (Figure 3), $F(1, 376) = 10.16$, $p = .002$, $\eta^2 = .02$. A statistically significant main effect of educational level emerged, $F(1, 376) = 10.16$, $p = .002$, $\eta^2 = .02$, indicating that secondary education students reported statistically significantly higher scores of teachers' encouragement toward boys than did those in elementary schools. No statistically significant main effects for gender in this dimension emerged.

The results of the analysis regarding perceived autonomy for boys revealed no statistically significant interactions. A statistically significant main effect for educational level was found, $F(1, 368) = 47.34$, $p < .001$, $\eta^2 = .11$, indicating that elementary school students perceived statistically significantly less teacher-initiated autonomy support toward boys than did secondary school students. No statistically significant gender differences on perceived autonomy were found.

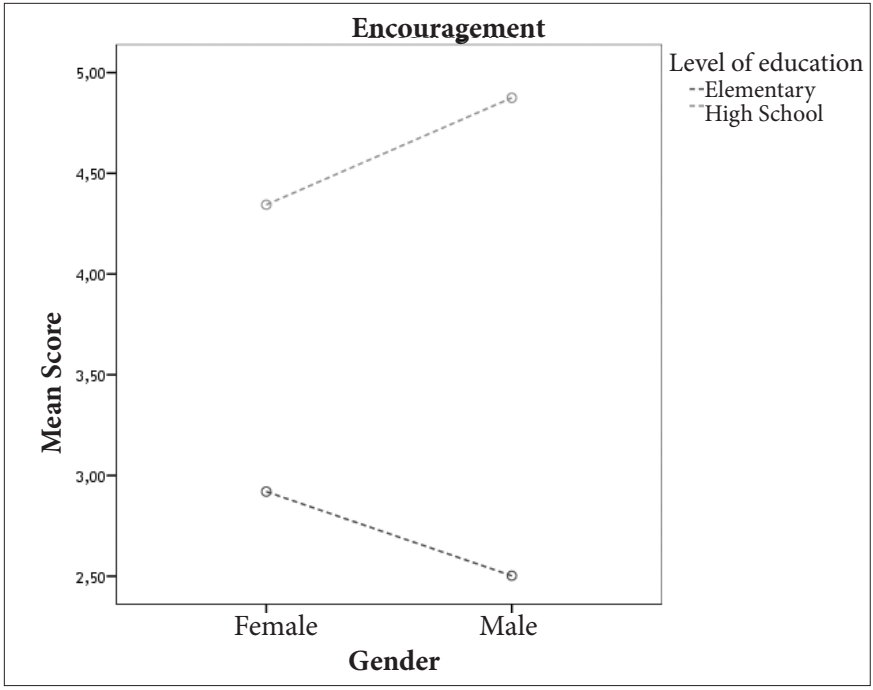

Figure 3. Gender × Educational Level interactions on encouragement of boys.

Similar findings emerged for perceived adjustment of lessons in favor of boys. No statistically significant interactions emerged, except a statistically significant main effect of educational level, $F(1, 361) = 35.89$, $p < .001$, $\eta^2 = .09$, indicating that elementary school students reported statistically significantly less adjustment of the lesson in favor of boys than did secondary education students.

Discussion

The purpose of this study was to examine whether students' perceptions of their physical educator's behavior toward males was affected by gender and level of education. Moreover, the study examined the validation of a self-reported questionnaire concerning students' perceptions of the class environment. In general, the results of the analyses indicated significant interactions of gender and level of education in students' perceptions about their teachers' behavior toward male students. Moreover, with respect to the instrument of the study, the analysis confirmed the factorial validity of the scale.

More specifically, the results of the analyses indicated a significant Gender × Age interaction in three out of six dimensions of teachers' behavior; teachers' focus on the learning of boys, teachers' encouragement toward the boys, and motivation of boys. These findings imply that male students attending secondary education perceive their PE teachers as not focusing on their learning, not motivating them often, and not encouraging them often. These findings indicate that male secondary education students perceive a more negative behavior from their PE teachers than do females and elementary education students. These findings are in contrast to past research showing a differential behavior of PE teachers but in favor of boys (Macdonald, 1990; Nicaise et al., 2007). An explanation for this controversy may lie on the age of this study's sample. This study included students at the onset of adolescence ($M_{age} = 13.8 \pm 0.91$ years), during which adolescents tend to reject "authorities" such as teachers and are affirmed through peers (Cole, Cole, & Lightfoot, 2005; Herbert, 2005). In line with this, adolescence is a time of identity crisis, or "a turning point of increased vulnerability and heightened potential" (Erikson, 1968, p. 96). To resolve this crisis, teenagers try out diverse roles such as being an athlete and a good child, venture to find out what they want to do, and generally try to understand themselves and gain identity through their experiences. If this is the case, it is possible that junior high school students perceived teachers' behaviors aiming to balance inequalities and minimize conflict as negative. Also, they might have interpreted these behaviors as prohibiting them from experimenting with different roles and discovering their own personal identity. This may have been manifested in PE courses in which male adolescents have the opportunity to demonstrate their physical abilities and gain recognition and status, which is significant for their personal identification. Still, more evidence is needed to further support these arguments.

Moreover, educational level (elementary vs. secondary education) was found to influence students' perceptions of teachers' behaviors significantly. Significant main effects in all six dimensions of teacher behavior were found. So far, past evidence with respect to educational level is scarce. Overall, students in elementary education revealed more positive beliefs toward teacher behaviors; teacher behavior was not differentiated in favor of males. These findings can

be ascribed to the fact that elementary school students, compared to adolescent students of junior high school, have not fully developed a gender-based role identity and interact more easily with students of the opposite gender (Cole et al., 2005). In this sense, elementary school students were not sensitive in perceiving a differential way of behaving as a result of the gender. Another explanation may lie on the teaching approaches used by PE teachers in elementary and high school. For instance, McBride (1990) suggested that elementary physical educators demonstrated greater incidents of actual teaching by providing higher levels of instruction and praising their students more. On the contrary, junior high school teachers demonstrated moderate levels of instruction and praised their students less. Thus, it is possible that male and female elementary school students perceive adequate support by their PE teachers and do not experience gender inequalities during PE courses. Nevertheless, further research is needed to clarify the influence of educational level on students' perceptions about teachers' behavior across genders.

Despite the fact that the study provides useful information about students' beliefs on gender inequality, it is not free of limitations. First, the study relied on students' self-reports. Although the questionnaire has been proven valid and reliable, still it reflects students' perceptions that may have been influenced by social desirability or misinterpretation of the items about teacher behaviors. Future studies would benefit from using observation protocols to record teachers' behavior. Second, the study employed a cross-sectional design, which did not allow for causal inferences to be made. The findings of the study are descriptive and provide a preliminary understanding of the phenomenon. Clearly, future studies should employ longitudinal designs that will monitor teachers' behaviors and record whether they can influence students' perceptions. Nevertheless, this is among the first studies investigating students' perceptions of teachers' behavior about gender inequalities in PE courses. The results demonstrate gender and educational level differences with respect to gender inequalities in PE courses and call for further study on the association between teachers' behaviors and students' perceptions.

References

Amorose, J. A., & Horn, S. T. (2000). Intrinsic motivation: Relationships with collegiate athletes' gender, scholarship status, and perceptions of their coaches' behavior. *Journal of Sport and Exercise Psychology*, *22*, 63–84. https://doi.org/10.1123/jsep.22.1.63

Azzarito, L., & Solomon, M. A. (2005). A reconceptualization of physical education: The intersection of gender/race/social class. *Sport, Education, and Society, 10*(1), 25–47. https://doi.org/10.1080/135733205200028794

Battin-Pearson, S., Newcomb, M. D., Abbott, R. D., Hill, K. G., Catalano, R. F., & Hawkins, J. D. (2000). Predictors of early high school dropout: A test of five theories. *Journal of Educational Psychology, 92,* 568–582. https://doi.org/10.1037/0022-0663.92.3.568

Beasley, E. K. (2013). Navigating gender expectations for girls in coeducational physical education. *Strategies, 26*(4), 35–37. https://doi.org/10.1080/08924562.2013.799932

Behets, D. (1997). Comparison of more and less effective teaching behaviors in secondary physical education. *Teaching and Teacher Education, 13,* 215–224. https://doi.org/10.1016/S0742-051X(96)00015-7

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107,* 238–246. https://doi.org/10.1037/0033-2909.107.2.238

Cairney, J., Kwan, U. W. M., Velduizen, S., Hay, J., Bray, R. S., & Faught, E. B. (2012). Gender, perceived competence, and the enjoyment of physical education in children: A longitudinal examination. *International Journal of Behavioral Nutrition and Physical Activity, 9*. https://doi.org/10.1186/1479-5868-9-26

Castillo, O. D., Romero, S., González, T., & Carmen Campos, M. D. (2012). Gender equity in physical education: The use of information. *Sex Roles, 67,* 108–121. https://doi.org/10.1007/s11199-011-0103-5

Cole, M., Cole, S. R., & Lightfoot, C. (2005). *The development of children*. New York, NY: Macmillan.

Constantinou, P., Manson, M., & Silvermann, S. (2009). Female students' perceptions about gender-role stereotypes and their influence on attitude toward physical education. *Physical Educator, 66,* 85–96.

Cox, A., & Lavon, W. (2008). The roles of perceived teacher support, motivational climate, and psychological need satisfaction in students' physical education motivation. *Journal of Sport and Exercise Psychology, 30,* 222–239. https://doi.org/10.1123/jsep.30.2.222

Davis, L. K. (2000). A case study in gender equity for basic instruction programs. *Physical Educator, 57,* 46–56.

Derry, J., & Phillips, D. (2005). Comparisons of selected student and teacher variables in all-girls and coeducational physical education environments. *Physical Educator, 61,* 23–34.

Drudy, S., & Úi Cháthain, M. (2002). Gender effects in classroom interaction: Data collection, self-analysis, and reflection. *Evaluation and Research in Education, 16,* 34–50. https://doi.org/10.1080/09500790208667005

Duffy, J., Warren, K., & Walsh, M. (2001). Classroom interactions: Gender of teacher, gender of student, and classroom subject. *Sex Roles, 45,* 579–593. https://doi.org/10.1023/A:1014892408105

Erikson, E. H. (1968). *Identity: Youth and crisis.* New York, NY: Norton.

Flintoff, A., & Scraton, S. (2001). Stepping into active leisure? Young women's perceptions of active lifestyles and their experiences of school physical education. *Sport, Education, and Society, 6*(1), 5–21. https://doi.org/10.1080/713696043

Fredenburg, B. K., & Lee, M. A. (2001). The effects of augmented feedback on students' perceptions and performance. *Research Quarterly for Exercise and Sport, 72,* 232–242. https://doi.org/10.1080/02701367.2001.10608956

Guimaraes, S. (2015). Gender differences in the relationship between the regular practice of sports and physical exercise, self-beliefs and academic achievement during adolescence. *Journal of Eucational and Developmental Psychology, 5*(2), 77–88.

Gutierrez, D., & Garcia-Lopez, L. M. (2012). Gender differences in game behavior in invasion games. *Physical Education and Sport Pedagogy, 17,* 289–301. https://doi.org/10.1080/17408989.2012.690379

Hannon, J. C., & Ratliffe, T. (2007). Opportunities to participate and teacher interactions in coed versus single-gender physical education settings. *Physical Educator, 64,* 11–20.

Herbert, M. (2005). *Developmental problems of childhood and adolescence: Prevention, treatment, and training.* Malden, MA: Wiley-Blackwell. https://doi.org/10.1002/9780470773888

Hills, L. A., & Croston, A. (2012). 'It should be better all together': Exploring strategies for 'undoing' gender in coeducational physical education. *Sport, Education, and Society, 17,* 591–605. https://doi.org/10.1080/13573322.2011.553215

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6,* 1–55. https://doi.org/10.1080/10705519909540118

Hutchinson, G. E. (1995). Gender fair teaching in physical education. *Journal of Physical Education, Recreation, and Dance, 66*(1), 42–47. https://doi.org/10.1080/07303084.1995.10607023

International Primary Curriculum. (2005). The learning goals. Retrieved from http://www.greatlearning.com/ipc/the-ipc/ipc-learning-goals

Jöreskog, K. G., & Sörbom, D. (1981). Recent developments in structural equation modelling. *Journal of Marketing Research, 19,* 404–416. https://doi.org/10.2307/3151714

Klomsten, A. T., Marsh, H. W., & Skaalvik, E. M. (2005). Adolescents' perceptions of masculine and feminine values in sport and physical education: A study of gender differences. *Sex Roles, 52,* 625–636. https://doi.org/10.1007/s11199-005-3730-x

Koivula, N. (2001). Perceived characteristics of sports categorized as gender-neutral, feminine, and masculine. *Journal of Sport Behaviour, 24,* 377–393.

Koka, A., & Hagger, S. M. (2010). Perceived teaching behaviors and self-determined motivation in physical education: A test of self-determination theory. *Research Quarterly for Exercise and Sport, 81*(1), 74–86. https://doi.org/10.1080/02701367.2010.10599630

Koka, A., & Hein, V. (2003). Perceptions of teacher's feedback and learning environment as predictors of intrinsic motivation in physical education. *Psychology of Sport and Exercise, 4,* 333–346. https://doi.org/10.1016/S1469-0292(02)00012-2

Lauderdale, M. E., Yli-Piipari, S., Irwin, C. C., & Layne, T. E. (2015). Gender differences regarding motivation for physical activity among college students: A self-determination approach. *Physical Educator, 72,* 153–172.

Lentillon, V., Cogérino, G., & Kaestner, M. (2006). Injustice in physical education: Gender and the perception of deprivation in grades and teacher support. *Social Psychology of Education, 9,* 321–339. https://doi.org/10.1007/s11218-005-5122-z

Lyu, M., & Gill, D. (2011). Perceived physical competence, enjoyment, and effort in same-sex and coeducational physical education classes. *Educational Psychology, 31,* 247–260. https://doi.org/10.1080/01443410.2010.545105

McBride, E. R. (1990). Sex-role stereotyping behaviors among elementary, junior, and senior high school physical education specialists. *Journal of Teaching in Physical Education, 9,* 249–261. https://doi.org/10.1123/jtpe.9.4.249

Macdonald, D. (1990). The relationship between the sex composition of physical education classes and teacher/pupil verbal interaction. *Journal of Teaching in Physical Education, 9,* 152–163. https://doi.org/10.1123/jtpe.9.2.152

Miller, L., & Budd, J. (1999). The development of occupational sex-role stereotypes, occupational preferences, and academic subject preferences in children at ages 8, 12, and 16. *Educational Psychology, 19*(1), 17–35. https://doi.org/10.1080/0144341990190102

Napper-Owen, G. E. (1994). Equality in the elementary gymnasium. *Strategies: A Journal for Physical and Sport Educators, 8*(3), 23–26. https://doi.org/10.1080/08924562.1994.10592025

National Association for Sport and Physical Education. (2004). *Moving into the future: National standards for physical education* (2nd ed.). Reston, VA: Author.

Nicaise, V., Bois, E. J., Fairclough, S. J., Amorose, J. A., & Cogérino, G. (2007). Girls' and boys' perceptions of physical education teachers' feedback: Effects on performance and psychosocial responses. *Journal of Sport Sciences, 15,* 915–926. https://doi.org/10.1080/02640410600898095

Nicaise, V., Cogérino, G., Bois, J., & Amorose, J. A. (2006). Students' perceptions of teacher feedback and physical competence in physical education classes: Gender effects. *Journal of Teaching in Physical Education, 25,* 36–57. https://doi.org/10.1123/jtpe.25.1.36

Opotow, S., Gerson, J., & Woodside, S. (2005). From moral exclusion to moral inclusion: Theory for teaching peace. *Theory Into Practice, 44,* 303–318. https://doi.org/10.1207/s15430421tip4404_4

Papaioannou, A. (1998). Students' perception of the physical education class environment for boys and girls and the perceived motivational climate. *Research Quarterly for Exercise and Sport, 69,* 267–275. https://doi.org/10.1080/02701367.1998.10607693

Rich, E. (2003). "The problem with girls": Liberal feminism, 'equal opportunities,' and gender inequality in physical education. *British Journal of Teaching Physical Education, 34*(1), 46–49.

Ryan, M. A., & Patrick, H. (2001). The classroom social environment and changes in adolescents' motivation and engagement during middle school. *American Educational Research Journal, 38,* 437–460. https://doi.org/10.3102/00028312038002437

Sadker, M., & Sadker, D. (1994). *Failing at fairness: How America's schools cheat girls.* New York, NY: Macmillan.

Sarvanaraj, M. G., Sudarkodi, P., & Ramalingam, K. (2012). Faculty perception regarding gender equality with reference to women empowerment in colleges, South India. *European Journal of Social Sciences, 31,* 270–278.

Scraton, S., Fasting, K., Pfister, G., & Bunuel, A. (1999). It's still a man's game? *International Review for the Sociology of Sport, 34,* 99–112. https://doi.org/10.1177/101269099034002001

Shen, B. (2015). Gender differences in the relationship between teacher autonomy support and amotivation in physical education. *Sex Roles, 72,* 163–172.

Slingerland, M., Haerens, L., Cardon, G., & Borghouts, L. (2014). Differences in perceived competence and physical activity levels during single-gender modified basketball game play in middle school physical education. *European Physical Education Review, 20*(1), 20–35. https://doi.org/10.1177/1356336X13496000

Solmon, A. M., Lee, M. A., Belcher, D., Harrison, L., & Wells, L. (2003). Beliefs about gender appropriateness, ability, and competence in physical activity. *Journal of Teaching in Physical Education, 22,* 261–279. https://doi.org/10.1123/jtpe.22.3.261

Standage, M., Duda, J., & Ntoumanis, N. (2003). Predicting motivational regulations in physical education: The interplay between dispositional goal orientations, motivational climate, and perceived competence. *Journal of Sports Sciences, 21,* 631–647. https://doi.org/10.1080/0264041031000101962

Subrahmanian, R. (2005). Gender equality in education: Definitions and measurements. *International Journal of Educational Development, 25,* 395–407. https://doi.org/10.1016/j.ijedudev.2005.04.003

Tiedemann, J. (2002). Teachers' gender stereotypes as determinants of teacher perceptions in elementary school mathematics. *Educational Studies in Mathematics, 50*(1), 49–62. https://doi.org/10.1023/A:1020518104346

Treanor, L., Graber, K., Housner, L., & Wiegand, R. (1998). Middle school students' perceptions of co-educational and same-sex physical education classes. *Journal of Teaching in Physical Education, 18,* 43–56. https://doi.org/10.1123/jtpe.18.1.43

Treasure, D., & Robert, G. (2001). Students' perceptions of the motivational climate, achievement beliefs, and satisfaction in physical education. *Research Quarterly for Exercise and Sport, 72,* 165–175. https://doi.org/10.1080/02701367.2001.10608946

Velija, P., & Kumar, G. (2009). GCSE physical education and the embodiment of gender. *Sport, Education, and Society, 14,* 383–399. https://doi.org/10.1080/13573320903217083

Yeung, A., Chui, H., Cheuk-Yin Lau, I., McInerney, D., Bowie-Russell, D., & Sulliman, R. (2000). Where is the hierarchy of academic self-concept? *Journal of Educational Psychology, 92,* 556–567. https://doi.org/10.1037/0022-0663.92.3.556