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Students' Perceptions of the Physical Education Class Environment for Boys and Girls and the Perceived Motivational Climate

Athanasios Papaioannou

Greek students (N = 310) responded to surveys concerning their perceptions of the physical education class environment. Based on factor and reliability analyses, 14 scale scores were computed. Two depicted perceptions of teacher-initiated mastery orientation and teacher-initiated performance orientation. Six scale scores reflected the teachers' negative behavior toward boys, focus on boys' learning, encouragement toward boys, autonomy given to boys, adjustment of the lesson for boys, and motivation of boys. Six identical scale scores were calculated assessing the physical education class climate for girls. The perception of a teacher who behaves differently toward boys and girls was negatively related to the perception of a teacher who tried to help all students to improve. It is suggested that a mastery orientation increases students' motivation and maintains equality in physical education.

Key words: motivational climate, gender, differential treatment, equality

Recent social cognitive approaches in physical education (Duda, 1996) highlight the role of two different goals, namely task (Nicholls, 1989) or learning (Dweck & Leggett, 1988) and ego (Nicholls, 1989) or performance (Dweck & Leggett, 1988) in children's achievement motivation. When a task or learning goal is salient, success is defined as personal improvement; youngsters ascribe high value to effort and skill development and are highly motivated without external rewards, because they perceive accomplishment as an end in itself. When there is an emphasis on ego or performance goals, success is defined as outperforming others or a high normative performance; youngsters are particularly concerned about the level of their ability, and they see accomplishment as a means to an end, such as social status.

Individual differences exist in the proneness for task and ego involvement (Duda, 1996). Goal orientations also differ as a function of situational demands (Ames, 1992). Some class environments place greater emphasis on effort, task involvement, and mastery and others on social comparison and the level of ability. Accordingly, an instrument was developed to assess students' perceptions of the motivational climate in their physical educational classes (Papaioannou, 1994). Research (Duda, 1996; Papaioannou, 1995a) showed that the perception of a mastery-oriented climate was positively associated with indexes of students' motivation in physical education, such as effort and intrinsic interest in the physical education lesson, but the perception of a performance-oriented climate was not.

Most of the goal perspective literature has focused on children's achievement (Duda, 1996). However, the theory is particularly useful in investigating issues of equality in education. Nicholls (1989) argued that a mastery-oriented climate sustains equality, but a performance-oriented climate promotes inequality in education. Indeed, recent studies (Papaioannou, 1995b; Papaioannou & Nikolopoulos, 1995) revealed that the perception of physical education teachers' differential treatment toward high and low achievers was negatively related to perception of a mastery-oriented climate and positively related to perception of a performance-oriented climate.

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ented environment. No study has yet been published examining how goal perspectives relate to other issues of equality in physical education, such as the treatment of children of different genders.

The major purpose of the present study was to extend the line of inquiry examining the connection between motivational climate and equality in physical education classes. Here, the selected attribute of students suggesting equality or inequality in physical education was gender. There is evidence that boys and girls are often not treated equitably in physical education classes (Martinek, 1989). In the present study, the perceived motivational climate was examined in conjunction with scales assessing the perceived differential treatment of boys and girls in the context of physical education.

Concurring with Nicholls' (1989) argument, the teacher's emphasis on mastery orientation should be regarded a critical indicator of equal treatment toward boys and girls. To understand this argument, one has to realize why one teacher tries hard to develop all students' abilities and another does not. Typically, in physical education classes there is little or no accountability for teachers, so there are no high expectations for them to make an effort to teach all students. Instead, teachers' task-oriented behavior is more likely to be linked to their own intrinsic interest in teaching and concern about justice and fairness. Indeed, investigations showed that strongly task-oriented individuals are more likely to endorse fairness in sport, but high ego-oriented persons might adopt unfair and illegal means to achieve their goals (Duda & Huston, 1995; Duda, Olson, & Templin, 1991). Teachers who are high in task orientation should be more concerned about justice and fairness in their classes and more inclined to sustain equality than teachers with low task orientation.

There is no reason to expect any relationship between performance orientation and a teacher's differential behavior toward students of different genders. In a high performance-oriented climate, successful students are those who have high normative ability. These students are more likely to get rewards more often than their peers with low normative ability. In an ego-involving environment, high achievers are treated more favorably than low achievers (Papaioannou, 1995b) irrespective of whether the highs and lows are boys or girls.

In the present study, a questionnaire was developed to assess students' perceptions of teachers' behaviors toward boys and girls. Of particular interest were the achievement-related dimensions of the class environment. Based on the literature of teacher expectancy effects and achievement motivation, the following achievement-related dimensions of the class climate were deemed important for development: (a) the adjustment of the lesson for boys and girls, (b) the teacher's focus on boys' and girls' learning, (c) the teacher's encouragement of boys and girls, (d) the teacher's emphasis on

order and control and the punishment of boys and girls, (e) the autonomy given to boys and girls, and (f) the motivation of boys and girls,

This instrument was developed for the purposes of this study, and the above factors do not necessarily capture the sum of the achievement-related dimensions of the class climate. Nevertheless, the literature supports the necessity for assessing the aforementioned factors. Several sport pedagogists argue that the physical education environment is adjusted only for males (Griffin, 1989). The teacher's focus on students' learning, which is a positive predictor of their motivation and achievement (Duda, 1996; Papaioannou, 1995a), has been found to differ toward high- and low-expectancy students (Horn, 1984; Martinek & Karper, 1984a, 1984b, 1986; Rejeski, Darracott & Hutsler, 1979). The teacher's encouragement has been found to vary toward boys and girls (Dweck, Davinson, Nelson, & Enna, 1978) and toward high- and low-expectancy students (Markland & Martinek, 1988; Martinek & Johnson, 1979; Martinek & Karper, 1984a, 1984b, 1986; Rejeski et al., 1979). Teacher's punishment, which is negatively related to children's motivation (Deci & Ryan, 1991), has been found to vary toward high- and low-expectancy students (Martinek & Karper, 1984a, 1986). Finally, the autonomy of children, which is a positive predictor of their motivation (Deci & Ryan, 1991), was not provided equally for high- and low-expectancy students in the studies of Martinek and Karper (1984a, 1986).

This study examined how students' perceptions of the motivational climate related to their perceptions of boys' and girls' treatment in physical education classes. A positive intercorrelation pattern was expected among the scales measuring perceived mastery-oriented climate, the perception of the teacher's focus on both boys' and girls' learning, the perception of both boys' and girls' motivation in the lesson, and the perceived encouragement of the teacher toward both boys and girls. On the other hand, it was predicted that the perceived mastery climate would be negatively related to teachers' perceptions of differential focus on boys' and girls' achievement, encouragement toward boys and girls, autonomy given to boys and girls, and adjustment of the lesson for boys and girls.

An observational study in Greek physical education revealed that in high performance-oriented classes there was a higher percentage of teachers' orders and directions toward the students than in low performance-oriented classes (Papaioannou, 1993). These results concur with data and theoretical arguments (Deci & Ryan, 1985, 1991; Plant & Ryan, 1985) that situations inducing public awareness decrease children's perceptions of autonomy and increase a sense of perceived pressure. Hence, it was predicted that the perception of a performance-oriented climate would be positively related to the perception of teacher's control of boys' or girls' behavior.

Method

Participants

The 310 adolescents participating in this study were enrolled in six junior high schools ($n = 77$ boys, $n = 64$ girls; M age = 13.5 years, $SD = 1.5$) and six senior high schools ($n = 76$ boys, $n = 93$ girls; M age = 16.5 years, $SD = 1.5$). All physical education classes were coeducational and taught by 12 physical education teachers, 3 male and 3 female teachers in junior high schools and 3 male and 3 female teachers in senior high schools. These schools were randomly selected from the total number of schools in Thessaloniki, Greece, a town with 1 million residents.

Questionnaires

Two gender-specific questionnaires and a motivational climate questionnaire were administered. Regarding the gender-specific instruments, two questionnaires consisting of the same items were developed, the first referring to boys and the second to girls. Students were asked how often in their physical education class perceived behaviors were relative to boys' achievement. Immediately afterward, students responded on the same items referring to girls' achievement.¹ The format of responses was similar to that of Weinstein and Middlestadt (1979) who assessed students' perceptions of teaching behaviors directed to high and low achievers.

The Perceived Physical Education Class Environment With Respect to the Achievement of Boys Questionnaire (PPECE-BQ). A pool of 74 items referring to perceptions of the physical education class environment relevant to the children's achievement was developed. These items were expected to construct six factors, that is, perceived adjustment of the lesson for boys, perceived motivation of the boys, perceived autonomy of the boys, perceived teacher's focus on boys' learning, perceived teacher's encouragement toward boys, and perceived teacher's control and punishment toward boys. Four sport psychologists evaluated the face validity of each item regarding whether it reflected the concept of the factor it was expected to construct. The judges agreed that 42 items measured the six expected factors. Following the stem, "Indicate how often in this physical education class..." students responded to the 42 items on a 7-point Likert-type scale (always = 7, very often = 6, often = 5, sometimes = 4, rarely = 3, very rarely = 2, never = 1; see Table 1).

The Perceived Physical Education Class Environment With Respect to Girls' Achievement Questionnaire (PPECE-GQ). Students responded on the above-mentioned 42 items which now referred to girls (see Table 1). In other words, this instrument is a replica of PPECE-BQ in which the word "girls" replaced the word "boys."

Teacher-Initiated Motivational Climate in Physical Education Questionnaire. The necessity for a time-saving instru-

ment measuring the motivational climate of physical education classes led to the use of two scales referring to teacher-initiated motivational climate, one assessing mastery orientation and the other performance orientation. The Teacher-Initiated Mastery Orientation scale is one of the five scales of the Learning and Performance Orientations in Physical Education Classes Questionnaire developed by Papaioannou (1994). This scale consists of six items (see Table 2) and has proven to be both reliable and valid (Papaioannou, 1994).

At the time this study was conducted there was no published scale measuring Teacher-Initiated Performance Orientation in physical education. A scale assessing the teacher's emphasis on performance orientation was created for the purpose of this study. Six items were developed referring to the teacher's emphasis of a performance climate in class. The item construction was based on the motivational climate literature and existing scales assessing the performance orientation initiated by coaches (Seifriz, Duda & Chi, 1992) and teachers in the academic domain (Ames & Archer, 1988).

Responses to 12 items following the stem, "In this physical education class," were indicated on a 5-point Likert-type scale (5 = strongly agree, 1 = strongly disagree). The reliability and construct validity of this instrument is described in the results.

Procedure

The author and one research assistant visited the schools and carried out the data collection procedures (i.e., explaining the purpose of the study, collecting the questionnaires, checking for missed items). The students in each class responded to the questionnaires in a classroom setting. The teacher was not in the classroom during completion of the questionnaires. Children worked quietly on their own, but those who wanted to ask questions could raise their hands and communicate privately with the researcher. Generally, completion of the questionnaires required about 30 min. All students gave their informed consent and were ensured of the confidentiality of their responses. The permission of the Greek Ministry of Education was required and was received to conduct the study.

Results

PPECE-BQ

A principal components factor analysis (followed by both varimax and oblique rotations) was conducted on students' responses to the PPECE-BQ to examine the construct validity of this questionnaire. The minimum loading used to identify items to factors was .45, which is

Table 1. Principal components analysis of the PPECE-BQ and the PPECE-GQ; in both analyses the rotation was oblique

Items	Factors of the PPECE-BQ						Factors of the PPECE-GQ					
	1	2	3	4	5	6	1	2	3	4	5	6
The teacher's encouragement toward the boys												
The PE teacher encourages the boys ¹	.65 ²						.58					
The PE teacher makes the boys feel really fine	.59						.65					
The PE teacher really stands by the boys	.84						.78					
The PE teacher really attends how the boys feel	.79						.78					
The PE teacher makes the boys feel really nice for how hard they try	.80						.82					
The teacher's negative behavior toward boys												
The PE teacher criticizes hardly the boys		.72						.74				
The PE teacher really rules the boys		.61						.71				
The PE teacher really exerts pressure on the boys to do what the teacher wants		.75						.66				
The PE teacher prefers to order the boys		.69						.61				
The PE teacher scolds the boys for lack of effort		.58						.71				
The PE teacher makes the boys feel that they are not doing well		.75						.85				
The PE teacher questions the efforts of the boys		.66						.69				
Autonomy of boys												
The PE teacher lets the boys to make up their own exercise program				.87					.80			
The PE teacher gives the boys the opportunity to choose the skills they want				.88					.88			
The PE teacher lets the boys to do what they prefer				.84					.85			
Motivation of boys												
The boys show real interest				-.78						.76		
The boys find that the lesson is of real value				-.83						.68		
The boys really exercise				-.64						.82		
The boys really like the lesson				-.76						.84		
The lesson is really important for the boys				-.80						.79		
The teacher's focus on the learning of boys												
The PE teacher asks the boys if they understand what they have to do					.75					.86		
The PE teacher informs the boys how to exercise					.71					.71		
The PE teacher explains the rules to the boys					.78					.66		
The PE teacher makes sure that the boys understand the skills					.66					.75		
The PE teacher pays attention to whether the boys are improving in skills and games					.69					.46		
The PE teacher helps the boys to learn new skills and games					.68					.59		
Adjustment of the lesson for the boys												
The lesson is cut out for the boys						-.72						-.72
The lesson is adapted for the boys only						-.84						-.62
The lesson is done to suit mainly the boys ³						-.84						-.74
Percentage of variance	21	12	11	7	5	4	24	13	10	6	6	4
Eigenvalues	6.0	3.6	3.3	1.9	1.4	1.2	7.0	3.8	2.9	1.7	1.6	1.2

Note. PPECE-BQ = Perceived Physical Education Class Environment for Boys Questionnaire; PPECE-GQ = Perceived Physical Education Class Environment for Girls Questionnaire.

¹The items of the PPECE-GQ questionnaire contain the word girls instead of boys.

²Loadings with values less than .45 are not shown.

³This version is the product of "blind" translations from the original Greek version to English, then back to Greek and again to English by three bilingual people.

considered a fair measure (Comrey, 1973). Thirteen items did not meet this criterion or were loaded on two factors. These items were excluded from further analyses. A principal components factor analysis on the remaining 29 items resulted in 6 factors with eigenvalues greater than 1, accounting for 60% of the variance. Due to intercorrelation among factors, Table 1 contains results from oblique (direct oblimin) rotation. The factors were in accordance with the predictions, that is, Teacher's Encouragement Toward Boys (Factor 1), Teacher's Negative Behavior Toward Boys (Factor 2), Boys' Autonomy (Factor 3), Boys' Motivation (Factor 4), Teacher's Focus on Boys' Learning (Factor 5), and Adjustment of the Lesson for the Boys (Factor 6). The reliability of these six scales was acceptable (see Table 3).

PPECE-GQ

A principal components factor analysis was conducted on students' responses to the 42 items of the PPECE-GQ. Again, 29 items with loadings higher than .45 were retained for further analysis. The results revealed exactly the same six factors that emerged in the principal components analysis of the PPECE-BQ (see Table 1). The reliability of the six scales referring to girls was acceptable (see Table 3).

The Motivational Climate Questionnaire

A principal components factor analysis (followed by both varimax and oblique rotations) was conducted on students' responses to the 12-item motivational climate instrument. Two factors with eigenvalue greater than 1 emerged. Because the correlation between the two factors was low, Table 2 contains results from varimax rotation. The first factor included the items suggesting a mastery orientation, and the second factor consisted of the items reflecting performance orientation. The reliability for the mastery scale was acceptable (.76). The coefficient for the performance scale meets the criteria of minimal acceptance ($\alpha = .61$), but the results with regard to this scale may need to be interpreted cautiously.

Correlations Among the Motivational Climate Scales and the Gender-Specific Scales

Scale scores were calculated for the two motivational climate scales, the six scales of the PPECE-BQ, and the six scales of the PPECE-GQ. The means divided by the number of items of each scale appear in Table 3. Pearson product-moment correlations were computed for the 14 scales. A positive intercorrelation pattern emerged among the scales measuring perceptions of teacher-initiated mastery orientation, perceptions of teacher's focus on the learning of boys and girls, perceptions of teacher's encouragement of boys and girls, and percep-

tions of motivation of both boys and girls. Another positive intercorrelation pattern was revealed which consisted of the scales measuring perceptions of teacher-initiated performance orientation, perceptions of teacher's negative behavior of boys and girls, and perceptions of adjustment of the lesson for boys and for girls.

Goal Perspectives and Differential Perceptual Patterns

Following the procedure used by Weinstein, Marshall, Sharp, and Botkin (1987), for each of the six pairs of gender-specific scales a differential score was calculated for each participant. This score was simply the difference between the two corresponding scale scores. As seen in Table 4, most differential scores had a substantial standard deviation, implying a large discrepancy in students' views regarding the treatment of the students.

Table 2. Principal components analysis on Teacher-Initiated Motivational Climate in Physical Education Questionnaire

Items	Factors	
	1	2
Teacher-initiated mastery orientation		
The PE teacher pays special attention to whether my skills are improving	.71	
The PE teacher looks completely satisfied when students are improving after trying hard	.81	
The PE teacher is completely satisfied when every student's skills are improving	.74	
The PE teacher is most satisfied when every student learns something new	.69	
The PE teacher makes sure that I understand how to perform each new skill before the class moves on to learning other skills	.72	
The PE teacher insists that students' mistakes are part of learning	.59	
Teacher-initiated performance orientation		
The PE teacher attends the best records only		.66
The students are encouraged to play better than their schoolmates		.57
The PE teacher praises the students only when they are better than their schoolmates		.69
Only the students with the best records are rewarded		.65
The PE teacher praises the students when they outperform their schoolmates		.72
The PE teacher boosts the competition among the students		.58
Percentage of variance	27.3	21.7
Eigenvalues	3.3	2.6

Note. Loadings with values less than .45 are not shown.

Some students reported that boys were favored in the lesson, and others perceived that girls were favored.

Then the absolute value of each score was computed. For a pair of scales suggesting teacher's behaviors, a value equal to zero implies that the student perceived the teacher treated boys and girls equally. On the other hand, the higher the absolute value the more differential the reported treatment of the teacher toward boys and girls (irrespective of who is perceived to be favored, boys or girls). Likewise, for the two student motivation scales, a

value equal to zero implies that boys and girls are perceived to be equally motivated, and a high value denotes their motivation is reported as unequal.

Pearson product-moment correlations were conducted among the two motivational climate scales and the absolute values of the six differential scores. The perceived mastery climate had a negative relationship with the perception that the teacher had an unequal focus on boys' and girls' learning. Likewise, the perceived mastery climate was negatively related to the per-

Table 3. Internal consistencies, means, standard deviations, and correlation matrix of the Teacher-Initiated Motivational Climate Scales and the scales of PPECE-BQ and PPECE-GQ

Scales	α	M	SD	Correlation matrix*													
				1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Mastery goal	.76	3.80	.78	1.0													
2. Performance goal	.61	2.84	.78	-.13	1.0												
3. Negative behavior—B	.82	3.13	1.20	-.15	.41	1.0											
4. Negative behavior—G	.85	2.96	1.29	-.10	.38	.60	1.0										
5. Focus on learning—B	.82	4.68	1.36	.50	.03	-.03	.08	1.0									
6. Focus on learning—G	.85	5.11	1.27	.43	-.03	-.01	.04	.56	1.0								
7. Motivation—B	.83	5.09	1.35	.34	.11	-.03	-.02	.37	.31	1.0							
8. Motivation—G	.85	4.57	1.35	.28	-.05	-.07	-.04	.34	.48	.30	1.0						
9. Encouragement—B	.81	4.29	1.31	.38	-.03	-.10	.06	.50	.38	.43	.33	1.0					
10. Encouragement—G	.85	4.59	1.40	.34	-.13	.01	-.12	.27	.59	.28	.45	.43	1.0				
11. Autonomy—B	.85	3.53	1.75	-.06	-.12	-.19	-.06	-.11	-.07	.12	-.01	.26	.05	1.0			
12. Autonomy—G	.83	4.02	1.63	-.12	.13	.09	.02	-.15	.08	.05	.01	.05	.19	.49	1.0		
13. Adjustment—B	.75	3.12	1.49	-.06	.21	.17	.17	.01	-.02	.21	-.17	.23	-.03	.36	.14	1.0	
14. Adjustment—G	.67	3.16	1.39	-.17	.23	.36	.25	-.09	.08	.06	.08	-.01	.26	.11	.37	.25	1.0

Note. B = toward the boys; G = toward the girls; PPECE-BQ = Perceived Physical Education Class Environment for Boys Questionnaire; PPECE-GQ = Perceived Physical Education Class Environment for Girls Questionnaire.

*Correlations above .16 are significant, $p < .01$ (above .20, $p < .001$). The score of each scale is the sum of scores of its items divided by the number of its items.

Table 4. Means, standard deviations and means of the absolute values for the differential scores and correlations among the absolute values of the differential scores and the motivational climate scale scores

	M	SD	M_{abs}	Correlation matrix*							
				1	2	3	4	5	6	7	8
1. Mastery orientation				1.0							
2. Performance orientation				-.13	1.0						
3. Negative behavior—differential	.17	1.11	.80	-.11	.05	1.0					
4. Focus on learning—differential	-.43	1.23	.92	-.29	.04	.27	1.0				
5. Motivation—differential	.52	1.60	1.26	-.00	.07	.14	.01	1.0			
6. Encouragement—differential	-.30	1.45	1.08	-.24	.01	.21	.37	.16	1.0		
7. Autonomy—differential	-.49	1.71	1.26	-.18	.06	.32	.31	.09	.28	1.0	
8. Adjustment—differential	-.04	1.77	1.30	-.18	.05	.31	.12	.30	.27	.31	1.0

Note. M_{abs} : Means of the absolute values. In the means column, a positive value implies a perception that boys are favored, and a negative value denotes a perception that girls are favored.

*Correlations above .16 are significant, $p < .01$ (above .20, $p < .001$).

ception that the teacher encouraged boys and girls unequally. Similarly, the perception of a mastery orientation in the lesson was negatively related to the perceptions that differential autonomy was given to boys and girls and that the lesson was unequally adjusted for boys and girls. Although statistically significant, the latter coefficients were low and accounted for a small portion of the variance. The perceived performance climate was not related to any perception of differential behavior. A positive correlation pattern emerged among all the perceptions of the teachers' differential treatment toward boys and girls.

Discussion

Research in human motivation that examines how we can promote democracy, equality, and human values in education and sport demonstrates the importance of adopting a mastery orientation and intrinsic reasons for achievement in these contexts (Deci & Ryan, 1991; Duda et al., 1991; Nicholls, 1989; Papaioannou, 1995a; Valleurand & Losier, 1994). Central to the design of these studies is why individuals decide to learn or exercise. When children decide to exercise to increase their competence in an enjoyable task, they see cooperation as a vehicle toward mastery (Duda, 1989; Papaioannou & Macdonald, 1993). Moreover, people who study to make the world better are committed to increasing their competence in their profession (Nicholls, 1989).

This study extends the inquiry on human values in physical activity settings by examining the treatment of children of different genders. It was argued that a critical indicator of equal treatment toward boys and girls is the teacher's emphasis on mastery orientation. Indeed, the results indicated that students' perception of a teacher who tried to increase all students' abilities in physical education was negatively related to the perception of the teacher's differential treatment toward boys and girls. Gender equity in physical education is more likely to be evident when there is an emphasis on the development of all children's abilities.

These data concur with past findings, which indicate that students' perception of a teacher who emphasized mastery in physical education was negatively related to their perception of the teacher's differential treatment toward high and low achievers (Papaioannou, 1995b; Papaioannou & Nikolopoulos, 1995). In sum, the students participating in these studies reported that teachers who try hard to help all pupils improve their abilities are less likely to treat their students unequally than instructors who are not as focused on students' learning. In other words, students believe that teachers who emphasize mastery in their classes are more likely to maintain equality in education than teachers who do not.

The consistency of the present results strengthens the validity of this argument. A positive intercorrelation pattern existed among the scales measuring differential treatment toward boys and girls. For example, students reported that teachers who differentiated their focus on boys' and girls' learning differentiated their encouragement or their negative behavior toward boys and girls, too. Or, the higher the differential autonomy given to boys and girls, the stronger the discriminations in terms of encouragement, focus on students' learning, and negative behavior. These findings are reasonable, suggesting that teachers who discriminate against boys or girls do not differentiate just one aspect of their behavior but adopt several patterns of differential treatment.

The factor analytic results of the PPECE-BQ and PPECE-GQ provide construct validity for these instruments. The relationships among the 12 scales of these tools support their construct validity. In line with goal perspective theory (Nicholls, 1989), positive intercorrelations emerged among the six scales measuring the teacher's focus on boys and girls' learning, the teacher's encouragement toward boys and girls, and the motivation of boys and girls. Note that in any pair of relationships between a scale (e.g., motivation of boys) and a pair of scales referring to the same pattern of behavior (e.g., the teacher's encouragement toward boys and girls), the relationships between same-gender scales were somewhat higher than those between opposite-gender scales. Moreover, considering the correlations of a scale (e.g., the teacher's encouragement toward girls) with scales of the opposite gender (e.g., the motivation of boys, the teacher's focus on boys' learning, and the teacher's encouragement toward boys), the correlations between scales referring to the same pattern of behavior were a little higher than those referring to different pattern of behavior.

The above, in conjunction with the low correlation coefficients between scales which should not be related, provide discriminant validity for the PPECE-BQ and PPECE-GQ. For example, although there is a moderately strong positive relationship between the scale suggesting the teacher's negative behavior toward boys and the scale implying the teacher's negative behavior toward girls, these two scales have low or no relationships with the remaining 10 PPECE-BQ and PPECE-GQ scales. It appears, therefore, that these tools measure distinct, although somewhat overlapping, aspects of the physical education environment for boys and girls.

The factor analyses of the teacher-initiated motivational climate questionnaire and its relationship to the gender-specific instrument support the construct and concurrent validity of this short version which measures the motivational climate in physical education. As predicted, the perception of a teacher who emphasizes a mastery orientation in physical education is positively related to the perceptions that this teacher focuses on

both boys' and girls' learning, encourages both boys and girls, and motivates both boys and girls. These findings are consistent with goal perspective theory, and they support the evidence that a teacher's emphasis on students' learning corresponds positively to the students' motivation.

On the other hand, the perception of a teacher who emphasizes a performance-oriented climate in physical education was associated with the perception that this teacher treats both boys and girls negatively. This finding supports observational data implying that teachers promoting ego involvement in their lessons are more likely to control their pupils than instructors who do not increase the performance orientation in their classes (Papaioannou, 1993). The present data also imply that teachers who emphasize social comparison among students are perceived as more severe than those who are not interested in who is the best. Hence, an emphasis on performance goals neither increases students' motivation nor is perceived as a desirable teaching behavior.

Investigators in multicultural societies are encouraged to use the instruments presented here to examine the association between motivational climate and differential treatment toward students differing in ethnicity, color, religion, etc. It can be reasonably predicted that the perception of a mastery-oriented teacher will be negatively related to the perception of teacher's differential treatment toward individuals who differ in race, physical attractiveness, religion, social class, etc. These findings will be helpful to those who strive to maintain equality in education and physical activity.

In sum, the existing research supports the argument that a mastery goal increases students' motivation and maintains equality in physical education. Teachers who want to adopt a mastery orientation in their physical education classes could be helped by the guidelines offered by Papaioannou and Goudas (in press) and Treasure and Roberts (1995).

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Notes

1. In future studies it would be preferable to counterbalance the order of administration of the two gender-specific questionnaires, so that approximately half of the participants complete one questionnaire first, and the other half complete the other questionnaire first, to control for any ordering effects that may be present.

Author's Notes

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