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PEDAGOGY

Motivational Climate in the Physical Education Context Through the Perspective of Teachers and Students

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Abstract

This mixed methods study examined (a) physical education teachers' self-reported motivational climate and (b) students' perceptions about the motivational climate promoted by their teachers, to identify the coherence between students' and teachers' views from elementary, middle, and high schools. Fifteen PE teachers (9 males, 6 females) participated in the qualitative study; 899 students (447 males, 452 females) participated in the quantitative study. The majority of teachers promoted a mastery motivational climate. Additionally, students' reports confirmed teachers' perceptions about the motivational climate.

Students embrace and achieve healthy behaviors through physical education (PE) activities (Moreno & Llamas, 2007; Nuviala, Gómez-López, Pérez, & Nuviala, 2011). The effectiveness of the educational process, including PE, could be apparent from students' effort and emotional state throughout the activities (Barić, Vlašić, & Erpič, 2014). As a consequence, the motivational climate that contains PE

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teachers' or coaches' communicational manners and actions for the PE lessons or training accomplishment plays a determinant role in students' or athletes' actions or behaviors and in the their involvement (Duda, 2013). The effect of PE teachers is manifold and of utmost importance, because PE teachers could incite and encourage students' active role during the learning process and beyond this particular action (Bekiari, 2014, 2016; Granero-Gallegos, Baena-Extremera, Gómez-López, & Abraldes, 2014). Furthermore, the role of PE teachers is vital and affects students' social and emotional behavior (Bekiari, Deliligka, & Hasanagas, 2017; Bekiari, Kokaridas, & Sakellariou, 2006; Bekiari & Syrmpas, 2015; Gómez-López, Baena-Extremera, Granero-Gallegos, Castañón-Rubio, & Abraldes, 2015). The motivational climate that PE teachers promote is a determinant factor in students' awareness of the significance of PE (Moreno & Llamas, 2007). Several studies have shown that a person's motivation is structured from internal elements (e.g., goal orientation) and from environmental elements (e.g., motivational climate; Duda, 1992, 2001; Duda, Chi, Newton, Walling, & Cately, 1995; Nicholls, 1989, 1992; Roberts, 1993).

Motivational climate is considered a social-environmental factor that directs the goals of an action in achievement conditions in every context (e.g., sports, education; Ames, 1992b). This term derives from achievement goal theory, which asserts the segregation of two types of motivational climate, a mastery or task-involving climate and performance or ego-involving climate (Ames, 1992a; Ames & Archer, 1988; Maehr & Nicholls, 1980; Nicholls, 1984, 1989; Roberts, Treasure, & Conroy, 2007).

In motivational climate, the "significant others" (e.g., teachers, parents, peers) are expressly involved in the promotion of conditions where an action or the environmental circumstances are developed, setting the direction of the climate toward task or ego (Duda & Ntoumanis, 2005; Roberts & Treasure, 1992). Teachers may promote a motivational climate based either on social comparison and rivalry or on learning and cooperation (Bortoli, Bertollo, Vitali, Filho, & Robazza, 2015).

Usually, a PE lesson takes place in a competitive environment; as a result, students are more interested in differentiating the level of their abilities against others' abilities, or they aim at the best

possible practice of their potential (Barić et al., 2014). A mastery motivational climate promoted in a PE class may increase students' perceived ability about physical activity and increase their satisfaction (Baena-Extremera, Granero-Gallegos, Bracho-Amador, & Pérez-Quero, 2012; Fernández-Río, Méndez-Giménez, Cecchini, & González, 2012; Gråstén, Jaakkola, Liukkonen, Watt, & Yli-Piipari, 2012), which leads to engagement in plenty of sports activities (Atkins, Johnson, Force, & Petrie, 2015; Fox, Goudas, Biddle, Duda, & Armstrong, 1994; Malete, 2006; Yli-Piipari, Barkoukis, Jaakkola, & Liukkonen, 2013).

A mastery motivational climate promotes intrinsic motivation (Bryan & Solmon, 2012; Ommundsen & KvalØ, 2007; Papaioannou, 1995; Spittle & Byrne, 2009; Standage & Gillison, 2007). It encourages learning new skills, participation in collaborative learning, and personal improvement; as well, it encourages praise of every physical effort (Ames, 1992b; Papaioannou & Kouli, 1999; Roberts et al., 2007). Moreover, adaptive effects such as enjoyment, devotion, optimism, dignity, confidence (Braithwaite, Spray, & Warburton, 2011; Cunningham & Xiang, 2008; Mouratidis, Vansteenkiste, Lens, & Vanden Auweele, 2009), self-evaluation, and satisfaction (Atkins et al., 2015; Kavussanu & Harnisch, 2000; Le Bars, Gernigon, & Ninot, 2009) result from a task-involving climate. According to the findings of studies (Barić et al., 2014; Duda, Chi, Newton, Walling, & Cately, 1995; Newton & Duda, 1999), students who comprehend their own skills practice more self-referenced criteria to assess those abilities. The attempts and the effort to improve their capabilities suggest task-oriented targets.

A mastery motivational climate in elementary, middle, and high school contributes to occupation with intense physical activity and to students' cognitive processing after PE class (Theodosiou & Papaioannou, 2006). The findings of another study suggest that the promotion of a mastery climate encourages students to adopt a task orientation approach and to put in more effort to improve their performance. Moreover, students have reported being keen on participating in physical activities (Morgan & Carpenter, 2002). The promotion of a mastery climate in a PE context may increase students' participation in physical activities (Parish & Treasure, 2003) and cause students to adopt a positive attitude toward exercise and

healthy diet (Digelidis, Papaioannou, Laparidis, & Christodoulidis, 2003). The promotion of a mastery motivational climate encourages students to adopt a discipline behavior in PE (Cervelló, Jiménez, del Villar, Ramos, & Santos-Rosa, 2004; Papaioannou, 1998; Spray, 2002).

On the contrary, performance-oriented climate fosters social comparison, demonstration of competence, outcome, and outperforming others (Ames, 1992a; Ames & Archer, 1988; Keegan, Spray, Harwood, & Lavallee, 2010). Performance-oriented motivational climate prompts feelings of anxiety, fear, pressure, disorientation, lack of interest, and dropping out (Braithwaite et al., 2011; Cumming, Smoll, Smith, & Grossbard, 2007; Granero-Gallegos et al., 2014; Liukkonen, Barkoukis, Watt, & Jaakkola, 2010; Nerstad, Roberts, & Richardsen, 2013; Ommundsen & KvalØ, 2007; Van De Pol, Kavussanu, & Ring, 2012). It decreases intrinsic motivation (Ferrer-Caja & Weiss, 2000; Standage, Duda, & Ntoumanis, 2003) and promotes displeasure, lowered effort, obligation inconsistency (Liukkonen et al., 2010; Ntoumanis & Biddle, 1999), and adverse psychobiosocial conditions in a PE setting (Bortoli et al., 2015). However, one study revealed that a perceived high mastery and performance motivational climate promotes students' intrinsic motivation and competence (Goudas & Biddle, 1994).

Research has revealed that PE teachers who teach a specific class (Marsh, 1987, 2007; Papaioannou, Marsh, & Theodorakis, 2004) and the students who are members of this class (Marsh, Martin, & Cheng, 2008) may influence students' perception of classroom motivational climate. Although PE teachers play a determinant role in creating the motivational climate in a PE context, there is little information about PE teachers' perceptions of the motivational climate they promote in a PE context. One study revealed that according to teachers' perceptions, students who encounter failure in a performance motivational climate tend to avoid actively participating in the lesson. On the other hand, students in a mastery motivational climate continue to make an effort. Overall, highly skilled students thrive in mastery and performance climates, whereas low-skilled students manage better in a mastery-oriented condition. Boys are able to deal more efficiently with the competitive environment developed in a performance-oriented motivational climate, compared with girls

(Solmon, 1996). Instructors have pointed out their important role as an influence to their athletes through the motivational climate (Zomermaand, 2010). This study reveals PE teachers' perceptions about the motivational climate they develop during the learning process. It also provides insights into motivational climates developed by PE teachers. Additionally, this study examined the extent to which students' perceptions of the motivational climate promoted by their teachers were in accordance with their PE teachers' perceptions of the motivational climate.

The purpose of Study 1 was to examine teachers' self-reported motivational climate. The purpose of Study 2 was to examine (a) differences between students' gender, (b) differences between schools, and (c) differences between educational level concerning students' perceptions about the motivational climate in the PE context.

Method: Study 1

An approval from the ethics committee of the Department of Physical Education and Sport Science at the University of Thessaly was received. The majority of the research in this field has been conducted through qualitative or quantitative methods of data collection. However, Creswell, Plano Clark, Gutmann, and Hanson (2003) suggested that mixed methods research could help researchers to eliminate or reduce the limitation of a certain method of data collection. Therefore, in this study, quantitative (questionnaire) and qualitative (open-ended questions) data were collected simultaneously. The triangulation of mixed methods research may help to elicit information about the motivational climate in the PE context. The PE teachers who participated in the qualitative study were recruited purposefully based on their students' participation in the quantitative study.

Participants

The qualitative study included one-to-one interviews with 15 PE teachers (elementary school, $n = 5$; middle school, $n = 5$; high school, $n = 5$; 9 males, 6 females). The teachers ranged in age from 42 to 58 years old ($M = 50.73$, $SD = 4.27$) and their teaching experience varied between 10 and 33 years.

Data Collection

Prior to data collection, the first author informed the interviewees about the main purpose of the survey and then the interviewees signed a consent form. The respondents participated voluntarily in the study and were informed that they could bow out of the interview at any time. They were also informed about the anonymity of their participation and the confidentiality of the research. The interviewer was a doctoral student who took part in other qualitative data collections as well. The 15 interviews were held in the school setting of participants' choosing, such as in a private room or the gym. The teachers were interviewed individually excluding their teaching hours and each interview averaged 35 min. During the procedure, the researcher wrote in a notebook any memos that would be helpful. The interviews were digitally recorded and later transcribed verbatim. Following the transcription, participants' names were encoded with letters and numbers. More specifically, the letter A represents teachers in elementary schools; letter B, teachers in middle schools; and letter C, teachers in high schools (e.g., A1, B2, C3).

Interview Protocol

A semistructured interview protocol was designed to elicit valuable information about PE teachers' attitudes and self-perceptions of the motivational climate exhibited during the lesson. The interview protocol was based on literature concerning motivational climate. Patton's (2002) methodological recommendations were followed. The interview format included background questions (e.g., age, qualifications, teaching experience). Then questions followed regarding the motivational climate (mastery- or performance-oriented lesson). This research used real-world settings where "phenomenon of interest" could "unfold naturally" (Patton, 2002, p. 39). Thus, short scenarios of possible teaching conditions that may promote these behaviors were included (Creswell, Hanson, Clark Plano, & Morales, 2007). For example, the following questions were included:

- You are starting a lesson. You notice that your students are indolent and in a bad spirit. What do you do?
- You are preparing your students for school tournaments. What do you advise them?

- There is an A student who manages to accomplish in an excellent way the goals of a lesson and there is a weak students who makes a lot of mistakes. How do you deal with each one during the lesson?
- In which cases do you praise your students?

Trustworthiness

The establishment of data trustworthiness was implemented through the strategies described by Shenton (2004) including (a) well-established research methods; (b) the sample was randomly selected; (c) background, qualifications, and experience of interviewers; (d) the data analysis was documented individually by three researchers to ensure convergence of the findings; (e) and to form good relationships with the interviewees, the researcher chatted with them before the procedure and got to know them to ensure honesty. To ensure external reliability, the researchers followed these practices: (a) interviews took place in the gym or PE teacher's office and (b) data were accumulated during formal discussion after an appointment was arranged with each participant (LeCompte & Goetz, 1982). Finally, to establish internal reliability, the researchers showed the interview data to participants to assess whether the reports depicted participants' perceptions.

Data Analysis

The raw data from the interviews were analyzed via thematic analysis. The depiction of the phenomenon through thematic analysis is accomplished by the emergence of significant themes (Daly, Kellehear, & Gliksman, 1997). The interview data were analyzed deductively and inductively. Deductive analysis uses a preexisting set of categories (usually based on existing theory and research) to organize the quotes (Patton, 2002), whereas an inductive reflection generates ideas directly from the data (Strauss & Corbin, 1998). According to the thematic analysis process of coding the data, meticulous "reading and re-reading of the data" help one to become familiar with the content of the interviews (Rice & Ezzy, 1999, p. 258). Open and axial coding were conducted. Open coding recognized similarities and differences in the data and axial coding identified the themes (Corbin & Strauss, 2015). Based on PE teachers' insights and relevant literature, this study attempts to report on teachers' self-perceived

motivational climate. The motivational climates were categorized as either mastery or performance (Ames, 1992a; Duda, 2013; Nicholls, 1989). For example, the teachers were asked, "You are preparing your students for school tournaments. What do you advise them?" One teacher answered, "The advice is that we are interested only in participation, we are interested in enjoying the game, and the score comes last." This answer was coded as mastery climate. Throughout the process, the researchers acted as peer debriefers. Two of the researchers became the "critical friends" to enhance reliability and find potential bias (Marshall & Rossman, 2006). They read and coded the interview segments. The following themes emerged from the thematic analysis: (a) mastery climate and (b) performance climate. The interrater reliability coefficient was determined by the percentage of agreement between the researchers, which was 90%. The data were entered into the NVivo 8 data management program to be processed.

Results: Study 1

PE teachers' statements revealed a variety of reasons that guide their decision to create a mastery or performance motivational climate. The statements were represented by the themes of PE teachers' satisfaction, focus on low-skilled students, rewarding effort, triggering interest, gameplay and scoring match, and school tournaments. Based on the frequency of PE teachers' reports concerning the motivational climate they promote, five profiles were formed in each of the emerging subthemes.

More specifically, seven PE teachers (A2, A3, B1, B2, C1, C3, and C5) who promote only mastery motivational climate were categorized in the first profile, whereas seven (A1, A4, B3, B4, B5, C2, and C4) PE teachers promoted mastery and performance climate. Therefore, based on how frequently they prefer each cluster of motivational climate, they were categorized within three profiles. More specifically, the second profile included four PE teachers (A1, A4, B5, and C2) who appeared to promote a high mastery and low performance motivational climate. Additionally, two PE teachers (B3 and C4) who promoted a medium mastery and medium performance climate were categorized within the third profile. Within the fourth profile, one PE teacher (B4) reported promoting a low mastery and high performance mastery climate. Finally, one PE teacher (A5) was

categorized within the fifth profile. Based on her reports, she promoted the performance motivational climate.

Mastery Climate

Seven PE teachers (A2, A3, B1, B2, C1, C3, and C5) who were categorized within the mastery climate profile indicated consistently that they foster a mastery-oriented climate. This section presents characteristic examples of their perceptions.

PE teachers' satisfaction. In this subtheme, the data analysis indicated that teachers feel more satisfied when they see their students feeling happy and everyone participates in class. For example, A3 stated, "When I am teaching and see that children enjoy it and I notice in their eyes that they take pleasure of what we did, and then I am truly happy." Similarly, C1 reported, "In my lesson, the thing that is most important for me is students' participation. When I see them participating in class, I feel great satisfaction." In concurrence with this view, C5 stated,

> When I see that everyone is participating in my lesson, they try, and I realize that I have accomplished to pass the meanings that are important to achieve our goals, and then I feel satisfied. In high school the aim is lifelong learning, gaining all the essential qualifications to join your favorite sport, and have a hobby to exercise with joy when school years are over. I believe that when you accomplish students' participation by their will and not as a forced task (i.e. just trying not to get expelled), I feel pleased.

Focus on low-skilled students. All the teachers pointed out that they focus on every single student during teaching, but particularly their utmost attention goes to the low-skilled students. B1 reported, "Generally I am focusing on the overall of the class, but of course, in cases that it is needed I give particular attention individually to students that need extra help." C3 mentioned, "Firstly, I am concerned about the whole class. When students need some help, I always advise them so that everyone can move on to the next level of the lesson."

Rewarding effort. A significant dimension acknowledged in this theme was that the teachers always desire rewarding and encouraging

weak students for all their effort and every improvement they accomplish. For example, A2 said,

> I reward every student for its personal accomplishments because each one has its abilities and skills. As a teacher, I should approach the aim of the lesson for every student . . . I appraise someone when I see that he is trying, has a good character and participates every time. Participation and effort are in the first row for my evaluation; the result hierarchically is pretty down in the row.

Similarly, B2 reported,

> I praise the weak student whenever does a promising and good effort. Whereas, I will try to keep the talented student humble and not cultivate his ego through repeated rewards. When you consistently trigger their ego and pride, the results are the opposite of what you aimed for.

C5 pointed out,

> From the first lesson, I point out that I'm not interested in their performance, but in their participation. When a student is trying hard but can't achieve everything, I will be more understandable, and I will embrace his skills. I will reward him more vividly comparing to a student who can manage a lot of things, but he is not trying at all.

Triggering interest. To trigger students' interest when students are feeling low at the start of a lesson, the teachers try to create a positive climate. Usually, they talk about a subject that students are interested in, will lighten the atmosphere with a joke or by playing games, or will encourage students by letting them play anything they please at the end of the lesson. For example, A3 reported,

> I try to set them enjoyable games I know they will get interested in and they will want to take part in. So when I notice that they are tired and I tell them we will play this game, immediately they get excited, and they enjoy this approach.

C1 stated,

> I never actuate them to do something with a strict tone, ever. I always try with a smile or some encouragement that I am sure it will trigger their interest to start up. I always avoid rigor or [insulting] a student, in any case.

Gameplay and scoring match. These teachers did not distinguish the goals of a simple intraclass gameplay and a match with scores performed during the learning process. The goals for these two conditions are for students to apply their knowledge in action, to have fun, and to learn about fair play and teamwork. These teaching activities are also essential for lifelong learning. Participant A2 mentioned, "For me, the most important is to achieve greater socialization, more friendships, to learn about fair play." Moreover, B2 stated,

> Above all, I care about the internal satisfaction they are feeling. I am pleased to realize their happiness when they play a game. The goals for a match [are] to give everyone responsibilities and change play roles. Some will play the role of the referees, another the role of the coach, and so on. I am interested in their behavior. I want them to behave nicely, not to have conflicts.

School tournaments. Teachers who created a mastery motivational climate were not interested in victory but in students' participation in moments such as school tournaments. For example, B1 mentioned, "The advice is that we are interested only in participation, we are interested in enjoying the game, and the score comes last." C1 stated,

> Above all, I think it is more important to have an athletic spirit and not to think just about winning. They should respect the opponent and the referees. Above all is to enjoy the game. They should try not to get carried away with sports fanaticism that exists in professional sports which they're watching. Keeping those negative lessons at bay.

Mastery and Performance Climate

According to teachers' responses to the interview questions, seven PE teachers (A1, A4, B3, B4, B5, C2, and C4) develop both a mastery and performance motivational climate in the teaching process.

PE teachers' satisfaction. In this theme, the teachers (A1, A4, B3, B5, C2, and C4) indicated a preference for a mastery motivational climate, noting they are mostly satisfied when they watch their students having fun and participating in class. B5 said, "I am happy when I see that my students enjoy the lesson, they do not get bored and it is shown in their eyes."

In contrast, one PE teacher (B4) aims for performance, because the teacher cares that the students do everything right and succeed as much as possible. Similarly, B4 mentioned, "I am satisfied when students are able to do well whatever you learn them to do, whether it is a dance or sports. It is important what you teach them can also be done."

Focus on low-skilled students. Some of the teachers (A1, C2) highlighted that they concentrate on every student during the lesson, but particularly their utmost attention goes to the low-skilled students. A1 asserted, "It is important to give attention to all the students, but particularly with some of them who have particularities, you try even more."

However, some teachers (A4, B4, and C4) focus on the entire class, without any exceptions, and admit that it is not possible during the lesson to pay extra attention to the low-skilled student, because there is not enough time and there is not always the same patience.

Some teachers (A4, B3, B5, and C4) added that to manage the difficulties in a class parted from students' different skill levels, they give the high-skilled students some responsibilities by putting them in a position to help students who have difficulty. A4 reported,

> I teach my lesson the way I should do it, but I cannot personally be much involved in weak students' needs, the good ones then help. I put them in my position and become the teachers to others, by correcting their mistakes and showing them the right way to do something.

Notably, B3 stated,

> I usually help weak students by having the good ones to show them some things upon the lesson. They inevitably do the teachers work because if I devote the time weak students need, I then must spend half the hour and the other students will stay behind.

Rewarding effort. In this theme, the majority of the teachers who belong to the mastery and performance climate (A1, A4, B3, B4, B5, C2, and C4) reported that generally, they want to reward and encourage weak students for all their effort and for every improvement students make. For example, B4 reported,

> I encourage those students; I reward them in order to gain confidence little by little and to believe in themselves. I teach them that in physical education, practice, persistence, and effort are necessary for their improvement. I think that the right thing to do is to reward those students and not to disappoint them. If you label them with a negative comment, the kid will not have afterward the mood to get more involved with physical education . . . I teach them that no one knows everything and no one can do everything perfectly. We will make mistakes, and we will learn from them to be better.

Triggering interest. To trigger students' interest when they are feeling low, some teachers (A1, A4, B3, B5, C2, and C4) try to create a positive climate. Usually, teachers talk about a subject that students are interested in, lighten the atmosphere with a joke or by playing games, or encourage students by letting them play anything they please at the end of the lesson. B3 said, "I ask them what they want to play after the lesson. So, I give them some minutes, and they choose what is pleasing them the most."

In contrast, one teacher (B4) uses as a prompt the aspect of victory in a game that students will play in the lesson, as the teacher believes that competition always motivates and energizes students. B4 noted,

> You try to give them motivation. That is, to win in a game such as volleyball, basketball, handball. In this way, you can

awaken them so that they do whatever . . . is possible . . . to win the game. Namely, the joy of victory in a match.

Gameplay and scoring match. A4 noted that the goals do not differ between a simple game and a game with scores performed during the learning process. These goals are included in mastery motivational climate. She said,

> With a simple game during the class lesson, we care about teamwork, sociability, cooperation, distribution of play roles. With a match we care about respecting the rules, the opponent, [enjoying] the game, have good teamwork and collaboration. These are two approximate approaches for a PE teacher.

In contrast, some teachers (A1, B3, B4, B5, C2, and C4) mentioned that regarding a scoring match, they become more rigorous. Their teaching role is to direct students' attention toward avoiding making any mistakes. Also, they tend to choose the best players to play so that the students will be well prepared for school competitions. They also think that competition is necessary for students' progress. For example, B3 explained,

> Elementary goal in a game is for us to be sure that the students have improved their abilities. One of the main goals to plan more regular matches in your lessons is for every student to see and realize its capabilities, to pay attention not to make any mistakes and then to prepare the athletes to find out who are the best for the school tournaments.

Moreover, C4 said,

> They have to learn the basics in order to play a simple game either it is volleyball or basketball and then to be able to move on the court with teamwork, to exchange passes, and to play right. As far as a match is concerned, the important thing is for the best one to win and of course to work on competitive skills. The goal is not to have any fights and the best one to win.

School tournaments. Some teachers (A4, B5, and C2) create a mastery motivational climate when it comes to school sports competitions. They are not interested in victory but in students' participation in moments like these. For example, A4 affirmed,

> [Students] should follow the rules, have fun, respect the other players, and not underestimate their capabilities. They should always be prepared related to all the medical checkups so that they can have the sports identity. They should take heed of their diet, to be proper and healthy before the competition.

But other teachers (A1, B3, B4, and C4) are interested in performance and winning, elements in the performance motivational climate. For example, B4 stated,

> They should not develop fanaticism and misbehavior. They must obey the referee and of course [focus] on the game. If they manage not to misbehave and not to disrespect the other players, then they have to be able to give 100% of their skills.

C4 reported,

> They should be careful not to get in any trouble, because this will have consequences generally both for their team and for the other teams . . . And of course, then the big goal is victory, but always in a team spirit, because if there's no teamwork in PE classes mainly, they cannot win.

Performance Motivational Climate

Finally, one PE teacher (A5) prefers to promote performance motivational climate in each one of the following subthemes:

- *Satisfaction*: "I am happy when we succeed the goals of the curriculum and students try their best to achieve as much as possible during lessons."
- *Low-skilled students*: "I definitely have more demands from an A student so that he always has a good performance and generally be good at physical education. From a low-skilled student. most of the times I do not have the same patience to cooperate with him."

- *Rewarding effort*: "I commend my students when I see that they try and then of course when they accomplish well."
- *Gameplay and scoring match:* "In a gameplay, I check if my students can apply correctly the rules and perform the skills I taught them. A match is important for enhancing competition among them, applying the rules . . . I also check which combination of players creates the most effective team."
- *School tournaments*: "I insist they should never forget the rules, they definitely have to try and do their best for their team and avoid making mistakes."
- *Triggering interest:* "I try to get them to be a bit competitive. So, I use competition in a condition like this because that's what motivates students"

Method: Study 2

Participants

The sample of this study consisted of 899 students (447 males, 452 females) aged 10 to 17 years old (M = 13.8, SD = 2.3). The participants were randomly selected from a list of schools located in Central Greece. The students attended the fifth and sixth grade of five elementary schools, the seventh to ninth grade of five middle schools, and the tenth to 12th grade of five high schools. Participants were from urban and suburban schools and belonged to different socioeconomic statuses.

Data Collection

All students completed questionnaires referring to their PE teachers' motivational climate during the PE lessons in spring 2017. The researcher provided students information about the study and was present for every assistance students needed during the completion of the questionnaires. Anonymity of the participants was ensured by coding elementary schools (A1, A2, etc.), middle schools (B1, B2, etc.), and high schools (C1, C2, etc.). Researchers followed the same coding process that was used in Study 1. Students' participation was voluntary and a consent form was signed.

Instrument

The motivational climate was measured with the short version of the Learning and Performance Orientations in Physical Education Classes Questionnaire (Papaioannou, 1998). The questionnaire consists of two scales referring to perceptions about the motivational climate developed by the instructor. The first seven-item scale measures perceptions of mastery climate (e.g., "My instructor is completely satisfied when every students' skills are improving") and the other six-item scale measures perceptions of performance climate (e.g., "My instructor attends to the best records only"). Participants responded to the items based on a 5-point Likert-type scale ranging from 5 = *strongly agree* to 1 = *strongly disagree*.

Data Analysis

Prior to analysis, the accuracy of data entry, missing values, and fit between distribution and univariate and multivariate outliers were examined. Normality was checked for each cell of the analysis (Std. skewness/kurtosis > 2.58). Univariate outliers were examined via z scores > ±3.29. Also, multivariate outliers were detected via the Mahalanobis distance method with $p < .001$ (Tabachnick & Fidell, 2007). Data analysis included the use of the Statistical Package for Social Sciences (Version 21.0). Differences in students' perceptions about their PE teachers' motivational climate by gender and school were examined via one-way MANOVA analyses. The level of statistical significance was set at .05.

Results: Study 2

One case with extremely high z scores was identified as a univariate outlier and was deleted. Three cases through Mahalanobis distance were found to be multivariate outliers and were deleted, leaving 899 cases for the final analyses. Then two new variables were calculated based on the mean score of the items assessing mastery and performance motivational climate. A one-way MANOVA examined differences in mastery and performance motivational climate between genders. The findings showed a statistically significant multivariate effect on gender, Wilks' $\lambda = .99$, $F(2, 896) = 6.35$, $p < .05$. The examination of the univariate effects revealed no significant

effect of gender on mastery climate, $F(1, 897) = 2.15$, $p > .05$, $\eta^2 = .00$, or on performance climate, $F(1, 897) = .60$, $p > .05$, $\eta^2 = .00$.

A one-way MANOVA examined differences in mastery climate and performance climate between schools. The findings showed a statistically significant multivariate effect on schools, Wilks' $\lambda = .39$, $F(28, 1766) = 37.44$, $p < .001$. The examination of the univariate effects revealed a significant effect of schools on mastery climate, $F(14, 884) = 42.70$, $p < .001$, $\eta^2 = .40$, and on performance climate, $F(14, 884) = 45.85$, $p < .001$, $\eta^2 = .42$. An examination of the mean scores indicated which schools had a higher score in mastery and in performance climate. Table 1 shows descriptive statistics between schools.

Table 1
Descriptive Statistics Between Schools

	Students	Mastery climate		Performance climate	
School	***N***	***M***	***SD***	***M***	***SD***
A1	47	4.12	.56	2.12	.75
A2	30	4.21	.46	3.06	.89
A3	35	4.06	.48	2.92	.87
A4	42	3.29	.44	3.75	.45
A5	56	2.15	.69	4.15	.72
B1	46	4.09	.34	1.90	.48
B2	64	3.90	.72	2.08	.82
B3	67	3.11	1.13	2.96	1.15
B4	76	3.57	.92	2.88	1.05
B5	47	3.01	.99	3.26	1.22
C1	62	4.03	.65	2.06	.78
C2	89	3.21	.95	2.57	.99
C3	86	3.95	.64	2.28	.76
C4	88	2.43	.82	3.93	.90
C5	64	3.77	.49	1.82	.53

Furthermore, a one-way MANOVA examined differences in mastery climate and performance climate between educational levels. The findings showed a statistically significant multivariate effect

on educational level, Wilks' $\lambda = .85$, $F(4, 1790) = 37.90$, $p < .001$. The examination of the univariate effects revealed a significant effect of educational levels on performance climate only, $F(2, 896) = 26.96$, $p < .001$, $\eta^2 = .06$. An examination of the mean scores indicated that the higher score in performance climate was in the elementary schools ($M = 3.26$, $SD = 1.05$). Table 2 shows the descriptive statistics between educational levels.

Table 2
Descriptive Statistics Between Educational Levels

	Mastery climate		Performance climate	
Educational level	***M***	***SD***	***M***	***SD***
Elementary schools	3.43	1.00	3.26**	1.05**
Middle schools	3.53	.96	2.64**	1.11**
High schools	3.42	.96	2.61**	1.12**

**$p < .001$.

Discussion

The first study examined teachers' self-reported motivational climate and the second study examined (a) differences between students' gender, (b) differences between schools, and (c) differences between educational level concerning students' perceptions about the motivational climate in the PE context. Finally, this study used qualitative and quantitative findings to examine the extent to which PE teachers' perceptions about the motivational climate they promote in the PE context align with their students' perceptions about the class motivational climate. The findings of the first study indicate that most teachers, according to their self-reports, orient toward a mastery climate and are interested in students' participation in PE class. These findings align with Solmon's (1996) study, where the teachers' preference for teaching in the mastery climate emerged. The teachers in this study focus on low-skilled students who need most of their attention and think that rewarding and encouraging students' efforts helps students to progress. Several studies have shown that mastery motivational climate plays a key role in students' participation in physical activities (Ames, 1992b; Papaioannou & Kouli, 1999; Roberts et al., 2007) and athletes' exercise (Smoll & Smith,

1989; Zomermaand, 2010). Teachers in this study also believe that a positive climate plays a significant role in students' motivation, as shown in other studies as well (Digelidis et al., 2003). Moreover, the majority of the PE teachers in this study focus on promoting a mastery climate regardless of the lesson content (games with or without scoring and participation in tournaments).

The teachers also reported that their students should have fun while participating in physical activities. This finding is consistent with the findings of Ames (1992a), who suggested that victory is not a panacea and PE teachers should focus on promoting students' satisfaction through participation in physical activities.

Most of the PE teachers reported that they emphasize students' skills rather than victory during school tournaments. Similarly, in Zomermaand's (2010) research, coaches' gave attention to improving their athletes' skills instead of focusing on winning or losing. It is possible that the tendency of these PE teachers to promote a mastery-oriented motivational climate could stem from their participation in seminars/workshops that help PE teachers to promote a mastery climate.

Additionally, the findings reveal that a significant number of PE teachers tend to adopt a mastery and performance motivational climate. Based on the teachers' reports, it can be assumed that they frequently create a mastery motivational climate, but they emphasize their students' performance in other cases. For example, some noted that their students' performance and lesson accomplishments are essential. Those findings are congruent with the findings of several studies that also revealed a focus on competency in the performance climate (Ames, 1992b; Ames & Archer, 1988; Keegan et al., 2010).

Four of the PE teachers stressed that because of a lack of time, they cannot help low-skilled students to confront their learning difficulties. Instead of giving their effort to help low-skilled students, these teachers tend to use high-skilled students to teach low-skilled students. Other studies confirmed indeed that teachers' expectations of their students influence students' perceived ability and their performance (Bibik, 1999; Martinek, 1988; Trouilloud, Sarrazin, Martinek, & Guillet, 2002). Ames (1992b) also stressed that this strategy may lead low-skilled students to undermine their competence. Additionally, Ames (1992b) suggested that by comparing

students' skills, PE teachers may create a performance-oriented climate. Consequently, the implementation of this strategy may widen the skills gap (Ames, 1992b) and decrease students' motivation in PE (Papaioannou, 1997).

On the other hand, the implementation of cooperative strategies such as the reciprocal teaching style allows for "social interactions, reciprocation, receiving and giving immediate feedback (guided by specific criteria provided by the teacher)"(Mosston & Ashworth, 2002, p. 116). That is, teachers should play the roles of doer and observer, while the observer should provide feedback based on the criteria established by their teacher. Even in the case that skilled students play the role of mentor in curricula such as the "Sport for Peace," the teacher should teach and create an environment that promotes care and concern for others (Ennis et al., 1999). Furthermore, two of the PE teachers within this category reported that promoting competition among students or creating an environment similar to competitive games may encourage students to actively participate in PE lessons. These PE teachers appear to disregard that such teaching practices enhance withdrawal among students, especially low-skilled students (Ntoumanis, Pensgaard, Martin, & Pipe, 2004).

Quantitative analysis supported the differences in mastery climate and performance climate between schools. More specifically, the findings reveal that the majority of students perceive that their PE teachers emphasize a mastery-oriented motivational climate. This finding is consistent with the findings of previous studies (Digelidis & Papaioannou, 1999; Giannoudis, Digelidis, & Papaioannou, 2009; Kavussanu & Roberts, 1998). However, students perceived that two PE teachers who taught in the elementary school and two in senior and high school promote a performance-oriented climate in the PE lesson. The reports of nine PE teachers who perceived that they promote a mastery motivational climate align with their students' perceptions. However, five PE teachers' reports contrast with their students' perceptions of the motivational climate promoted by teachers. Based on the quotes of two PE teachers, it can be concluded that they promote a mastery-oriented motivational climate. On the contrary, their students perceived that their teachers tend to promote a performance-oriented motivational climate. Moreover, two of the PE teachers' reports reveal that they promote a medium

performance and mastery motivational climate, while their students perceived that their teachers promote a performance and mastery motivational climate. Finally, one PE teacher stated that he promotes a performance motivational climate, but his students perceived that he fosters a mastery-oriented climate. The aforementioned findings may imply that both the PE teachers who teach a specific class (Marsh, 1987, 2007; Papaioannou et al., 2004) and the students who are members of this class (Marsh et al., 2008) influence students' perception of classroom motivational climate.

Moreover, the findings reveal that students in elementary school perceive the motivational climate in the PE lesson as more performance-oriented compared to students in middle and high school. This finding contrasts with the findings of previous studies (Barkoukis, Ntoumanis, & Thøgersen-Ntoumani, 2010; Digelidis & Papaioannou, 1999) that suggested a decrease in the mastery-oriented motivational climate in senior high school. Given that PE teachers in elementary schools tend to use traditional competitive games (Konstantinidou, Michalopoulou, Aggelousis, & Kourtesis, 2011), it can be assumed that such games may foster students' perception of the performance-oriented climate in PE lessons. This assumption could be magnified from the fact that two of the elementary PE teachers reported that they emphasize outperforming the opponents and winning the game. The development of a competitive atmosphere in the PE context may encourage students to evaluate their performance based on norm-referenced criteria that in turn could promote a performance motivational climate (Wallhead & Ntoumanis, 2004).

Conclusion

This study was an initial attempt to examine PE teachers' perceptions of the motivational climate they foster in PE lessons. An additional goal was to examine the association between teachers' and students' reports concerning the motivational climate created in PE classes. Limited research has examined the perceptions about motivational climate between PE teachers and their students. The authenticity of the teachers' self-reports about the promoted motivational climate is established by students' perceptions, which capture the intended motivational climate, verifying subsequently that the mentioned motivational conditions were the same. The majority

of teachers promoted a mastery motivational climate. Performance motivational climate was created mostly in elementary schools, compared to middle and high schools.

A limitation of this study was the age of the teachers, who were old enough to have plenty of years of experience, so there is the lack of younger teachers who may had different perceptions. The relatively small number of teacher interviews may reduce the generalizability of the findings for all Greek PE teachers. However, the thorough analyses of the qualitative and quantitative data strengthen the understanding of the phenomena. A future study could use a field observation of the motivational climate created during class, to examine teachers' and students' actions.

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