

Research article

The relationship between goal orientations, motivational climate and self-reported discipline in physical education

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Abstract

The purpose of this study was to test a motivational model on the links between situational and dispositional motivation and self-reported indiscipline/discipline based on the achievement goals theory. The model postulates that a task-involving motivational climate facilitates self-reported discipline, either directly or mediated by task orientation. In contrast, an ego-involving motivational climate favors self-reported indiscipline, either directly or by means of ego orientation. An additional purpose was to examine gender differences according to the motivational model proposed. Children (n = 565) from a large Spanish metropolitan school district were participants in this study and completed questionnaires assessing goal orientations, motivational climates and self-reported discipline. The results from the analysis of structural equation model showed the direct effect of motivational climates on self-reported discipline and provided support to the model. Furthermore, the gender differences found in self-reported discipline were associated with the differences found in the students' dispositional and situational motivation pursuant to the model tested. The implications of these results with regard to teaching instructional actions in physical education classes are discussed.

Key words: Motivation, self-reported discipline, achievement goals theory, physical education.

Introduction

Motivation has been studied as a key factor in influencing learning outcomes, since high learning achievements have often been attributed to high motivation in students and environments that favor motivation. Therefore, research in physical education has shown that motivation affects students' engagement and their behaviors (Chen, 2001). Specifically, the achievement goals perspective (Ames, 1984; 1992a; 1992b; Dweck, 1986; Eliot and Dweck, 1988; Nicholls, 1984; 1989) has been shown to be one of the theoretical models that has contributed the most to the understanding of cognitive, emotional and behavioral patterns relevant to a student's achievement in physical education classes (Carpenter and Morgan, 1999; Duda, 1996; Papaioannou, 1995; 1998a; Spray and Biddle, 1997; Treasure, 1997; Treasure and Roberts, 2001; Xiang and Lee, 2002; Xiang et al., 2004a; 2004b). Over the last two decades, the Achievement Goal Theory has proved useful in researching other educational variables within physical education and sport settings, such as the study of discipline in physical education classes (Cervelló et al., 2004; Papaioannou, 1998b; Spray, 2002; Spray and

Wang, 2001). The achievement goal theory framework was used in this study to understand how a student's goal orientations and the climate perceived in physical education lessons might be associated with children's self-reported discipline.

By adopting this framework, it is assumed that children's motivation to learn is presumably determined by their goal orientations and the perceived motivational climates. It also contends that the goal of action in achievement settings, such as physical education lessons, is to demonstrate ability (Nicholls, 1984; 1989). Nevertheless, there are two achievement goals that define the concept of ability: task or learning and ego or performance (Nicholls, 1984; 1989; Dweck and Leggett, 1988). These goal perspectives, also known as dispositional goal orientations, refer to the way a student construes their levels of competence and, consequently, define success in specific settings. Students with a task orientation use self-referenced criteria to judge their own competence, strive to demonstrate mastery, seek ways to improve their abilities and endeavor to learn new abilities, so that they feel successful after high levels of effort and mastery of a task. Conversely, students with an ego orientation tend to orient themselves to achieve a positive evaluation of their current abilities and base their performance on a social comparison, so that they feel satisfaction when they establish superiority, i.e. after demonstrating more ability than the reference group or equal performance with less effort (Ames, 1992a; 1992b; Duda, 2001; Nicholls, 1984; 1989; Lochbaum et al., 2009). Studies have shown correlation among cognitive, affective and behavioral patterns of these two goal orientations in physical education settings (Duda and Hall, 2000). Students whose goals are task-related usually choose challenging tasks and focus on effort more than ego-oriented students do (Duda, 2001; Roberts, 2001; Solmon and Boone, 1993). In addition, task orientation has been associated with internal reasons for being committed in physical education classes, whereas ego orientation has been related to external reasons for being involved in lessons (Dorobantu and Biddle, 1997; Cervelló and Santos-Rosa, 2000; Todorovich, 2009).

Goal perspective may represent a dispositional tendency towards judging one's competence or it may be fostered within the situational context creating a perceived motivational climate (Ames, 1992a; 1992b; Dweck and Leggett, 1988; Nicholls, 1984; 1989; Vasloo et al., 2009). Motivational climate refers to student perceptions of achievement goals addressed by situational factors,

such as teachers. These situational factors can define student conceptions of ability. According to the two goal orientations, there are two perceived motivational climates in classroom contexts. Therefore, a dispositional goal orientation is considered to reflect the predisposing tendency to be task- or ego-involved, while the salience of performance and mastery-oriented cue in an achievement setting are situational criteria that may alter the probability of adopting a particular state of involvement. Within classroom contexts, in a task-involving climate, teachers emphasize effort and evaluate students on mastery and skill improvement, whereas in an ego-involving climate, teachers emphasize social comparison and evaluate students on performance outcomes. Teachers have an influence on perceived motivational climate in the classroom using factors such as task purposes, evaluation, rewards and student relationships (Ames and Archer, 1988; Moreno-Murcia et al., 2008). Students' perceptions of motivational climate have proved to be stronger predictors of cognitive and affective responses after controlling for dispositional goal orientations. Generally, perception of a task-involving climate was associated with a strong intrinsic motivation, preference for challenging tasks and the belief that success resulted from effort and motivation instead of external factors (Cury et al., 1996; Treasure and Roberts, 2001).

The Achievement Goal Theory framework has normally been used to understand how the climate created by teachers to enhance motivation might impact a student's goal orientations and achievement strategies. Recently, a body of research from different cultural settings has provided support for hypotheses regarding the relationships between motivational climate and perceived teacher strategies to maintain discipline (Agbuga and Xiang, 2008; Cervelló et al., 2004; Miller et al., 2005; Moreno-Murcia et al., 2008; Papaioannou, 1998b; Spray, 2002; Spray and Wang, 2001; Zounhia et al., 2003). These researchers uphold the idea that goal perspective is one of the theoretical models that contributes the most to understanding the consequences of student perceptions of the climate created by physical education teachers with respect to control and discipline in school physical education lessons. In fact, researchers and teachers must know how to motivate students in order to ensure successful involvement and learning in physical education classes. Papaioannou (1998b), for example, reported positive links between student's perceptions of task-involving climate and teacher emphasizing intrinsic and identified reasons for being disciplined in classroom. In this task-involving climate, tasks were viewed as ends in themselves and, consequently, pupils were likely to value the tasks and appreciate the process of learning. On the contrary, the perception of an ego-involving climate was more likely to adopt more controlling forms of external motivation. Since external criteria of evaluation were promoted within these classroom settings, effort was not as important as the result or success achieved.

In this vein, Spray and Wang (2001) showed that pupils who had higher both task and ego orientations and possessed a sense of competence in physical education reported more self-determined reasons for their conduct and considered that they behaved in lessons better than

their peers. In contrast, students who exhibited low task and ego orientations, low perceived competence and low feelings of autonomy considered that they behaved worse than their classmates. Spray (2002) also found that the perception of a task-involving climate was positively linked with pupil-determined reasons, but negatively associated with the perception of a teacher maintaining discipline. However, teaching strategies based on promoting a feeling of guilt or shame in order to keep control and discipline were positively associated with an ego-involving climate. The results of a study carried out by Zounhia et al. (2003) in a Greek secondary school also reinforced the idea that the reasons for pupils being well-behaved are mainly self-determined. Consequently, in order to maintain discipline teachers usually employed strategies that emphasized intrinsic reasons for discipline. Finally, research with Spanish physical education students (Cervelló et al., 2004; Moreno-Murcia et al., 2008), indicated that ego orientation was a predictor of indiscipline, whereas task orientation was positively associated with discipline. The perception of an ego-involving climate was also linked negatively to the perception of the appearance of discipline.

Although many studies have analyzed the role of dispositional orientations in self-reported discipline behavior, there are few that have analyzed the role of motivational climate in the appearance of discipline and if this role is mediated by motivational orientations or directly affects discipline. Since the studies that have analyzed both constructs (e.g. Cervelló et al., 2004) have detected more impact from motivational orientations on self-reported discipline behavior, the main objective of this research is to analyze the contribution made by perceived motivational climates in the physical education class (Figure 1).

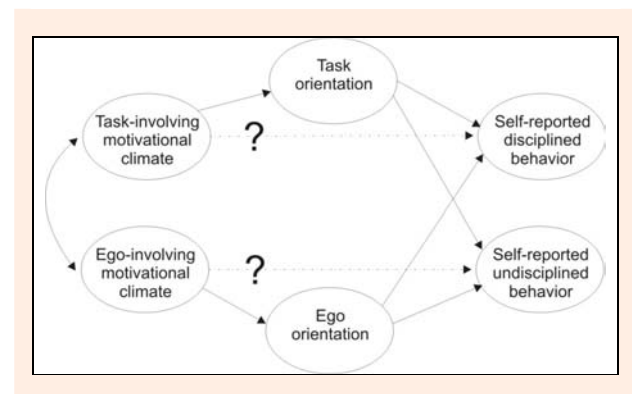


Figure 1. Original process of the model.

This study's second objective is to analyze possible gender differences in pupils' self reports of discipline pursuant to the model tested in Figure 1. Gender has proven to be a modulating variable of some cognitive and behavioral responses in the field of physical education. As far as motivational variables are concerned, the influence of gender on goal orientations and motivational climate in physical education class settings has often been researched. Findings have generally shown that males tend to perceive an ego-involving climate and be more ego-oriented than females, and that the latter tend to perceive

a task-involving climate and be more task-oriented than males (Carr and Weigand, 2001; Duda and Whitehead, 1998; Ntoumanis and Biddle, 1999; Spray and Biddle, 1997; White et al., 1998; Cunningham and Xiang, 2008). Nevertheless, relatively little work has been done to document gender differences in children's self-reporting discipline from a motivational perspective. Guan et al. (2006) examined the relationship between achievement goals and social goals in high school physical education settings and showed that although there were no gender differences in achievement goals, girls were more willing to value peer relationships, cooperate with others, and adhere to social rules and role expectations than boys. However, they did not take into account the role of motivational climates created in class as a possible predictor of the gender differences found. This study aims to analyze gender differences in pupils' self reports of discipline, bearing in mind the possible role that the union of the perception of a motivational climate and dispositional goal orientation may play in these differences.

To summarize, this study had two purposes. The first was to extend previous research on self-reporting discipline in physical education by testing a model on the links between situational and dispositional motivations and self-reported indiscipline/discipline based on the achievement goals theory (Ames, 1984; 1992a, b; Dweck, 1986; Nicholls, 1984; 1989). The emphasis of the structural equation modeling analysis was on whether motivational climates, besides affecting pupils' self reports of discipline through the mediation of motivational orientations, have a direct effect on self-reported indiscipline/discipline. It was hypothesized that there will be a direct positive link between task-involving motivational climate and self-reported discipline behavior. In contrast, there will be a direct positive link between an ego-involving motivational climate and self-reported indiscipline. The second purpose of this study was to investigate gender differences and to interpret possible differences pursuant to the motivational model tested. It was anticipated that boys would have a higher ego orientation, higher perception of an ego-involving motivational climate and more self-reported indiscipline than girls. In contrast, girls would show higher task orientation, higher perception of task-involving climate and more self-reported discipline behavior than boys.

Methods

Participants and procedure

The study sample consisted of 565 students (mean age = 14.5, SD = 0.49, min. = 14, max. = 15) in the second year of secondary education at state schools. There were 259 boys and 306 girls, all members of physical education classes in 21 schools in a large Spanish urban city (500,000 inhabitants). All the students took part voluntarily.

Initially we contacted 35 centers, distributed throughout the city. Only 21 agreed to be part of the study. Permission to conduct this research was received from head teachers. The pupils were told the purpose of the research, their rights as study participants and asked to

sign a consent form. The instruments for measuring the different variables were administered in a classroom to the chosen subjects when the teacher was not present. The measures were given to all the students in the same order and in just one class in each centre, selected at random. Each participant took 15-20 minutes to complete the questionnaires and responses to the instrument were kept anonymous. The participants were told to ask for help if confused concerning either instructions or the clarity of particular items. No problems were encountered in completing either of the inventories or understanding the nature of the questions.

Measures

Goal orientations: To measure students' dispositional goal orientation in physical education classes, the Spanish version (Cervelló et al., 1999; Cervelló and Santos-Rosa, 2000; 2001) of the Perception of Success Questionnaire was used (Roberts et al., 1998). This questionnaire has 12 items, of which six measure Task Orientation (e.g. "In Physical education classes, I feel successful when I reach a goal") and six measure Ego Orientation (e.g. "In Physical Education classes, I feel successful when I win"). The Spanish version of this questionnaire showed a factor distribution and internal consistency coefficients similar to those obtained for American athletes and physical education students (Cervelló et al., 1999; Escartí et al., 1999; Cervelló and Santos-Rosa, 2000; 2001).

Motivational climate in physical education classes: To measure students' perception of a motivational climate in physical education classes, the Spanish translated version by Balaguer et al. (1997) of the Perception of Motivational Climate in Sport Questionnaire-2 (Newton and Duda, 1993) was adapted. The Spanish version of this questionnaire has two higher-order dimensions, which measure the Perception of a Task-Involving Motivational Climate and the Perception of an Ego-Involving Motivational Climate. In the Spanish version, the task-involving climate factor is composed of 11 items. Examples of the items included: "In physical education classes, students feel good when they try their best" and "In physical education classes, students help each other learn". The ego-involving climate factor includes 13 items (e.g. "In physical education classes, the teacher has his/her favorites"). The Spanish adaptation of this instrument to physical education classes has also shown acceptable reliability indices (Cervelló et al., 2004)

Self-reported Disciplined-Undisciplined behaviors: To measure self-reported discipline and indiscipline behaviors in physical education classes, the Disciplined-Undisciplined Behavior Inventory, designed by Cervelló et al. (2004), was given. This inventory has 19 items, nine grouped in the self-reported discipline factor (e.g. "In physical education classes, you comply with the rules established in the running of the class") and 10 items belonging to the self-reported indiscipline factor (e.g. "You don't pay attention to the teacher's explanations"). In the study developed by Cervelló et al. (2004), exploratory factor analysis confirmed the two-factor structure and alphas for the Discipline and Indiscipline factors were 0.83 and 0.79, respectively.

Table 1. Means (M), standard deviations (SD) and univariate analysis of variance for gender.

Variables	M	SD	Boys	SD	Girls	SD	F
Ego-involving motivational climate	26.19	13.91	28.54	14.05	24.21	13.51	13.91**
Task-involving motivational climate	61.63	15.85	61.23	16.62	61.97	15.18	.30
Ego orientation	47.05	31.38	57.19	29.77	38.47	30.16	54.66**
Task orientation	81.56	18.56	82.21	18.41	81.02	18.70	.57
Self-reported indiscipline	16.66	15.41	19.77	17.35	14.03	13.01	20.10**
Self-reported discipline	81.34	14.70	79.02	15.24	83.31	13.96	12.12**

** $p < 0.001$

Data analysis

Preliminary data analyses and descriptive statistics were performed before testing the hypotheses. A MANOVA was calculated to analyze gender differences. First, a confirmatory factor analysis (CFA) was conducted to examine the construct validity of the variables in the study and the Cronbach Alpha coefficient was used to calculate the reliability of the instruments. Then, to respond to the working hypotheses and due to the apparent sequential connection between the variables studied (perception of motivational climate, goal orientation and self-reported discipline) we performed SEM (Structural Equation Modeling). SEM was used to determine whether theoretically anticipated relationships existed. SEM is particularly useful in longitudinal research (Bentler, 1980; MacCallum and Austin, 2000) and in the study of variables that have a sequential relationship, as in the case of our study. This statistical technique makes it possible to analyze both the direct and the indirect effect of the variables, since it enables the same variable to be considered as both a dependent and an independent variable at the same time. Furthermore, for examination of hypothesized relationships among all of the constructs involved in a model using a latent representation of these constructs that is less vulnerable to measurement errors, such as those that can be encountered in research with child populations.

Results

Descriptive statistics and preliminary analysis

The descriptive statistics for all samples, boys and girls, are presented in Table 1. The reliability coefficients and the correlations between the variables analyzed in the study are shown in Table 2. The means of the factors show that our physical education students had a higher task than ego orientation. They also perceived a higher task-involving climate than an ego-involving climate. Moreover, the students demonstrated higher self-reported discipline than self-reported indiscipline. Regarding reliability coefficients, the values in all the variables exceed 0.70 and we can consider that the reliability of the instru-

ments is acceptable (Nunnally, 1978; Nunnally and Bernstein, 1994).

A multivariate analysis of variance (MANOVA) was conducted to determine whether there were significant differences on perception of motivational climate, goal orientation and self-reported discipline and indiscipline as a function of gender. Results revealed a significant multivariate main effect for gender (Wilk's lambda = .890, $F(6, 558) = 11,473$, $p < 0.001$). Follow-up univariate analyses of variance (ANOVAs) revealed significant differences between males and females in ego-involving motivational climate ($F = 13.91$, $p < 0.001$), ego orientation ($F = 54.66$, $p < 0.001$), self-reported-indiscipline ($F = 20.10$, $p < 0.001$) and self-reported-discipline ($F = 12.129$, $p < 0.001$). The means were always higher in the boys, except in discipline, where the score was higher in the girls.

With regard to the correlations of the variables, we can observe positive and significant connections between ego orientation and the perception of an ego-involving motivational climate and between task orientation and the perception of a task-involving motivational climate. Similarly, there are negative and significant correlations between ego orientation and the perception of a task-involving motivational climate and between task orientation and the perception of an ego-involving motivational climate.

On the other hand, ego orientation was positively correlated with self-reported indiscipline and negatively with self-reported discipline. Task orientation was positively correlated with self-reported discipline and negatively with self-reported indiscipline. The perception of an ego-involving motivational climate was positively associated with self-reported indiscipline and negatively with self-reported discipline. Finally, the perception of a task-involving motivational climate was positively associated with self-reported discipline and negatively with self-reported indiscipline.

Measurement model

CFA was conducted to examine the construct validity of all of the model's latent variables. Items on each subscale

Table 2. Alpha coefficient and correlations for all variables.

Variables	Alpha	1	2	3	4	5	6
1. Ego orientation	.93	-	.16**	.32**	-.13*	.36**	-.14**
2. Task orientation	.87	-	-	-.10*	.24**	-.20**	.28**
3. Ego-involving motivational climate	.71	-	-	-	-.48**	.44**	-.34**
4. Task-involving motivational climate	.74	-	-	-	-	-.30**	.48**
5. Self-reported indiscipline	.80	-	-	-	-	-	-.51**
6. Self-reported discipline	.75	-	-	-	-	-	-

* $p < 0.01$; ** $p < 0.001$

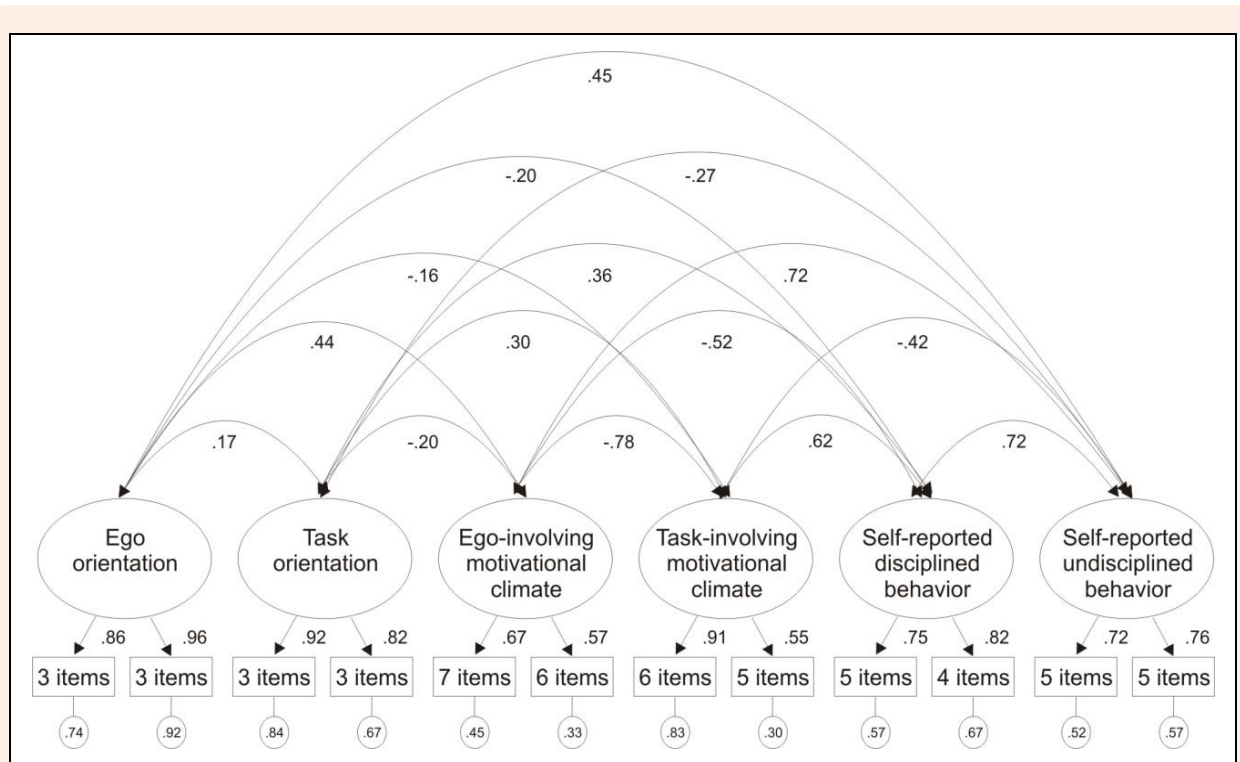


Figure 2. Measurement model (CFA) of the hypothesized six-factor structure. Circles represent latent construct and squares represent measured variables (composite scores). All parameters are standardized and significant at $p < 0.05$. Residual variances are shown in small circles.

were aggregated randomly to form two composite scores for each construct in order to reduce the number of variables and to keep the model degrees of freedom reasonable (Bentler, 1980; Byrne, 1994). The CFA was based on twelve observed variables and six latent factors (perception of motivational climate, goal orientation and self-reported discipline/indiscipline) (Figure 2). The analysis was conducted with AMOS 5.0 with the maximum likelihood method of estimation. Due to the highly multivariate abnormality of the data (Mardia = 29.56), the bootstrapping approximation was employed. In view of the current controversy regarding measures of overall goodness of fit, it is generally considered appropriate to report multiple indices (Bollen, 1989). Thus, the chi-square statistic, the goodness-of-fit index (GFI), the incremental fit index (IFI), the comparative fit index (CFI) and the standardized root mean square residual (SRMR) were all used to evaluate the adequacy of the fit of the model to the data. For GFI, IFI and CFI, values above .95 are considered good, but values higher than 0.90 are considered acceptable (Marsh et al., 2005). For SRMR, values below 0.08 indicate a good fit of the model to the data. The measurement model provided adequate fit to the data $\chi^2(39, N = 565) = 140.39, p < 0.001, GFI = 0.96; IFI = 0.96; CFI = 0.96; SRMR = 0.035$.

The correlations between latent constructs, disattenuated for measurement error, were inspected to verify the discriminant validity between constructs. The correlations were moderate to null. The confidence intervals (two standard errors) for these disattenuated correlations supported the discriminant validity of these constructs, insofar as none of the interval included 1.0 (Anderson and

Gerbin, 1988). All λ were significant ($t > 2.00$).

Structural model

After the SEM with the theoretical model pursuant to the hypothesis made, we observed that the values obtained did not reach the minimum values for acceptance of the model ($\chi^2(31, N = 565) = 439.850, p < 0.001, GFI = 0.834; IFI = 0.85; CFI = 0.85; RMSR = 0.120$). In this case, self-reported discipline obtains 29% of explained variance and it is explained positively by task orientation and negatively by ego orientation. As far as self-reported indiscipline is concerned, the explained variance is 43% and it is explained negatively by task orientation and positively by ego orientation.

After this result, we performed another SEM correcting the model. Modification indices were calculated (Multiplier Language), which indicated that the model improved significantly when direct connections between task climate and discipline, and ego climate and indiscipline were considered. These modifications are also supported theoretically, since there are studies that have shown positive relationships between the perception of an ego-involving motivational climate and the perception of indiscipline (Cervelló et al., 2004). The revised model (Figure 3) shows better data fit ($\chi^2(33, N = 565) = 267.561, p < 0.001, GFI = 0.93; IFI = 0.92; CFI = 0.91; RMSR = 0.075$). With these new paths, the explained variance on self-reported discipline increases up to 51%. As far as self-reported indiscipline is concerned in this revised model, the explained variance increased up to 56%.

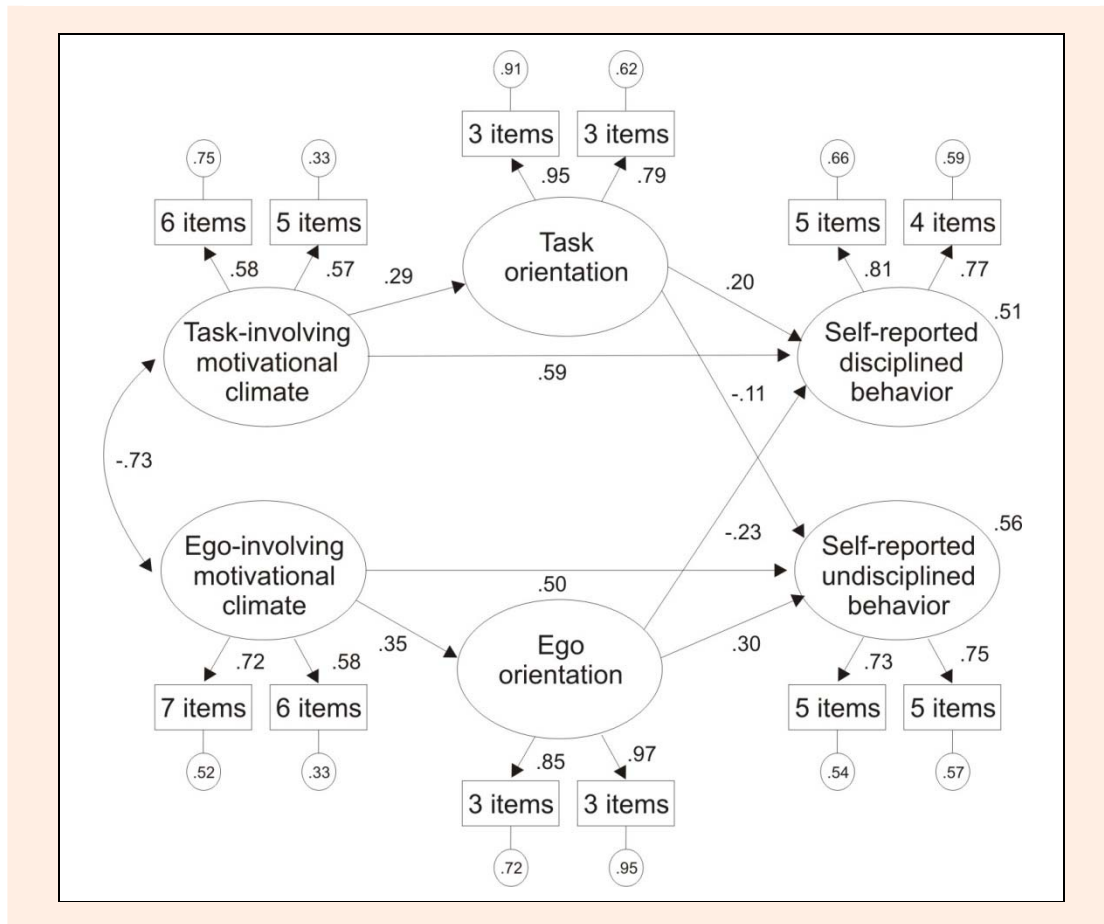


Figure 3. Structural equations analysis. All parameters are standardized and significant at $p < 0.05$. Residual variances are shown in small circles.

Discussion

The management of discipline is an essential element in education practice (Bulut, 2006). Given that there is more interaction in physical education than in other school subjects, the question of discipline in this subject has been one of the main pedagogical concerns of teachers and a key element for successful teaching (Mawer, 1995; Siedentop, 1991). Over the last decades, researchers have associated the issue of discipline with the interest and motivation for learning (Chen, 2001; Graham, 2008). Recently, a small body of literature has established that motivational orientation and the perceptions of motivational climate are associated with pupils' self-reported discipline (Cervelló et al., 2004; Moreno-Murcia et al., 2008; Papaioannou, 1998b; Spray, 2002; Spray and Wang, 2001). To be precise, in line with this work, the purpose of this study was to test a motivational model of discipline, which integrates the situational and dispositional elements proposed by achievement goal theory and which helps to interpret gender differences in self-reported discipline. These results provide strong support for the proposed model and make it possible to explain gender differences as well as suggest some pedagogical implications.

The results of this study revealed that dispositional goal orientation and the perception of motivational climate were related to students' self-reported disci-

pline/indiscipline. More specifically, the perception of an ego-involving motivational climate and an ego orientation was related positively to self-reported indiscipline and negatively to self-reported discipline, whereas the perception of a task-involving climate and a task orientation was correlated positively to self-reported discipline and negatively to self-reported indiscipline. These results were also borne out by the motivational model tested, since the more task-involving the teacher's behavior was perceived by students, the more self-reported discipline there was. Conversely, the more ego-involving the teacher's behavior, the more self-reported indiscipline there was. In turn, the less task orientation, the less self-reported discipline and the more self-reported indiscipline. In contrast, the less ego orientation, the less self-reported indiscipline and the more self-reported discipline there were. Results from both the correlation analysis and the SEM seem coherent with hypotheses defended by the achievement goals theory, since task-oriented persons are more likely to endorse fairness in physical and sport activities, but highly ego-oriented individuals tend to adopt unfair and illegal means to achieve their goals (Duda et al., 1991). As success is based on normative comparison, personal improvement is not sufficient to satisfy the goal of demonstrating superior ability (Xiang et al., 2003a; 2003b). Therefore, ego-involved students must pay more attention to classmates than to the task owing to the fact that they have to outperform others to perceive a sense of achievement. Ego-

oriented students are motivated by external factors and, consequently, they do not perceive that it is necessary to obey the learning rules in order to achieve the proposed aims (Cervelló et al., 2004; Moreno-Murcia et al., 2008). Furthermore, students are more likely to respond with an adaptive behavior when the meaning of achievement emphasized in physical education classes is based on personal improvement and effort levels rather than on performance and ability. Teachers who foster a performance-oriented climate are more likely to emphasize control than those who do not emphasize ego orientation in their classes (Papaioannou, 1995). Similarly, teachers who emphasize normative comparison are perceived as more severe than instructors who are not interested in who is the best (Cervelló et al., 2004). In this vein, when students perceive a severe climate, they could show great difficulty in carrying out teachers' requirements, which would have an effect on their perception of indiscipline-discipline.

The ANOVA results revealed that boys had a higher level of ego-orientations, ego-involving motivational climate perceptions and self-reported indiscipline than girls. In this respect, the SEM results supported the hypotheses that boys believed they were more undisciplined than girls and this self-report was associated with their goal orientation and the different way they perceived the physical education class climate. That is, more ego motivational orientation and the perception that teachers emphasized performance in their classes probably lead to more self-reported indiscipline in boys than in girls. These findings seem coherent with the studies that have analyzed the gender variable with regards to the student's motivation and behavior in physical education situations. As far as motivational differences are concerned, research usually indicates that boys tend to perceive an ego-involving climate and be more ego-oriented than girls (Carr and Weigand, 2001; Duda and Whitehead, 1998; Ntoumanis and Biddle, 1999; White et al., 1998; Spray and Biddle, 1997). On the other hand, several studies have demonstrated how gender determines children's perception within physical education classes and how it affects task engagement. Specifically, research that has examined the treatment of children of different genders has demonstrated that girls receive less positive feedback and do not have the same chances to participate as boys (Macdonald, 1990; Lirgg, 1993). As studies have shown, teachers usually encourage boys more strongly than they do girls and children probably perceive this unequal treatment (Cervelló et al., 2004; Papaioannou, 1995). However, even though more attention towards boys has usually been observed as an advantage for their learning chances (Lirgg, 1993), the results of this study suggest that it could foster an ego-involving climate and produce maladjusted behaviors. In this respect, male students who perceive more attention than their female peers will probably increase their sense of perceived pressure due to an increase in the teacher's control and a drop in the perception of their autonomy (Papaioannou, 1998a; 1998b). In addition, students who perceive that decisions are only made by the teacher are more likely not to feel responsible for applying the rules established in class (Buluc, 2006). In contrast, the feeling of self-responsibility has been more

associated with task orientation and a perceived task-involved climate than with ego orientation and an ego-involving climate (Newton et al., 2006). In this vein, Morgan et al. (2005) showed that pupil-centered teaching styles resulted in more mastery and less performance focused teaching behaviors and more adaptive cognitive and effective responses than teacher-centered teaching styles. Similarly, Papaioannou (1998a) founded that the perception of an ego-involving climate was related to the perception of the teacher's control of the children's behaviors. As an emphasis on performance goals does not increase students' motivation, nor is it perceived as desirable teaching behavior (Papaioannou, 1998b), teachers, therefore, should try to help students, especially boys, develop self-determination and internalize the value of discipline.

The SEM results also suggest that the impact of motivational climates on the self-report of indiscipline/discipline is not only mediated by dispositional motivation, but there is also a direct effect of the climate perceived in class on levels of self-reporting discipline. So far, research, in accordance with the achievement goal theory, has sustained the idea that perceived motivational climate could modify the subject's dispositional motivation and this change would affect his strategies and behaviors (Nicholls, 1984; 1989). Our model suggests that, although the impact of perceived motivational climates is mediated by motivational orientations, the environments created by the teacher also have a direct impact on self-reported discipline.

An interesting observation in this study is that, considering the relationship of the task-involving motivational climate, both direct and mediated by task orientation, it predicted 51% of the variance in self-reported discipline, while the ego-involving climate predicted, directly or combined with ego orientation, 56% of the variance in self-reported indiscipline. In addition, teachers' behavior seems to have a direct impact on levels of self-reported discipline, although the latter is also influenced by the changes that can occur in the pupil's dispositional orientation. Therefore, according to the motivational model tested, the gender differences found in the ANOVA in the perception of a task-involving motivational climate are probably connected with the differences found in their self reports of discipline in two ways. Firstly, the highest perception of a task-involving climate that the boys have in comparison with the girls may explain the differences in their self-reported indiscipline. Secondly, the influence that the perception of an ego-involving motivational climate, mediated by ego orientation, also has on self-reported discipline could be an explanation for the fact that girls demonstrate more self-reported discipline, although the ANOVA did not indicate gender differences in task orientation and the perception of a task-involving motivational climate. Nevertheless, although some evidence has been found for the mediational role of the subject's motivational disposition on certain behaviors in sport and physical education situations (Cury et al., 1996; Gano-Overway and Ewing, 2004; Sarrazin et al., 2002), this study's main contribution is that, in accordance with the hypothesis made, motivational climate has a direct role to play on self-reported indis-

cipline/discipline.

Finally, the model tested in this study has also enabled us to notice the relative impact that motivational climates have had on self-reported discipline. The results of this study indicate that direct paths from task-involving and ego-involving motivational climates to self-reported discipline/indiscipline were significantly stronger than those paths from task and ego orientation to self-reported discipline/indiscipline. A potential explanation for the presence of the climate effect is that it is probably more important than motivational orientation for situations that have not been chosen freely by the subject. Some studies have suggested that in situations where motivations are more extrinsic than leisure activities, a subject that does not enjoy it or feels compelled will probably quickly decide to drop out from the activity (Sarrazin et al., 2002). In those situations, such as in physical education classes where the activity is obligatory and the subject don't have an opportunity to drop out from the activity, their response could lead to a higher predisposition to not follow requirements in accordance with established norms. Prior studies have suggested that for compulsory physical education settings, situational influences can have a stronger impact than goal orientations on motivation to learn (Cury et al., 1996; Spray, 2000). Our findings support these studies and suggest that the perceived climate in classes plays a more important role than the motivational orientation the pupil comes to class with when informing about their behavior. Nevertheless, it is also possible that the relative importance of these paths depends on the content and the social and cultural meanings assigned to them. Future research is needed to understand better the relative impact of motivational climates created by the teacher on the way pupils perceive their behavior in class.

To sum up, these findings provide strong support for the model as applied to self-reported discipline in physical education settings. Nevertheless, some limitations should be acknowledged when interpreting the results. Firstly, measurement of the variables was self-reported data and the use of these measurements may create a variance error in the model. Furthermore, it should be recognized that the relationships between motivation and discipline are certainly affected by social and not only instructional goals. In this vein, although the achievement goal theory is a suitable framework in the study of student motivation in achievement settings, this research suggests that goal theory alone may not fully explain student motivational processes and their connections with classroom behaviors, such as indiscipline/discipline. Based on the achievement goal theory framework, indiscipline has been considered as a child's problem to adapt. However, studies have found that certain disruptive behavior and school children's physical aggression in early adolescence, especially by boys, usually aims to maintain or gain status with some peers (Adler and Adler, 1995; Jiménez et al., 2008; Samper et al., 2008; Zimmer-Gembeck et al., 2005). Finally, research of student motivational processes has advanced beyond the realm of psychology and, consequently, research from an integrated perspective has been recommended (Chen, 2001). Qualitative measures, including

observations and interviews with pupils, could also prove helpful in uncovering potential significant reasons for student behaviors.

Conclusion

The present study tested a motivational model on the links between situational and dispositional motivation and self-reported indiscipline/discipline based on the achievement goals theory and examined gender differences according to this motivational model in students involved in physical education at the elementary school level. Despite the limitations of this study, at least three important implications can be derived to predict disciplinary behavior in physical education. Firstly, perceived motivational climate and a subject's motivational disposition are variables that can be taken into account to predict a pupil's self-reported discipline. This study's findings showed that when pupils had an ego orientation and the climate instilled by the teacher was perceived as ego involving, self-reported discipline decreased. However, when they had a task orientation and the climate was perceived as task involving, students reported more discipline. Consequently, a task orientation and a task-involving climate should be favored to facilitate behavior in line with the instructions of the tasks proposed in physical education classes.

Secondly, a significant difference was found between boys and girls regarding their motivational disposition, perceived climate and self-reported discipline. These results showed that the boys were more ego-oriented, perceived an ego-involving climate and had more self-reported indiscipline than the girls. It therefore seems that the different demands that boys perceive in physical education compared with girls are a key element in understanding their differences in self-reported indiscipline/discipline. Equal treatment must be favored to facilitate more inclusion of all the pupils in the physical education classes.

A third implication is that the social context plays a fundamental role in self-reported discipline. The findings from this study corroborate the influence of the teacher as a source of influence on motivation in physical education classes. As expected, students who perceived their teacher as being higher task-involving and less ego-involving self-reported a lower level of indiscipline. These results provide a guide for the teacher's intervention to be aimed at decreasing the ego-involving climate and strengthening task-involving motivational climates that allow for more adaptive behavior (Ames, 1984, 1992a; 1992b; Nicholls, 1984; 1989). Studies show, however, that teachers usually give pupils few choices during physical education classes (Cothran et al., 2005; Curtner-Smith et al., 2001; Xiang et al., 2003a; 2003b). Based on the proposed motivational model in this study, teaching staff should be offered training programs that help to create class climates that are positive for learning. Along these lines, given the important role that rules have in creating a democratic classroom atmosphere (Buluc, 2006; Morgan et al., 2005), it would be useful to develop pupil-centered teaching styles that favor an increase in

decision-making by pupils and the development of mastery motivational climates.

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Key points

- A task-involving motivational climate predicts self-reported discipline behaviors, either directly or mediated by task orientation.
- An ego-involving motivational climate favors self-reported undisciplined, either directly or mediated by ego orientation.
- A significant gender difference was found in the motivational disposition perceived climate and self-reported discipline.

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