

PEDAGOGY

School and Classroom Goal Structures: Effects on Affective Responses in Physical Education

*Vassilis Barkoukis, Eirini Koidou,
Haralambos Tsorbatzoudis, George Grouios*

Abstract

The current study examined the relative impact of school and classroom goal structures on students' affective responses and the mediating role of motivation. The sample of the study consisted of 368 high school students, who completed measures of school and classroom goal structures, motivational regulations in physical education, boredom, and enjoyment. The results of the study indicated that school goal structures significantly predict the respective classroom structures. When tested simultaneously, classroom goal structures had stronger ability in predicting affective outcomes compared to school structures. Mastery goal structures predicted enjoyment, whereas performance goal structures boredom. Furthermore, autonomous forms of motivation predicted enjoyment, whereas less autonomous forms boredom. The findings of the present study suggest that physical education teachers should promote a mastery-oriented motivational climate to foster students' positive affective responses.

Vassilis Barkoukis, Eirini Koidou, Haralambos Tsorbatzoudis, and George Grouios are faculty members at Aristotle University of Thessaloniki.

Pintrich (2000) acknowledged that motivation research has played a prominent role in educational psychology over the past decade, providing salient explanations of students' behavior. Foremost among those theories are the achievement goal theory (Nicholls, 1989) and the self-determination theory (Deci & Ryan, 2002).

Achievement Goal Theory

Achievement goal theorists have recognized two basic conceptions of ability: performance orientation and mastery orientation. The performance orientation is characterized by a clear distinction between ability and effort, meaning that the application of high effort is an index of low ability. Normative criteria are used to evaluate ability and success, while the aim of activity involvement is to demonstrate superior ability and to outperform others (Duda & Balaguer, 2007; Nicholls, 1989). On the other hand, in mastery-oriented individuals ability and effort are interpreted interchangeably; that is, high effort will result in better performance. Self-referenced criteria of ability and success are adopted, and engagement in an activity aims to improve abilities and master the task at hand (Duda & Balaguer, 2007; Nicholls, 1989). The above mentioned conceptions of ability have been considered in the literature either as predispositions (Nicholls, 1989) or as experiences during involvement (i.e., goal structures; see Ames, 1992).

Empirical research has generated findings demonstrating that students' perceptions of classroom goal structures significantly affect cognitive, affective, and behavioral aspects of participation in educational settings. Overall, classroom mastery goal structures are associated with a more adaptive pattern of students' responses compared to classroom performance goal structures. For example, perceptions of performance classroom goal structures were positively associated with students' use of self-handicapping strategies, whereas students' perceptions of mastery motivational climate were negatively associated with such strategies (Midgley & Urdan, 2001; Urdan, 2004). Furthermore, students' perceptions of classroom mastery goal structures were associated with positive affect (Anderman & Wolters, 2006), better coping with academic difficulty (Grant & Dweck, 2003), and a greater sense of well-being in school (Kaplan & Maehr, 1999).

Self-Determination Theory

Deci and Ryan (2002) argued that three dimensions of motivation should be examined: intrinsic motivation, extrinsic motivation, and amotivation. Intrinsic motivation reflects the engagement in an activity for the pleasure and satisfaction of performing it. Intrinsically motivated individuals voluntarily participate in an activity because they enjoy it without the presence of external or internal pressures and rewards (Deci & Ryan, 2002).

Contrary to intrinsic motivation, extrinsic motivation reflects the involvement in an activity to obtain rewards or due to external or internal pressures. Behavior operates as a *means to an end* and not for its own sake (Deci & Ryan, 2002). Deci and Ryan suggested that extrinsic motivation could be differentiated into three separate motivational regulations: external regulation, introjected regulation, and identified regulation. External regulation represents the involvement in an activity to gain rewards or to avoid punishment due to external or internal pressures. For instance, a student participates in PE to get a higher grade. The second type of extrinsic motivation, introjected regulation, refers to involvement in an activity due to extrinsic reasons (e.g., guilt), yet it is chosen by the individual. For example, a student participates in PE activities in order to avoid the feeling of letting his/her friends down. In identified regulation, behaviors are valued and considered important, and thus engagement is perceived as chosen by the individual. For instance, a student participates in the PE lessons to improve his physique and health.

The third dimension of motivation identified in self-determination theory is amotivation. Amotivated individuals do not demonstrate the intent to engage in an activity and involvement in an activity is not a result of their will, and they do not seem to have specific purposes and goals to achieve (Deci & Ryan, 2002).

Basic assumptions of the self-determination theory are (a) school/parent initiated environment can influence the formation of motivational regulations and (b) motivational regulations have cognitive, affective, and behavioral outcomes (Deci & Ryan, 2002; Vallerand, 2007). An autonomy-supportive environment fosters autonomous motives, whereas a controlling environment enhances controlling forms of motivation. Research increasingly suggested that an autonomy-supportive context can produce adaptive outcomes in educational settings, such as academic achievement (Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004), persistence

(Reeve, 2002), high school engagement (Assor, Kaplan, & Roth, 2002), higher grades and better school adjustment (Wentzel, 2002), whereas it was negatively related with students' experienced stress (Torsheim & Wold, 2001). Furthermore, research findings indicated that autonomous motives mediate the relationship between autonomy support and academic-related behaviors, such as learning and performance (Vansteenkiste et al., 2004), and persistence in school (Ratelle, Larose, Guay, & Senécal, 2005).

The Present Study

Both self-determination and achievement goal theories have been used extensively, and in several occasions jointly, to provide a comprehensive framework of students' behavior in educational settings. Ntoumanis (2001) suggested there are important links between these theories as performance achievement goals undermine autonomous behavior, whereas mastery achievement goals facilitate it. The focus of individuals adopting performance goals is on the anticipated outcomes (rewards, social approval, etc.) rather than the activity itself, and this suggests that they are motivated by less autonomous motives. On the other hand, individuals adopting mastery goals engage in an activity from intrinsic interest to improve themselves and develop their own abilities. Hence, it could be assumed that mastery goal structures will foster the formation of autonomous forms of motivation, whereas performance goal structures will foster the less autonomous ones.

Examining the effects of social factors on motivational regulations, research evidence has focused on classroom effects, whereas there is scant evidence regarding the effect of school goal structures on students' behavior (Urda & Schoenfelder, 2006). Classroom goal structure refers to the achievement goals fostered in a specific class by the teacher or the classmates. Taking into consideration that different school disciplines are taught by different teachers, it could be assumed that the classroom goal structure may differ across different school subjects. The goal structures fostered in the majority of school disciplines—thus representing school's orientation—reflect school goal structures. Roeser, Midgley, and Urda (1996) reported that a mastery school structure was positively related to school belonging and academic self-efficacy, and, in the end, academic performance. In a similar vein, Kuperminc, Leadbeater, and Blatt (2001) found positive perceptions of school structures to moderate the negative influences of self-criticism and

lack of efficacy. Yet, so far school and classroom goal structures were independently tested and there is no thorough evidence regarding their association. Furthermore, there is only scarce evidence on the relationship between either school or classroom goal structures and the autonomous and controlling forms of motivation. For instance, Standage, Duda, and Ntoungamis (2003) indicated that for mastery oriented students the perception of a mastery classroom structure was associated with increased autonomous motivational regulations, whereas for performance oriented students perceptions of incompetence attenuated them.

The aim of the current study was to examine the association between school and classroom goal structures and their relative impact on students' affective responses, such as enjoyment and boredom, experienced in PE classes. A secondary purpose of the study was to investigate the mediating role of motivation. School goal structures are considered to be a more general form of structure consisting of the structures of several classrooms. Hence, it was assumed that school goal structures would significantly predict the respective classroom structures (hypothesis 1). Both school and classroom goal structures were thought to have an effect on affective responses. However, the classroom goal structures were assumed to be more proximal, and as such, more significant predictors of affective responses compared to school structures. That is, when tested simultaneously, the effect of classroom goal structures will be greater than that of school goal structures. Mastery goal structures would positively predict positive outcomes from participation in the lesson, such as enjoyment. To the contrary, performance goal structures would be associated with negative outcomes from participation in the lesson, such as boredom. However, the addition of motivational regulations is assumed to have the stronger ability to predict the affective responses (Vallerand, 2007) with autonomous regulations predicting enjoyment and less autonomous ones predicting boredom (hypothesis 2).

Method

Participants

The participants of the study were 368 high school students (196 males and 172 females [M age = 14.83 years, SD = .96]), attending the eighth and ninth grades of typical coeducational schools. Students were recruited from 15 physical education classes from four schools

in an urban city of Northern Greece. The national curriculum for these grades includes mainly teaching of games (e.g., football, basketball, volleyball, and handball), athletics, and Greek traditional dances (see Tsorbatzoudis, Grouios, Alexandris, & Barkoukis, 2008 for a more complete description of the Greek national curriculum in high school). The practical style (see Mosston and Asworth's, 2002 spectrum of teaching styles) is mainly used for the delivery of these contents.

Measures

Perceptions of school goal structures. The Greek version of the Perceptions of School Goal Structures (Syngollitou & Gonida, 2005) was used to measure students' perceptions of school goal structures. This scale assesses two goal structures, mastery (e.g., "In this school teachers believe all students can learn"), and performance (e.g., "In this school teachers only care about the smart kids"). The participants responded on a 5-point Likert scale ranging from 1 (*not at all true in this school*) to 5 (*very true in this school*). Syngollitou and Gonida (2005) reported adequate internal consistency coefficients ($\alpha > .67$) and suggested its use with Greek high school students.

Learning and performance orientations in physical education classes questionnaire (LAPOPECQ). The short version of LAPOPECQ (Digelidis, Papaioannou, Laparidis, & Christodoulidis, 2003) consisting of 13 items was used to assess students' perceptions of mastery-involving (seven items, for example, "the physical education teacher is completely satisfied when every student's skills are improving") and performance-involving (six items, for example, "the physical education teacher regards as competent students only those with the best sport record") motivational climates created by their physical education teachers. Responses to the stem "In this physical education class ..." were given to a 5-point scale ranging from (1) *strongly disagree* to (5) *strongly agree*. Digelidis et al. (2003) provided evidence for the validity and reliability of the scale with Greek high school students (NNFI = .91, CFI = .94, α s > .60).

Self-regulation questionnaire. The modified physical education version of the Self-Regulation Questionnaire (Goudas, Biddle, & Fox, 1994) was used to measure the different motivational regulations in physical education lessons. This version consists of five factors (four items per factor). The participants responded to the stem "I take part in this physical education class because..." on a 7-point scale ranging from (1) *strongly disagree* to (7) *strongly agree*. Example

items are intrinsic motivation (e.g., “I take part in this physical education class because it is fun”), identified regulation (e.g., “I take part in this physical education class because I want to improve in sport”), introjected regulation (e.g., “I take part in this physical education class because I would feel bad about myself if I didn’t”), external regulation (e.g., “I take part in this physical education class so that the teachers won’t yell at me”), and amotivation (e.g., “I take part in this physical education class but I can’t see what I am getting out of physical education”). This scale has shown adequate psychometric properties with Greek children (Kiriakidis, 2005).

Boredom. The three items of the boredom subscale of the Intrinsic Satisfaction Scale (Duda & Nicholls, 1992) were used to assess boredom from physical education lesson (e.g., “At physical education lesson, I am usually bored”). Responses were anchored on a 7-point scale ranging from (1) *strongly disagree* to (7) *strongly agree*. This subscale has been used with Greek high school students and was found reliable (alphas ranged from .69 to .73 in six measurements) (Barkoukis, Ntoumanis, & Thøgersen-Ntoumani, 2010).

Enjoyment. The modified physical education interest-enjoyment subscale of the Intrinsic Motivation Inventory (IMI; McAuley, Duncan, & Tammen, 1989) was used to measure intrinsic motivation in physical education classes. This subscale consisted of five items (e.g., I enjoy the physical education lesson very much). Responses were given on a 7-point scale ranging from (1) *strongly disagree* to (7) *strongly agree*. This subscale has shown adequate psychometric properties with Greek high school students (Barkoukis, Tsorbatzoudis, Grouios, & Gavrilidis, 2003).

Procedure

Permission was granted from the principals and physical education teachers of all the schools to distribute the questionnaires. Students were informed on the purposes of the study and provided informed consent to participate in the study. The students completed the questionnaires in a quiet environment under the supervision of experienced personnel. Both verbal and written instructions were given to the students on how to complete the questionnaire. The students were reassured about the confidentiality of the responses and that they could withdraw at any time of the questionnaire completion. The research design complied with the Aristotle’s University of Thessaloniki Research Ethics Policy.

Results

Preliminary Analyses

Means, standard deviations, normality statistics, and internal consistency coefficients are presented in Table 1. Students reported high levels of mastery school structures (3.70), mastery class structure (3.89), identified regulation (4.83), intrinsic motivation (5.17), and enjoyment (5.47) from participation in physical education lessons. Internal consistency coefficients were at acceptable levels. Pallant (2005) suggested that for scales with less than 10 items alpha scores above .60 should be considered acceptable.

Table 1

Descriptive Statistics of Study Variables

	Mean	SD	Skewness	Kurtosis	α
Mastery school structure	3.70	.71	-.76	1.18	.68
Performance school structure	2.76	.92	.58	-.01	.71
Mastery class structure	3.89	.64	-1.0	1.20	.67
Performance class structure	2.17	.81	.79	.81	.65
External regulation	2.70	1.33	.81	.29	.69
Introjected regulation	2.82	1.31	.64	-.20	.67
Identified regulation	4.83	1.43	-.52	-.66	.72
Intrinsic motivation	5.17	1.24	-.45	-.12	.73
Amotivation	2.27	1.29	.87	-.25	.75
Enjoyment	5.46	1.12	-.52	-.40	.69
Boredom	2.29	1.40	1.08	.42	.67

Linear Regression Analyses

Linear regression analyses were performed to examine the influence of school goal structures on classroom goal structures (hypothesis 1). The results of the analyses indicated that school goal structures significantly predicted mastery classroom structure ($F_{(2,367)} = 92.81$, $R^2 = .33$, $p < .001$) with mastery school structure being the most significant predictor ($b = .58$, $p < .001$). Additionally, they significantly predicted performance classroom structure ($F_{(2,367)} = 9.49$, $R^2 = .05$, $p < .001$) with both structures being significant predictors ($b = -.12$, $p < .05$ for the mastery structure, and $b = .14$, $p < .01$ for the performance structure).

Hierarchical Regression Analyses

We conducted two separate hierarchical moderated analyses to examine the effect of school and classroom goal structures on affective outcomes from participation in physical education lessons and whether this effect is influenced by motivational regulations (hypothesis 2). In these analyses, each affective outcome served as the dependent variable. In each case, the school goal structures were entered in step 1, classroom goal structures (i.e., the theoretically more distant predictors of the affective outcomes) in step 2, and motivational regulations (i.e., the theoretically more proximal predictors) in step 3.

Enjoyment. Enjoyment was significantly predicted by school goal structures ($F_{(2,367)} = 10.26$, $R^2 = .05$, $p < .001$) with mastery structure being the most significant predictor ($b = .23$, $p < .001$). The addition of classroom goal structures in step 2 improved the prediction of enjoyment ($F_{(4,367)} = 10.95$, $R^2\text{change} = .05$, $p < .001$). Mastery school structure remained a significant predictor ($b = .14$, $p < .05$), whereas performance classroom structure further contributed to the prediction of enjoyment ($b = -.19$, $p < .001$). The addition of motivational regulations in step 3 further improved the prediction of enjoyment ($F_{(9,367)} = 20.73$, $R^2\text{change} = .23$, $p < .001$). The effect of mastery school structure was eliminated while that of performance classroom structure remained still ($b = -.17$, $p < .001$). Intrinsic motivation and amotivation were the motivational regulations that contributed to the prediction of enjoyment ($b = .48$, $p < .001$ and $b = -.14$, $p < .001$, respectively) (Table 2).

Boredom. School goal structures did not significantly predict boredom ($F_{(2,367)} = 2.56$, $p > .05$). Classroom goal structures added in step 2 significantly predicted boredom ($F_{(4,367)} = 4.54$, $R^2 = .03$, $p < .001$). Performance classroom structure was the only significant predictor ($b = .13$, $p < .05$). The addition of motivational regulations in step 3 improved the prediction of boredom ($F_{(9,367)} = 19.73$, $R^2\text{change} = .28$, $p < .001$). The effect of performance classroom structure was eliminated, and introjected regulation ($b = .19$, $p < .01$), identified regulation ($b = .15$, $p < .05$), intrinsic motivation ($b = -.33$, $p < .001$), and amotivation ($b = .33$, $p < .001$) significantly predicted boredom (Table 3).

Table 2

A Summary of the Regression Analyses Predicting Enjoyment From the School and Class Goals Structures, and Motivational Regulations

Variables	R2	R2change	F	Fchange	β	t
Step 1	.05		10.26**			
Mastery school structure					.23	4.27**
Performance school structure					.01	-.004
Step 2	.10	.05	10.95**	11.08**		
Mastery school structure					.14	2.25*
Performance school structure					.02	.47
Mastery class structure					.10	1.63
Performance class structure					-.19	-3.61**
Step 3	.34	.23	20.73**	25.58		
Mastery school structure					-.01	-.21
Performance school structure					-.02	-.47
Mastery class structure					-.01	-.26
Performance class structure					-.17	-3.48**
External regulation					.06	.91
Introjected regulation					-.12	-1.89
Identified regulation					-.02	-.40
Intrinsic motivation					.48	7.11**
Amotivation					-.14	-2.57*

Note: * p< 0.05, ** p< 0.01

Table 3

A Summary of the Regression Analyses Predicting Boredom From the School and Class Goals Structures, and Motivational Regulations

Variables	R2	R2change	F	Fchange	β	t
Step 1	.01		2.56			
Mastery school structure					-.09	-1.70
Performance school structure					.04	.80
Step 2	.05	.03	4.54**	6.49**		
Mastery school structure					-.01	-.16
Performance school structure					.02	.50
Mastery class structure					-.11	-1.67
Performance class structure					.13	2.45*
Step 3	.33	.28	19.73**	30.42**		
Mastery school structure					.11	1.70
Performance school structure					.05	1.17
Mastery class structure					-.08	-1.41
Performance class structure					.01	.19
External regulation					.01	.12
Introjected regulation					.19	2.92**
Identified regulation					.15	2.47*
Intrinsic motivation					-.33	-4.87**
Amotivation					.33	5.86**

Note: * $p < 0.05$, ** $p < 0.01$

Discussion

Substantial evidence supported that social factors (i.e., goal structures) influence students' motivational regulations, which, in turn, have important affective consequences during engagement in an educational activity (Vallerand, 2007). The present study investigated the association between school and classroom goal structures and their relative effect on students' affective responses. In addition, the mediating role of motivation was investigated.

The results of the study indicated that mastery school structure positively predicted mastery classroom structure and negatively predicted performance classroom structure. That is, if there is an atmosphere at the school level that teachers believe that all students can learn, physical education teachers will largely hold this same belief and treat all students equally, seldom only caring about athletically gifted students. Similarly, performance school structure positively predicted performance classroom structure. This implies if there is an atmosphere at the school level that teachers promote social comparison, then physical education teachers emphasize social comparison too. These findings support our hypothesis that school goal structures will significantly predict the respective classroom structures, and they are consistent with theoretical predictions that the two goal structures are negatively or not associated to each other (Duda & Balaguer, 2007). Based on these data it could be assumed that the goal orientation of a school influences the goal structure of its discrete disciplines.

The examination of the goal structures' effect (school and class structures) on affective aspects of lesson's participation indicated that their effects were decreased after the inclusion of motivational regulations. The effect of school goal structures was eliminated, while that of classroom goal structures was decreased. These findings imply that students' motivation is the most important factor influencing their affective experiences during the lesson. Consistent with the research literature, autonomous motives were associated with positive experiences from participation in PE lessons, whereas less autonomous motives were associated with negative ones (Deci & Ryan, 2002; Vallerand, 2007). Clearly, physical education teachers should foster the development of autonomous motivation by creating an autonomy-supportive class environment.

Finally, although school goal structures have significant impact on classroom goal structures, their impact on the lesson's affective

responses is limited. Classroom goal structures retained a more significant effect on a lesson's affective responses. That is, classroom environment, although it can be affected by the school environment, is the key social factor that can impact affective aspects of lessons participation through the development of students' motivation. Hence, physical education teachers are the more important social agents influencing students' motivation and affect experience during the lesson.

The present study's contribution concerns the association of perceptions of school and classroom environment and the investigation of their unique and joint effect on motivational regulations and affective responses during physical education lessons. Of course, there are limitations that should be taken into consideration. A first limitation of the study corresponds to the cross-sectional and correlational nature of the data. Future research would benefit from the application of intervention studies that would manipulate aspects of the school and classroom environment and examine their impact on both motivational regulations and students' affective responses.

Overall, the present study indicated that school goal structures significantly predicted the respective classroom structures. When tested simultaneously, classroom goal structures had stronger ability in predicting affective responses. Mastery goal structures predicted enjoyment, whereas performance goal structures predicted boredom. Furthermore, autonomous forms of motivation predicted enjoyment, whereas less autonomous forms predicted boredom. These findings imply that initiating of a mastery goal structure is associated with intrinsic motivation and positive experience from participation in educational settings. Taking into consideration the growing body of evidence reporting a decline in motivation for educational activities during adolescence (Barkoukis et al., 2010; Lepper, Corpus, & Iyengar, 2005), it seems imperative for educational practitioners to foster mastery goal structures (see Ames, 1992), in order to develop an adaptive motivational pattern to their students and to create opportunities for positive experiences from participation in the lesson.

A mastery goal structure in physical education lesson can be achieved by providing tasks with various levels of difficulty; allowing students to work at their own pace; offering alternative drills; encouraging setting specific and short-term goals and

providing time to work on their goals in each lesson; encouraging student participation in decision making; praising self-improvement, effort, and achievement of personal goals; promoting social interplay; encouraging self-evaluation; maximizing academic learning time; and so forth (see Barkoukis, Tsorbatzoudis, & Grouios, 2008 for more detailed information on the practices that can be used to foster a mastery goal structure in physical education classes).

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