

Differential Perceptual and Motivational Patterns When Different Goals Are Adopted

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This study examined how perceived motivational climate in physical education is related to (a) perceptions of teachers' differential treatment toward high and low achievers, (b) reported motivation and anxiety of children with high and low perceived competence during play or exercise with high- or low-ability children. One thousand three hundred ninety-three high school students completed measures of the above variables. The perception of teacher's differential treatment was positively related to the perception of an environment emphasizing social comparison and negatively related to the perception of a climate emphasizing personal progress. Perceived competence had no effect on intrinsic motivation when extremely high learning goals were adopted. When low learning goals were adopted, motivation decreased for children with low perceived ability playing with high achievers and for children with high perceived ability playing with low achievers. A high learning-oriented climate should be created to enhance equality and maximize motivation.

Key words: differential treatment, high/low achievers, goal perspectives, learning orientation, performance orientation, motivation, anxiety, physical education, perceived competence

The perception of differential treatment toward high and low achievers deteriorates the motivation and achievement of children with low ability (Martinek, 1989; Weinstein, 1989). Several authors have observed that in physical education, children with low athletic ability are those who lose a unique opportunity to become acquainted with exercise (Fox, 1988). Nicholls (1989) and other theorists (Ames, 1992; Duda, 1992; Dweck & Leggett, 1988; Roberts, 1992) suggest that teachers' treatment and the maladaptive motivational patterns of low-ability students are linked to the salient achievement goals in the physical education environment. In the present study the validity of this argument in Greek physical education is examined. In particular, students' perceptions of achievement goals in their classes are examined in relation to (a) the students'

perceptions of teachers' treatment toward high and low achievers, and (b) the intrinsic motivation and anxiety perceived by students with high or low ability when they face high or low achievers in physical education.

Goal perspectives theorists (Ames, 1992; Duda, 1993; Dweck & Leggett, 1988; Nicholls, 1989; Roberts, 1992) suggest that in achievement domains like school or sport, two different goals predominate that elicit qualitatively different motivational patterns. A task (Nicholls, 1989) or learning (Dweck & Leggett, 1988) goal implies a major concern with personal development. Success is defined as greater gains in personal competence, and perceptions of ability are self-referenced. Youngsters are highly motivated without external rewards or threats because the most important reward is the accomplishment itself. Thus, they try hard to learn new skills, they see effort as the major prerequisite of success, and they are less likely to worry about failure because mistakes are perceived as part of learning.

An ego (Nicholls, 1989) or performance (Dweck & Leggett, 1988) goal implies a major concern with normative ability. Success means better performance than others' and perceived ability is normatively referenced. Youngsters try to win, to outperform others, to achieve success with low effort. They are extrinsically motivated because they conceive learning as a means to achieve public recognition of their superiority. Children with high perceived ability can hope for success and might sustain motivation. Children with low perceived ability foresee failure, anxiety, shame, and other aversive emotions. For them it is better to avoid the task, to drop out, or to apply little effort.

Goal perspectives vary across persons and environments. Today, there are valid instruments measuring individual (Duda, 1989; Nicholls, 1989) and contextual (Ames & Archer, 1988; Seifriz, Duda, & Chi, 1992) differences in achievement orientations. In the context of physical education, recent investigations showed that the profile of a task-oriented student was positively related to intentions for participation and high effort in the lesson, positive attitudes towards exercise, intrinsic motives for participation in the lesson, the belief that success is achieved through interest/effort/cooperation, and the belief that the purpose of physical education is to promote mastery/cooperation, fitness development, and good citizenship (Papaioannou, 1990; Papaioannou & Macdonald, 1993; Papaioannou & Theodorakis, 1994; Walling & Duda, 1995). Students high in ego orientation scored higher on motives for status and were more likely to believe that success stems from high ability and that physical education should prepare students for high status/career than were students low in ego orientation. These results are similar to the findings in the sport domain (Duda, 1992, 1993; Roberts, 1992) that suggest the theory of goal perspectives can be effectively applied in a variety of physical activity contexts.

Situationally induced goal perspectives are measured by questionnaires that examine children's perceptions of the motivational climate in their setting. This work was initiated by Ames and Archer (1988), who developed a questionnaire tapping students' views of their classes with regard to teachers' and students' goals, the evaluation and reward process, and the task structure (e.g., competitive-individualistic, easy-challenging). Similar instruments were developed in the domains of sport (Walling, Duda, & Chi, 1993) and physical education (Papaioannou, 1994). Two studies in the context of physical education showed that students' perception of a learning-oriented environment is related to their reported interest,

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perceived usefulness, enjoyment, and exerted effort in the lesson (Goudas & Biddle, in press; Papaioannou, 1994). In this paper, this kind of inquiry is extended to physical education by examining how the motivational climate is associated with differential perceptual and motivational patterns.

With regard to differential perceptual patterns, the relationship among perceived situational goal perspectives and students' perceptions of teachers' treatment are investigated. It was assumed that the perception of differential treatment toward high and low achievers was negatively related to perception of a learning-oriented climate and positively related to perception of a performance-oriented environment.

One can easily accept this argument by examining how a teacher's treatment directs students' attention on the task or on their level of competence. Teachers favoring high achievers set a high value on ability, and therefore, students are likely to focus on their level of competence and to be ego involved. On the other hand, in a class where personal progress is valued, the issue of who is better is irrelevant. Therefore, perceptions of learning orientation are incompatible with perceptions of the teacher's treatment in favor of high achievers. Indeed, among three possible situations (a nonmotivational climate, a high-performance-oriented atmosphere, and a high-learning-oriented environment), the low-ability students are likely to be helped only in the high-learning-oriented situation. Hence, the teachers who try to develop all students' abilities are probably the only educators who truly help the low achievers. Thus, one can expect a positive relationship between perceptions of learning orientation and perception of positive teachers' treatment towards low achievers. A similar argument was made by Brophy (1983) and Good (1987), who suggested that teachers trying to develop students' potential do not favor high achievers but "are most likely to have positive or desirable expectation effects on . . . low achievers" (Brophy, 1983, p. 645).

In a high-performance-oriented climate, the demonstration of superior ability is most valued. Successful children are those who have high normative ability. Hence, only the high achievers are tangibly or, more often, socially rewarded. One can assume, therefore, that there is a positive relationship between perceptions of teachers' behaviors favoring high achievers and perceptions of performance orientation. Indeed, research in physical education (Martinek & Karper, 1984, 1986) revealed that higher expectation for high achievers occurred in competitive (i.e., high-performance-oriented) settings and higher expectation for low achievers in noncompetitive (i.e., low-performance-oriented) settings.

With regard to differential motivational patterns associated with motivational climate, the present study examines the intrinsic motivation and anxiety of students with high and low perceived ability when facing high- or low-ability peers in classes with differing goal structures. It is widely accepted that perceived competence is a positive predictor of sport and academic motivation and achievement (Weiss, 1987). However, a basic tenet of goal perspectives theory is the minor role of perceptions of ability in students' motivation when students are task involved. In that case, students focus on the task, and what determines students' motivation is the challenge of the task and not how able they feel. Taking into consideration that a high learning-goal structure is the most conducive to sustain students' task involvement (Ames, 1992; Ames & Archer, 1988), no differences in motivation are expected between

students with high or low perceived ability who also perceive a high-learning-oriented environment.

When the climate is perceived as high learning oriented, students with low perceived ability do not worry about facing difficult tasks because mistakes are considered an integral part of learning. Research (Covington, 1992; Nicholls, 1976) revealed that achievement-related anxiety largely manifests perceived incompetence, suggesting that decreasing students' focus on their ability would also decrease their anxiety. Hence, a high-learning-oriented climate is the most likely to reduce students' state of ego involvement and anxiety. Sport psychologists observed this association between goal perspectives and anxiety several years ago (Roberts, 1986) and recently Walling et al. (1993) showed that there is a negative relationship between a learning-oriented climate and performance worries.

An experimental study by Elliott and Dweck (1988) indicated that when a learning goal was adopted, both high- and low-ability children sought to increase their competence: They chose challenging tasks, exhibited high persistence in the face of failure, and did not express negative affect. In the evaluative condition high-ability children exhibited the above motivational and behavioral patterns, but low-ability children chose easier tasks, persisted less in the face of failure, and expressed negative affect. Similar findings have been reported in sport laboratory studies (Duda, 1993).

In a field experimental study, Treasure (reported in Duda, 1993) examined achievement behaviors, cognitions, and affect of children who were taught soccer skills in physical education classes with differing motivational climates. He found that children with low perceived ability in the high performance-oriented environment preferred to engage in less challenging tasks and reported less satisfaction and greater boredom than children with high perceived ability in the high performance-oriented climate or those in the high learning-oriented environment, regardless of their perceived competence.

Due to the important implications of these findings for sport and educational settings, a cross-cultural generalizability of the findings is needed. Moreover, replicating these findings using a different research design offers further validity to the theory. The present study addresses these issues in the context of Greek physical education.

Two different scenarios were given to all students: one in which students played or coexercised with high achievers and one in which they played or coexercised with low achievers. It was hypothesized that in both scenarios there would be no differences in intrinsic motivation between students with high or low perceived competence when the climate was perceived to be high learning oriented. In the face of performing with high achievers, students with low perceived competence should exhibit lower intrinsic motivation and higher anxiety than students with high perceived competence when the climate was perceived as low learning oriented. Moreover, in the face of performing with high-ability peers, all students should report lower achievement-related anxiety when the atmosphere is perceived as high learning oriented than when it is perceived as low learning oriented. In terms of playing with low achievers, students with high perceived competence who perceive low learning goals should be less intrinsically motivated than students with high perceived ability who perceive high learning goals.

Method

Subjects

The adolescents participating in this study ($n = 699$ males, $n = 694$ females) were enrolled in 28 junior high schools (age = 13 ± 0.5 years) and 27 senior high schools (age = 16 ± 0.5 years). All schools were within Thessaloniki, Greece, a town with one million people. These schools were randomly selected from the total number of schools in this town. All students were Greek Orthodox Christians and participated in coeducational physical education. Each school had its own physical education teacher, so all 55 classes correspond to 55 different physical education teachers. Having the permission of the Greek Ministry of Education, I visited the schools and explained to the students and the teacher the purpose of the research. All students gave informed consent and completed the questionnaires in the classroom.

Instruments

Learning and Performance Oriented Physical Education Classes Questionnaire (LAPOPECQ). This instrument was developed by Papaioannou (1994) to measure Greek students' perceptions of achievement orientations in their physical education classes. Principal components factor analyses across three different samples revealed a stable five-factor solution. Moreover, confirmatory factor analyses supported a hierarchical construct of this instrument. The two factors were first-order factors of a second higher order factor, Learning, and the remaining three factors were subfactors of a second higher order factor, Performance.

The first learning-oriented factor measured teacher-initiated learning orientation (6 items; e.g., "In this PE class, the PE teacher is most satisfied when every student learns something new"), and the second factor assessed students' learning orientation (7 items; e.g., "In this PE class, the way the lesson is taught helps me learn how to exercise by myself"). The first performance-oriented factor measured students' competitive orientation (5 items; e.g., "In this PE class, students try to outperform each other"), the second factor examined students' worries about mistakes (5 items; e.g., "In this PE class, students worry about failure in performing skills because it would lead to the disapproval of others"), and the third factor assessed outcome orientation without effort (4 items; e.g., "In this PE class, it is very significant to win without trying hard"). Responses to 27 items following the stem "In this physical education class" were indicated on a 5-point Likert-type scale (5 = *strongly agree*, 1 = *strongly disagree*). In the present study, the α reliability of the five scales varied from .65 to .84.

Perceived Physical Competence in Physical Education Scale (6 Items). Harter's (1982) "perceived physical competence" scale has been modified to adapt the physical education lesson. This scale has been administered to Greek physical education students in the past (Papaioannou, 1990) and has exhibited acceptable internal consistency and validity (see also Papaioannou, 1992). In the present study, Cronbach's $\alpha = .63$.

Perceptions of Physical Education Teacher's Behavior. Six items of Weinstein's "expectations choices and opportunities given to high achievers in the classroom" scale (Weinstein, Marshall, Sharp, & Botkin, 1987) were used to measure students' perceptions of their teacher's treatment toward high achievers (see Table 1). The subjects were asked how often their physical education teacher would treat a student who is very able in the lesson in the way which is described by these items. Some items were modified to be relevant to physical education classes (e.g., the physical education teacher makes her or him feel good about how hard she or he has exercised). The same six items were applied for the measurement of teacher's treatment toward someone who is not very able. Students indicated their answers on 5-point Likert-type scales (1 = *never*, 5 = *always*).

Intrinsic Motivation and Anxiety. Students responded to a modified questionnaire developed by Csikszentmihalyi and Larson (1984) to measure adolescents' experiences of flow and anxiety. First, students were asked how they feel when they play or exercise with classmates who are not too good in sport. Their answers were given in eight seven-point semantic differential

Table 1 Principal Components Analysis of the "Teacher's Expectations, Choices, and Opportunities Given to High and Low Achievers" Questionnaire

The physical education teacher	F1	F2	h^2
Toward low achievers			
Asks him or her to lead activities	.75	-.05	.51
Makes him or her feel good about how hard he/she has exercised	.65	-.12	.47
Calls on him or her to demonstrate a skill to the class	.77	-.03	.51
Trusts him or her	.67	.01	.44
Has given him or her special privileges. S/he gets to do special things in class	.68	.15	.46
Calls on him or her to ask questions	.57	.13	.42
Toward high achievers			
Asks him or her to lead activities	-.09	.71	.57
Makes him or her feel good about how hard he/she has exercised	-.02	.69	.44
Calls on him or her to demonstrate a skill to the class	-.06	.71	.60
Trusts him or her	-.06	.66	.45
Has given him or her special privileges. S/he gets to do special things in class	.15	.66	.49
Calls on him or her to ask questions	.22	.60	.35
Eigenvalues	3.0	2.7	
Percentage of variance	24.8	22.6	

Note. F1 = teacher's treatment toward low achievers; F2 = teacher's treatment toward high achievers; h^2 = commonality.

Table 2 Principal Components Analysis of the "Intrinsic Motivation and Anxiety During Play or Exercise With High and Low Achievers" Questionnaire

	Facing high achievers			Facing low achievers		
	Intrinsic motivation	Anxiety	<i>h</i> ²	Intrinsic motivation	Anxiety	<i>h</i> ²
Interested-bored	.81	-.07	.67	.83	-.05	.69
Satisfied-unsatisfied	.78	-.16	.63	.80	-.23	.69
Active-passive	.73	-.04	.53	.79	-.09	.64
Involved-detached	.74	.15	.56	.79	.10	.63
Shamed-proud	-.25	.58	.42	-.41	.52	.44
Upset-calm	-.06	.76	.58	-.01	.82	.68
Relaxed-tightened	.11	.57	.31	.04	.62	.38
Uneasy-certain	.00	.79	.63	-.13	.79	.63
Percentage of variance	32.0	22.8		38.2	21.7	
Eigenvalue	2.56	1.83		3.05	1.74	

Note. *h*² = commonality

items (e.g., from *very interested* = 6 to *very bored* = 0; see Table 2). Factor analytic results from a pilot study ($n = 122$) revealed two factors measuring intrinsic motivation and anxiety (Papaioannou, 1992). The same eight items were used to measure students' feelings of intrinsic motivation and anxiety when they play with classmates who are very good in sport. Again, the results from the pilot study revealed a two-factor solution implying intrinsic motivation and anxiety. All the aforementioned scales had acceptable internal consistency (the Cronbach's α was higher than .80).

Results

Perception of Teacher's Behavior

Results from principal components analysis with both varimax and oblique rotations revealed two factors measuring perceptions of teacher's treatment toward high and low achievers (see Table 1). For both scales, the alpha coefficient was .77.

Calculation of the Differential Treatment Score

Based on the factor and internal consistency analyses, scale scores were calculated (sum of answers on each of the six items divided by 6) for both subscales. Results from multivariate analysis of variance (MANOVA) revealed that students reported a much more positive treatment toward high achievers

($M = 2.16$, $SD = .74$) than low achievers ($M = 1.21$, $SD = .65$), $F(1, 1001) = 958.8$, $p < .001$. The effect size¹ (ES) was 1.36. The differential treatment score, which was equated to the difference between the two scale scores (Weinstein et al., 1987), was also calculated. A positive differential treatment score implies that the teacher favored high achievers, and a negative differential treatment score indicates that the teacher favored low achievers. Further inspection of the data revealed that in all 55 classes of this study teachers favored high achievers.

The Intrinsic Motivation and Anxiety Questionnaire

Principal components analysis (using both varimax and oblique rotations) was conducted on the eight items of the questionnaire on the intrinsic motivation and anxiety during play or exercise with low achievers. Two factors emerged that suggested intrinsic motivation and anxiety (see Table 2). Similar findings emerged from the principal components analysis on the eight items of the questionnaire intrinsic motivation and anxiety during play or exercise with high achievers (see Table 2).

The α reliability for the scales intrinsic motivation and anxiety during play or exercise with low achievers was .77 and .63, respectively. In the case of play or exercise with high achievers, the coefficient alphas were .83 for intrinsic motivation and .67 for anxiety. Based on the factor and internal consistency analyses, scale scores were calculated for these 4 factors (sum of answers on each of the four items divided by 4).

Goal Perspectives and Perceptions of Teacher's Treatment

Pearson product-moment correlations were conducted among perceptions of teacher's treatment toward high and low achievers and the differential treatment score, on the one hand, and perceptions of their classes' orientations, on the other hand (see Table 3). The perception of positive teacher's treatment toward high achievers had low positive relationships with the three performance-oriented scales. On the other hand, the perception of positive teacher's treatment toward low achievers was positively related to the two learning scales. Finally, the

Table 3 Correlations Among Perceptions of Teacher's Treatment and Motivational Climate

Teacher's treatment towards	Teacher-initiated learning orientation	Students' learning orientation	Students' competitive orientation	Students' worries about mistakes	Outcome orientation without effort
High achievers	-.06	.01	.20*	.26*	.21*
Low achievers	.32*	.31*	.01	-.04	-.02
Differential treatment score	-.27*	-.20*	.15*	.22*	.17*

* $p < .001$.

perception of differential treatment toward high and low achievers was negatively related to the two learning-oriented scales and positively related to the three performance-oriented scales.

The classes' means of each scale of LAPOPECQ and the classes' means of the "teacher's differential treatment" score were calculated to examine whether the above mentioned relationships reflect the collective view of all students from each class. Pearson product-moment correlations were then computed between classes' means of the "teacher's differential treatment" and classes' means of each scale of LAPOPECQ. Negative relationships were observed between classes' mean perceptions of differential treatment and the classes' mean perceptions of learning goals ($r = -.37, p < .01$). Positive relationships were observed among classes' mean perceptions of differential treatment and classes' mean perceptions of "students' competitive orientation" ($r = .38, p < .01$) and "outcome orientation without effort" ($r = .38, p < .01$).

Perceived Motivational Climate and Students' Intrinsic Motivation

Based on confirmatory factor analyses suggesting a hierarchical structure of LAPOPECQ (Papaioannou, 1994), two new scales were created, namely Learning and Performance. The Learning scale was constructed by the items of the two learning-oriented scales. The alpha coefficient for this scale was .90. The construction of the Performance scale was made by adding the items of the "students' competitive orientation" and "outcome orientation without effort" scales. The newly created Performance scale had a coefficient alpha of .72. The items of the factor "students' worries about mistakes" were not included in the newly created Performance scale because they were positively related to the variable "students' anxiety during play or exercise with high achievers."

Subjects with extreme scores ($\pm 1 SD$) were identified in order to maximize group differences. Students with extremely high or extremely low perceived competence (one standard deviation above and below the mean of perceived competence score, respectively) who perceived extremely high learning and extremely low learning goals (one standard deviation above and below the mean of learning score, respectively) were chosen accordingly. The sample size in each cell varied from 24 to 35 students (the whole sample size was 123 students).

Two-way analysis of variance was conducted to examine whether the students differed in intrinsic motivation during play or coexercise with high achievers. The most interesting finding (see Figure 1) was the significant interaction, $F(1, 121) = 5.19, p < .05$. Students perceiving extremely high learning goals, despite their extremely low perceptions of competence, reported equal motivation ($M = 5.08, SD = 0.97$) to students with extremely high perceived competence ($M = 5.25, SD = 0.91$ and $M = 4.91, SD = 1.40$ for students with extremely high perceived ability perceiving extremely high and extremely low learning goals, respectively). On the contrary, students with extremely low perceived ability who perceived an extremely low learning-oriented climate reported lower levels of intrinsic motivation ($M = 3.73, SD = 1.40$).

Two-way analysis of variance was computed to examine whether the aforementioned groups of students differed in intrinsic motivation during play or exercise with low achievers. Again, the most interesting finding was the significant interaction, $F(1, 121) = 7.12, p < .01$ (see Figure 1). Students with extremely

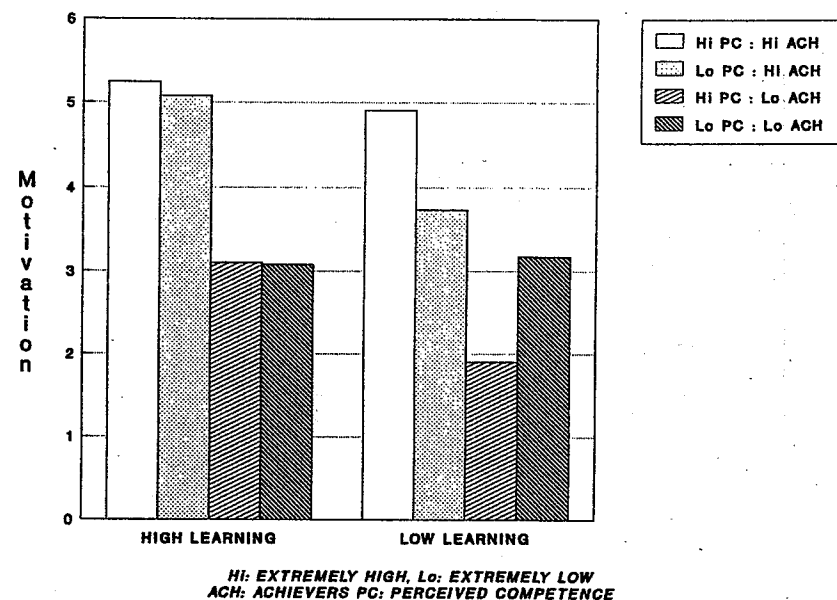


Figure 1 — Intrinsic motivation among students with extremely high or extremely low perceived competence perceiving extremely high and low learning goals.

high perceived ability who perceived extremely low learning goals scored considerably lower in intrinsic motivation ($M = 1.90, SD = 1.26$) than the others. On the contrary, students with extremely high perceived ability who perceived an extremely high learning-oriented environment scored equal ($M = 3.10, SD = 1.51$) to students with extremely low perceived ability regardless of their perceptions of learning goals ($M = 3.08, SD = 1.30$ and $M = 3.18, SD = 1.13$ for students with low perceived ability who perceived extremely high and extremely low learning goals, respectively).

The reported significant interactions confirm the goal perspectives theorists' argument that the level of perceived ability makes no difference in children's motivation when a learning goal is strongly emphasized. Importantly, examination of the effect size revealed that all of the aforementioned differences were very large (all ES s were larger than .80).

No differences in intrinsic motivation during play with high or low achievers emerged between groups of subjects with extreme scores on the performance scale. Finally, it is worthwhile to observe that all students were more motivated when they played games or coexercised with high achievers ($M = 4.62, SD = 1.29$) than with low achievers ($M = 2.82, SD = 1.32; ES = 1.38$).

Perceived Motivational Climate and Students' Reported Anxiety

A 2×2 (Extremely High/Low Perceived Competence \times Extremely High/Low Learning Goals) analysis of variance showed that thinking they faced high

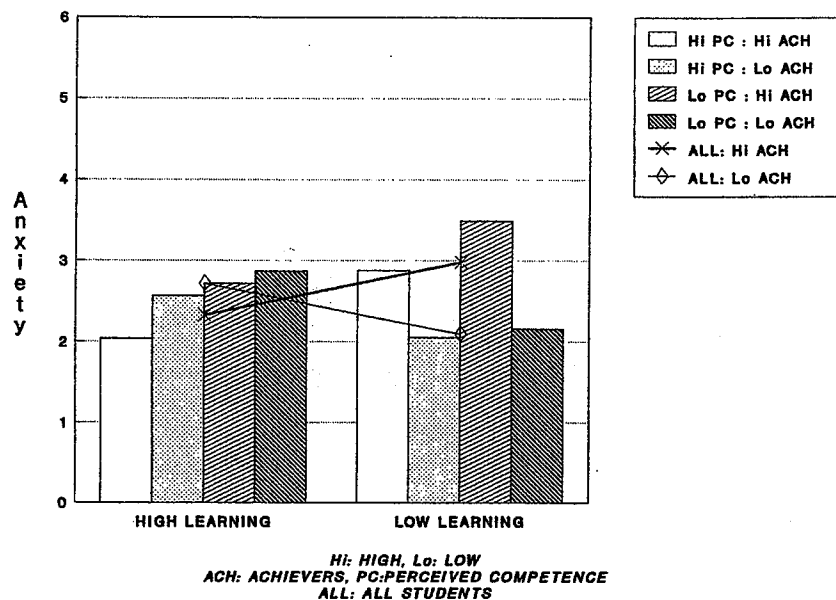


Figure 2 — Anxiety among students with extremely high or extremely low perceived competence perceiving extremely high and low learning goals.

achievers, students perceiving an extremely high learning-oriented climate reported less anxiety ($M = 2.33$, $SD = 1.28$; see Figure 2) than students perceiving extremely low learning goals ($M = 3.24$, $SD = 1.10$; $ES = .77$), $F(1, 122) = 14.08$, $p < .001$. Students with extremely high perceived competence reported less anxiety ($M = 2.39$, $SD = 1.23$) than students with extremely low perceived competence ($M = 3.17$, $SD = 1.20$; $ES = .65$), $F(1, 122) = 9.04$, $p < .01$. No significant interaction emerged.

During play or exercise with low achievers, the two-way analysis of variance showed that students who perceived extremely high learning goals were more anxious ($M = 2.69$, $SD = 1.25$) than students who perceived extremely low learning goals ($M = 2.11$, $SD = 1.02$; $ES = .51$), $F(1, 122) = 8.44$, $p < .01$. No other difference emerged.

It is important to observe here that when extremely high learning goals were perceived, there was no difference in students' anxiety due to challenge that they faced (play or exercise with high or low achievers; see Figure 2). Actually, students with high or low perceived ability reported higher anxiety when they faced low ($M = 2.69$, $SD = 1.25$) rather than high ($M = 2.32$, $SD = 1.28$) achievers, but the difference was small ($ES = .30$). On the contrary, all students perceiving extremely low learning goals were much more anxious thinking that they faced high ($M = 3.24$, $SD = 1.10$) rather than low achievers ($M = 2.11$, $SD = 1.02$; $ES = 1.07$). Examining the subjects with extreme scores on the performance scale, no important differences emerged with regard to students' reported anxiety during play with either high or low achievers.

Discussion

The way students perceive their class goal structure is related to whether students perceive differential teacher's treatment favoring high achievers. Moreover, the perception of motivational climate is linked with the role of perceived ability in students' motivation. Finally, students' anxiety seems to be connected with how they perceive the salient achievement goals in their environment. In line with the implications of goal perspectives theory, most of the present findings suggest that by promoting a learning orientation and decreasing social comparison teachers can possibly decrease differential perceptual and motivational patterns in their classes.

In all 55 classes of this study, Greek students reported that their PE teachers favored high achievers. This finding is similar to that found by Weinstein et al. (1987) in the general educational domain in America. Nevertheless, the competitive nature of the physical education lesson seems to exaggerate the perception of teachers' differential treatment favoring high achievers (Martinek & Karper, 1984, 1986). As the results showed, the perception of a performance-oriented environment was positively related to the view that teachers favored high achievers in their classes. Importantly, the positive correlations between perceptions of differential treatment and the two performance-oriented scales reflected the collective view of all students in each class. As Fraser (1986) argues, the gathered opinion from all students in each class is a more objective measure of the class environment than the view of an external observer. Nonetheless, considering together the present findings and the observational data of Martinek and Karper's (1984, 1986) studies, one can conclude that by decreasing the social comparison in the class, teachers can decrease the perception that they favor high achievers.

When students perceived a high learning-oriented environment, they were more likely to perceive positive teacher's behaviors toward low achievers. Further, the negative correlation between differential treatment and learning orientation reflected the pooled judgements of all students in each class. These findings are in line with the observations of many authors (Brophy, 1983; Cooper & Good, 1983) suggesting that to eliminate negative teacher expectation effects and increase low ability students' achievement, the value of personal progress should be stressed. It is not surprising, therefore, that the implications stemming from research in the area of self-fulfilling prophecies are identical to those promoting a learning goal and eliminating a performance goal in the classroom (Brophy, 1983, pp. 657-658; Good, 1987, p. 42).

Nevertheless, the study on class goal structure goes beyond that of teacher expectation effects. For example, from the goal perspectives point of view, it is not enough to say that tasks should not increase social comparison. Carole Ames (1992) argues that in order to promote a learning orientation, tasks should also focus on the meaningful aspect of the activities, attract students' interest, be challenging, and help students in setting short-term self-referenced goals. She questions the notion that class structures operate in an additive manner, that is, that the strengths in one structure can compensate for the inadequacies of another. For example, can teachers claim that they help low achievers by encouraging effort and the use of personal criteria of evaluation, although they occasionally use hard criticism that hurts the students' self-worth? Class structures are more

likely to operate in a multiplicative manner, implying that all teaching practices promoting a learning orientation should take place, and at the same time, the teaching practices should not be undermined by structures boosting different goals. Hence, physical educators interested in the teacher expectation effects should be concerned with the total climate and not just separate aspects of it. In that perspective, the analysis of classes' goal structure is very helpful.

What is most striking in goal perspectives theory is its interactionist approach to the study of motivation. Predictions about individuals' perceptions, cognitions, and affect are made taking into consideration the interplay between characteristics of the person and the situation in which she or he is involved. For example, Papaioannou and Theodorakis (1994) revealed that a low learning-oriented physical education environment might be appealing for high ego-oriented individuals, probably because in this environment individuals who seek recognition have more opportunities to exhibit their abilities. On similar grounds, the present study examined the interaction of motivational climate and individual differences in perceptions of ability.

Most theories of motivation suggest that the perception of ability is an important predictor of children's motivation (Weiss, 1987). Goal perspectives theory suggests that this is not always the case. Indeed, the present findings showed that there was no difference in students' intrinsic motivation due to perceptions of ability when students perceived extremely high learning goals. Importantly, all students perceiving an extremely high learning-oriented climate reported the highest motivational patterns. These findings are similar to the predictions of goal perspectives theory for the state of task-involvement. No matter how able they think they are, students perceiving extremely high learning goals seem to focus entirely on how to play or exercise well, which explains their high involvement and interest in the activity. These findings imply that to motivate students with high or low perceived ability, one should make sure that all students perceive a high learning-oriented class climate.

When students perceived extremely low learning goals, their motivation was determined by the relation between perceived ability and the challenge that they faced. During play or exercise with high achievers, students with high perceived ability reported that they were highly motivated, but students with low perceived ability said that they were not. This finding is in line with the predictions of many theories of motivation emphasizing the role of perceived ability in people's motivation and with the predictions of goal perspectives theory for the state of ego involvement. Playing or exercising with peers in the physical education setting facilitates the exposure of students' abilities. Youngsters perceiving low learning goals are rarely task involved, and therefore, in the presence of social comparison information, they are more likely to compare their competence to that of others (Jagacinski & Nicholls, 1987) which, in turn, affects their motivation. If children perceive themselves as competent, they consider playing or exercising with a high achiever as an opportunity to exhibit their high abilities, and therefore, they are highly motivated. Nevertheless, playing with a high achiever is a serious matter for their ego, and the fact that in this study students with low perceived competence reported higher anxiety than students with high perceived competence who perceived high learning goals seems to support this argument.

When students perceive a low learning-oriented atmosphere and evaluate

themselves as incompetent, playing with a high achiever is not very attractive because this situation allows the exposure of their low abilities. Indeed, as the results showed, such students are quite anxious about these situations, more anxious than students with high perceived ability or students with low perceived ability who perceive high learning goals. These findings support the approach of self-worth (Covington, 1992) and goal perspectives (Roberts, 1986) theorists, who argue that achievement-related anxiety largely manifests perceived incompetence to meet the demands of an activity in a highly evaluative condition. These theorists suggest that to decrease youngsters' anxiety one should help the students to develop their skills, to increase their task involvement, and to eliminate their ego involvement.

Irrespective of the perceived class climate or the perceptions of ability, all students reported higher intrinsic motivation during play or exercise with high achievers. This implies that in the context of physical education, interacting with a high achiever is a challenge for everyone. Nevertheless, it is impossible for all students to interact always with high achievers. From this point of view, the results regarding students' motivation during play and exercise with low achievers are interesting. The lowest levels of motivation were reported by students with high perceived ability who perceived low learning goals. This finding resembles the observations of Csikszentmihalyi (1975), who suggested that when high- and low-ability youngsters play with low-skilled peers, those with high abilities report the greatest boredom. Nevertheless, the present results imply that this was not the case for students with high perceived competence who perceived high learning goals. Although these students did not report high levels of intrinsic motivation, they were not less motivated than their peers with low perceived ability.

When an extremely high learning-oriented environment was perceived, the interaction with low achievers was associated with an increased tightness. This was not observed when students perceived extremely low learning goals. These findings might indicate that students perceiving high learning goals are concerned with the emotions of their low-ability peers, but this does not happen for students perceiving low learning goals who seem to be ego involved. This argument could be supported by a study examining the association of goal perspectives with empathy.

In the present study, the perception of performance goals was not related to students' intrinsic motivation and anxiety. Similar data were revealed by others in physical education (Goudas & Biddle, in press) and general education (Ames & Archer, 1988). However, in the sport context, Walling et al. (1993) found that the perception of a performance-oriented climate is negatively related to satisfaction and positively related to performance worries. At present, it is early to speculate the cause of these inconsistent findings. More studies in motivational climate are needed.

Future research should examine the interaction of motivational climate with individual differences in goal perspectives and self-related variables in different contexts of physical activity. This type of research will increase our knowledge of the thoughts, the emotions, and the goals of people with different personalities who participate in physical activity environments that have a different structure. This information will help coaches and physical education instructors to create a more adaptive climate for their athletes and students. It will also help applied sport psychologists to develop individual instructions for athletes who are

involved in environments with a particular goal structure. Educators need a lot of research in order to know exactly what kinds of goals are promoted by a combination of different class or team structures (Ames, 1992).

Conclusion

This study showed that a combination of a high learning and a low performance goal structure might help to sustain motivational equality in the context of physical activity. Children perceiving a high learning-oriented or low performance-oriented climate do not report that their instructors favor only those who are good at sport. A strong emphasis on how to master a task sustains high levels of motivation in children of all levels of perceived ability. Children seem less likely to be terrified by participating in sport and physical activity with high ability peers when a strong learning orientation is emphasized.

Teachers, coaches, and policy makers should remember that as children grow older, they will have to play and exercise with individuals who have abilities much different than their own. The present study suggests that to teach children how to adopt exercise as a lifestyle habit educators should provide an environment that supports personal progress and that does not set a high value on the outcome and the size of ability.

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Note

¹Because the sample size of this study was large, the recommendations set forth by Cohen (1988) regarding the computation of the effect size (*ES*) were followed. According to Cohen (1988), *ES* less than .40 denotes small differences; *ES* between .41 and .70 implies moderate differences; and *ES* larger than .70 suggests large differences.

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