Age-group differences in intrinsic motivation, goal orientations and perceptions of athletic competence, physical appearance and motivational climate in Greek physical education


This study examined age-group differences in students’ motivation, self-perceptions, task and ego orientations and perception of motivational climate in Greek physical education lessons. Six hundred and seventy-four students aged 10–17 years responded on self-reports which, in this study, had acceptable internal consistencies. The results showed that senior high school students scored lower on the scales assessing intrinsic motivation, perceived learning orientation in the lesson, task orientation and perceived athletic ability than junior high school and elementary school students. High school students had lower scores on the Perceived Physical Appearance scale and higher scores on the measure assessing perceptions of students’ worries about mistakes than elementary school students. The results suggest that learning orientation should be strengthened in Greek physical education.

Recent studies in Greece revealed age-group differences in children’s intrinsic interest in physical education during high school (1). Today there are no studies examining differences in children’s motivation in Greek physical education between elementary and high school. This article presents findings concerning the intrinsic motivation of Greek elementary, junior high school and senior high school students in physical education lessons. Moreover, data concerning age-group differences in some determinants of students’ intrinsic motivation are also presented.

Goal perspectives and intrinsic motivation

The present study adopted the theoretical approach to the study of achievement motivation proposed by Ames (2), Dweck and Leggett (3), and Nicholls (4). These theories speculate that in achievement contexts like sport and physical education two different goal orientations predominate. A task (4), or learning (3), or mastery (2) goal implies that students are primarily concerned with how to develop their competence. Success is defined as personal improvement and personal criteria of evaluation are adopted. Task-involved students try hard to learn new skills, enjoy the learning process, feel satisfaction when they improve their competence and perceive the mistakes as part of learning (4). Learning is considered as an end in itself and is experienced as intrinsically satisfying (4, 5).

An ego (4) or performance (3) goal denotes a major concern about normative ability. Success is defined as doing better than others and normative criteria of evaluation are adopted. Ego-involved stu-
Dentists try to outperform others and achieve normative records, feel more satisfied when they establish superiority and interpret mistakes as personal failure (4). Learning is conceived as a means to exhibit superiority and is not experienced as intrinsically satisfying (4, 5).

Goal perspectives vary as a function of individual differences and situational demands (5). Instruments have been developed assessing people’s proneness to task and ego orientation (6). Research has established that task and ego orientation are orthogonal constructs, that is, when task orientation is high, ego orientation can be high, moderate or low and vice versa (4).

The theory of goal perspectives presumes that an environment can be perceived as more or less task- or ego-involving (7). When the climate is perceived as high task-involving the criteria of evaluation are self-referenced and people achieve a sense of competence when they accomplish something or learn something new. According to self-determination theory (8), a sense of competence and self-determined criteria of evaluation are positive predictors of intrinsic motivation. Indeed, research (9) showed that students perceiving a high task-involving climate in the physical education lessons are highly intrinsically motivated. When the climate is perceived as high ego-involving, the criteria of evaluation are other-referenced. The existing research shows no relationship between perceptions of an ego-involving climate and children’s motivation in physical education (5).

The contemporary Greek physical education curriculum is sports oriented (10). In grades 4–12 the major activities are football, basketball, volleyball, handball, athletics and dance. However, there is a low emphasis on learning goals, particularly in senior high school. Investigations (1) showed that Greek senior high school students perceive less emphasis on task-involvement and are less motivated in the physical education lessons than Greek junior high students. Similar physical education curricula are used in the fifth and sixth grades of elementary school and the three grades of junior high school. In these grades, students are taught sport and dance skills, but no records of achievement are demanded. The emphasis on learning is an individual matter for the teacher. Hence, no difference in the perceived task-involving climate was expected between elementary and junior high schools. In accordance with the existing findings (1), a lower level in the perceived task-involving climate was expected in senior high school.

The existing research indicates that task and ego orientations are strongly related to perceptions of task- and ego-involving climates respectively (5). Intervention studies (11, 12) showed that a change in the motivational climate of physical education classes had an effect on students’ dispositional goal orienta-

tions. Accordingly, one can assume that the decline of the perceived task-involving climate from junior high school to the senior high school could be possibly accompanied by a respective decline of task orientation. Finally, in line with the existing data (1), the decline of a task-involving climate in senior high school was expected to be linked with lower levels of intrinsic motivation.

Past studies in Greek physical education showed that males are more ego-oriented than females (13). This can affect their perceptions, suggesting that boys might perceive their environment as more ego-involving than girls.

Intrinsic motivation and self-perceptions

There is unanimous agreement that perceived competence is a positive predictor of intrinsic motivation (8, 14, 15). Students with high perceived competence opt for challenges and self-determination in learning contexts. Nicholls (4) argues that at the age of 10 years a major decline of perceived ability occurs, which is due to the cognitive maturity of children. From this age on, children can understand that they can not be the best in some activities even if they make the greatest effort. Based on Nicholls’ argument, the elementary school students were expected to report higher perceived physical competence than the high school students.

Perceived body attractiveness is an important element of physical self-perceptions (16). No research has been conducted in Greece examining the relationship between perceived body attractiveness and motivation in the physical education context. Nevertheless, research has shown that perceived body attractiveness is connected to peoples’ exercise behaviors (17). It can be reasonably assumed that students who worry about their appearance feel uncomfortable in the physical education context. Taking into consideration the increased awareness of body appearance during adolescence and the fact that children’s self-perceptions become more accurate with age (18), a decrease in perceived body attractiveness with age was deemed possible.

To summarize, the purpose of this study was to examine age-group differences in students’ intrinsic motivation, goal orientations, perceived motivational climate, perceived physical competence and perceived physical appearance in the physical education context among Greek elementary, junior high school and senior high school students. A decrease in intrinsic motivation, task orientation and perceived task-involving climate from junior high school to senior high school was hypothesized. High school students were expected to report lower levels of perceived physical competence and perceived physical appearance than elementary school students. Finally, males were ex-
Age-group differences in Greek physical education

lower-order factor named teacher-initiated competitive orientation was also added to capture perceived performance orientation. Responses to 32 items following the stem "In this physical education class" were indicated on a 5-point scale (absolutely agree=5, absolutely disagree=1).

The first learning-oriented factor measured the teacher's emphasis on learning orientation (6 items, e.g., the physical education teacher is most satisfied when every student learns something new). The second learning-oriented factor assessed students' learning orientation (7 items, e.g., 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., students try to outperform each other). The second performance-oriented factor examined students' concerns about mistakes (5 items, e.g., students worry about failure to perform skills because it would lead to the disapproval of others). The third performance-oriented factor measured outcome orientation without effort (4 items, e.g., it is very significant to win without trying hard). Finally, 5 items were used to assess the teacher's emphasis on competition (e.g., the physical education teacher praises only the best).

Self-perception. The subscales “sport competence” and “attractive body” of the Physical Self-Perception Profile (16) were used to measure perceived athletic ability and perceived physical appearance, respectively. The sports competence scale consisted of 6 items indicating people performing well or not performing well in sport. Children reported on a 5-point scale (exactly as I am=5, I am not at all like this=1). The attractive body scale included 6 items suggesting that the person has an attractive or an unattractive body. The students indicated their responses on a 5-point scale (certainly yes=5, certainly no=1). The scale was translated from English to Greek and then back to English. Sports participants scored higher on these subscales than children who were not involved in sport (21). These data offer initial support for the validity of the scales in Greece.

Goal orientations. These were measured using the Task & Ego Orientation in Sport Questionnaire (6). This instrument has two factors (task orientation and ego orientation). The instrument has been appropriately adapted for Greek physical education (13, 25, 26). Following the stem "I feel most successful in sport when ...", children indicated their responses to 13 items on a 5-point scale (I absolutely agree=5, I absolutely disagree=1).

Procedures

One of the authors visited the schools and administered the questionnaires in the classroom. The students were given verbal instructions with regard to

Material and methods
Participants
Six hundred and seventy-four students attending 30 schools (319 male and 355 female) participated in the study. All of them were living in provincial and suburban areas of north-eastern Greece. One hundred and eighty-two students were in the fifth year of elementary school (age 10±0.5 years), 249 students were in the first year of junior high school (age 12±0.5 years) and 243 students were in the first year of senior high school (age 15±0.5 years). All physical education classes were coeducational.

Measures
Students completed the following scales in the order that they are presented below:

Intrinsic motivation. Two subscales of the Intrinsic Motivation Inventory (19) were used to measure children's perceived effort and enjoyment in the physical education lesson. Children responded to 10 items on a 5-point scale (I absolutely agree=5, I absolutely disagree=1). Recently, concerns have been raised about the appropriateness of affective or behavioral variables as indicators of intrinsic motivation (20). However, practical reasons did not allow the use of alternative instruments (20) containing a large number of items. The effort and enjoyment scales were translated from English to Greek and then back to English. According to expectations, effort and enjoyment were positively related to task orientation, perceived task-involving climate, intrinsic reasons for involvement in physical education and beliefs that sports ability is developed through effort (21, 22). These findings support the validity of the effort and enjoyment subscales in the Greek physical education context.

Perceived motivational climate. The Learning and Performance Orientations in Physical Education Classes Questionnaire (LAPOPECQ) was used. It was developed by Papaioannou (9) to measure the perceptions of Greek students of the motivational climate in their physical education classes. This instrument has been adapted and used in other European countries (23, 24). The reported results from this study include confirmatory factor analysis suggesting that the LAPOPECQ has an hierarchical structure: (a) two higher-order factors measuring learning and performance goals and (b) five lower-order factors, two of them subfactors of the learning-oriented higher-order factor and three subfactors of the performance-oriented factor. In this study an additional
how to complete the questionnaires. After the opportunity for clarification and questions they responded to the measures. Their physical education teacher was not present in the classroom until after completion of the last questionnaire. When students wanted to ask questions they raised their hand and communicated privately with the experimenter. Generally, the completion of the questionnaires required 30–40 min. The study was conducted with the permission of the Greek Ministry of Education and the school authorities and the students gave informed consent to participate.

**Results**

Reliability analyses showed that all scales had an acceptable level of internal consistency. As is shown in Table 1, for all scales but one the reliability alpha coefficients were 0.70 or above. Scale scores were used as the dependent variables in subsequent Multivariate Analyses of Variance (MANOVAs). Sex and age were used as independent variables. Univariate F tests and Scheffé post-hoc tests followed, in order to examine between-group differences.

**Differences in intrinsic motivation**

The multivariate analysis of variance indicated strong age differences (Wilks’ Lambda=0.64, P<0.001). As can be seen in Table 1, senior high school students reported less effort and enjoyment than junior high school and elementary school students. There were neither gender differences nor significant interactions.

**Differences in perceived motivational climate**

The MANOVA indicated strong age differences (Wilks’ Lambda=0.69, P<0.001). Senior high school students had lower scores on the measures of perceived teacher-initiated learning orientation and perceived students’ learning orientation than junior high school and elementary school children. Likewise, senior high school students scored lower on the measure of perceived outcome orientation without effort than junior high school and elementary school students. On the other hand, high school students perceived more worries about mistakes than elementary school students. No important gender differences emerged. One interaction between sex and age emerged at the 0.001 level of significance, F(2,578)=7.0. In senior high school, males scored lower (M=3.69, SD=0.64) than females (M=4.03, SD=0.65) on the scale of perceived teacher-initiated learning orientation, but there was no difference between the sexes in junior high school or elementary school.

**Differences in self-perceptions**

The results indicated significant age differences (Wilks’ Lambda=0.92, P<0.001). Results from univariate analyses suggested that senior high school students had lower scores on perceived athletic ability than junior high school and elementary school students. High school students had lower scores on perceived physical attractiveness than elementary school students. Gender differences also emerged (Wilks’ Lambda=0.96, P<0.001). Boys had greater scores on perceived athletic ability (M=3.38, SD=0.79) than girls (M=3.02, SD=0.85), F(1,619)=30.9, P<0.001. There were no gender differences in perceived physical attractiveness. No significant interaction emerged.

**Differences in goal orientations**

The results revealed significant age differences (Wilks’ Lambda=0.93, P<0.001). Univariate F tests sug-

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Note 1=Group means sharing the same subscript are not significantly different at the 0.01 level (after Scheffe tests). * = P<0.001.
gested that senior high school students were less task-oriented than junior high school and elementary school students. There were no age differences in ego orientation. The results also indicated significant differences between the two sexes (Wilks’ Lambda = 0.98, P < 0.001). Girls were less ego-oriented (M = 2.81, SD = 0.89) than boys (M = 3.00, SD = 0.90), F(1, 596) = 6.6, P < 0.01. There were no significant differences in task orientation. No significant interaction emerged.

**Discussion**

The present findings are not encouraging for Greek physical education. They suggest that particularly in senior high school the Greek students lose their intrinsic motivation in the physical education lesson, become less task-oriented, perceive less emphasis on task-involvement in their classes and feel less competent when they participate in sport. Moreover, as Greek students move from the elementary school to the junior high school they develop a less positive perception about their body and perceive their schoolmates as being more worried about making mistakes. These data draw from suburban and provincial Greek populations and confirm the disappointing picture that previously emerged in large urban areas of Greece (1).

The biggest differences emerged between junior (7th Grade) and senior high school (10th Grade). Between these grades there were large differences in the perceived task-involving climate and the intrinsic motivation of students. The present results stemming from Greek suburban areas confirm those of a recent study in a Greek urban area (1). Both studies found that a decrease in perceived task-involving climate in senior high school physical education classes is accompanied by a decline of children’s motivation. The perceptions of a lower task-involving climate correspond to lack of learning goals in the physical education lessons in senior high school. Though the present findings do not reflect causality, one can assume that by strengthening learning goals and task-involvement in physical education classes students could become more intrinsically motivated. The results of a recent intervention study (12) support this assumption.

The present findings indicated that as students grow up they become less task-oriented in physical education lessons. This should be considered quite disappointing. A low task orientation in the physical education lesson is probably connected to a decreased task orientation in any physical activity setting (6). This corresponds to low motivation in the physical activity context (5). Contrary to the aims of the Greek physical education curriculum (10), these findings show that school is not very successful in helping students to adopt physical activity as a lifestyle habit.

As was expected, students’ self-perceptions become less positive with age. This can be partly ascribed to the cognitive maturity of children. Children’s accuracy in evaluating their physical self increases with age (18). Moreover, the biological changes associated with puberty may also be responsible for some of these changes in perception. On the other hand, research has shown that the school and sport environment is an important cause for the decrease of students’ perceived athletic competence (27). Sports teams become more selective when children are 11–13 years old. At this age, those children with relatively low athletic ability find no place in competitive sport. Sports participants continue to increase their physical abilities, but those who are left out of the sport system do not. In retrospect, those who lack physical abilities develop more negative beliefs about their physical self. Moreover, the low emphasis on physical ability development in school, particularly in senior high school, does not enable them to compensate for some of these losses.

In accordance with the results of previous studies in Greece (13, 28), males emerged as more ego-oriented than females. Similar findings emerged in other Western countries (5). It seems that the stronger emphasis of males than females on competition and the acquisition of social status characterizes Western civilization. This not only contributes to males’ motivation (4), but also strengthens their aggressiveness (25).

Boys had higher scores on perceived athletic ability. This did not emerge in a previous study in a large Greek city (28), where students were requested to respond to another measure of perceived sports competence. More investigations are needed in order to understand whether these inconsistent findings are due to the different instruments or to differences between urban and suburban populations. Likewise, more studies are needed to understand the cause of the gender differences in the perceived teacher-initiated climate in senior high school, because no such findings emerged in the study involving students living in the urban area (28).

One limitation of this study is its cross-sectional design. Longitudinal studies should be carried out in the future in order to have a better view of the developmental changes of students’ motivation in physical education. Nevertheless, the results of the present study in conjunction with the findings of Papaioannou (1) are discouraging for Greek physical education. The Greek authorities should redefine the goals and the role of the physical education lesson. For many children the physical education environment is a unique opportunity for positive exercise experiences. School should contribute in preparing children to adopt exercise as a lifestyle habit. This
seems more likely to occur if we encourage learning and personal improvement in physical education lessons. A new Greek curriculum should be drawn up that will help teachers and students to set specific learning goals. Otherwise, as Greek physical education stands today, several people could question its usefulness for the lives of students.

References

28. Papaioannou A. Students’ motivation in physical education classes which are perceived to have different goal perspectives. Thesis: Manchester: University of Manchester, 1992.