Adaptation and Motivation of Greek Gifted Pupils: exploring some influences of primary schooling

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The main purpose of this study, on the theoretical framework proposed by Renzulli (1986) and by Van Boxtel and Mönks (1992) and Mönks, Van Boxtel, Roelefs and Saunders (1986), was to explore pupils' motivation and adaptation to school life in relation to the identification of giftedness. A pool of 1765 primary school pupils were initially tested for Visual-Motor Integration and Creative Thinking. Their teachers nominated 90 of them as gifted, who in turn were assessed in regard to their level of school adaptation and motivation by questionnaires based on Power and Cotterell (1979) and on Entwistle (1968). The comparison groups were five nominated pupils, verified as gifted, seven more non-nominated, but gifted (all 12 identified through psychometric and statistical criteria), and ten non-gifted but nominated pupils. The results indicated that the gifted pupils, depending on whether or not they are identified by their teachers, feel partially motivated and exhibit lower than the expected adaptation at school. The findings are discussed in the light of the current Greek school system.

Introduction

The fundamental concept of this study is giftedness, the understanding of which is derived from Renzulli's (Renzulli, Reis & Smith, 1981; Renzulli, 1986) tripartite model of giftedness. Renzulli claims that general intellectual capacity and creative thinking at exceptional levels as well as goal-oriented task commitment together make up the prevalent components of general giftedness. According to the same model, but augmented by Mönks (cf. Mönks, Van Boxtel, Roelefs & Sanders, 1986; Van Boxtel & Mönks, 1992), general giftedness is also directly related to the level of motivational standards and challenges within peer group, school and family settings. Thus, these three social settings and their dynamic interaction are necessarily linked to the prevalent components of general giftedness. Giftedness, after all, cannot emerge in social isolation.

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Parental identification of a child's giftedness is often the first step in enhancing it. Parents' approval and, especially, their attitudes and behavior appear to be vital for the child to realize his or her potential (Freeman, 1991, 1993). In addition to the familial social setting, the influence of peer groups affects the development of giftedness. It is often argued that it might be necessary for gifted children to socially interact with other gifted, or even older, children (Mönks *et al.*, 1986). Gallagher (1979), for example, showed that gifted pupils are more popular at school than their non-gifted classmates. However, the "average" traits that classmates and peers often possess could negatively influence the social development and the social adaptation of gifted students (Van Boxtel & Mönks, 1992). Negative influences also relate to school performance. Mönks and his associates (1986) showed that underachieving gifted students tend to seek help from their classmates, but rarely offer help. In contrast, students of average performance, as well as high-performance gifted students, do not seek help as often as their underachieving gifted classmates do.

Teachers' contribution to the process of identifying general giftedness is also crucial, since teachers in many countries officially recognize gifted students as potential candidates to enroll in special enrichment programs (Gear, 1976; Delisle, Reis & Gubbin, 1981; Delisle, 1989, 1995; Hany & Heller, 1990; Hany, 1993, 1997). Teachers are therefore often key persons who provide a child with the necessary opportunities for his or her giftedness to unfold. However, several studies have indicated that teachers face serious problems when asked to identify gifted students. It is evident that teachers' judgements do not always coincide with the pupils' actual intellectual and/or creative thinking abilities (Hany, 1993).

Moreover, Greek primary school teachers usually find it difficult to identify gifted students for two reasons: (a) Most of them never had any formal training regarding the identification of giftedness and therefore often lack specific knowledge of the needs of the gifted. Also, (b) the Greek State has not yet recognized the school psychologist as a specialized profession in regular public schools. Thus, ability indices and other psychological assessment information are not available to teaching staff. Consequently, Greek teachers may not have the necessary support in efficiently identifying the gifted.

Identification of gifted students could be generally considered as a necessary, but not sufficient, condition for their satisfactory adaptation at school. The term adaptation refers, in general, to the degree to which all students cope with the complexity of classroom and school activities as well as with relating to teachers and other students (Power & Cotterell, 1979; Cotterell, 1982). If not identified by the teacher, the gifted student will be confronted with a school system mainly designed to cater to a normal population and their intellectual traits and performance levels. It could therefore be argued that the non-identified gifted student, at times, will have to make intellectual and emotional compromises and suffer discouragement and isolation in a regular classroom; for example by teachers' negative remarks (Freeman, 1991). The adaptation level of the gifted, especially, seems to be equivalent to their level of satisfaction with, for example, the school curriculum and activities, social relationships in the school, in the surrounding community and their own performance and self-worth at school. Students' self-worth in a school context is also

enhanced by acquiring motivation for school learning and the potential of future success; all of which, in turn, is dependent on being identified as gifted by the teachers.

Thus, gifted pupils acquire feelings of individual competence and set goals to aim for their present and future life in the school system (Freeman, 1979, 1991). Freeman (1991) defines motivation as pupils' strength and direction towards acquisition of the learning procedure. Additionally, motivation could be regarded as a transitory outcome that may be affected by certain educational situations, applicable to instructional strategies and program evaluations. Especially, the motivational status of the gifted at school is conceptualized as the pool of chances the school offers to gifted students to achieve the most of their potential, in present school life as well as in future academic and professional development (Clinkenbeard, 1996).

The purpose of this study was to investigate the degree of gifted Greek primary school students' adaptation to their school environment and the extent to which they felt motivated regarding school achievement at the time of the study and also regarding future school and professional success.

This study was conducted in the Greek public primary school in regard to the teacher's role and, by comparing specific groups of pupils regarding their motivational status and adaptation level. The term "role" for Greek primary school teachers refers mainly to their "ability" in identifying gifted students in a classroom setting. If the identification process is insufficient, it leads to at least three distinct groups of students: (1) a group of non-gifted students, identified as non-gifted; (2) a group of gifted students, identified as gifted, and (3) a group of gifted students who are not identified as gifted. The motivational characteristics, as perceived by Greek primary school students belonging to one of these groups, were compared. Such a comparison also concerned expected adaptation differences among students.

This descriptive and exploratory research is likely to be a pioneering effort to study giftedness in the Greek educational system in relation to the gifted students' levels of adaptation and motivation. Gifted students' special characteristics and needs seem to have been devalued by specialists in Greek educational institutions and psychological services (Nikolopoulou, 1986), as well as by teachers at various levels of public education and also in the majority of private schools. Furthermore, Greek teachers seem unable to support the adaptation of gifted students by enhancing their general and social satisfaction (Starida, 1995). It follows, of course, that gifted students' development of school achievement and self-worth, while a student in the Greek school system, may potentially be hindered.

Prior to discussing the specific details of the present research, however, a brief outline of the Greek educational system and its specifics in Greece is helpful to individuals unfamiliar with it.

The Greek Educational System

In Greece the Ministry of Education and Religion is responsible for the administration of the educational system. Tuition in all public educational institutions is free of charge. The private sector of education, however, is restricted. Equal education

opportunities allow for social mobility within all educational levels (Lambiri-Dimaki, 1978). Education is traditionally believed to be something "socially beneficial" and the only means to developing self and family (Gari & Kalantzi-Azizi, 1998).

The structure of the educational system is comprised of four levels: (1) primary (6 years); (2) lower secondary (3 years); (3) upper secondary (3 years); and (4) higher education (Technological Institutes) and University Institutes (3 to 4 years). The first two levels (9 years of education) are compulsory (Stavrou, 1985; Polydorides, 1986; Stavrou, 1995).

The 1975 Constitution, in regard to special education, declared that the State, referring to students' varying abilities, encourages eminent students as well as students who need support or special care to overcome their disabilities. All subsequent legislation, however, referred only to students with special deficiencies (Evangelopoulous, 1987). Moreover, as far as education for highly able students is concerned, Greek primary and secondary education teachers are inadequately trained, and in-service training does not exist (Pigiaki, 1995; Starida, 1995). Additionally, it is important to note that special classes, schools or enrichment programs and acceleration procedures are not available, at any level, either in the Greek public school system or in the majority of private schools. This situation is not unique to Greece, however; there is little focus on gifted students and no specific teacher training available in, for example, Sweden (Persson, 1998) or Scotland (Hamilton, 1999) either.

Method

Sample and Instrumentation

A pool of 1765 pupils, aged 9 to 10 years, in 30 public primary schools, located in Athens as well as in Heracleon and Chania, both on the island of Crete, were administered the VMI—Beery's Visual-Motor Integration Test (Beery, 1967)—a test which has been standardized for the Greek population by Georgas (1971) and has been used by the same author in subsequent intelligence-related studies (1972, 1987). The VMI instrument refers to visual, motor, verbal and abstract reasoning processes. While mental abilities usually are assessed by, for example, the Wechsler Intelligence Scales or the Stanford–Binet Intelligence Test (Marland, 1972; Martinson, 1974), these had not yet been standardized for use in Greece at the time of the present study. The VMI test, which was considered a valid alternative for this research, that was is designed for children 2 to 15 years of age, and its developmental-age equivalent scores correlate with reading achievement ($r = 0.50$) and with mental age with correlation coefficients ranging from 0.38 to 0.59 (Beery, 1967). Additionally, Georgas reported correlation coefficients of 0.46 with verbal ability and 0.60 with the Goodenough–Harris Drawing Test. The internal consistency reliability coefficients for the VMI instrument range from 0.66 to 0.80, with the highest coefficient appearing in the age groups used in the current study (Georgas, 1971). Beery (1967) has also reported high internal consistency reliabilities (between 0.70 to 0.90) and high interrater reliabilities (greater than 0.90). For the

present study the VMI was administered to groups of students rather than individually.

The participating students were also assessed on creative thinking by responding to three verbal tasks from the Torrance Test of Creative Thinking (Torrance, 1966): "unusual uses" for two objects, "consequences" and "modification", for two hypothetical conditions each. These three tasks aimed at assessing divergent thinking and were scored for Fluency. Fluency scores in divergent thinking assessment have also been shown to correlate with originality, flexibility and elaboration scores, with coefficients ranging from 0.68 to 0.85 (Hargreaves & Bolton, 1972; Hocevar, 1980, 1981). Similar correlations have been reported also for gifted students (Runco, 1986). Interrater reliability coefficients for the Torrance Tests of Creative Thinking have been reported (in the tests' technical manual and in subsequent studies) as higher than 0.90 (Callahan, 1991).

Nomination Procedure

For the initial sample of 1765 students, their teachers ($N = 89$) were asked to nominate gifted students as if nominated pupils "were to participate in enrichment programs that the Greek Ministry of Education might have organized". Prior to this given task, however, the researchers gave them a brief introduction based on Renzulli's (1986) model of giftedness. Accordingly, the teachers nominated 90 students as gifted. Note that the nomination procedure always preceded test administration.

Out of the 90 students nominated as gifted by teachers, five were finally identified as gifted by applying specific criteria to the VMI outcomes and the Fluency scores. The remaining 85 nominees were not identified as gifted in accordance with the adopted criteria. These criteria were: (a) a cutoff score of 131 for the VMI outcome along with a cutoff point of 30 for the Total Fluency score; and (b) the detection of multivariate outliers (VMI and Total Fluency scores) within the cluster of cases scoring high in both tests. Criterion (b) involved the use of cluster analysis for all 1765 cases and the detection of multivariate outliers (Tabachnick & Fidell, 1989) via the computation of Mahalanobis's Distance Index. This index is underlying Hotelling's T^2-test and the theory of discriminant analysis, as one of the most important distance indices in cluster analysis (Mardia, Kent & Bibby, 1989). The index represents a generalized measure of the "distance" between two populations (Kleinbaum, Kupper & Muller, 1988). For this study, criterion (b), in combination with both of the cutoff scores in criterion (a), should be satisfied for a student to be identified as gifted.

Using the same criteria, seven more pupils—although not nominated as gifted by their teachers—were identified from the remaining pool of students (i.e. 1765–90).

Due to the largely unequal sample sizes of the three different student groups it was necessary to also select, for the inferential analyses, a random sample of ten students out of the 85 non-gifted ones. Thus, the data that were finally used were derived from three groups of ten non-gifted (although nominated by teachers), five gifted

Table 1. Composition of the final samples of participants

Group descriptions			Initial N	%	Final N
Group 1	Non-gifted students but identified by teachers as gifted		85	87.6	10
Group 2	Gifted students also identified by teachers as gifted		5	5.2	5
Group 3	Gifted students not nominated by teachers		7	7.2	7
Total			97	100.0	22

five gifted and nominated by teachers, and seven gifted students who were not nominated by their teachers (Table 1).

Instruments for Measuring School Adaptation and Motivation

Thus, after nomination and strict criterion-based selection a set of 85 non-gifted students, five gifted-nominated pupils, and seven not non-nominated gifted pupils (97 pupils in total) were tested on an individual basis for their adaptation to their school environment by using a questionnaire based on Power and Cotterell (1979), and on Cotterell (1982). Additionally, their school motivation was assessed by a questionnaire based on Entwistle's instrument (1968). Although both of these questionnaires are relatively old, they have nevertheless been useful and satisfactorily employed for Greek samples (Kakavoulis, 1984, 1998).

The questionnaire for students' adaptation in school environments consisted of 36 questions. A number of these (17 questions) measured pupils' satisfaction regarding school atmosphere, school courses, teachers, schoolmates and so on (that is, the general satisfaction subscale). Ten of the questions assessed students' satisfaction with their social relationships in the school (that is, the social satisfaction subscale). The remaining nine questions assessed the pupils' sense of achievement at school (the self-worth subscale), asking questions on grades, their courses, and keeping teachers and parents satisfied by displaying remarkable performance.

For the completion of this questionnaire a 4-point scale was employed ranging from 3 ("very much") to 0 ("not at all"). The Cronbach alpha coefficient for the internal consistency of the three subscales of adaptation was 0.71, 0.58 and 0.61 respectively. Coefficients were not as high as would have been desirable, possibly due to the limited number of items in each scale. Alternatively, the split-half reliability coefficients, corrected for the Spearman–Brown formula, revealed reliability levels of 0.71, 0.65 and 0.68 for the three subscales, respectively.

The school motivation questionnaire, which consisted of 14 questions (answered on a "yes"–"no" basis), was used to assess the pupils' school motivation and attainment. The Kuder–Richardson reliability coefficient for this questionnaire was 0.64 and the Spearman–Brown split-half reliability coefficient was 0.67.

Results

Before proceeding to inferential statistics, exploratory factor analytic techniques were applied to the data pool of 97 students in order to explore the underlying structure of the school motivation items (Table 2). The principal components method for the extraction of factors was employed, and the extracted principal components were rotated orthogonally (assuming factor independence).

The cutoff point for including an item into a factor was a loading of 0.40 and more, providing for a salient factor solution. Items included in this factor solution, therefore, did not load on more than one factor, with one minor exception. The factors that emerged explained 55.6% of the total variance, and revealed the following areas of motivation: interest in school life (Factor I), interest in school

Table 2. Factor analysis, principal components, of school motivation items ($N = 97$). Note that the four-factor solution explains 55.6% of total variance. The percentage of each factor is shown in parentheses. Cutoff point for considered loading is set to 0.40

Items	Factors			
	I	II	III	IV
Factor I: Interest in school life (21.3%)				
Would you like to stop attending school?	0.87	0.08	0.00	−0.06
Do you believe that school lessons are boring?	0.74	0.21	0.28	−0.15
Do you believe that attending school is a waste of time?	0.74	−0.14	−0.12	0.13
Do you believe that you prefer being at the playground than attending courses at school?	0.63	0.18	0.04	0.14
Factor II: Interest in the school curriculum (14.3%)				
Do you have any difficulties in concentrating your attention on your homework?	0.11	0.75	−0.21	0.11
During courses, do you often think of different subjects?	0.08	0.72	0.13	0.08
Do you like the majority of the courses you attend at school?	0.09	0.65	0.40	−0.22
Do you enjoy trying hard to solve a difficult problem?	−0.10	0.44	0.18	0.14
Factor III: Motivation for future success (10.6%)				
Do you believe that school prepares you adequately to get a satisfactory job in the future?	−0.04	−0.08	0.82	0.13
Do your teachers believe that your conduct at school is bad?	0.14	0.28	0.72	−0.12
Do your parents urge you to quit school and get a job?	−0.01	0.01	0.42	0.00
Factor IV: Motivation for school performance (9.4%)				
Is it important for you to have good grades at school ?	−0.07	0.13	−0.05	0.82
Do you feel sad when you take exams and you fail the test ?	0.23	−0.12	0.08	0.69

Table 3. Mean scores of the four school motivation factors for each group of students and non-parametric analysis of variance results. Group 1 indicates non-gifted students identified as gifted, Group 2 are gifted students who were also nominated, and Group 3 are gifted students who were not nominated

School motivation factors	Mean scores			Kruskal–Wallis H
	Group 1	Group 2	Group 3	
Interest in school life	0.80	0.93	0.96	n.s.
Interest in the school curriculum	0.85	0.93	0.64	n.s.
Motivation for future success	1.00	0.75	1.00	$p < 0.05$
Motivation for school performance	0.95	0.75	0.92	n.s.
Friedman's Rank test for related measures	n.s.	n.s.	n.s.	

Note: A score of 1.0 indicates maximum school motivation.

curriculum (Factor II), motivation for future success (Factor III), and motivation for school performance (Factor IV). The students' answers to the questions, which constituted each of these four factors, were collapsed into a single score, respectively. Thus, four motivation scores for each pupil became available for further inferential analyses, along with the three adaptation subscale scores.

In order to compare the four school motivation scores (Table 3) among the three groups of pupils, the Kruskal–Wallis H non-parametric criterion was employed, for each school motivation score, separately (Table 3).

The gifted students who were nominated by their teachers were less motivated regarding their future success in comparison with the students in the other two groups who, in both instances, were extremely motivated ($\chi^2 = 7.12$, $df = 2$, $p < 0.05$). To compare the four motivation scores for each group separately, however, Friedman's Rank Test for related measures was employed (see Table 3). This analysis did not reveal any statistically significant differences.

For the adaptation subscale scores (general satisfaction, social satisfaction, self-worth), the Kruskal–Wallis H criterion was employed as well, but did not reveal statistically significant differences among the mean scores for the three groups either (Table 4). However, for each group of pupils separately (Friedman's Rank Test for related measures), significant differences were present among the adaptation subscale scores.

The gifted but non-nominated pupils presented a higher social satisfaction score in comparison to their scores for the other two adaptation subscales ($\chi^2 = 12.28$, $df = 2$, $p < 0.01$). For the non-gifted pupils a similar effect was also present ($\chi^2 = 10.40$, $df = 2$, $p < 0.01$). These findings indicated that the nominated, but in the end, non-gifted students, and the gifted but non-nominated students, were the most satisfied with their social relationships at school. In contrast, they reported lower self-worth levels in the classroom, during courses and while taking exams as well as lower general satisfaction in regard to school atmosphere and making an effort for high marks.

Table 4. Mean scores of the three adaptation subscales for each group of students and non-parametric analysis of variance results. Group 1 indicates non-gifted students identified as gifted, Group 2 are gifted students who were also nominated, and Group 3 are gifted students who were not nominated

School adaptation subscales	Mean scores			
	Group 1	Group 2	Group 3	Kruskal–Wallis H
General satisfaction	2.17	2.28	2.14	n.s.
Social satisfaction	2.53	2.32	2.45	n.s.
Self-worth subscale	1.97	2.11	1.71	n.s.
Friedman's Rank test for related measures	$p < 0.01$	n.s.	$p < 0.01$	

Note: A score of 3.0 indicates maximum school adaptation.

These findings suggested that an interaction might exist between the three groups and the motivation and adaptation subscale differences. Assuming that the differences in subscale scores could be tested robustly also by means of parametric statistics, due to the lack of equivalent non-parametric techniques, parametric analyses of variance models (with one between-subjects and one within-subject factors) were employed. The equivalent F criterion is considered a robust statistic when the number of participants in each group is approximately equal, and if the normality assumption is not seriously violated (Glass, Peckham & Sanders, 1972; Kleinbaum *et al.*, 1988; Graziano & Raulin, 1989). Using the three subscale adaptation scores as the within-subject factor and the three groups as the between-subjects factor, a marginal, but indicative, significant interaction effect was revealed ($F(4, 38) = 2.29$, $p = 0.07$). This interaction effect (Figure 1) was mainly attributed to the low self-worth score of the gifted but non-nominated students ($M = 1.71$, $SD = 0.57$), in contrast to the other two groups, and in contrast to the overall scores on the other two adaptation subscales. Additionally, it was attributed to the high social satisfaction score of the non-gifted students ($M = 2.53$, $SD = 0.31$), in comparison to the other two groups, especially to the group of gifted-nominated students ($M = 2.32$, $SD = 0.52$), and in contrast to the overall scores on the other two adaptation subscales. The η^2 coefficient (0.19) revealed that 19% of the variance in the students' answers was explained by this statistically significant interaction effect.

A significant interaction effect was also present when similarly comparing the three groups for their four school motivation ($F(6, 64) = 2.91$, $p < 0.05$). This interaction effect (Figure 2) was mainly attributed to the relatively low scores on motivation for future success, as scored by the gifted and nominated students ($M = 0.75$, $SD = 0.28$), and to the low scores of the gifted but not nominated students on interest in school curriculum ($M = 0.64$, $SD = 0.35$). Both compared to the other group scores and to the overall scores for the other motivation factors. The η^2 coefficient (0.24) revealed that 24% of the variance in the students' answers was explained by this statistically significant interaction effect.
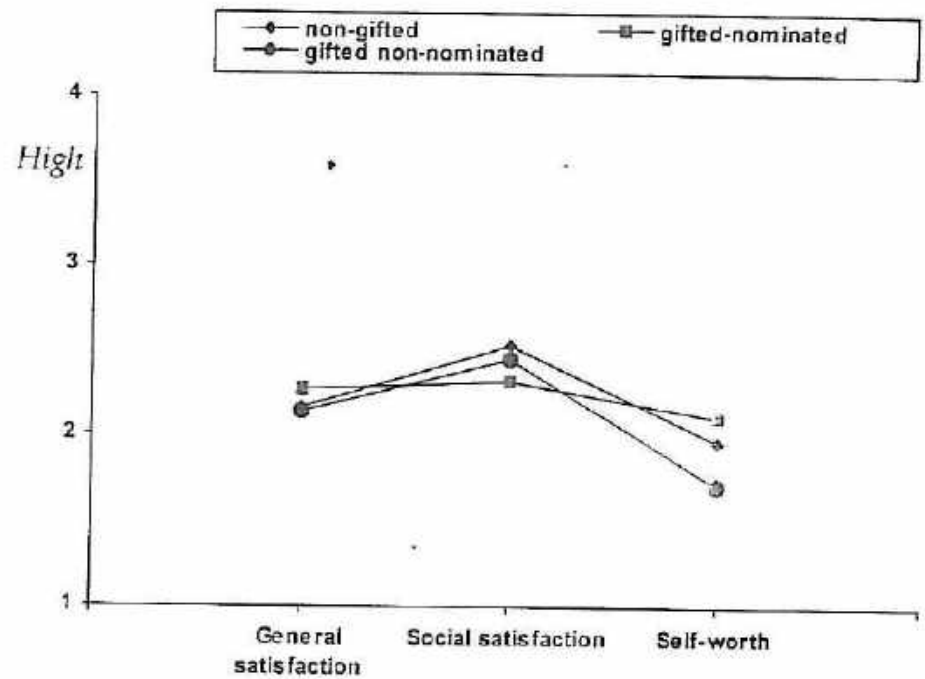
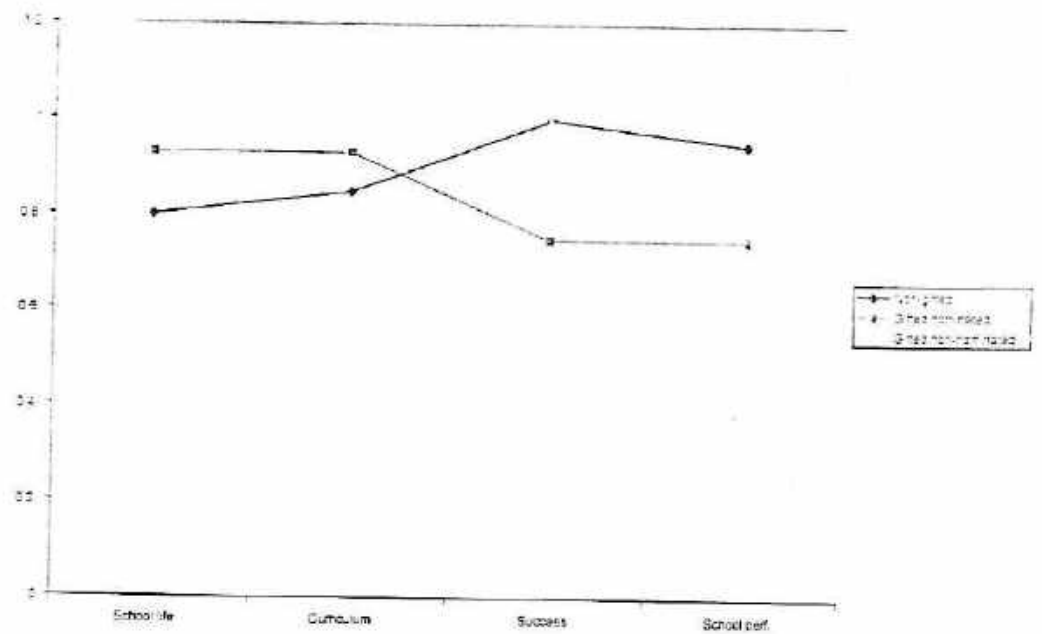Figure 1. School adaptation scores for the three subscales over the three participating groups of students.

Figure 2. School motivation scores for the four factors and the three groups of students.

Note that for both parametric analysis of variance designs, no statistically significant main effects were found.

Discussion

The results of this study constitute a first exploratory approach to the motivation and adaptation levels of gifted students in Greek primary schools. However, it is important to clarify that the present research aimed at the study of giftedness in the Greek primary education. We did not intend to contribute to the application of enrichment programs for the gifted in Greek primary schools or to provide an identification model for them. Consequently, this study was able to show that gifted students in the Greek public primary school do not have the opportunities they need to adapt adequately. Their self-worth was not enhanced and they did not differ from other students in terms of general and social satisfaction. It seems that Greek gifted students do not reach the necessary motivational readiness and adaptation status they need to face primary school life demands.

The group of gifted-nominated students were mainly interested in school courses and school routine in general, but were simultaneously deprived of feeling challenged by the potential of future professional success. Moreover, they were not satisfied with their efforts to strive for good grades at school or with their social relationships at school. It is undisputed in the literature that the gifted may often be considered an "inconvenience" by their teachers—as well as by their parents—due to their high demands for interesting activities and more information; or due to their tendency to expose the adults' mistakes or ignorance on subjects that these individuals know very well themselves. This might explain the relatively low levels of social satisfaction the gifted-nominated pupils experience in comparison with the other two groups of students, namely the non-gifted (but nominated by their teachers as gifted) and the not nominated (who nevertheless were gifted).

In contrast, the group of gifted non-nominated students experience low motivation regarding the school curriculum, but high motivation for their future professional success. Additionally, we might expect that the gifted non-nominated students would experience even less satisfaction with their teachers and peer groups than the gifted-nominated students. This, however, was not the case. The gifted non-nominated students seemed slightly more satisfied with their social relationships at school, in spite of the fact that their self-evaluation in reference to school life was much lower than the self-worth reported by the gifted-nominated pupils.

These findings may represent the fact that, in Greek public primary education, there is a lack of teachers, who are fully and formally trained in meeting the special education needs of gifted children. However, the research results may also to some extent be explained by the fact that, within the Greek public primary school, a majority of students tend to receive very good, or even extremely good, grades—regardless of their potential. This situation makes it more difficult for the gifted (but not identified) students to convince the schools of their special capabilities and needs, in spite of the fact that they may show exceptional school performance. This problem may be crucial, especially for gifted children in primary school, since

primary school provides children with the very first experience of what school is all about. Note, for example, that the phenomenon of underachievement among gifted students, common in secondary education, may have its origin in children's primary school experience (Freeman, 1991; Delisle, 1995).

The group of non-gifted students, who were nevertheless nominated by their teachers as gifted, reported enjoying their relationships with teachers and classmates to a slightly higher degree. This "popularity" may be one of the main reasons for these students being nominated as gifted by their teachers, along with any other possible indication of extraordinary abilities. They may be the students who often help and facilitate the teachers' tasks within the classroom; the "ideal students" (cf. Persson, 1998).

In conclusion, the identification of the gifted is a vital prerequisite in the primary school social setting. High levels of general and social satisfaction at school, along with the enhancement of gifted pupils' motivation on whatever they are able to do and whatever they may desire to manage, are issues of considerable importance which need to be taken seriously in the Greek public primary school. If these needs are not met by the school system gifted students are at risk of becoming a "neglected minority".

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