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Motivational Differences of Greek Gifted and Non-Gifted High-Achieving and Gifted Under-Achieving Students

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Abstract

This study explores the differences in the motivational profiles of under-achieving gifted students and high-achieving gifted and non-gifted students. In comparison to their high-achieving peers, under-achieving gifted students reported weaker motivational orientations, in both achievement and social goals, as well as in intrinsic motivation. Gifted high achievers reported stronger mastery, competitive, cooperative, and individual orientations than non-gifted high achievers. The findings seem to lend credence to the position that intellectual and motivational giftedness are distinct. The differences in the motivational profiles of the three groups are discussed in relation to the conceptualization of underachievement in gifted students and the differentiated academic needs of this group.

Keywords: gifted under achievers, gifted high achievers, motivational orientations, achievement orientations, social orientations

1. Introduction

Much of the research on the underachieving gifted students has focused on the effect of motivation (Meier, Vogl, & Preckel, 2014; Plucker & Callahan, 2014). Motivation is closely related to the goals students strive for while attempting to acquire knowledge, and to their aspirations when trying to meet school demands (Tirri, 2010). Hence, a considerable part of the research on motivational issues of gifted under-achieving students refers to goal orientations and intrinsic - extrinsic motivation of this population (Clinkenbeard, 2012). Although conducted research has substantially deepened the available knowledge on these topics, contradictory data and unanswered questions continue to exist (e.g. Davis, Rimm, & Siegle, 2011; Hoover-Schultz, 2005; Siegle & McCoach, 2005).

This paper compares the goal orientations and the intrinsic motivation of gifted and non-gifted high-achieving students to the goals and the motivation of their gifted under-achieving peers, in an effort to contribute the further illumination of underachievement in gifted students. In what follows, the relationships between goal orientations, intrinsic motivation, and underachievement of gifted students are delineated, and the study questions are framed.

1.1 Goal Orientations and Academic Achievement in Gifted Students

Goal orientations are aims pursued by individuals in social learning frameworks (e.g. in school tasks) and consist of achievement- and social goal orientations (Dinger & Dickhäuser, 2013; Roseth, Johnson, & Johnson, 2008).

Achievement goal orientations are behavior-guiding cognitive representations of end states that (a) relate to either the development or the demonstration of competence, and (b) the individual determines to either approach or avoid (Skaalvik & Skaalvik, 2013). Achievement goal orientations comprise of (a) mastery goal orientations (task-involving or learning orientations that are believed to be associated with active engagement in learning processes, pursuing challenges, and developing self-regulated learning), and (b) performance goal orientations (ego or ability orientations that are regarded as focusing on maximizing favorable- and minimizing negative evaluations of competence, and outperforming others) (Hulleman, Schrager, Bodmann, & Harackiewicz, 2010; Patrick, Kaplan, & Ryan, 2011). Research indicates that academic achievement is significantly and positively related to mastery and performance-approach goals, but significantly and negatively related to performance-avoidance goals (e.g. Chan & Lai, 2011).

Research on gifted students' achievement goal setting has yielded interesting but rather inconclusive results. For example, it has been found that gifted students report very weak to very strong mastery or performance orientations with no systematic relations between the two (Ablard, 2002; Chan, 2008). According to teacher reports, high-achieving gifted students tend to (a) pursue mastery and performance –approach goals significantly more often than avoidance goals, and (b) exhibit these pursuits significantly more often than under-achieving gifted students. Gifted under-achieving students, on the other hand, tend to present no relative difference in the types of the achievement goals they pursue (Baldwin & Coleman, 2000). Nonetheless, gifted under-achieving students seem to fail in setting realistic goals for themselves, lack goal-directed behaviour, and express fear of failure and fear of success (Reis & McCoach, 2000).

Social orientations include the social reasons why students aim at specific academic accomplishments and the actual social goals students try to achieve at school (Mansfield & Wosnitza, 2010). Social orientations influence (and are reflected in) students' behaviour regarding cooperation with peers in social interactions and learning activities (Levy-Tossman, Kaplan, & Assor, 2007; Levy, Kaplan, & Patrick, 2004). More specifically, individuals with cooperative orientation look for mutual assistance, share information and act in trustworthy ways, thus promoting the attainment of their own and their peers' goals. Individuals with competitive orientation obstruct other persons' achievement efforts, hide resources from the others and act in distrusting ways. Finally, individuals with individualistic orientation are indifferent to other persons' aims and efforts (Roseth et al., 2008). Contemporary approaches to social goals tend to regard them as distinct from- though positively related to academic goals (e.g. King & McInerney, 2012).

In reference to social orientations of gifted students, Clinkenbeard (1989) found that they reported greater motivation, stronger effort attributions, and better learning in the individualistic than the competitive orientation condition. Li and Adamson (1992) also found that gifted students prefer individualistic learning, although gifted boys engaged in competitive learning in reference to specific subjects of the curriculum (Maths). Walker, Shore, and French (2011) suggested that gifted students' preference of individualistic learning structures may not represent an inherent tendency of these students, but their reaction to the so called "free-rider effect"; the term refers to situations where gifted students are constantly expected to act as tutors for other students without reciprocity, and to complete most of the work assigned to the group they happen to belong to, without necessarily finding the assignments challenging or interesting.

1.2 Intrinsic Motivation and Academic Achievement in Gifted Students

Intrinsic motivation refers to a person's will to engage in activities because of their inherent interest, and the challenge, enjoyment, and satisfaction resulting from pursuing them, without the existence of any other reward or effect (Schunk, Pintrich, & Meece, 2008). Intrinsic motivation has been generally associated with positive outcomes, such as academic engagement, adaptive coping strategies, high grades, and positive affect (Otis, Grouzet, & Pelletier, 2005; Wigfield & Cambria, 2010). The view has been taken that intrinsic motivation is the affective determinant of motivational energy, whereas mastery orientation is the cognitive one (Elliot, McGregor, & Thrash, 2002).

Generally, gifted students tend to appear as more intrinsically motivated than non-gifted students (Clinkenbeard, 2012). For example, the study of Vallerand, Gagné, Senécal, and Pelletier (1994) revealed that gifted students perceive themselves as more intrinsically motivated toward school activities and more competent than their typical peers. Vlahovic- Stetic, Vidovic, and Arambasic (1999) examined motivational and emotional characteristics of mathematically gifted achievers, gifted underachievers and non-gifted pupils, and found that both gifted groups were more intrinsically oriented toward mathematics than non-gifted pupils, whereas there were no differences between the gifted groups. Moreover, Al- Dhamit and Kreishan (2016) found that (a) secondary gifted students were highly intrinsically and extrinsically motivated, and (b) intrinsic and extrinsic motivations correlated significantly with perceived competence in the population they studied.

1.3 Motivational Support and Academic Achievement of Gifted Students

As underachievement of gifted students has both personal loss and social cost (Emerick, 1992; Siegle & McCoach, 2005), it is imperative that new programs are developed for boosting the achievement of all gifted students and fostering their commitment to school tasks. Knowing gifted students' motivational profiles and the differences between gifted high achievers, gifted underachievers and non-gifted high achievers may offer valuable insights, which may inform the creation of individualized learning approaches. In the case of gifted high achievers such support may focus on techniques for dealing with feelings and behaviors, whereas in the case of gifted underachievers it may be oriented toward recognizing and believing in their intellectual strengths and talents (Peterson, 2009). Measures considered useful in the context of specialized programs for gifted populations

include: helping students learn about the flexibility of the brain and how to adopt appropriate attitudes based on that understanding, the cultivation of strong intellectual or creative interest pursued outside of school, the establishment of classes allowing for advanced and independent study, and the enhancement of the ability to relate school success to personal goals (Clinkenbeard, 2012). The ultimate goal of such measures is the achievement of optimal motivation for this population (Rea, 2000).

1.4 The Context and the Aims of the Present Study

The present research was conducted in the Greek educational system, which acknowledges that students who "possess one or more intellectual abilities or talents that are developed far beyond their age group" have special educational needs (Government Gazette 199, 2008). Nevertheless, this acknowledgement is not accompanied by systematic field services, and it is accurate to say that gifted education in Greece is at a rudimentary level. It is characteristic that the only official document referring to the instructional support of gifted students is the "Guide for students with exceptional abilities and talents" (Pedagogical Institute, 2004). Furthermore, legislation on Special Education mentions that gifted students are temporarily excluded from the special provisions foreseen for other students with special educational needs, due to the lack of specialized programs (Government Gazette 199, 2008). In the same law it is also referred that the Ministry of Education will ask the universities to submit proposals for programs specially designed for gifted students, but this has not been realized up to now.

In terms of research, only a very small number of Greek scholars have explored certain dimensions of gifted education in the last two decades. For example, Gari, Kalantzi-Azizi, and Mylonas (2000) investigated motivation in a group of Greek gifted students and found that they were interested in school courses, but not in striving for high grades. Moreover, gifted students were unsatisfied with their social relationships at school. Motivation was also the focus of the study of Zbainos and Kyritsi (2011), who found that gifted students' behaviour was mainly affected by approach motivation, while avoidance motivation had no influence on it. Schooling was not included in the factors that contributed to the development of approach motivation. Finally, Theodoridou and Davazoglou (2006) explored Greek teachers' perceptions of the characteristics of gifted students and found that they regard gifted students as being highly motivated.

Clearly, much more research on Greek gifted students is necessary in order for the Greek educational authorities to be equipped with the critical information needed for the implementation of effective instructional programs. Such information, obtained in a scantly researched environment, could be interesting for an international audience, as it could contribute to the better understanding of the specifics of gifted education, especially when a contemporary approach to their learning is used. In this context, the goals pursued by gifted high achievers and underachievers in comparison to their typical peers constitute an area of high interest, because of (a) the above-delineated effect of goals on the achievement of gifted students, and (b) the possibilities resulting from the further illumination of this issue for the improvement of the educational services offered to gifted students (Gallagher, Smith, & Merrotsy, 2011), especially those who underachieve (Delcourt, Cornell, & Goldberg, 2007; Mansfield, 2009).

It is worth mentioning that recent reports on the motivational characteristics of gifted students underline the need for more studies on the nature of gifted students' goal orientations, especially in comparison to the orientations of their non-gifted peers (e.g. Meier, Vogl, & Preckel, 2014). Moreover, experts have supported the view that in the context of goal orientations of gifted students much research has focused on either achievement goals or social goals, thus offering a rather fragmented aspect of the motivational issue (e.g. Boekaerts, de Koning, &Vedder, 2006). It has been suggested then that maybe a multiple goals perspective provides better opportunities for investigating the coexistence of particular goals and how these might influence identification and achievement, especially when considering the influence exerted on gifted identification and education by contextual-, school-, and teacher factors (Chan, 2008; Roussel, Elliot, & Feltman, 2011).

Thus, the aim of this study is to explore possible differences of Greek gifted high-achieving, gifted under-achieving and non-gifted high-achieving students in both achievement- and social goals, and also in intrinsic–extrinsic motivation, according to self-reports.

The specific questions, to which the present study sought to provide answers to, were:

(1) Are there differences among gifted high-achieving, gifted under-achieving, and non-gifted high-achieving students in achievement goals?

(2) Are there differences among gifted high-achieving, gifted under-achieving, and non-gifted high-achieving students in social goals?

(3) Are there differences among gifted high-achieving, gifted under-achieving, and non-gifted high-achieving students in intrinsic motivation?

Appropriate answers to these questions could inform the organization of effective instructional programs for underachieving gifted students.

2. Method

2.1 Participants

Thirty-four gifted high-achieving (19 boys and 15 girls), 31 gifted under-achieving (17 boys and 14 girls) and 37 non-gifted high-achieving (20 boys and 17 girls) primary schoolchildren participated in the present study (age 8-12 years, mean age = 10 years and 5 months). They were all Greeks, attending mainstream public schools situated in urban areas populated by families of medium socio-economic status. The gifted children had an IQ higher than 130 as measured by the Greek standardized version of WISC-III, while the IQ of the non-gifted children was lower than 130. The differences in IQ scores between the three groups were statistically significant ($F_{(2,99)} = 195.8$, $p < .001$). Gifted high-achieving students (M = 143.4, SD = 7.17) and their gifted under-achieving peers (M = 141.1, SD = 5.16) had a statistically significant higher IQ than non-gifted high-achievers (M = 118.26, SD = 6.68).The three groups were matched for age ($F_{(2,99)} = .23$, $p > .05$) and gender ($x^2 = .23$, $df = 2$, $p > .05$).

2.2 Measures, Procedures, Data Analysis

Participants' intelligence was assessed through the standardized version of WISC-III (Georgas, Paraskevopoulos, Besevegis, & Giannitsas, 1997) that was available in Greece at the time of data collection (Al-Yagon et al., 2013). Participants were also asked to complete the School Motivation Questionnaire (SMQ – Marsh, Craven, Hinkley, & Debus, 2003), which was designed to measure the following eight motivational orientations: mastery orientation (6 items); ego orientation (6 items); competitive orientation (6 items); individual orientation (6 items); cooperative orientation (6 items); intrinsic orientation (6 items); orientation to achieve success (4 items); and orientation to avoid failure (4 items). Specifically, participants were required to respond to a total of 44 positively worded simple declarative sentences, using a five-point Likert response scale ranging from 1 = "strongly disagree" to 5 = "strongly agree". Higher scores represent higher levels of motivation. The items of SMQ were translated from English to Greek by two specialists in the field of Motivation, and back –translated from Greek to English by a native speaker of English language. Then, the conceptual equivalence of the original items and the back-translated scale was checked. Where nonequivalence was observed the necessary corrections were undertaken. Finally, all items of the three questionnaires were piloted and checked by a panel of local experts and practitioners before being used in the main study. Cronbach's α for the eight subscales of this study ranged from .74 to .93 and is acceptable to excellent (George & Mallery, 2003).

In terms of procedures, the present researchers contacted the Local Educational Authorities of four prefectures of Northern Greece to which we were given access by the Regional Educational Headship, and asked the directors and the teachers of primary schools to express their interest to participate in the study. We explained the need for teacher to have taught their students for at least one academic year, so that they are familiar with their classroom behavior.

The next step was to ask teachers to identify the students "with all round high ability rather than with high ability in a specific area of subject" (Phillips & Lindsay, 2006, p. 62), after (a) giving them a brief introduction based on Renzulli's (1986) model of giftedness, and (b) providing them with a list of the criteria that they should keep in mind when identifying gifted students that included positive, negative, academic, and behavioral characteristics, which have been set out by the Greek Institute of Educational Policy (Bogdanou, 2009). Since primary school teachers spend most of their time in class with these children, they are considered able to recognize more broad characteristics of giftedness that are not limited to the cognitive aspect (Endepohls-Ulpe & Ruf, 2006). Then we talked to the teachers and asked information about the academic record of the students they had identified, as well as their performance in different tests, activities, and competitions to validate their nominations as much as possible. It was established that the nominated students were in the top 10% of the class and they received consistently "A" or "10" (on a 10-point scale) in all subjects.

After the completion of this process, we sent a packet to the parents of the nominated students that included a letter explaining the aim of the study, two consent forms (one for the parents and one for their children), and one stamped envelope to return the material to the researchers. Out of the 131 packets that were sent 93 were returned, but 71 included consent forms from both parents and children. We went to these children's schools and administered the above – mentioned measures (WISC-III, SMQ). Through this procedure the 34 gifted high-achieving and the 37 non-gifted high-achieving participants were identified.

Furthermore, we asked the teachers to identify students who exhibited independence of thought, accurate judgment, above-average ability, creative ability, willingness to take risks, and an intense love for their pursuits,

which was not reflected in their achievement, in order to identify the group of gifted underachievers (Emerick, 1992; Kim, 2008). The use of such teacher observations for the initiation of the identification process of gifted underachievers is justified by the fact that, although there are various conceptualizations of gifted underachievement, the common underlying component is an evident mismatch between ability and achievement (Baum, Renzulli, & Hebert, 1995; Rimm, 2008). Indeed, teachers' were able to nominate students whose academic record during the past two academic years was in the bottom half of the class (an average of C or 7 and below in all subjects), despite the fact that they frequently exhibited also signs of superior ability. We sent the same packets as before to the parents of the 67 students that teachers identified and we got back 43 packets with both consent forms signed. Then we visited the schools and we administered the study's measures (WISC-III, SMQ). Through this procedure the 31 gifted under-achieving participants were identified.

Parametric analyses (univariate ANOVAs) were conducted to examine the differences of the three groups in the eight subscales of the SMQ.

3. Results

The effect of age and gender was found to be insignificant, so they were not further investigated. Gifted high-achieving students reported higher motivation than non-gifted high-achieving students, who, in turn, reported higher motivation than gifted underachievers. Significant motivational differences between the groups were established in mastery orientation ($F_{(2,98)} = 39.24$, $p<.001$, $\eta^2= .50$), in ego orientation ($F_{(2,98)} = 38.74$, $p<.001$, $\eta^2= .49$), in competitive orientation ($F_{(2,98)} = 41.2$, $p<.001$, $\eta^2= .52$), in individual orientation ($F_{(2,98)} = 37.61$, $p<.001$, $\eta^2= .48$), in cooperative orientation ($F_{(2,98)} = 33.83$, $p<.001$, $\eta^2= .45$), in intrinsic orientation ($F_{(2,98)} = 41.81$, $p<.001$, $\eta^2= .52$), in orientation to achieve success ($F_{(2,98)} = 3.18$, $p< .05$, $\eta^2= .08$), and in orientation to avoid failure ($F_{(2,98)} = 14.29$, $p<.001$, $\eta^2= .49$). Post-hoc Bonferroni analyses showed that gifted high-achievers and non-gifted high-achievers did not differ in ego orientation, in intrinsic orientation, in orientation to achieve success, and in orientation to avoid failure; however, gifted high-achievers reported more mastery orientation, competitive orientation, individual orientation, and cooperative orientation than non-gifted high-achievers. Gifted high-achievers and non-gifted high-achievers reported significantly more motivation in all the orientations of the SMQ than gifted underachievers. Means and standard deviations are presented in Table 1.

Table 1. Motivational orientations of gifted and non-gifted high-achieving and gifted under-achieving students

	Gifted high achievers	Gifted underachievers	Non-gifted high achievers	
Orientations	M(SD)	M(SD)	M(SD)	F, df(2,98)
Mastery	23.27 (4.43)	13.33 (3.51)	20.36 (4.67)	39.24*
Ego	23.08 (4.13)	13.29 (3.69)	20.49 (4.65)	38.74*
Competitive	23.61 (4.12)	13.41 (4.04)	20.68 (4.53)	41.20*
Individual	23.66 (4.22)	13.82 (4.09)	20.45 (4.44)	37.61*
Cooperative	22.88 (4.22)	14.04 (3.36)	20.58 (4.57)	33.83*
Intrinsic	23.73 (4.04)	13.48 (3.94)	21.13 (4.14)	41.81*
Achieve success	13.69 (2.92)	11.63 (2.91)	12.87 (3.18)	3.18**
Avoid failure	14.27 (3.01)	10.37 (2.65)	14.26 (3.54)	14.29*

Note. *p< .001, two-tailed test ** p <.05, two-tailed test

4. Discussion

The present study aimed at identifying differences between gifted high-achieving, gifted under-achieving, and non-gifted high-achieving students in achievement and social goals, according to self- reports. It was found that gifted underachievers report weaker achievement and social goals than their high-achieving peers. In specific:

In reference to achievement motivation it was found that gifted under-achieving students report weaker orientations than both gifted and non-gifted high achievers. This finding is in line with research indicating that low achievement motivation differentiates under-achieving from high-achieving gifted students (Cakir, 2014; McCoach & Siegle, 2003; Smutny, 2001). Moreover, this finding corroborates the position that cognitive ability needs to be combined with motivation in order to excel in school (Hidi & Harackiewicz, 2000; Linnenbrink & Pintrich, 2002), since motivation is necessary in order for any individual to make the necessary commitment and efforts to achieve greatness in every domain (Ericsson, Krampe, & Tesch-Römer, 1993; Sternberg, 1999).

Nonetheless, it should be noted that the weaker achievement orientations of our under-achieving gifted students

(compared to the orientations of their high-achieving peers) may be attributed not only to personal, but possibly also to contextual factors. Anecdotal evidence and researchers' observations (e.g. Matsagouras, 2008; Padediadou & Filippatou, 2013) converge to the conclusion that, despite the official rhetoric favoring active approaches to knowledge acquisition, the daily practice of the Greek educational system continues to lay emphasis on rote learning, provides few opportunities for practical applications, and tends to overlook students' learning preferences. Thus, students who need to approach learning in differentiated ways or pursue alternative activities that would allow them to exhibit their capabilities are at a disadvantage, and may be regarded as indifferent toward school work. In other words, our underachievers may report weaker achievement motivation than their high-achieving gifted and non-gifted peers, because they experience a mismatch between their needs and the instructional provisions offered by their educational environment. The importance of such a mismatch in the context of factors correlating with underachievement in gifted students has been recognized also by other researchers (e.g. Hoover-Schultz, 2005; Siegle & McCoach, 2005).

In reference to social motivations (competitive, cooperative and individual), gifted under-achieving students reported weaker motivation than students of both high-achieving groups. This result may be attributed to difficulty in school adaptation or negative attitude toward school in general, which are often exhibited by gifted underachievers (e.g. McCoach & Siegle, 2003). In light of the positive correlation between social goal pursuits and efforts for academic competence (Horst, Finney, & Barron, 2007; McInerney & Ali, 2006) the following hypothesis could be framed: the weaker social orientations of gifted underachievers (in comparison to the orientations reported by their high - achieving peers), may contribute to their academic underachievement, as gifted underachievers may (a) try less to meet the demands of a school environment not favoring their social development and (b) deprive themselves of certain valuable sources of academic and social knowledge in daily school practice, which seem to relate strongly to social goals, such as help-seeking behaviours (Ryan, Hicks, & Midley, 1997). In other words, the weaker social goals of gifted under-achieving students may lead them to put in diminished effort and use restricted knowledge resources in school, thus generating unexpectedly low academic achievement. On the other hand, however, it could also be the case that weaker social orientations of gifted underachievers are a derivative and not a generator of their low academic achievement, as these students may have limited interest in pursuing social goals in an environment where they perform inadequately. Clearly, more research is needed for clarifying the nature of the relationship between academic and social goals.

The finding that our gifted high achievers have stronger social orientations, than their non-gifted high-achieving peers, may be explained in terms of the increased intensity, sensitivity, and acuity with which gifted individuals tend to experience the world and react to learning and social situations (Piirto, Montgomery, & May, 2008). In this respect it should be noted that Greek students have experienced in the last fifteen years many changes in the social form of school work, due to repeated but fragmentary efforts of the educational authorities to introduce innovations in a rather traditional school system. An example of such an effort is the partial use of cooperative learning in a context where individualistic and competitive learning prevailed for decades (Matsagouras, 2008). It is likely that the stronger cooperative, competitive, and individualistic orientation of gifted high-achieving students compared to the orientations of their non-gifted peers is a function of gifted students' intense emotional reaction to all these changes. This view is in tune with Walker et al.'s (2011) position that gifted students do not necessarily exhibit constantly an inflexible and unilateral preference for individualistic learning conditions, but they may actually exhibit a spectrum of social learning preferences, depending on contextual factors and interactions.

The finding that gifted high-achievers reported more mastery orientation than non-gifted peers is consistent with other research results (e.g. Smith, 1992). In specific, this finding may be attributed to the strong tendency of gifted students to commit themselves to pursuing tasks they find challenging, to enjoy acquiring new knowledge, and to thrive on engaging in activities with a high degree of difficulty (Renzulli, 2002; Vallerand et al., 1994).

Finally, regarding the effect of the finding that gifted and non-gifted high achievers report comparable performance goals, intrinsic motivation, and orientation to achieve success and to avoid failure, the view could be taken that in educational environments fostering the traditional approach to learning (like the one in which the present study took place) these common elements may promote high academic performance. However, the motivational characteristics of gifted under-achieving students probably necessitate the implementation of a student-centered learning context, in which motivational constructs such as goal orientation, volition, interest and attributions are included into pedagogical practices (Emerick, 1992; Taylor, 2003).

4.1 Limitations of the Study

This study has the following limitations that should be taken into consideration when interpreting the findings: (a)

The impressively high mean IQ scores of the three participant groups (especially of the gifted ones), which could be attributed to Flynn effect (Kanaya, Scullin, & Ceci, 2003), especially since WISC-III was used. However, doubts are voiced regarding the validity of this effect with high ability individuals (particularly those who are intellectually gifted) (e.g. Teasdale & Owen, 2005). Moreover, since all participants were examined through the same intelligence measure, the differences in the obtained scores may be regarded as an accurate reflection of their actual differences. (b) The identification of gifted students mainly on the basis of intelligence tests and academic achievement, which can be influenced by contextual, cultural, and individual factors (Torff, 1999), and may lead to unrecognized giftedness (Ford, Harris, Tyson, & Trotman, 2002). However, teacher nominations were also used to identify gifted students -after instructing them not to limit their criteria only to academic performance - based on the notion that primary schoolteachers' opinions should be valued given the amount of time that they spend in class with children (Endepohls-Ulpe & Ruf, 2006). (c) The reliance on self-reports to investigate students' motivational orientations; observations or teacher reports could also be used to get more accurate and reliable data (Dunning, 2005). (d) The inconsideration of the possibility that gifted under-achieving students may present a hidden disability, which could be the true cause of their underachievement (e.g. Dare & Nowicki, 2015). (e) The restrictive effect on the generalizability of the results emanating from (i) the fact that participants came exclusively from urban, middle-class, Greek population, and (ii) the difficulty in eliminating a potential sample bias, due to absence of data on the possible similarities or differences between the actual participants and those who were initially approached by the researchers, but refused to participate or were excluded from the study on various grounds.

4.2 Conclusions and Future Research

Despite the limitations, the findings of the present study allow the drawing of conclusions which eventually could contribute to the deeper understanding of the phenomenon of gifted students who underachieve, thus offering some insight regarding the necessary educational choices for their support. In specific, the reported motivational difference of gifted under-achieving students from their high-achieving peers appears to be pervasive, embracing achievement- and social goals, as well as intrinsic motivation. Such a difference lends credence to the position that intellectual and motivational giftedness are distinct (Gottfried, Gottfried, & Guerin, 2006). Idiosyncratic combinations of the distinct intellectual and motivational giftedness may offer an explanation for the reported diversity in the classroom behaviour of gifted underachievers (e.g. Hishinuma &Tadaki, 1996; Rahal, 2010; Reis & McCoach, 2000). A consequence of this diversity is the need for detailed individual assessment, prior to the specification of the aims and the content of the supportive psycho-educational program for each gifted underachiever.

Psycho-educational interventions for gifted under-achieving students should focus on explicitly teaching them how to set and pursue specific, proximal, and interesting goals (Stoeger & Ziegler, 2005). The goals have to be challenging but reasonable, since perfectionism could lead gifted underachievers to set unrealistic goals that make them quit easily (Pruett, 2004). Examples of psycho-educational interventions considered suitable for gifted under-achieving students include: counseling for helping them make decisions on goals and unlearn habits with inhibitory effect on their learning, provision of optimally challenging learning activities, bypassing of assignments on subjects in which students have proven their competency, encouraging attempts and not just successes, supporting students in goal valuation, enhancing students' study and organizational skills, using a variety of social interaction schemes during classroom work, promoting the development of contemporary beliefs about intelligence and ability, and giving students chances to show excellence in areas of strength and interest, while also providing opportunities for systematic work in domains of learning difficulties (Baum et al., 1995; Delisle & Berger, 1990; Dweck, 2012; Muir-Broaddus, 1995; Rubenstein, Siegle, Reis, McCoach, & Greene-Burton, 2012). Informed readers will certainly recognize in these suggestions basic tenets of contemporary differentiated instruction, which seems to be a promising general framework for the education of gifted students (e.g. Tomlinson, 2014).

The assumed distinction between intellectual and motivational giftedness probably necessitates the implementation of specialized interventions for each entity. Considering that multifaceted specialized interventions take a high toll on instructional time and require low teacher –student ratios in order to be put to practice effectively, it becomes obvious that suitable organizational schemes should be used. Such a scheme is "small learning communities" (called also "schools within-schools"), which may support academic reform by banding both students and teachers into smaller teams (Makara, 2013).

Future research might concentrate on the illumination of the specifics of the different types of gifted under-achieving students, and then address the motivational peculiarities behind their ineffective academic behaviour.

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