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Abstract

The underachievement of gifted students is a serious problem in gifted education. Although analytical research strategies have identified many causes of underachievement, this kind of approach still needs to be complemented by synthetic research strategies. The Actiotope Model of Giftedness, for example, suggests that the effect of educational capital on achievement is mediated by learning capital. In an empirical study with a sample of 143 gifted Spanish secondary school students, educational capital was characterized by various forms of parental involvement aimed at the learning successes of children. Learning capital was represented by two types of learning strategies: metacognitive strategies and elaboration strategies. In congress with the method developed by Baron and Kenny (1986), the proposed mediation hypothesis was confirmed.

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Introduction

Underachievement is a profound problem among gifted students (Chan, 1999; McCoach & Siegle, 2011; Peterson & Volangelo, 1996; Reis & McCoach, 2000). Research has repeatedly shown that a substantial number of these students exhibit far lower achievements in relation to their cognitive abilities (McCoach & Siegle, 2003a, 20003b; Miñano, Castejón, Gilar, & Veas, 2016; Phillipson, 2008). However, estimates regarding the exact proportion of underachievers among the gifted population are still up for debate (Veas, Gilar, Miñano, & Castejón 2016). For example, while Colangelo, Kerr, Christensen, & Maxey (2004) place it at 10%, Rimm (1987) estimates that underachievement among the gifted is actually as high as 50% . This discrepancy demonstrates significant differences in the literature with regards to the level of underachievement in gifted students. Moreover, the established proportion of underachievers also depends on many variables including sample characteristics; type of considered abilities; achievements and the perceived cut-off point for underachievement (Colangelo et al., 2004; see also Lau & Chan, 2001; McCall, Evahn, & Kratzer, 1992; Phillipson, 2008; Rimm, 1987; Vlahovic-Stetic, Vidovic, & Arambasic, 1999; Ziegler & Stoeger, 2012). The lack of consensus among researchers could be a consequence of traditional analytical research strategies that we believe should be complemented by a synthetic research strategy.

The Reductionist Strategy to Gifted Underachievement

The investigation of gifted underachievement may be conducted using either an analytical research strategy or a synthetic research strategy. However, the former has dominated past research. (Ziegler et al., 2012). Analytical research strategies examine gifted underachievement in two steps. First, the group of underachievers is identified. As mentioned above, there are considerable differences that determine where the cut-off points are, and so, the samples of gifted underachievers may vary from study to study. Secondly, the group of underachievers is compared to a suitable control group that typically consists of gifted achievers because significant mean differences between the two groups indicate causes of underachievement (Figg, Rogers, McCormick, & Low, 2012; Obergriesser & Stoeger, 2015). The analytical research strategy was remarkably successful in identifying a long list of the potential causes of underachievement such as low self-concepts; concentration and motivational problems; specific disabilities like dyslexia and dyscalculia; unfavourable personal learning environments; lack of role

models; and exposure to negative stereotypes (e.g., Baker, Bridger, & Evans, 1998; Çakır; 2014; Dixon, Craven, & Martin, 2006; Dunlosky & Rawson, 2012; Figg et al., 2012; Lane, Greshman, & O'Shaughnessy, 2002; Niepel, Brunner, & Preckel, 2012; Peixoto & Almeida, 2012; Reis & Greene, 2014; Renzulli & Reis, 1997).

Despite these successes, the reductionist analytical research strategy has also had some problems. Dichotomizing the gifted into two arbitrary groups does not make full use of all the information. Mean differences are not suited to test causal relationships. From a synthetic perspective, the approach also underrepresents the relationships between the causes. That is to say that although an analytical research strategy can work very well when there is a low level of interdependency and interconnectivity in a subject area, it might miss the essential processes when the level of interdependency and interconnectivity is high. According to the Actiotope Model of Giftedness (Ziegler, 2005; Ziegler, Vialle, & Wimmer, 2013) we would actually expect the phenomenon of underachievement to be the result of a complex interplay of variables. In the following paper, we present both a theoretical explanation as well as empirical evidence to support this claim.

The Synthetic Research Strategy for Gifted Underachievement

Our understanding of giftedness has undergone an interesting shift over the last decades that can be regarded as an important move towards a synthetic research strategy. Many scholars now include explicitly contextual variables in their explanation of giftedness, most notably Gagné (2010) and Heller, Perleth, and Lim (2005) in the DMGT and the Munich Model of Giftedness, respectively. Several more examples of the inclusion of contextual variables can be studied in the standard work found in the Conceptions of Giftedness as edited by Sternberg and Davidson (2005). Nonetheless, the transformation of talents, gifts, or abilities into achievements is still considered a linear sum of independent variables – among them now contextual variables – that come together as a meaningful whole. This basic assumption is also visually expressed in graphic representations of models when neatly separated boxes of variables are listed after bullet points.

In contrast, within the field of giftedness, synthetic models are based on systems theory (Ziegler & Phillipson, 2012; Ziegler & Stoeger, 2017). The basic assumption is that talent development is always entangled in meaningful relations within contextualized situations. Accordingly, the synthetic research strategy differs from the

analytical research strategy in three aspects. First and foremost, the study of underachievement makes no arbitrary distinction between persons who achieve and persons who do not achieve. Rather, it takes a more holistic approach that examines the full sample of gifted students. Additionally, the synthetic approach is more concerned with the dynamics of the development of underachievement than with the identification of mean differences between achievers and underachievers. Finally, the strategy emphasizes relationships between components, suggesting a primarily interest in patterns. Although the traditional way in which underachievement is investigated is not set in stone, analytical research strategies should not be rejected. On the contrary, the analytical approach complements the synthetic process.

Underachievement from the Perspective of the Actiotope Model of Giftedness

The Actiotope Model of Giftedness is one interpretation that requires a synthetic research strategy (Ziegler, Stoeger, & Balestrini, in press). Figure 1 depicts the explanatory model of underachievement; the actiotope of a student constitutes the unit of analysis. The influx of exogenous resources from the environment into the actiotope is of particular importance. These resources are a precondition for the build-up of effective action repertoires conducive to success at school. When exogenous resources enter the actiotope, they are referred to as educational capital (Ziegler & Baker, 2013; Ziegler, Chandler, Vialle, & Stoeger, 2017). In this context, educational capital is defined as all the resources that can be used to promote learning. Note that there is a marked difference in both the quantity and quality of exogenous resources that actiotopes receive from their environment.

– Insert Figure 1 around here –

The Actiotope Model of Giftedness distinguishes between five forms of educational capital. Examples and definitions can be found in Table 1. Economic educational capital has a special status as it cannot be used directly for learning. It can be, however, converted into other forms of educational capital. For example, parents can transform economic educational capital into infrastructural educational capital by purchasing books or learning software for their school-aged children. They can also charter social educational capital with economic educational capital for their children via personal tutors. This particular example illustrates two other important points: not only does didactic educational capital vary from tutor to tutor; personal tutors can actually possess didactic educational capital regarding the very design and regulation of

learning. In other words, diverging kinds of educational wealth are not independent from each other; they are rather fused. As a result, the number of exogenous resources that flow into an actiotope as well as the quality of the in-flow of educational capital can vary considerably.

– Insert Table 1 around here –

Introducing exogenous resources to actiotopes in order to build up educational capital is not enough. Even the most dedicated parents can easily miss educational objectives when their child does not make proper use of educational capital in a functional way for the build-up of endogenous resources, or learning capital. The five forms of learning capital are defined and illustrated in Table 1. Again, we would like to point out that organismic learning capital has a particularly special role as *the* foundation upon which the other four examples of equity are built. For example, organismic learning capital is a precondition for attentional learning capital, also known as episodic learning capital. A well-rested person in good physical and mental condition is better able to concentrate and typically has substantially higher learning rates.

Assuming that educational capital is mediated by learning capital (see Figure 1; Ziegler & Baker, 2013), when parents express an appreciation for learning activities to their children, they are providing cultural educational capital. Yet, there is no guarantee that the appreciation of learning is automatically shared by the child; and thus, according to our example of telic learning capital, the child would still need to convert educational equity into learning capital.

The Current Research

The synthetic research strategy concerning the phenomenon of gifted underachievement in an academic setting is characterized in this paper by three distinctive attributes: consideration of the whole sample; a marked interest in processes, and especially, in the patterns of those processes. The first attribute consists of the sample of gifted Spanish students, the undivided sample within this research study will also be analysed. School achievement will be treated as a continuous variable; there will be no artificial cut-off point between the achievers and the underachievers. This study is concerned with the process of the transformation of educational capital into learning capital. Per our mediation hypothesis, we anticipate that there is a pattern wherein the influence of educational capital on school achievement is mediated by learning capital.

Of course, it is beyond the scope of any empirical study to measure the entirety of both educational and learning capital in an actiotope. Thus, in our investigation of the mediation hypothesis we had to restrict ourselves to ostensibly significant representative variables. Phillipson and Yick (2013) have shown that parental involvement encompasses many aspects of educational capital for children because of familial values and beliefs, as well as parental support of learning activities. In the Actiotope Model of Giftedness, the authors also examine the functional role that parental involvement plays on children´s learning; through a review of eight separate meta-analyses, they were able to isolate effective action repertoires. Given the latter, when testing the mediation hypothesis, we focused on parental involvement as representative of educational capital, and on metacognitive and elaboration strategies as representative of learning capital. School achievements were treated as dependent variables.

Method

Participants

Overall, 1,398 first and second year students in compulsory secondary education in the south-eastern region of Spain participated in this study. Of those students, 732 were enrolled in their first year (52.4%); the remaining 666 were in their second year (47.6%). The sample of students ranged between 11 to 15 years of age, and contained a relatively equal number of boys and girls: 52.8% male vs. 47.2% female (M=12.5, SD=0.67).

The sample was selected from the sampling unit, i.e., the school, using random cluster sampling. Two state-assisted private schools and six state schools in the area participated in this inquiry. Overall, 1,137 students (81.4%) attended a state school and 261 (18.6%) attended a state-assisted private school.

In order to identify the gifted students among the cross section of 1,398, we used a typically Spanish criterion. Students who scored among the top 10% in differential aptitudes tests were considered gifted. The final sample contained 143 students (59.4% male vs. 40.6% female) with a mean age of 12.49, and standard deviation of .67. From this gifted sample, 98 (68.5%) were enrolled in public school, and 45 (31. 5%) in state-assisted private school.

Due to the racial and ethnic homogeneity of the country, the majority of the children were Caucasian (98 %). Childhood Socioeconomic Status (SES) was indexed

according to parental occupation. We identified a wide range of socioeconomic statuses within the sampling, including a predominance of middle class children. This classification was based on both the household income level as well as on the parents'highest educational attainment. The regional education counsellors determined SES through questionnaires that registered the responses of the participating students. The following variables were considered in the sampling: parental occupation, professional situation and highest level of education; participation in cultural sporting activities; sum of books found at home and availability of technological means therein.

Measures

We used the Battery of Differential and General Abilities (BADyG) developed by Yuste, Martínez and Gálvez (2005) to measure intellectual ability. The BADyG has three levels that correspond to the age of subjects. Questionnaires used in this research pertain to those in the intermediate level (12-16 years of age). There are six subscales: Analogies (A); Series (S); Matrices (M); Completing Sentences (C); Numerical Problems (P); and Figures Fit (E). Each subscale is measured by 32 items, each containing five response options where only one option is correct, and producing a total of 192 items. The Cronbach´s alpha values derived from each subscale in this study were: .83, .89, .79, .83, .77, and .87, respectively. Furthermore, based on the punctuations derived from distinct differential skills, we were able to collect a general intelligence quotient (IQ). Cronbach´s alpha for the total IQ was .83.

We used two sub-scales of the CEA [Learning Strategies Questionnaire] developed by Beltrán, Pérez and Ortega (2006) to measure learning strategies: the metacognitive subscale, and the elaboration subscale. The first subscale is based on self-regulatory learning activities and is also related to the use of metacognitive strategies; it measures the ability to plan, monitor and evaluate the actions involved (e.g., *I start to study without a specific plan*). In the second subscale, the main objective is to measure the learning process as it relates to the transformation of knowledge. The components of this subscale are selective codification, combination and comparison. (e.g., w*hen I start to study, I try to remember my knowledge related with the issue*). Using the Likert scale, within a scope of 1 to 5, subjects assessed the extent to which a given formulated strategy was true of 50 items (*1 = Totally disagree, 5 = Totally agree*). The reliability coefficients of this validation sample were .77 and .87 for the metacognitive elaboration strategies, respectively.

Parental involvement was measured by CIF [Parent Involvement Questionnaire], developed by Veas, Castejón, Gilar, and Miñano (2015). This questionnaire was aimed at students who value both parental involvement and monitoring during the academic process, and who personally regard the academic process itself as important. The instrument is comprised of 20 items that assess four factors: (1) perception of support; (2) organization and interest in the educational process (e. g., *my parents think that I will successfully complete compulsory education*); (3) expectations (e.g., *my parents discuss my post-compulsory education plans with me*); (4) institutional relationships (e. g. *my school informs my parents of curricula and of academic and professional opportunities*); and time dedicated to homework-help (e. g., *my parents assist me with questions, homework, interest research, etc*.). Students answered on a Likert scale that ranged from 1 to 5 depending on the frequency they perform or encounter each statement (1 = never or hardly ever; 5 = frequently or all of the time). We recorded Cronbach´s alpha values of .70 for the first factor; .65 for the second; .65 for the third; and .71 for the fourth factor. With the purpose of this study in mind, we included the first factor in the meditational analysis model. Given that parental involvement is a multidimensional construct that concerns a wide range of issues (Castro et al., 2015), the authors of this particular study deliberately focused on the most general perceptions deduced from the data.

The General Points Average (GPAs) was used as an indicator of academic achievement. Teachers provided full-term grades from nine academic subjects: Spanish language and literature; natural sciences; Valencian/regional language studies; social sciences; mathematics; English; technology; arts education; and physical education. The grades associated with each of the aforementioned courses are highly reliable, with Cronbach's alpha values of .93 and .94 for both the first and second course participants, respectively. All of the course subjects were compulsory for the students involved so that arbitrary examination findings would not affect the measurement of the latent construct (Korobko, Glas, Bosker, & Luyten, 2008).

Procedure

Prior to administration of tests, we sought the necessary consent from the authorities and school boards of the various institutions involved. We then secured informed consent from the students´ parents or legal guardians. The instruments were administered at the schools themselves during normal periods of the second term of the

academic year. The tests were administered by collaborating researchers who had not only received instruction on the authorized survey procedures for this inquiry, but also emphasized the significance of the voluntary nature of participation and the need for sincerity. On average, approximately 180 minutes were required to administer the tests.

Data Analysis

Firstly, correlation analysis was employed to explore the bivariate relations between each pair of variables. Secondly, we tested the meditation hypothesis within a stepwise regression framework-as proposed by Baron and Kenny (1986)-based on the following principles: the direct effect of the predictor on the outcome is represented by path c; additionally, the mediation effect is the product ab of paths a (prediction of the outcome by the predictor) and b (predictor of the outcome by the mediator). In the two mediation analyses, scores from parental involvement were used as an indirect measure of academic achievement. Scores from metacognition and elaboration strategies were used as the mediators in each correspondent model. This analysis was conducted using the PROCESS syntax (Hayes, Preacher, & Myers, 2011), which provides bias-corrected bootstrap confidence intervals for the mediated effect.

Results

Table 2 displays the means, standard deviations, and bivariate correlations between the measures of interest. Results show that the predictor variables, the mediation variable (PI), and the outcome variable academic achievement are all correlated, fulfilling the first condition for the test of a mediation effect. None of the correlation coefficients for the relation between the variables exceeded .80, suggesting no problems with multicollinearity (Tabachnick & Fidell, 2007). Furthermore, collinearity statistics, including tolerance and variance inflation factor estimates, were within normal limits and ranged from .90 to 1.00 and 1.00 to 1.11, respectively.

– Insert Table 2 around here –

In order to test mediator effects in this model, a series of regression analyses were performed. According to Baron and Kenny (1986), three conditions must be met: a relationship must exist between the predictor variable and the dependent variable; the independent variable must affect the mediator; and finally, the mediator must affect the dependent variable. Mediation occurs when, upon controlling for the effect of the mediator, a previously significant relationship between the independent and the

dependent variable is no longer significant. Partial mediation occurs when the relationship between the predictor and the dependent variable is reduced.

The regression analyses assessed whether parental involvement in general academic achievement was mediated by metacognition strategies. Results from three regression analyses allowed us to assess mediation: (a) a regression analysis predicting academic achievement from PI; (b) a regression analysis predicting metacognition and elaboration strategies from PI; and (c) a regression analysis that included PI along with each learning strategy as predictors of academic achievement (see Figure 2).

Results showed that PI was a significant predictor of metacognition strategies (b = .93, s_b = 16, p = .00), elaboration strategies (b = .82, s_b = .27, p = .00), and also a significant predictor of academic achievement (b = .12, s_b = .031, p = .02). The regression analysis predicting academic achievement from both PI and learning strategies showed that metacognition strategies predicted academic achievement (b = .058, s_b = .01, p = .00), and that PI still significantly predicted academic achievement (b = .054, s_b = .01, p = .025). Nonetheless, the coefficient was much smaller. In the regression analysis of academic achievement from PI and elaboration strategies, the mediator variables showed significant levels of prediction (b = .25, s_b = .009, p = .00), albeit the significant predictor of PI was still high (b = .10, s_b = .03, p = .00).

To complete the mediation analyses, we used bias-corrected bootstrapping to estimate confidence intervals for the mediated effect; that is, the product of the coefficients for the association between PI and metacognition/elaboration strategies (α) and metacognition/elaboration strategies and academic achievement (β; Hayes et al., 2011; MacKinnon, 2008). The product of the path coefficient (αβ) for the indirect path from PI to academic achievement through metacognition strategies was significant for metacognition strategies as a mediator (point estimates of .05, 95% CI [.025, .102]), and non-significant for elaboration strategies as a mediator (point estimates of .03, 95% CI [-.01, .02]). Therefore, only metacognitive strategies had a mediation effect in the relation between parental involvement and academic achievement.

-Insert Figure 2 around here-

Discussion

In the last decades scientific literature has highlighted the importance of explaining the variability of achievements in gifted students (Dixon et al., 2001; Foust

& Booker, 2007). In particular, the phenomenon of gifted underachievement has been a serious concern for gifted educators (Chan, 1999; McCoach & Siegle, 2011; Peterson & Volangelo, 1996; Reis & McCoach, 2000; Renzulii & Reis, 1997). However, prevention and intervention seems to be complex as many potential causes of gifted underachievement have been identified (e.g., Baker et al., 1998; Baslanti & McCoach, 2006; Çakır; 2014; Dunlosky & Rawson, 2012; Lane et al., 2002; Peixoto & Almeida, 2012; Reis & Greene, 2014). Even so, most previous research was based on an analytical research strategy that reduces the phenomenon of gifted underachievement to its various independent causes, the properties of which summarily effect the gifted individual in the observed detrimental manner. While an analytical research strategy has been somewhat successful in identifying many potential causes of underachievement, we believe that a research strategy that considers contextual variables and focuses on resources and their interplay might add more valuable insights. Thus, we introduced a synthetic research strategy that tries to answer the question as to how components of underachievement form an integrated whole. We looked at what the dynamics underpinning these findings actually are.

In line with the three characterizing features of a synthetic research strategy, the present study based on the Actiotope Model of Giftedness (Ziegler, 2005; Ziegler et al., 2017) analysed the whole sample of gifted students and did not use an arbitrary cut-off point between gifted achievers and gifted underachievers. The focus of the study was the process of the transformation of educational capital into learning capital. The tested pattern was a mediation hypothesis that assumed that the effect of educational capital on school achievement is mediated by learning capital.

Specifically, while educational capital functioned as parental involvement, learning capital appeared as both a metacognitive and an elaboration strategy. The use of parental involvement as a contextual variable is crucial to many studies on the antecedents of achievement (Jeynes, 2010; Philipson & Yick, 2013; Rodgers et al., 2009). Given the variability of effect sizes of parental involvement on achievements in a normal population (e.g., Fan & Chen, 2009; Hill & Tyson, 2009), we were motivated to get a better understanding of the dynamic processes intrinsic to the relationships between variables, especially in the gifted population. According to previous research, the authors considered learning strategies as a good representation of the learning

capital that influences achievements (e.g., Chiu, Chow & McBridge-Chang, 2007; Yip, 2007).

The significant correlation between parental involvement, metacognitive strategies, elaboration strategies and academic achievements indicates the possibility of mediation effects (Ericsson, Nandagopal & Roring, 2005; Heller & Schofield, 2008). Our findings point to the different roles that the two types of learning strategies play as mediators between school achievements and educational capital represented by parental involvement. Indeed, when parental involvement was factored into regression and was no longer significant, only metacognitive strategies proved to be complete mediators. In this sense, metacognition strategies might play a fundamental role in the selection and intelligent regulation of strategies and learning techniques that eventually lead to higher school achievement (Nisbeet & Shuchsmith, 1986).

The fact that educational capital was completely mediated by one of our indicators of learning capital confirms the mediation hypothesis and proves the need to analyse possible patterns. This finding also provides important insights for gifted education. We believe there is more promise in a heightened focus on processes and resources like the transformation of educational capital into learning capital. After all, exogenous resources are not automatically translated into educational capital. For example, the child might simply not notice the parents´ enthusiasm about learning or might even be bewildered by it. Similarly, educational capital must be transformed into learning capital in order to build up effective action repertoires. Even the best explanation of a difficult topic in mathematics (didactic educational capital) must first be understood, i.e., transformed into actionable learning capital.

In general, the current findings reflect the importance of taking into consideration both exogenous and endogenous resources in order to gain a better understanding of academic achievement in the gifted population. However, some limitations may need to be addressed in the future. First, according to the traditional standard procedures for sampling adequacy (Guildford, 1954; Kline, 1986), the sample of gifted students surveyed was not high enough. For this reason, the different statistical results should be treated with caution, as they cannot be generalized to an overall Spanish gifted population. However, the sample selection was determined in accordance with the conceptual criteria established in the Spanish educational laws, particularly

Constitutional Law 2/2006 on Education (LOE, 2006) and Constitutional Law 8/2013 on Improving Educational Quality (LOMCE, 2013).

Educational and learning capital cannot be measured in its entirety so we had to make due with representative variables, which in turn set an upper limit on the possible effect sizes and validity of the measurements. With regard to the variable representing educational capital in our study, parental involvement and alternative measurements such as teachers´ ratings and parents' self-reported behaviour might have led to more valid results and could have been useful in future studies. For example, while teachers have more objective experiences with their students and are not as influenced by possible biases, parents can provide more comprehensive information about the influence they have on their children (Oberle & Schonert-Reichl, 2013; Pepler & Craig, 1998). This is also extended to the use of GPAs when measuring academic achievement. In all, it is necessary to compare different ways to measure this construct, developing more accessible standardized achievement tests in Spain.

A second limitation of our study concerns the necessity of surveys within Spain in order to discover patterns across age groups or subgroups of the student population. For example, some authors have included the socio-economic status of the family as well as the education level of the parents because of parental impact on academic achievement (Bradly & Corwyn, 2002; Vista & Grantham, 2010) and the significance of the relationships between parental involvement and school outcomes in urban, suburban, and rural schools (Ma, Shen, & Krenn, 2014). Finally, the fact that our statistical approach tries to fit processes from many occasions into a single model at a time (Edmonds, 2012) constitutes a third limitation to our study. It is crucial that the ergodicity assumption be confirmed (Molenaar, 2008) as a precondition to our approach. . This would require alternative research designs that could not be applied to the sample of our study.

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Table 1.

Definitions of the educational and learning capitals.

Type of exogenous resource	Definition[1]	Type of endogenous resource	Definition
Economic educational capital	Economic educational capital is every kind of wealth, possession, money or valuables that can be invested in the initiation and maintenance of educational and learning processes. (p. 27)	Organismic learning capital	Organismic learning capital consists of the physiological and constitutional resources of a person. (p. 29)
Cultural educational capital	Cultural educational capital includes value system, thinking patterns, models and the like, which can facilitate - or hinder - the attainment of learning and educational goals. (p. 27)	Telic learning capital	Telic learning capital comprises the totality of a person's anticipated goal states that offer possibilities for satisfying their needs. (p. 30)
Social educational capital	Social educational capital includes all persons and social institutions that can directly or indirectly contribute to the success of learning and educational	Actional learning capital	Actional learning capital means the action repertoire of a person - the totality of actions they are capable of performing. (p. 30)

[1] The definitions are quotes from Ziegler & Baker (2013).

	processes. (p. 28)		
Infrastructural educational capital	Infrastructural educational capital relates to materially implemented possibilities for action that permit learning and education to take place. (p. 28)	Episodic learning capital	Episodic learning capital concerns the simultaneous goal- and situation-relevant action patterns that are accessible to a person. (p. 31)
Didactic educational capital	Didactic educational capital means the assembled know-how involved in the design and improvement of educational and learning processes. (p. 29)	Attentional learning capital	Attentional learning capital denotes the quantitative and qualitative attentional resources that a person can apply to learning. (p. 31)

Table2. Correlation matrix between variables and descriptive statistics.

	M	SD	1	2	3	4
1. Elaboration Scale	61.36	10.53	-	.67*	.25*	.28*
2. Meta-cognition Scale	40.37	6.99		-	.42*	.40*
3. Parent Involvement	21.36	3.16			-	.32*
4. Academic Achievement	8.22	1.22				-

Note. *correlation is significant at the .01 level (2-tailed).

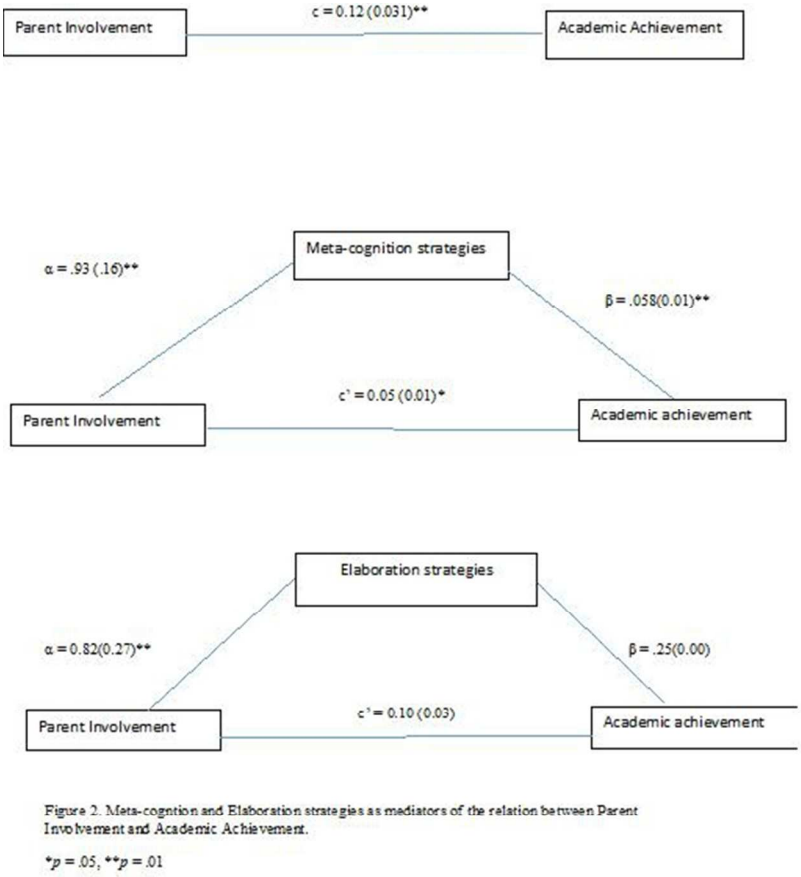

Figure 2. Meta-cognition and Elaboration strategies as mediators of the relation between Parent Involvement and Academic Achievement.

*p = .05, **p = .01

Figure 2. Meta-cogntion and Elaboration strategies as mediators of the relation between Parent Involvement and Academic Achievement.

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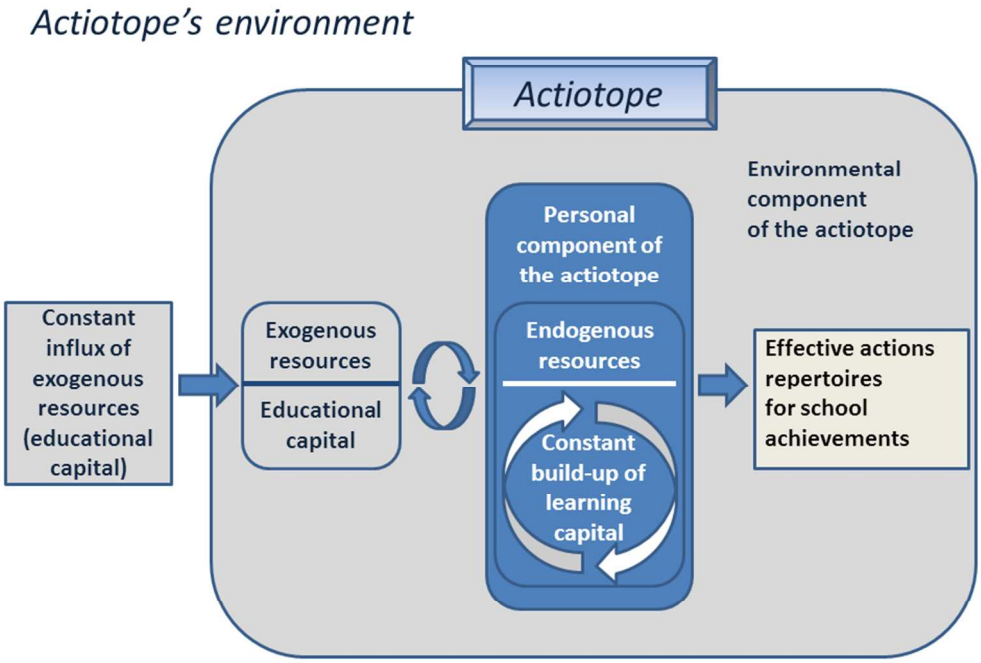

Figure 1. Actiotope Model of Giftedness