# Students' Engagement in School, Giftedness and Creativity: A literature review

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## Abstract

**Background:** The importance of the construct "students engagement in school" (SES) has been recently pointed out in research and literature; however, there is a lack of studies about the relationship between this variable and personal variables, such as giftedness and creativity. These latter variables are conceptualized as a result of the convergence of personal and contextual variables, in which development and learning processes play a relevant role. Giftedness has been studied in its relationship with creativity, which, in turn, appears related to school context. **Purpose:** This article reviews the literature on the relation between students' engagement in school and each of the variables of students' giftedness and students' creativity, as perceived by the students and their teachers. The importance of this relation arises from the idea that students perceived as having above average capacities, or as creative, have high motivation for learning and engagement in school. Giftedness has been studied in its relationship with creativity, which, in turn, appears related to school context. **Method:** In order to describe the state of art of student's engagement in school and Giftedness and Creativity, we prepared a narrative review. **Conclusions:** Although studies on the relationship between creativity, giftedness and the students' behavior require further research, the use of creativity as a teaching-learning instrument appears related to school satisfaction and students' academic performance. The literature review highlights the need to develop research, particularly of quasi-experimental type, on the relationship between students' engagement in school and the variables giftedness and creativity, as well as on its effects on academic achievement.

**Keywords:** students' engagement in school, student's giftedness, student's creativity.

## 1. Introduction

Students' engagement in school is a multidimensional construct that has been related to several products required at academic level, and studied as a mediator and as a product. A considerable amount of studies sustain that both personal (self-efficacy, self-concept, giftedness) and contextual factors (peers, school, family) are related to students' engagement in school and to a good academic performance;

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on the other hand, the lack of engagement is associated with low academic achievement, behavioural problems and school dropout. Giftedness, in this context, is a personal variable that may relate to students' engagement in school and academic performance.

In order to describe the state of art of Student's engagement in school and Giftedness and Creativity variables, we prepared a narrative review. The method applied entailed systematic searching, reviewing, and writing to bring together key themes and findings of research in this field. We searched recent articles in scientific data bases such as SCIELO, LILACS, EBSCO Host (including: Academic Search Complete, Education Source, ERIC, PsycARTICLES, PsycINFO, Psychology and Behavioral Sciences Collection, PsycBOOKS, and PsycTESTS), besides several Portals, for example Science Direct or the Scientific Open Access Repository of Portugal – RCAAP. Handbooks and PhD Thesis were also regarded. Research used controlled language and keywords were verified in a Thesaurus. Our study goals were considered in the articles´ selection process, and several criteria were applied (full document available; articles written in English). Reviewing the available literature was focused on identifying and analyzing cutting-edge core themes and their importance, as well as research lines, followed and suggested.

This article addresses the concepts of giftedness and creativity in terms of their conceptualization and assessment, and reviews the studies on students' engagement in school, highlighting the relationships with giftedness and creativity, professed by teachers and students.

## 2. Giftedness: conceptualization and assessment

If until the seventies, little attention was given to the gifted students, the interest on this matter has been increasing, mostly focused on the adequacy of these students' educational conditions (Woolfolk, 2014; Ziegler, 2005). To provide a more consistent education is no longer considered an antidemocratic task (Cross, Cross, & Finch, 2010). However, these students still lack a proper support in school (Morris, 2013).

The concept of gifted student varies across the literature, and terms such as *gifted*, *talented*, *student with high intellectual capacities*, *student with exceptional or high abilities*, *students with high levels of performance*, among others (Eurydice, 2007), have, often, different meanings. The most common designation is *gifted;*

however, official documents frequently refer *students with exceptional learning capacities* (Eurydice, 2007); in Portugal, the Basic Education Department of the Ministry of Education (1998) introduces giftedness as the expression of a set of inter-related factors, which results in an outstanding performance. From the theoretical point of view, several conceptions of giftedness are worth noting. Miller (2012) considers seven major theoretical models of giftedness, highlighting Renzulli and Gagné's models as the most comprehensive. Renzulli (1986) proposed the three rings conception, suggesting the presence of three characteristics for giftedness to exist, which remain stable throughout life: above average ability, high creativity and a high engagement in tasks. Monks (1992) stressed the importance of environment, family, school and peers, for the development of the gifted potential. Gagné (1993) makes a distinction between giftedness and talent, being the first the presence of an above average competency, in one or more domains of human aptitudes, and the second, the existence of an above average performance in one or more domains of human activity. Gardner (1995), in the context of the Multiple Intelligences Theories, proposes the existence of various independent intelligences which may combine with each other: Linguistic, logic-mathematic, musical, physic-kinesthetic, spatial, interpersonal, intrapersonal and naturalist. Another conception of this construct (Marland, 1972) considers that children with high abilities also show a remarkable performance or a high potential in any of the following aspects, isolated or combined: general intellectual capacity; specific academic aptitude; creative or productive thinking; leadership capacity; special talent for arts (visual, dramatic or musical); psycho motor capacity.

Despite the difficulty in identifying a gifted student, a good indicator may be easiness and speed with which a student learns, diversified interests, unusual emotional intensity and creative work. Traditionally it was considered that these students had the intelligence of an adult but the body and emotions of a child (Woolfolk, 2014). However, recent research tends to prove that the gifted have adaptive emotional skills (Shechtman & Silektor, 2012). This may explain the presence of psychosocial difficulties in some gifted children: boredom and frustration over the slow progress allowed by school; emotional richness; the presence of moral concerns that their not diagnosed colleagues do not reveal.

The assessment of giftedness is a field where debate still occurs. During the first half of the past century, IQ was the main criterion to consider, measured by

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intelligence tests such as the "Wechsler Intelligence Scale for Children" (WISC) (Cross, Cross, & Finch, 2010). The multidimensional conception of giftedness, that arose in the sixties, required the use of a set of procedures, including intelligence tests, and also creativity assessment, being "The Torrance Tests of Creative Thinking" one of the most prominent instruments, students' achievement, several self-report scales and questionnaires (aptitude tests or developmental ability), others for teacher use (Miranda, 2008) and, also for parents and peers. Falcão (1992) refers two forms of characterizing giftedness: analytic – features are discriminated by areas of giftedness, and synthetic – features are presented globally. In short, the assessment of giftedness is not free of difficulties, not only due to the scope of its definition, but also by the difficulty in assessing specific aspects such as creativity or originality. Research suggests, besides the cognitive component, some aspects related to socio-emotional adjustment, noting that a high cognition does not, necessarily, correspond to a great socio-emotional competency. However, there is no consensus on the emotional characteristics of gifted besides the recognition of a great emotional intensity (Piechowski, 2008). Some studies reveal differences among the gifted population and that does not share this diagnosis, while others do not reveal these differences and still others show that gifted students tend to be better adjusted (Miller, 2012). Shechtman and Silektor (2012) point to the presence of higher levels of need of achievement, empathy, self-concept and ethical concerns.

The existence of services directed towards the gifted (Veiga, García, & Miranda, 2003; Woolfolk, 2014) has been argued, as well as more flexible school conditions which may allow the students to fully develop their capacities, since these students may bring important contributions to society. Besides acceleration, differentiation, ability grouping  and enrichment programs, some teaching guidelines directed towards these students are suggested: to encourage and monitor research work; to allow independent work; creative use of computers; to provide diverse information that students may explore; to lead students to criticize their own work; to involve students in solving educational and social problems; to propose the development of long-term projects (Veiga, García, & Miranda, 2003; Woolfolk, 2014).

## 3. Creativity: conceptualization and assessment

In the context of Cognitive Psychology, the interest in the study of creativity has increased, mostly in its conceptualization, assessment and promotion (Alencar & Fleith, 2003; Bahía & Oliveira, 2013; Besançon, Lubart, & Barbot, 2013; Veiga, & Caldeira, 2005). However, the definition of creativity hasn't been immune to controversy; for some, is seen as a trait, a persons' quality, while others see it as a state. The main feature of a creative person is creative attitudes, namely, risk-taking, diversity of interests, intrinsic motivation, persistence and engagement, defined as encompassing traits that predispose flexible, original and imaginative thinking. Other researchers conceptualize creativity as a state, a skill, a process (or way of thinking) used for obtaining an original product, give new purposes to objects or to relate apparently independent things (Alencar & Fleith, 2003; Besançon, Lubart, & Barbot, 2013; Caldeira & Veiga, 2006; Cropley, 2005; Torrance, 2000; Veiga & Caldeira, 2005). According to Torrance's threshold hypothesis (1966), one of the requirements for creativity processes appears to be the existence of an average intelligence; beyond this point, these variables are no longer significantly related (Woolfolk, 2014).

*Creativity Assessment.* Creativity assessment also shows difficulties. Torrance (1966, 2000) partially eased this task by creating two types of tests, figurative and verbal test. Responses to those tests are classified about fluency (number of different responses), flexibility (number of different categories comprised in the responses), originality (responses given by less than 5% of the people) and elaboration (number of details).

Today's global context appears full of problems, appealing to creative and more human solutions. Therefore, the issue of knowing how schools and teachers can stimulate the student's creative thinking is justified (Besançon, Lubart, & Barbot, 2013; Caldeira & Veiga, 2006; Cropley, 2005; Veiga, 2013). A meta-analysis of over 800 studies conducted by Hattie (2009) found that the development of creativity programs have a very significant impact in successful learning and effective developmental changes of their participants.

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## 4. Engagement, giftedness and creativity

Studies on students' engagement in school (SES) and its relation with giftedness and creativity, professed by students, are considered. Later, studies on this same relation but this time perceived and inferred by teachers are presented. The scarcity of specific studies on student's engagement led to include investigations on academic motivation, considering the semantic interception between the two concepts.

## 5. Engagement, giftedness and creativity professed by the students

A study by Veiga, García and Caldeira (2005) analyzed the relation between students' perceptions about teachers' citizenship and the following giftedness indicators, professed by students: academic achievement (excellent versus low), creativity (*Do your teachers see you as creative?; Do see yourself as creative?)*, learning easiness (*Do your teachers think you have learning facility?),* preference for difficult work (*Do your teachers think you have an attraction for difficult work?*). The sample included 246 subjects from different grade levels (7th, 9th and 11th grades), attending Lisbon schools and from both sexes. The *Students´ Representation of Teachers' Citizenship Scale, SRTCS* (Escala de representações dos alunos acerca da cidadania dos professores, ERA-CIP) was used, including several dimensions: participation, practical orientation, conscientiousness, courtesy, interpersonality and normativity. The results analysis allowed finding significant differences in teachers citizenship inferred by the students, according to the perceived creativity. Opposed to the perceived creativity , the supposed relations between citizenship and other indicators of giftedness – professed creativity, perceived learning easiness, and attraction for difficult  – did not present statistical significance. This study suggests, as a possible explanation, that, more than these last indicators, perceived creativity may be more related to a type of teacher´s communication directed toward positive task appraisals – held or possible to be carried out by the students, which, in turn are more easily retained in long-term memory, nurturing scholar self-esteem and students engagement in school.

Two positions may be found in the literature on motivation and giftedness: one (1) understands motivation as an inherent component of giftedness - defined by an above

average performance in three areas: intellectual ability, creativity and motivation for performance (Renzulli, Reid, & Gubbins, 1992; Sternberg, 2005); and (2) as a moderator variable, susceptible of allowing the potential of exceptionality to occur (Gagné, 1993; Heller, Perleth, & Lim, 2005; Robinson, 2005; Ziegler, 2005).

Gifted students show higher levels of motivation for learning, in several studies (Alencar & Fleith, 2003; Bahía, & Oliveira, 2013; Goulão, & Bahía, 2013; Gottfried, Gottfried, Cook, & Morris, 2005; Ziegler, 2000), although the differences found are generally low. Gifted students are highly motivated to learn new knowledge and not to learn the knowledge that the school requires them (Mueller, Melwani, & Gonçalo, 2012). Persistence behaviours and pleasure in learning are found more present in children and teenagers with higher achievements in domains such as arts (Bahía & Oliveira, 2013; Goulão & Bahía, 2013; Vallerand, Gagné, Senecal, & Pelletier, 1994; Wilhelm, Schulze, Schmiedeck, & Süß, 2003). However, a study by Veiga and Marques (2001) found a positive association between the variables giftedness and disturbing behaviour in school, as suggested by some other authors (Cropley, 2005; Kim & Tassel-Baska, 2010).

Goldsmith and Matherly (1998) sought to understand the relationship between creativity and self-esteem in 118 college students, and found a statistically significant positive relationship in both genders. Studies relating creativity and academic self-concept suggest a bi-directionality between these two variables (Veiga, 1995; 1996; 2012): creativity as a dimension of self-concept (Marsh, Byrne, & Shavelson, 1988) and self-concept as a factor of creative production (Alencar, 1999; Alencar & Fleith, 2003; Veiga, 2013).

Creativity also appears, positively and significantly related to satisfaction with school (Fredrickson, 2001) and academic achievement. A study with 6th and 9th grade students, carried out by Caldeira and Veiga (2006), found a positive and significant, although low, correlation between the dimensions of creativity measured by the *Torrance Creativity Test*, particularly the dimension originality, and the school subjects Portuguese, Mathematics and Sciences. Gervilla (1987) and Campos and Gonzalez (1993) found, in college students, positive, yet low, correlations between these variables. Moreno (1992) underlines the relation between creativity and academic achievement, since the students showing high verbal creativity correspondingly present higher academic achievement in mathematics, in their mother language, and in general.

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Caldeira and Veiga (2006) studied 350 students from 6th and 9th grade, of both sexes and different nationalities, attending Lisbon and Faro district schools, and found positive and significant correlations between professed creativity and academic achievement.

The importance of *school environment* for the development of students' creative potential is extremely relevant (Alencar, 1999; Alencar & Fleith, 2003; Allodi, 2010; Schick & Phillipson, 2009). School context encloses the function of promoting the development of the students' creative skills, by exploring stimulating themes, exercising critical and divergent thinking, and designing a classroom atmosphere that values the expression and production of ideas (Bahía, & Oliveira, 2013; Besançon, Lubart, & Barbot, 2013; Caldeira & Veiga, 2006; Goulão & Bahía, 2013; Heise, Bohme, & Komer, 2010).

Teaching models have been moving from a static field towards a dynamic and student-centered approach; within this context, creativity, in particular, has been recognized as an asset to students, as a human potential to develop, and an essential tool for meeting the future challenges posed by society (Heise, Bohme, & Komer, 2010; Schick & Phillipson, 2009; Veiga, 2013).

Students' creativity appears associated with classroom climate and teachers' behavior, variables that are likely to influence motivation and engagement in learning. A study with approximately 1366 students from 9th grade found that classroom environment was a stronger contributor to motivation in the group of students with poor performance, when compared to the group with good performance, favoring, thus, the group who most needed (Schick & Phillipson, 2009). However, creativity is, sometimes, inhibited (Torrance, 1981, 2000) instead of encouraged, with consequences on students' performance. Nevertheless, learning climate should promote the students willingness to learn, and the use of creativity has been pointed out as a strategy of engagement within classroom (Bahía & Oliveira, 2013; Besançon, Lubart, & Barbot, 2013; Heise, Bohme, & Komer, 2010; Walsh, 2003), being assumed as a learning facilitator, by promoting students' concentration and by making learning meaningful to students (Hattie, 2009).

## 6. Engagement, giftedness and creativity perceived by the teachers

Few studies have dealt with the teachers' perceptions about their students' capacities (Miranda & Almeida, 2012; Kim & Tassel-Baska, 2010; Veiga & Caldeira, 2005). Another study (Veiga & Caldeira, 2005) examined the relation between perceived creativity by the teachers (considering the students' perceptions) and the dimensions of personal attitudes toward oneself, in several aspects (cognitive, affective and behavioural), in a sample of 298 students of both sexes, from 7th, 9th and 11th grades, attending Lisbon schools and from different nationalities. The analyses of the results found significant differences in the dimensions of students' personal attitudes toward themselves, considering creativity, with higher results in those students classified as creative; however, these differences were not observed in student's school disruption.

The results seem to confirm the assumptions concerning the superiority of students perceived as creative by their teachers, in what refers to academic self-concept and rights. Also confirmed was the hypothesis of no differentiation in disruptive behaviors between students perceived as creative and students perceived as not creative.

The differences in self-concept are similar to those found in previous studies (Arthur, 1995; Kobal & Musek, 2000; Veiga et al., 2003) and confirm the importance of teachers' appraisal behaviors concerning their students. In the context of teacher training, the acquisition of skills to promote students' self-concept and creativity is highlighted by such results. The absence of differences, in disruptive behaviors, comparing students perceived as creative and students perceived as not creative are framed in conceptions that admit the creative potential of some disruptive behaviors (Estrela, 2002; Veiga, 2002), as well as in research linking giftedness and interpersonal difficulties (Veiga & Marques, 2001) or non-conformity (e.g. Bahia & Oliveira, 2013); thus, in most students and situations, the presence of disruptive behaviours seems not to be an impediment for the teacher to perceive a student as creative. Similarly to academic self-concept, also the results on students' rights were differentiated, in the expected direction, highlighting the importance of teachers' perceptions and appraisals about their students. The acquisition of competencies of rights' promotion, by the teachers, is, thus, underlined. Finally, the overall information allows extracting the impression that an intervention directed toward students' creativity, self-concept, behavioural adequacy and rights promotion should be included in teachers training.

Teachers' perceptions on their students' skills were also considered in a study with 1260 students from 5th and 6th grade, of both sexes (Miranda & Almeida, 2012). The aim was to analyze the association between the academic performance of students' who scored in or above the 90th percentile, teachers perceptions of those students capacities and also the results in aptitude, creativity and self-concept tests. The instruments used were: Reasoning Tests Battery (BPR - Almeida & Lemos, 2006), Piers-Harris Children's Self-Concept Scale (PHCSCS) as adapted by Veiga (2006), and two tests (verbal and figurative) from the Torrance Creative Thinking Test - TCTT (Wechsler, 2003). Teachers' perceptions on their students' cognitive and learning skills were measured by the Teacher Assessment Scale: Cognitive/Learning Skill (Escala de Avaliação do Professor: Habilidade Cognitiva/Aprendizagem - Almeida, Oliveira, & Melo, 2000). The overall results do not show statistically significant relations; weak correlations were found between teachers' perceptions (on students capacities) and 5th grade boys' self-concept ($r=.32$, $p\leq.05$) as well as between teachers perceptions and Reasoning Tests ($r=.31$, $p\leq.05$) in 6th grade. Higher correlations were found between teachers' perceptions and students' academic achievement ($r=.51$; e $r=43$, $r=.30$).

Considering the importance of teachers' perception about their students, Kim and Tassel-Baska (2010) analyzed the relation between creativity and behavior problems. Two groups of students (with great versus poor performance) were compared in terms of creative potential and the occurrence of behavior problems, according to the teachers' perception. The results suggest a relationship between behavior problems and the results found in the creative potential measures, in those students with poor performance.

## 7. Conclusions

The identification of the gifted student appears as fundamental in order to, similarly to their peers, attend to their needs, and promote their academic success. It seems worth noting that, both children and adults showing creative potential or talent don't necessarily have a higher intellectual ability; likewise, those with a high intellectual capacity are not necessarily and exceptionally gifted, concerning to creativity (Besançon, Lubart, & Barbot, 2013).

Creativity - students' creativity and related to the teachers' classroom management - appears in the literature as having positive relations with academic self-concept (Goldsmith & Matherly, 1998; Veiga & Caldeira, 2005; Veiga, 2013), a construct also positively associated with academic performance (Alencar, 1999; Alencar & Fleith, 2003 Gonzalez-Pienda, 1997). As an element of giftedness, creativity has also been associated with motivation for learning. In general, students with higher intellectual ability appear as more motivated for learning and with a higher performance (Gottfried, Gottfried, Cook, & Morris, 2005; Vallerand, Gagné, Senecal, & Pelletier, 1994; Wilhelm, Schulze, Schmiedeck, & Süß, 2003; Ziegler, 2000).

However, the relationship between creativity and appropriate behavior is not conclusive. Veiga and Marques (2001) found an association between professed giftedness and disruptive behaviors in school, particularly in low achievement students; Veiga and Caldeira (2005) did not find differences in students' school disruptions, considering creativity professed by the students.

Besides the determination of a gifted student profile, the research reviewed underlines the necessity to promote appropriate educational responses for these students, according to their special needs (Bahía & Oliveira, 2013; Besançon, Lubart, & Barbot, 2013; Caldeira & Veiga, 2006; Heise, Bohme, & Komer, 2010; Miranda & Almeida, 2012). However, according to the legal framework available (Decree-Law 3 of 2008) schools are self-directed in organizing and implementing pedagogical differentiation strategies directed towards gifted students, being priority the support to students with permanent special education needs.

Creativity has been identified as a strategy of engagement in the classroom (Walsh, 2003), being positively associated with school satisfaction (Fredickson, 2001) and academic performance (Alencar, 1999; Alencar & Fleith, 2003; Caldeira & Veiga, 2006; Campos & Gonzalez; 1993; Moreno, 1992). For this reasons, it is a variable to be considered by researchers aiming to understand the relation between creativity and motivation for learning, and also by teachers aiming to promote students' deeper engagement in learning and, consequently, a better academic performance (materialized in achievement and behavior). Low academic achievement found in high potential students is an issue deserving concern and also reflection about the role played by teachers in students' engagement in school. As Ziegler and Phillipson (2012) suggest, a paradigm shift in research on giftedness must occur in order to relace mechanistic approaches by a more systemic approach. Finally, the reviewed

literature emphasizes the importance of further quasi-experimental studies using programs for the promotion of creativity and students' engagement in school, evaluating their impact on academic achievement.

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