Emotional Development of Gifted Students: Comparative Study About Overexcitabilities

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Abstract
The aim of this study was to compare gifted, with academic and artistic talent, and non-gifted students regarding overexcitability, as well as to investigate the perceptions of teachers from a specialized educational program for the gifted about their students' emotional development. The study included 150 students and six teachers. As instruments, we used participants characterization questionnaires, an overexcitability scale and a semi-structured interview script. Data were analyzed using inferential statistics and content analysis. The results indicated significant differences between gifted and non-gifted students in the patterns of intellectual and imaginative over-excitability, as well as a tendency for teachers to emotionally characterize gifted students with an emphasis on psychological disorders and weaknesses. To invest in educational strategies that use information derived from overexcitability patterns as facilitating tools for the learning process of the gifted can contribute to increasing student engagement at school, keeping them motivated.
Keywords: emotional development; overexcitability; giftedness; talent

Desenvolvimento Emocional de Alunos Superdotados: Estudo Comparativo Acerca das Sobre-Excitabilidades

Resumo
O objetivo deste estudo foi comparar estudantes superdotados, com talento acadêmico e artístico, e não superdotados em relação às sobre-excitabilidades, bem como investigar a percepção de professores de um atendimento educacional especializado a alunos com altas habilidades/superdotação acerca do desenvolvimento emocional de seus estudantes. Participaram do estudo 150 discentes, além de seis professores. Como instrumentos foram utilizados questionários de caracterização dos participantes, escala de sobre-excitabilidade e roteiro de entrevista semiestruturado. Os dados foram analisados mediante estatística inferencial e análise de conteúdo. Os resultados indicaram diferenças significativas entre estudantes superdotados e não superdotados nos padrões de sobre-excitabilidades intelectual e imaginativa, bem como uma tendência dos professores em caracterizar emocionalmente os alunos superdotados com ênfase em transtornos e fragilidades psicológicas. Investir em estratégias educacionais que utilizem informações decorrentes dos padrões de sobre-excitabilidade como instrumentos facilitadores do processo de aprendizagem dos superdotados pode contribuir para aumentar o envolvimento dos alunos na escola, mantendo-os motivados.
Palavras-chave: desenvolvimento emocional; sobre-excitabilidade; superdotação; talento

Desarrollo Emocional de Estudiantes Superdotados: Estudio Comparativo Sobre las Sobreexcitabilidades

Resumen
El objetivo de este estudio fue comparar estudiantes superdotados, con talento académico y artístico, y no-superdotados en relación con la sobreexcitabilidad, así como investigar la percepción de docentes de un servicio educativo especializado para superdotados sobre el desarrollo emocional de sus alumnos. El estudio incluyó a 150 estudiantes y seis profesores. Como instrumentos se utilizaron cuestionarios de caracterización de los participantes, una escala de sobreexcitabilidad y un guión de entrevista semiestructurada. Los datos se analizaron mediante estadística inferencial y análisis de contenido. Los resultados indicaron diferencias significativas entre los superdotados y no-superdotados en las sobreexcitabilidades intelectual e imaginativa, así como una tendencia de los profesores a caracterizar emocionalmente a los superdotados con énfasis en los trastornos psicológicos y las debilidades. Invertir en estrategias educativas que utilicen información derivada de la sobreexcitabilidad como herramientas facilitadoras del proceso de aprendizaje de los superdotados puede contribuir a aumentar la participación de los estudiantes en la escuela, manteniéndolos motivados.
Palabras clave: desarrollo emocional; sobreexcitabilidades; superdotación; talento

The importance of social, emotional and environmental factors for the development of talent has been gaining prominence, especially in the area of education of the gifted. The conception of the phenomenon underlying this study conceives giftedness based on three interacting dimensions: above-average ability, task commitment and creativity (Renzulli, 2005). Therefore, understanding this phenomenon through a one-dimensional bias is insufficient to explain its course (Prado & Fleith, 2016). In recent decades, researchers have begun

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to look more closely at the emotional development of gifted people, based on different theoretical frameworks (Neihart, Pfeiffer, & Cross, 2016), including the Theory of Positive Disintegration (TPD), developed by the Polish psychiatrist and psychologist Kazimierz Dabrowski (Oliveira, Barbosa, & Alencar, 2017).

From a conceptual perspective, TPD is a theory of personality development (Ackerman, 2009; Chia & Lim, 2017; Oliveira & Barbosa, 2015), which emphasizes the emotional and moral aspects of development (Chia & Lim, 2017; Piechowski, 2014, 2017). Even though it has not been designed to specifically explain the development of talented individuals (Delallo, 2017; Rinn & Reynolds, 2012), since 1979, it has been used to understand various aspects of giftedness, particularly the socio-emotional domain, permitting a broader understanding of the characteristics of the gifted, assisting in the process of potential identification and development (Mendaglio & Tillier, 2006; Oliveira & Santos, 2015). According to Delallo (2017), the key concept of TPD is the conception of overexcitabilities, intensities that are associated with a different way of experiencing life (Piechowski, 2015). Mendaglio and Tiller (2006) argue that this has been the concept of Dabrowski's theory most applied to gifted people, as gifted people can more often exhibit intensities in the way they experience life and respond to the stimuli of the environment in five specific areas: imaginational, psychomotor, sensual, intellectual and emotional (Chia & Lim, 2017; Karpinski, Kolb, Tetreault, & Borowski, 2017; Piechowski, 2015).

Imaginational overexcitability is characterized by the release of emotional tension through imagination, expressed by the sharpness and vivacity of images, the use of metaphors in verbal expression, sharp visualizations and inventiveness, but also by nightmares, detailed and vivid dreams, fear of the unknown, predilection for fantasies, imaginary friends and poetic creativity (Ackerman, 2009; Rinn & Reynolds, 2012; Piechowski, 2015). Psychomotor overexcitability manifests itself as an organic excess of energy and as expressions of emotional tensions arising from the excessive sensitivity of the neuromuscular system, although it should not be associated only with physical dexterity or athletic ability (Ackerman, 2009; Mofield & Peters, 2015), although this type of overexcitability is more often related to sports activities and artistic expressions that require physical ability, such as dance (Piechowski, 1975; Thomson & Jaque, 2016). Sensual overexcitability involves intensified sensual experiences as a way to relieve tensions and inner conflicts (Mendaglio & Tillier, 2006; Mofield & Peters, 2015). Intellectual overexcitability is characterized by a great need for knowledge and problem solving (Miller, Falk, & Huang, 2009; Rinn & Reynolds, 2012). It is highlighted, however, that this pattern of overexcitability should not be compared with intelligence, as it is not about problem-solving ability, but about the love for this process (Ackerman, 2009). Emotional overexcitability refers to the way relationships are experienced. A person with strong emotional overexcitability is deeply sensitive and has complex emotions, in addition to high levels of empathy, as he/she identifies with the emotions of others (Miller et al., 2009; Piechowski, 2015).

According to Piechowski (2017), overexcitability patterns are the descriptive components of TPD that have gained emphasis on research and practices involving gifted children and adults. Therefore, this variable has been investigated to examine its relationship with giftedness, generally showing that they are associated (Carman, 2011; Garces-Bacsal, 2011; Martowski, Mactzak, & Józwik, 2018; Wirthwein & Rost, 2011). Research on overexcitabilities can equip psychologists, teachers and family members to deconstruct stereotypes related to giftedness. Usually, there is a trend to interpret characteristics associated with giftedness negatively, but TPD aims to understand them with a positive bias as, according to Dabrowski, intense and conflicting emotions do not signal mental illnesses, but need to be understood as catalyzers of development (Eiserman, Lai, & Rushton, 2015; Rinn & Reynolds, 2012; Piechowski, 2017). In addition, knowledge about this construct can help in the process of identifying gifted people, as the multiple definitions for the phenomenon may make it necessary to use different assessment methods. Therefore, investigating personality characteristics from overexcitability is another analysis alternative (Oliveira & Barbosa, 2015).

In this sense, this study aimed to compare gifted (with academic talent and artistic talent) and non-gifted, male and females students, concerning overexcitabilities, as well as to investigate how teachers at a specialized educational service for the gifted perceive the emotional development of their students.

Method

Participants

This study was conducted with 150 students, 108 from elementary school II and 42 from high school, 78 (52.0%) of whom were male, 70 (46.7%) female and 2 (1.3 %) from other genders, aged between 11 and

17 years (M = 13.91; SD = 1.83). The students were divided into three groups. Group I consisted of 52 students with academic talent who attended resource rooms in specialized educational service for students with high abilities/giftedness. Group II consisted of 47 students with artistic talent who attended the same service. Group III included 51 students not identified as gifted, randomly selected and coming from mainstream classrooms of public education institutions. In addition, six teachers from the specialized educational service, mentioned before, participated, being three women and three men, between 35 and 52 years of age (M = 38.5; SD = 9.43). Their length of experience in the resource rooms ranged between 1 and 10 years (M = 4.1; SD = 3.18).

Instruments

Participant characterization questionnaires. Two questionnaires were used to characterize the participants. The first was administered to the students in the mainstream education classes and was intended to characterize them in terms of age, gender, school year, and birth order. The second questionnaire was answered by the gifted students and similarly presented questions regarding age, gender, school year, and birth order, in addition to information on the nature of the mainstream education institution, area of talent, and how long the student has attended the specialized service for students with high abilities/giftedness.

Overexcitability Scale. This self-reported instrument was constructed and validated by Oliveira and Barbosa (2015) and is intended to identify the degree of expression of overexcitabilities (OE). It consists of 55 items, subdivided in five patterns of OE: Psychomotor, Sensual, Imaginational, Intellectual and Emotional. This is a Likert scale with five alternative answers: has nothing to do with you (0), does not have to do with you (1), has to do with you more or less (2), has to do with you (3), is all about you (4). Cronbach's internal consistency coefficients are: .68 (Psychomotor), .87 (Sensual), .77 (Imaginative), .72 (Intellectual) and .78 (Emotional).

Semistructured interview script. The semi-structured interview script was used with specialized educational service for students with high abilities/giftedness teachers to investigate how they perceive the emotional development of gifted students. Example questions: Do you believe it is important to consider the emotional development in the education of gifted students? What emotional characteristics do you identify in the students you attend to? What are the main challenges, in terms of emotional aspects, that come up in your classroom daily? Do the emotional aspects influence the accomplishment of the activities proposed in the classroom? How do you assess your training for working at the specialized educational service for the gifted concerning the students' emotional development?

Procedures

Authorization was requested from the public education network of the Federal District for the development of the research. Informed Consent Forms were forwarded to the parents and guardians, requesting their authorization for their children to participate. At the time of the application, students and teachers received the Informed Assent Form. The sample characterization questionnaire and the Scale of Overexcitabilities were administered in groups in the mainstream education classrooms and the resource rooms of the specialized educational service for students with high abilities/giftedness. In the former, the process involved one meeting with each class. In the resource rooms, the application sessions followed the students' attendance, usually once or twice a week. Therefore, they took place in multiple sessions. After the administration of the instruments to the students, the teachers were interviewed according to their availability. The mean length was 18.51 minutes (SD = 6.11), ranging from 11.38 to 29.34 minutes. The interviews were audio-recorded and later transcribed. All interviews were held at the teachers' place of work.

Data Analysis

When the Kolmogorov-Smirnov test for normality and the Levene test for homogeneity of variances of the overexcitability patterns were performed, the non-normal distribution of some variables was observed. Therefore, Kruskal-Wallis and Mann-Whitney's non-parametric tests were used. The data from the interviews were analyzed using content analysis from the perspective of Bardin (1977). The qualitative content analysis aims to investigate signs that are able to build inferences based on four stages: (a) pre-analysis, (B) coding, (c) categorization, and (D) inference.

Results

Quantitative Analysis

The results of the quantitative analysis indicated significant differences between the groups regarding

the imaginational (χ^2 [2, N = 150] = 29.308; p < .001), intellectual (χ^2 [2, N = 150] = 19.126; p < .001) and psychomotor OE (χ^2 [2, N = 150] = 6.602; p = .037). To identify between which groups the significant differences would be located, a Mann-Whitney analysis was performed with the paired groups (see Table 1).

As for the imaginational OE, the differences were found between groups I and III (U = 666.0, z = -4.358, p < .001, d = .402) and between II and III (U = 506.0, z = -4.938, p < .001, d = .479). Gifted students with academic talent (Group I) and artistic talent (Group II) obtained higher averages when compared to non-gifted students (Group III). No significant differences were identified between the groups of gifted students. In relation to intellectual OE, differences were observed between groups I and II (U = 849.5, z = -2.615, p = 0 .009, d = .306) and between I and III (U = 684.0, z = -4.251, p < .001, d = .484). Students with academic talent achieved higher averages than those of students with artistic talent and those of students in mainstream classrooms. No significant differences were identified between the groups of regular and artistically gifted students. With regard to psychomotor OE, differences were noted only between groups I and II (U = 871.5, z = -2.459, p = .014, d = -.287). Academically gifted students presented higher averages than artistically gifted ones. No significant differences were identified between gifted students (Group I and II) and non-gifted students (Group III).

To investigate possible differences between genders regarding overexcitability, a Kruskal-Wallis analysis was performed with all participants. In addition, analyses were also carried out considering two groups: gifted (with academic and artistic talents) and non-gifted students. Overall, differences between female and male genders were identified in the patterns of emotional (χ^2 [1, N = 148] = 13.881; p < .001, d = .340) and intellectual (χ^2 [1, N = 148] = 6.677; p = .010, d = .246) OE. Women obtained higher means on emotional overexcitability (M = 2.76; SD = .63) compared to men (M = 2.23; SD = .80). In contrast, men had higher means in intellectual OE (M = 2.84; SD = .72) when compared to women (M = 2.57; SD = .68). In the analysis involving only the group of gifted students, differences were only identified between the female and male genders in the emotional OE (χ^2 [1, N = 97] = 12.347; p < .001; d

Table 1.
U, Z and p Values Resulting from Mann-Whitney Test that Compared Groups I, II and III in Relation to Overexcitabilities Patterns

			U	Z	*p*
Imaginational OE	group I	group II	1127.000	-.667	.505
		group III	666.000	-4.358	<.001
	group II	group I	1127.000	-.667	.505
		group III	506.000	-4.930	<.001
	group III	group I	666.000	-4.358	<.001
		group II	506.00	-4.930	<.001
Intellectual OE	group I	group II	849.500	-2.615	.009
		group III	684.000	-4.241	<.001
	group II	group I	849.500	-2.615	.009
		group III	938.500	-1.851	.064
	group III	group I	684.000	-4.241	<.001
		group II	938.500	-1.851	.064
Psychomotor OE	group I	group II	871.500	-2.459	.014
		group III	1043.000	-1.870	.062
	group II	group I	871.500	-2.459	.014
		group III	1122.500	-.541	.588
	group III	group I	1043.000	-1.870	.062
		group II	1122.500	-.541	.588

= .764). Women obtained higher means (M = 2.75; SD = .60) when compared to men (M = 2.19; SD= .81). In the group of non-gifted students, gender differences were identified in the patterns of imaginational (χ^2 [1, N = 51] = 4.472; p = .034; d = .620) and intellectual OE (χ^2 [1, N = 51] = 4.112; p = .043; d = .592), in which male participants had higher means than female ones.

Qualitative Analysis

Regarding the teachers' perception of the emotional development of their gifted students, two categories were identified: Emotional Characteristics and Teacher Training. The teachers were identified by P1, P2, P3, P4, P5 and P6. As for the first category, the teachers reported realizing that the emotional aspects of the gifted students affected their development. They also reported that some emotional characteristics are more easily identified and, therefore, can influence the classroom activities as well as world perceptions. These results were grouped into three subcategories: Characteristics Identified in Gifted Students, Influence of Emotional Characteristics in Classroom Activities, and Worldview.

Characteristics Identified in Gifted Students. The teachers mentioned this subcategory based on the report of the characteristics that stood out in the students, such as autonomy, independence, low resistance to frustration, anxiety, insecurity, fear of making a mistake. It is highlighted that most of the reports associated emotional characteristics with disorders and/or psychological frailties, as illustrated next:

> *Many of them come with anxiety, deficiency, independence, very great autonomy, ... doubts... curiosity ... I said anxiety and I think there are the consequences of this anxiety issue, the issue of the rush, the issue of... frustration, the issue of patience actually, when one deals with anxiety there are some aspects that need to be addressed. (P2)*

> *They have... there's the anxiety issue, there's the performance charge issue, there's great fear of non-acceptance, there's antagonism, a duality in the matter if, at the same time, they feel very good at some things, there's very great fear, very great insecurity in other things, I don't know if it is because they perceive that there are better people. (P4)*

Influence of Emotional Characteristics on Classroom Activities. When asked if the emotional characteristics influence the performance of classroom activities, all of the participants answered yes. One teacher, P1, assessed this influence as positive:

> *What is more, on the positive side, as I'm telling you, they have that mutual help, right? They help each other, when they say that they want to write about certain aspects they discuss, exchange ideas and thus help one another in the project. (P1)*

Participants P4 and P5, then, reported the negative bias of this influence. The report of participant P5 is shown as an illustration.

> *They influence and a lot. So we notice a lot of insecurity, sometimes the student is good at writing, but he is insecure because he is worried that the colleague will do better than him, so it stays that way... Is my text good? Is my poetry good? That insecurity like that, so we have to gain that autonomy in them, and keep on saying: you don't have to look at your colleague's. (P5)*

Worldview. The teachers reported that the gifted students present a different worldview from the mainstream students, due to characteristics such as broad learning capacity, intensity, and social concerns, as observed in the statements:

> *When you accumulate knowledge, it changes the way you look at the world, so ... they win, for example, now we are in the electoral period, they accumulate the information that they pick up in the various spaces and they store and this makes them analyze differently everything that comes to them differently, so they experience in a unique way, in my opinion. (P4)*

> *They are on a level, it is not really superior, like, their vision on things it is a little bit beyond the mainstream students, so that's why I think they experience, sometimes what they witness in school that for others passes as if it were nothing, for them the vision is totally different, sometimes they feel that emotionally, they become more sensitized in response to some situation, I think it's really the issue of maturity. (P5)*

To assist gifted students in resource rooms, teachers highlighted the importance of a teacher training that includes content on emotional aspects. These reports, related to the Teacher Training category, were grouped into three subcategories: Importance of the Emotional Dimension in the Education of the Gifted, Evaluation of Training to Attend in Resource Rooms, and Suggestions for Future Training.

Importance of the Emotional Dimension in the Education of the Gifted. Some of the teachers emphasized the importance of knowledge about socio-emotional development of the gifted to work in resource rooms, as the school environment is not

limited to the promotion of cognitive or academic aspects of the student.

> *So when you know and have an understanding it becomes easier to work with the student, you can understand why certain behaviors, why certain statements and then it gets easier, I think you do need, you need to have knowledge. (P1)*

> *It's no use to work only on the intellect, again this difference from mainstream education, which is often just a matter of the intellectual there, but so what? He tried to see, he tried to understand his body, this relationship of this body also with his colleague, this affective construction, which sometimes is not privileged, which most of the time is not privileged and that is not solved with Rivotril, you know? So I see how these aspects are dealt with, you do need to have knowledge of the experience of emotion itself, not only in the student, but in oneself, you see? (P2)*

Evaluation of Training to Attend in Resource Rooms. Although most teachers recognized the importance of knowledge about emotional development for their professional performance, they identified gaps in training regarding this dimension.

> *I believe in the emotional part I did not have training is... in the part of... usually when you come up to your gifted students, you're always thinking about the intellectual part, and then, in the intellectual part it is very quiet because I have a broad education in the field of exact sciences, and you say, ok, I'm going to act as a bridge for these students to the university, because they have above-average knowledge, and they need further processing of that side, but in daily life, you have to deal with that emotional side, and you did not get the specific training to do this, so you learn in every day life, in what you are sensitive to regarding these aspects, but you did not get training. (P4)*

> *The emotional issue, in my training at least, it was not very present, I started to worry a little more now that I am attending and I also have time right, because the number of students is smaller than in mainstream education. (P6)*

Suggestions for Future Training. Due to the gap in the teachers' training for attendance in the resource rooms of high abilities, with regard to the emotional dimension of gifted students, the need was mentioned for more training courses specifically focused on this theme, in addition to case studies.

> *One thing I have in mind when proposing a more formalized situation of this service is to start to bring to the fore, privilege also, case studies of these students with high skills, because from the moment you start, not to confront, but put on the same level, you know... the theories, but also privilege these case studies that sometimes unfold this theory, I see a much larger learning situation, which this is, right... You deal with the real, you're there in the trenches, it's happening constantly and sometimes they unfold what you learned in theory, sometimes not, always, that is the classroom... So I see that bringing up in the discursive field, case studies, particularities, would be very enriching. (P2)*

> *I believe that just like we had a course to attend to special students, for high abilities, before entering the resource room, perhaps it would be interesting to discuss the emotional profile, within what has already been studied in the literature, within research. (P4)*

Two teachers, P1 and P6, highlighted the importance of more training courses, but also questioned the role of the psychologist, reporting that the service related to the emotional dimension could be a task for this professional.

> *I think really more courses, you know... especially on the emotional side, because the courses that we have here, which they bring to us, most are more focused on this academic side actually, how you work, how you identify... But I, like, I think I've never seen anyone treat this emotional side, I think it would have to involve psychologists more... I don't know... (P1)*

> *I think if they offered a subject focused on this issue in the training courses, right, but I will be repetitive, I do not know either if this is one of the tasks of the psychologist, because we have a psychologist at the service for students with high abilities/giftedness. (P6)*

Discussion

When comparing the groups concerning the overexcitabilities, statistically significant differences were identified in the patterns of intellectual, imaginative, and psychomotor OE. With regard to the intellectual OE, the gifted students with academic talent presented higher means than students with artistic talents and mainstream student, indicating that, according to the literature in the area, that these students tend to have more intensified and accelerated activity in the mind, as well as greater interest in the search for knowledge, critical thinking skills, the development of new concepts, in addition to the trend to be more perfectionist (Chia & Lim, 2017; Piechowski, 2015). It is noteworthy that, in the study by Mofield and Peters (2015), intellectual OE

was positively correlated with healthy perfectionism. Eiserman et al. (2015) state that, in the gifted, this pattern of overexcitability can be expressed in the ability to ask grounded questions, critical analysis and synthesis skills, in addition to great love for learning, as it is not specifically about intelligence, but rather passion and interest in the learning process (Ackerman, 2009). Similar results were presented in studies involving research with academically talented gifted students (Carman, 2011; Harrison & Hanegehan, 2011; Siu, 2010; Wirthwein & Rost, 2011). It is also important to highlight the intense participation of gifted academics in competitive activities, such as the Olympics of Mathematics, Physics, Languages, especially in countries such as the United States and Asia. These activities require the ability to concentrate, analyze, think of theoretical problems, and problem solving skills, characteristics presented in the standard of intellectual OE (Mendaglio & Tiller, 2006).

As for the pattern of imaginative OE, gifted students with academic and artistic talent obtained higher averages when compared to mainstream students. No significant differences were identified between the groups of gifted students. In his studies, Dabrowski realized that the gifted have great imaginative capacity, which can be expressed, among other aspects, by the use of metaphors in verbal expression, fear of the unknown, poetic creativity, detailed and vivid dreams (Rinn & Reynolds, 2012; Piechowski, 2015). In addition, he identified that divergent thinking is essential for creative expressions, as it is associated with the courage to take risks through unconventional strategies for solving problems and obstacles (Eiserman et al., 2015; Renzulli, 2005). This result confirms the study by Harrison and Hanegehan (2011), which indicated that gifted students obtained higher scores in the imaginative SE, compared to the students in mainstream education, in addition to presenting higher levels of fear of the unknown which, associated with high creative expression, can foster unusual coping strategies.

In the psychomotor OE pattern, students with academic talent presented higher averages than those with artistic talent. The pattern of psychomotor overexcitability should not be associated only with athletic ability or physical dexterity. People with these characteristics can also present fast speech, impulsiveness, competitiveness and at the same time be active and highly enthusiastic (Ackerman, 2009; Miller et al., 2009; Rinn & Reynolds, 2012). The prevalence of this pattern in this group of students may be associated with high competitiveness resulting from academic activities that are usually reinforced by parameters of measurement and assessment of academic performance.

When analyzing the relationship between the overexcitabilities and gender, it could be noticed that, in the evaluation involving all study participants, significant differences were identified between the male and female gender in the patterns of emotional and intellectual OE, in which women obtained higher averages in emotional OE and men in intellectual OE. This result was similar to that of the study by He and Wong (2014). In the study developed by Oliveira and Barbosa (2018), women obtained higher scores in the emotional OE pattern, while significant differences between genders were not identified in relation to intellectual OE. The spread of pre-established sociocultural models for men and women can influence the expression of socio-emotional characteristics. From a very early age, aspects such as independence, search for knowledge, access to different sources of stimuli, factors related with intellectual OE, are reinforced in men, although increasing movements of women encouragement and support to enter into culturally masculine environments, such as science and politics, are becoming stronger. Still, characteristics such as sensitivity, fragility, interest in social issues, elements present in emotional OE, are still associated with the female gender (Boston & Cippiam, 2018; Kerr & Multon, 2015; Prado, 2018; Siu, 2010).

In the group of – artistically and academically – talented students, only differences between genders were identified in the emotional OE pattern, in which women obtained higher averages when compared to men, a conclusion similar to that obtained in the study by Siu (2010). Emotional OE is expressed through profound sensitivity, complex emotions, high levels of empathy and compassion, being indispensable to reach the highest level of development (Miller et al., 2009; Piechowski, 2015). Gifted women often seek to use their talents to benefit society, as they tend to consider the ability to produce a positive impact in the lives of other people, or on the planet, as standards of success, in addition to being able to live a life based on a system of values that upholds honesty, integrity and compassion (Reis, 2012). In the study by Piirto and Fraas (2012), among the gifted, men had higher levels in the pattern of intellectual OE when compared to women, which was not identified in this study. The hypothesis is raised that the resource rooms where this research was conducted tend to reinforce the interests and aspirations of girls, even if they are similar to what society

considers appropriate for boys, such as, for example, mathematics and/or robotics, stimulating the search for knowledge and awakening the love for learning (Ackerman, 2009; Prado, 2018).

In the group of mainstream students, gender differences were identified in the imaginational and intellectual OE patterns, in which the male participants presented higher averages than the female ones. It is noteworthy that, in adolescence, the period of development the study participants were in, there is increasing social pressure for women to devote themselves to the group's own interests and to the social adaptation to gender stereotypes. Generally, intensities in the way of experiencing life, which may derive from the patterns of overexcitabilities, are more valued for the male gender than for the female, which may justify the achievement of higher averages by male students in the aforementioned OE (Kerr & Multon, 2015; Prado, 2018).

With regard to the results regarding the teachers' perception of the emotional development of gifted students, it is interesting to point out the relevance that teachers attributed to this dimension. All participants recognized it as fundamental for the student's development although, when asked about the most noticeable characteristics, they more often associated psychological disorders and weaknesses to this group, as indicated in the subcategory Characteristics Identified in Gifted Students. Based on the myths and stereotypes associated with giftedness, it is possible that the teachers' evaluation followed the standards of common sense, which interprets the characteristics of the gifted with a negative bias, mistakenly attributing a profile to this group as being maladjusted and vulnerable from a psychological point of view. For the Theory of Positive Disintegration, however, these characteristics may be indicative of greater development potential, as factors that generate internal conflicts are identified as propelling elements for the advanced development of the human being (Delallo, 2017; Piirto, 2010; Piechowski, 2015, 2017; Rinn & Reynolds, 2012).

Another aspect concerning the emotional characteristics is the students' worldview. Three teachers expressed that the gifted perceive life differently from the mainstream students. Among the factors associated with this perception, emotional intensity, broad learning capacity and social concerns were highlighted. The intensity the teachers reported can be a consequence of the overexcitabilities reflection in the way of living life (Ackerman, 2009; Oliveira & Barbosa, 2015; Piechowski, 2017). In addition, aspects such as broad learning capacity and social concerns are directly related to the presence of overexcitabilities, also influenced in classroom activities, as expressed in the subcategory Influence of the Emotional Characteristics in Classroom Activities. These reports corroborate the quantitative results obtained in this study by applying the self-report scale, in which talented students presented significantly higher averages than mainstream students for intellectual and imaginational OE patterns, in line with what the literature appoints about the characteristics of gifted individuals (Rinn & Reynolds, 2012; Piechowski, 2015).

With regard to teacher training, some of the teachers recognized the importance of understanding the emotional dimension of the gifted, as these individuals experience the world differently from their peers. Therefore, they are often misunderstood. Some characteristics of these people are easily confused, such as, for example, high level of energy with hyperactivity, questioning with challenge to authority, imagination with lack of attention, and may affect the school and family dynamics (Piechowski, 2015; Prado, 2018). Thus, having access to knowledge about the socio-emotional development of students with high abilities is an important step in the instrumentation of school psychologists, teachers, managers and family members in the adoption of strategies and practices that meet the needs of these students. As a suggestion for future training, teachers indicated the organization of more courses focused on this dimension, in addition to case studies that promote reflections about the emotional development of these students.

Still in the Teacher Training category, some teachers questioned the participation of resource room psychologists in the process of understanding and interventions in the emotional sphere. According to Fleith (2015), the school psychologist has the important role of contributing to make the school environment suitable to meet the cognitive and affective needs of gifted students. Therefore, changes are necessary in the initial and continuing training of this professional, in order to better prepare him/her to deal with the various phenomena that arise in the school context. In addition, understanding the processes involved in the student's affective development can assist in the development and implementation of psychological counseling and mentoring programs, for example, with the aim of promoting the healthy

development of gifted students (Ackerman, 2009; Pfeiffer & Burko, 2016).

Final Considerations

The results of this research indicated a relationship between giftedness and overexcitabilities. For this reason, in view of the ability to distinguish between gifted and non-gifted people, instruments should be used that evaluate this construct in the process of identifying talent, as well as in the construction of more effective educational and family practices. As limitations of this study, we point to the use of a convenience sample, not being representative of gifted students and mainstream students in the Federal District or other Brazilian states. New studies could investigate how the patterns of overexcitabilities in gifted people affect the interpersonal relationships in the school, family and work contexts. It is also recommended to evaluate the relationship of overexcitabilities with the learning process. Also important is the development of research involving gifted individuals in different domain areas, in order to examine relationships between overexcitability patterns and these areas, as well as studies that seek to analyze OE patterns in eminent people.

In addition, investing in educational strategies that use information deriving from OE standards can contribute to the learning process of the gifted, keeping them motivated. It is recommended to intentionally focus on activities that stimulate critical thinking, multiple possibilities of problem solving, inquiries and creative ideas. Finally, it is essential to include the topic of the emotional development of the gifted student in proposals for initial and continuing professional training of teachers and school psychologists.

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