

# International Journal of Health Science

ISSN 2764-0159

vol. 5, n. 31, 2025

## ... ARTICLE 9

Acceptance date: 07/10/2025

# GIFTEDNESS BEYOND IQ: ASSESSMENT GAPS, COMPLEMENTARY INTELLIGENCES, AND MULTIDIMENSIONAL CHALLENGES IN THE BRAZILIAN CONTEXT

## **Fabiano de Abreu Agrela Rodrigues**

Post-PhD in Neuroscience, specializing in Genomics Heráclito Research and Analysis Center (CPAH),  
Department of Neuroscience and Genomics, Brazil & Portugal  
<https://orcid.org/0000-0002-5487-5852>

## **Sidnei Brezolin de Freitas**

Specialist in Neuroscience, Communication, and Human Development and Specialist in Human Behavior Heraclitus Research and Analysis Center (CPAH), Department of Neuroscience and Genomics, Brazil & Portugal  
<https://orcid.org/0009-0000-1124-4711>

## **Camila Leão de Matos Brezolin**

Specialist in Neuroscience, Communication, and Human Development, Specialist in Human Behavior and Specialist in Conflict Conciliation and Mediation Heráclito Research and Analysis Center (CPAH), Department of Neuroscience and Genomics, Brazil & Portugal  
<https://orcid.org/0009-0009-1009-1157>



Todo o conteúdo desta revista está licenciado sob a Licença Creative Commons Atribuição 4.0 Internacional (CC BY 4.0).

**Abstract:** The objective of this study is to obtain an idea of the average number of people diagnosed with giftedness who have not undergone a complete assessment for other conditions, such as predisposition to dual exceptionality or dual exceptionality. In addition, we aim to verify whether tests were performed to analyze emotional intelligence, social intelligence, and subjective creativity. The purpose of this study is to highlight the importance of self-knowledge, providing greater transparency about one's own mental and behavioral processes, with the aim of promoting well-being and preventing psychological problems. The study interviewed members of the Gifted Debate project, composed of people associated with high IQ societies, with scores between 130 and 160. Data from bibliographic reviews were also used. The Gifted Debate group is part of CPAH – Heráclito Research and Analysis Center, and has as partners high IQ societies, as well as a library and a catalog with thousands of gifted people around the world. It also has the support of professionals specializing in giftedness, intelligence, and mental disorders. The goal of the Gifted Debate group is to promote interaction among gifted individuals to encourage self-knowledge, learning, research, information recording, access to opportunities, the creation of a legacy, and the therapeutic process, aiming to meet the need for new discoveries. The research will be conducted through multiple-choice questions, described in the body of the study.

**Keywords:** Giftedness; Double exceptionality; Emotional intelligence; Social intelligence; Subjective creativity; Self-knowledge; High IQ; Psychological research; Well-being; Mental processes.

## Introduction

The assessment of giftedness has traditionally been based on Intelligence Quotient (IQ) tests, such as the WAIS-IV or Raven's Test, which measure specific cognitive abilities. However, this reductionist approach fails to consider other relevant dimensions of human intelligence, such as emotional, social, and creative skills. This gap compromises not only the identification of individuals with diverse talents, but also the formulation of appropriate pedagogical and psychosocial interventions (GOLEMAN, 1995; GARDNER, 1983; RENZULLI, 2005). The present study seeks to investigate the percentage of gifted individuals who have not undergone a multidimensional assessment, identifying the absence of complementary tests focused on intelligences that are also part of cognition but are not measured. The scientific and social relevance of the research lies in the need to update the criteria for identifying giftedness, especially in view of inclusive educational demands and the growing appreciation of creativity and emotional intelligence in complex social contexts. This work is based on renowned international authors, such as Sternberg (2018), Renzulli (2005), and Goleman (1995), and contributes original data in the Brazilian context.

## Theoretical framework

### 1. IQ tests and their limitations:

Tests such as WAIS-IV, WISC-V, and Raven mainly assess logical reasoning, working memory, and processing speed (BENSON et al., 2010). Despite their psychometric robustness, these instruments do not consider interpersonal, self-regulatory, or creative skills, generating a bias in the diagnosis of giftedness (GARDNER, 1983).

**2. Unmeasured intelligences: emotional, social, and creativity:** According to Goleman (1995), emotional intelligence involves self-awareness, self-regulation, empathy, and social skills. Social intelligence refers to the ability to interpret, react, and adapt to interpersonal interactions (POWERS et al., 2018). Creativity, especially in its divergent and subjective form, requires specific instruments such as the TTCT (TORRANCE, 1974) and is associated with cognitive flexibility and ideational fluency (KIM, 2006).

**3. Dual Exceptionality:** Gifted individuals with associated conditions (such as ADHD or ASD) have complex profiles that require expanded assessment (FLEITH, 2007). The absence of adequate instruments can lead to the underestimation of their talents and institutional invisibility (ALENCAR; FLEITH, 2001).

**4. Neurofunctionality of giftedness:** Although important, neurological details must be articulated with educational and psychometric aspects. Studies indicate differentiated activation in executive and default mode networks (BEATY et al., 2016), but their pedagogical usefulness depends on integration with behavioral and contextual data.

## Method

**Design:** Exploratory, quantitative, and descriptive research.

**Sample:** 51 participants with a giftedness report, members of the “Gifted Debate” project and associated with high IQ societies (130-160).

**Inclusion criteria:** Minimum age of 18 years, proof of giftedness, informed consent.

**Instrument:** Questionnaire with closed (multiple choice) and open questions, addressing assessment history, presence of dual exceptionality, and use of complementary tests (emotional, social, creative).

**Procedures:** Remote application via electronic form.

**Data analysis:** Descriptive statistics (frequencies, percentages) using SPSS v.26 software.

## Results

The results were organized into four categories:

1. **IQ tests used:** 43.1% WAIS-III/IV; 47.1% alternative tests (Mensa, Raven, etc.).
2. **Absence of complementary assessment:** 41.2% did not take tests other than IQ tests.
3. **Unmeasured intelligences:** Only 13.7% took tests that included EI, creativity, and social intelligence.
4. **Double exceptionality:** 18.2% with confirmed diagnosis, 9.1% under investigation.

## Discussion

The findings corroborate national and international literature on the inadequacy of an exclusively psychometric approach to assessing giftedness (RENZULLI, 2005; FLEITH, 2007). The low incidence of emotional intelligence and creativity tests (13.7%) reinforces the thesis that many gifted individuals remain partially unidentified.

Authors such as Sternberg (2018) and Alencar (2001) argue that skills such as creative thinking and emotional self-regulation are more reliable predictors of success in complex environments than IQ alone. The lack of tests such as MSCEIT, EQ-i, TTCT, and WGCTA in assessment protocols compromises the full recognition of diverse talents.

Limitations include selection bias (self-reported and restricted sample), lack of control over the reports presented, and lack of triangulation with qualitative methods.

### 1. Intelligences and Skills Measured by IQ Tests

IQ tests, especially the WAIS-IV (Wechsler Adult Intelligence Scale – Fourth Edition), are widely used to measure cognitive abilities in different domains. The main abilities assessed include:

- **Crystallized Ability (Gc):** Related to acquired knowledge, especially through formal education, including verbal comprehension and verbal reasoning.
- **Fluid Reasoning (Gf):** Involves the ability to solve new problems without the use of prior knowledge, which is essential in abstract reasoning and problem-solving tasks.
- **Visual Processing (Gv):** Assessed through visual perception tests and mental manipulation of images, such as the organization and interpretation of visual stimuli.
- **Short-Term Memory (Gsm):** Related to the ability to retain and manipulate information for brief

periods, measuring the functioning of working memory.

- **Processing Speed (Ps):** Assessed through tasks that require rapid decision-making and execution, such as identifying patterns in sequences of symbols or numbers (Benson et al., 2010).

## Skills Not Measured by IQ Tests

Although IQ is a robust tool for measuring fundamental cognitive abilities, it fails to capture critical aspects of human behavior, such as:

- **Emotional Intelligence:** The ability to understand and manage one's own emotions and the emotions of others, which is fundamental to building healthy interpersonal relationships and psychological well-being. This skill involves self-awareness, self-regulation, motivation, empathy, and social skills.
- **Social Intelligence:** The ability to understand and interact effectively with other people in different social contexts. It involves social perception, the ability to interpret social cues, empathy, effective communication, and the ability to build and maintain relationships.
- **Subjective Creativity:** The ability to generate new and original ideas, find innovative solutions to problems, and think divergently. Creativity can manifest itself in various areas, such as the arts, scien-

ces, writing, and everyday problem solving (Molenaar et al., 2017).

- **Practical Intelligence:** The ability to apply knowledge and skills to solve practical everyday problems, deal with complex situations, and make effective decisions in realworld contexts.
- **Critical Thinking:** The ability to analyze information objectively, question ideas, identify biases, and form independent judgments.

## Relationship Between Emotional Intelligence, Social Intelligence, and Subjective Creativity

Emotional intelligence (EI) plays a central role in social intelligence and subjective creativity. People with high EI tend to have more advanced social skills, as they are able to perceive and regulate their own emotions and those of others, facilitating effective social interactions. In addition, EI is associated with subjective creativity, as recognizing and regulating emotions can foster the generation of innovative and original ideas, which are necessary for solving complex problems in dynamic environments.

**Conclusion:** Although IQ tests are powerful tools for assessing cognitive abilities, they have clear limitations in that they do not consider essential aspects of human intelligence, such as emotional and social intelligence, as well as creativity. Recognizing these limitations is crucial to ensuring that giftedness is understood more broadly, going beyond the cognitive abilities measurable by a traditional IQ test. For the assessment of emotional intelligence, for exam-

ple, the **MSCEIT (Mayer-Salovey-Caruso Emotional Intelligence Test)** stands out, measuring the ability to perceive, understand, and regulate emotions based on performance tasks, and is widely validated in clinical and educational contexts (Mayer et al., 2003). Another widely used option is the EQ-i 2.0 (Emotional Quotient Inventory), based on Bar-On's model, which assesses emotional intelligence through 15 subscales distributed across five essential emotional dimensions (Bar-On, 2006). In the field of creativity, the Torrance Tests of Creative Thinking (TTCT) is considered the gold standard for measuring divergent creativity, assessing fluency, flexibility, originality, and elaboration (Kim, 2006). Finally, in the domain of critical thinking, the Watson-Glaser Critical Thinking Appraisal (WGCTA) allows for the psychometrically robust assessment of the skills of analysis, inference, judgment, and logical reasoning, which are fundamental to complex thinking (Watson & Glaser, 2012). The inclusion of these instruments broadens the evaluative spectrum of giftedness, allowing for a more complete and tailored approach to human abilities not captured by traditional IQ tests.

## Types of Creativity and Measurement in IQ Tests

Creativity can be categorized into different types, the main ones being:

- **Divergent Creativity:** Refers to the ability to generate multiple solutions to a problem or situation. Tests such as the Torrance Test of Creative Thinking (TTCT) measure this ability, focusing on originality, fluency, and flexibility in thinking.

- **Convergent Creativity:** Refers to the ability to arrive at a single, correct solution to a problem, based on previously acquired knowledge. This type of creativity overlaps with fluid reasoning and problem solving, aspects often measured in IQ tests, such as the WAIS-IV, through subtests of logical reasoning and mathematical problems (Benson et al., 2010).

However, subjective creativity, which involves personal innovation and emotions, is not directly assessed in IQ tests, which tend to focus on logical and objective problem solving. IQ tests predominantly measure convergent creativity, that is, the ability to identify unique and correct solutions to defined problems.

## Regions, Subregions, and Subcortical Regions Involved in Cognitive and Emotional Functions

### a) Regions Involved in IQ Testing

IQ tests activate a broad network of cortical and subcortical areas responsible for various cognitive functions:

- **Dorsolateral Prefrontal Cortex (DLPFC):** Crucial for executive functions such as planning, problem solving, and inhibitory control, it is highly activated in logical reasoning tasks.
- **Ventrolateral Prefrontal Cortex (VLPFC):** Involved in inhibitory control and working memory, playing an important role in tasks that require information manipulation.

- **Superior Parietal Cortex:** Responsible for sensory and spatial integration, essential for tasks involving object manipulation and visual reasoning.
- **Temporal Cortex:** Important in verbal comprehension and memory, it processes auditory information and plays a vital role in linguistic tasks.
- **Thalamus:** Acts as a relay center for sensory information to the cerebral cortex, contributing to sensory integration, which is fundamental for processing visual and auditory stimuli.
- **Hippocampus:** Involved in short-term memory and working memory, necessary for storing and manipulating information during the execution of complex tasks (Michel et al., 2013).

### b) Regions Involved in Emotional Intelligence

Emotional intelligence, which involves the perception, understanding, and regulation of emotions, depends on a complex brain network:

- **Amygdala:** Central to emotional processing, it plays a key role in emotional learning and the formation of emotional memories, especially in situations of fear and threat.
- **Ventromedial Prefrontal Cortex (vmPFC):** Essential for regulating emotions, it is involved in decision-making based on emotional information.



- **Orbitofrontal cortex (OFC):** Important in evaluating rewards and modulating emotional reactions in social contexts.
- **Insular cortex:** Related to interoceptive awareness and the processing of emotions such as disgust and empathy, contributing to the perception of bodily sensations associated with emotions (Schneiderman et al., 2018).

### c) Regions Involved in Social Intelligence

Social intelligence, which involves the ability to interpret and respond to complex social interactions, depends on several cortical areas associated with social cognition:

- **Temporoparietal Junction (TPJ):** Crucial for perspective taking and inferring others' mental states, it is a key area in "theory of mind" — the ability to understand the intentions and emotions of others.
- **Superior Temporal Sulcus (STS):** Involved in the perception of facial expressions and the interpretation of social cues, such as eye movements and changes in expressions.
- **Medial Prefrontal Cortex:** Participates in social cognition, empathy, and emotional regulation in social contexts, helping to understand the emotions and intentions of others (Powers et al., 2018).

### d) Regions Involved in Subjective Creativity and Other Types of Creativity

Creativity is often divided into convergent creativity and divergent creativity, with each type involving different neural networks. In IQ tests, especially the WAIS, convergent creativity is the most commonly assessed.

- **Convergent Creativity:** Refers to the ability to find a correct solution to structured problems, such as those proposed in logical reasoning and problem-solving tests. This type of creativity is related to the Executive Control Network, which involves the dorsolateral prefrontal cortex (DLPFC) and the parietal cortex. These areas control attention, focus, and the ability to select relevant information. Convergent creativity is directly measured in IQ tests, as many tasks require the individual to arrive at a single, correct solution by applying logic and prior knowledge. Thus, IQ measures this type of creativity through subtests such as perceptual reasoning and fluid reasoning (Benson et al., 2010).
- **Divergent Creativity:** Refers to the ability to generate multiple solutions or original ideas for an unstructured problem. This type of creativity is most often associated with the Default Mode Network (DMN), which includes areas such as the medial prefrontal cortex, hippocampus, and posterior cingulate cortex. The DMN is activated during mental rest, daydreaming, and when the individual is engaged in imaginative processes and associations of ideas. Divergent creativity is not directly measured in IQ tests, as these are designed to assess the ability to solve problems with a single correct solution, rather than the ability to generate multiple solutions or innovative alternatives (Beaty et al., 2016).

- **Subjective Creativity:** Refers to personal innovation, where experience and emotional perception play a central role. This type of creativity involves both the Default Mode Network and the Executive Control Network, highlighting the importance of introspection (DMN) and conscious control (Executive Control Network) in the production of creative ideas that are also personal and emotionally meaningful. However, subjective creativity is not assessed in IQ tests, as these instruments focus on more objective and structured skills, not covering the subjective and emotional processes that characterize this form of creativity.

In IQ tests, convergent creativity is the main measure, being assessed in tasks that require the identification of unique and logical solutions to defined problems. On the other hand, divergent creativity and subjective creativity, which involve spontaneous thinking and imaginative processes, are not addressed in these tests, as they do not fit the structured, correct-answer-oriented format of IQ tests.

#### e) Neurotransmitters and Related Genes

Cognitive and emotional processes, as well as creativity, are modulated by different neurotransmitters and genes, depending on the specific functions involved.

### Neurotransmitters Related to IQ Testing

In IQ tests, which predominantly assess executive functions, logical reasoning,

and working memory, some neurotransmitters are crucial for cognitive performance:

- **Dopamine:** Dopamine plays a central role in regulating executive function, which includes planning, problem solving, and inhibitory control, all of which are fundamental to IQ tasks. It acts primarily in the dorsolateral prefrontal cortex (DLPFC), which is involved in decision-making and logical reasoning. In addition, the dopaminergic system also affects subcortical areas, such as the nucleus accumbens, which influences motivation to perform cognitive tasks. In IQ tests, high dopamine levels at the time of testing are associated with better performance on tasks that require focus, working memory, and rapid information processing (Fusar-Poli et al., 2017).
- **Norepinephrine:** This neurotransmitter is also involved in controlling attention and stress response during cognitive tasks. Norepinephrine modulates the activation of the parietal cortex and prefrontal areas, optimizing performance in logical reasoning and working memory tasks, commonly tested in IQ.

### Neurotransmitters Related to Emotional, Social, and Creative Intelligence

Forms of intelligence that are not completely captured by IQ tests, such as emotional and social intelligence and subjective



creativity, involve other neurochemical systems and broader neural networks:

- **Serotonin:** Crucial for emotional regulation and social behaviors, serotonin acts predominantly in the orbitofrontal cortex and amygdala, areas involved in controlling mood, aggression, and response to social stress. These processes are more directly related to emotional and social intelligence, which are not directly measured in IQ tests. Serotonin modulates interpersonal behaviors, such as empathy and cooperation, which are central to social interaction.
- **Oxytocin:** Known as the “social bonding neurotransmitter,” oxytocin regulates social interactions and attachment behaviors. It acts in the medial prefrontal cortex and amygdala, facilitating understanding of others’ emotions and social behavior, aspects of emotional and social intelligence that are not captured in IQ measures.
- **Dopamine in Creativity:** Although dopamine is also involved in executive control, its role in creative processes is different. In the Default Mode Network (DMN), which involves the hippocampus and medial prefrontal cortex, dopamine modulates spontaneous and imaginative thinking, necessary for divergent creativity, which is the ability to generate multiple original ideas. This type of creativity is not directly assessed in IQ tests, which focus on convergent and logical solutions.

## Genes Related to Cognitive and Emotional Functions

Like neurotransmitters, different genes influence cognitive and emotional functions, modulating performance on IQ tests as well as other forms of intelligence:

- **COMT (Catechol-O-Methyltransferase):** The COMT gene regulates dopamine in the prefrontal cortex, directly affecting executive control and working memory, which are crucial for performance on IQ tests. Polymorphisms in the COMT gene influence the efficiency of dopaminergic processing, resulting in significant individual variations in cognitive performance (Egan et al., 2001).
- **BDNF (Brain-Derived Neurotrophic Factor):** The BDNF gene plays an essential role in synaptic plasticity, which is crucial for learning and memory. It influences the formation of new neural connections in the hippocampus and prefrontal cortex, which is fundamental for creative and learning processes. BDNF is most associated with subjective creativity and divergent thinking, as it facilitates the association of ideas and the formation of new connections between concepts. Variation in this gene can significantly affect cognitive adaptability, although these creative functions are not captured in IQ tests.
- **OXTR (Oxytocin Receptor):** This gene encodes the oxytocin receptor and is related to the ability to form social bonds and unders-

tand the emotions of others, being more relevant to emotional and social intelligence. Individuals with functional variants in the OXTR gene tend to have greater emotional sensitivity and enhanced social skills, aspects that are not measured in traditional IQ tests.

Therefore, while IQ tests predominantly assess executive function and logical problem solving, which are mainly modulated by dopamine and norepinephrine, forms of emotional intelligence, social intelligence, and subjective creativity depend on other neurotransmitters, such as serotonin and oxytocin, as well as specific genes such as OXTR and BDNF, which influence emotional learning processes and cognitive flexibility, areas not captured by IQ tests.

This integration between neural networks and neurotransmitters highlights how different areas of the brain and chemicals influence both cognitive functions, measured in IQ tests, and emotional and creative functions, which are not fully captured by these tests.

## **Brain Functioning in Gifted Individuals with Dual Exceptionality: Impact on Intelligences Not Measured by IQ Tests**

Dual exceptionality refers to individuals who are simultaneously gifted and have some type of additional condition, such as learning disabilities, ADHD, autism, or emotional disorders. These conditions directly influence not only the cognitive functions typical of giftedness, but also emotional, social, and creative intelligences—areas that are not fully measured by IQ tests.

## **Impact of the Adjacent Condition on Cognitive and Non-Cognitive Functions**

Gifted individuals with dual exceptionality often have a unique cognitive profile, where giftedness and the associated condition interact in complex ways. This interaction can create specific challenges in areas not captured by traditional IQ tests, such as emotional and social intelligence and subjective creativity. Let's look at how different associated conditions influence these intelligences.

### **a) The Brain of Gifted Individuals with ADHD and Its Impact on Emotional and Social Intelligence**

In the case of gifted individuals with Attention Deficit Hyperactivity Disorder (ADHD), there is a significant alteration in the dopaminergic system, particularly in the areas of the prefrontal cortex and nucleus accumbens, which affect executive control and attention. Although ADHD can impair performance on IQ tests—due to the difficulty of sustaining attention on monotonous and lengthy tasks—it also directly influences emotional and social intelligence, which are not measured in these tests.

- **Affected regions:** The ventromedial prefrontal cortex (vmPFC), responsible for emotional regulation, and the amygdala, crucial for emotional response, have altered functioning in ADHD. This impairs the individual's ability to recognize and regulate their own emotions, resulting in difficulties in emotional intelligence (Soutschek et al., 2016).
- **Social interactions:** Dysfunction in the medial prefrontal cor-

tex and temporoparietal junction (TPJ), areas critical for empathy and understanding the intentions of others, can also impair social intelligence, making interpersonal interactions difficult (Schneiderman et al., 2018).

Although gifted individuals with ADHD may perform well on intellectual tasks, their lack of emotional regulation and difficulty with social interactions can compromise their performance in environments that require interpersonal and emotional skills.

### b) Gifted Individuals with Autism and Subjective Creativity

In gifted individuals with Autism Spectrum Disorder (ASD), the pattern of brain connectivity is different, with local hyperconnectivity and global hypoconnectivity, which alters the way the brain processes complex and abstract information. This change affects not only the cognitive skills measured in IQ tests, but also areas of creativity, especially subjective creativity.

- **Affected regions:** In autism, the functioning of the Default Mode Network (DMN), responsible for introspection and divergent thinking, is impaired. The medial prefrontal cortex and posterior cingulate cortex, parts of this network, are essential for generating new associations and creative ideas. Although gifted individuals with ASD may demonstrate great ability in convergent reasoning tasks (as measured on IQ tests), their difficulty with more spontaneous and subjective creative processing may limit their creativity in tasks

involving innovation and mental flexibility (Zhao et al., 2021).

- **Creativity:** Individuals with ASD often excel at convergent creativity, which involves the rigorous application of rules and objective problem solving, a skill often measured in IQ tests. However, their divergent creativity, which requires thinking “outside the box,” is limited due to difficulty in generating spontaneous and imaginative associations (Beaty et al., 2016).

### c) Gifted Individuals with Emotional Disorders and Emotional Intelligence

Gifted individuals who suffer from emotional disorders, such as depression or anxiety, exhibit hyperactivity in brain areas involved in processing negative emotions, such as the amygdala and ventromedial prefrontal cortex. These regions, involved in the perception and regulation of emotions, can impair their emotional intelligence, an area that IQ tests do not adequately capture.

- **Affected regions:** Hyperactivity of the amygdala in response to emotional stimuli can lead to difficulties in emotional self-regulation, impairing the ability to cope with negative emotions and stress. In addition, the hippocampus, involved in the formation of emotional memories, may also be affected, exacerbating the difficulty of controlling emotions related to past events (Fusar-Poli et al., 2017).
- **Social performance:** Interaction with other people may also be impaired, as anxiety or depression diminishes the ability to adequately process social cues, affecting social

intelligence. This is particularly evident in gifted individuals who, despite their intellectual abilities, may suffer from social isolation due to difficulty maintaining healthy interpersonal relationships (Powers et al., 2018).

## Results

Fifty-one gifted individuals were interviewed, all members of the *Gifted Debate* project, with IQ scores between 130 and 160, members of high IQ societies who provided proof of their reports for admission to these societies. Based on the responses obtained, the main findings of the study include:

### IQ tests taken:

- 47.1% reported having taken tests from other institutions, such as the Mensa test.
- 43.1% of participants took the WAIS-III or WAIS-IV in adulthood.
- 15.7% took the Raven test.
- 6% took tests such as Miller, RIAS-2, and Binet
- 5.9% took the Cattell test.
- 3.9% reported having taken the WISC test during childhood.
- 2% took the WASI, which is short for Wechsler Scale
- 2% took the ISPE online test.

### Complementary assessments:

- 41.2% of participants reported not having taken any complemen-

tary assessments other than the IQ test.

- 58.8% underwent additional assessments to investigate conditions such as ADHD or autism.

### Dual exceptionality:

- 18.2% of gifted individuals received a diagnosis of dual exceptionality.
- 9.1% are under investigation for dual exceptionality.
- 70.5% were not diagnosed with another condition.
- 1 person (2%) with *Tourette Syndrome* and *Obsessive-Compulsive Disorder*
- Note: This question was answered by 44 of the 51 total participants in the sample.

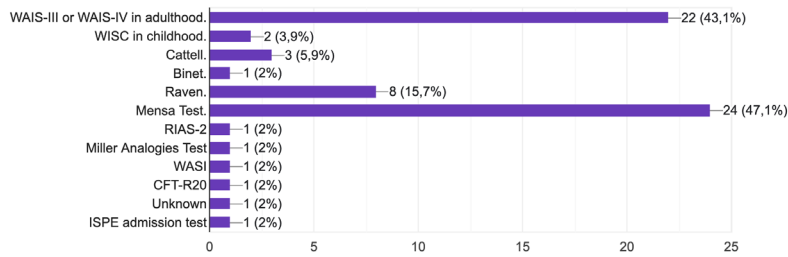
### Assessment of intelligences not measured by IQ tests:

- 13.7% took tests for emotional intelligence.
- 11.8% took tests for social intelligence.
- 17.6% took tests for creativity.
- 13.7% took tests that assessed all of these areas.
- 64.7% only took the IQ test.

These results highlight the limitations of assessing giftedness based solely on IQ tests, leaving aside emotional, social, and creative intelligences that are also important for the full development of gifted individuals.

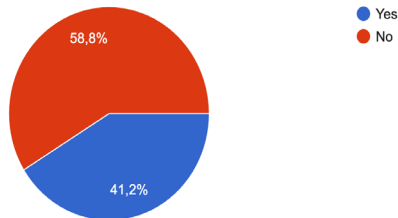
### Which IQ test did you take for your giftedness diagnosis?

51 respostas



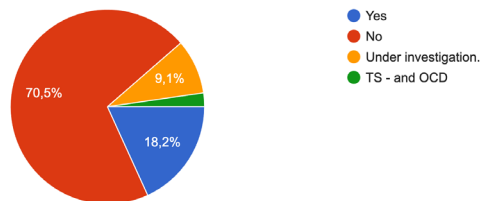
### In addition to the IQ test, did you undergo any complementary evaluation to investigate other conditions, such as learning difficulties, ADHD, autism, etc.?

51 respostas



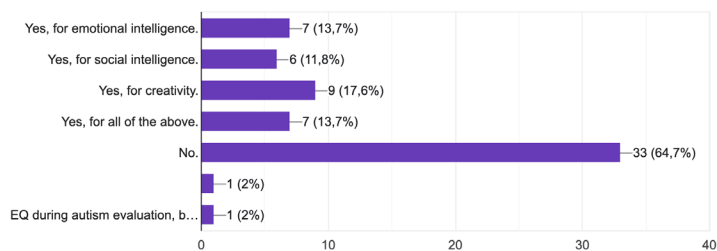
### Have you been diagnosed with dual exceptionality (giftedness and another condition)?

44 respostas



### Have you ever taken any test or evaluation to analyze your emotional intelligence, social intelligence, or creativity?

51 respostas



## Discussion

This study, through a questionnaire administered to 51 gifted individuals who are members of the Gifted Debate project, aimed to analyze the prevalence and nature of assessments performed to identify giftedness, highlighting the importance of a comprehensive assessment that goes beyond the isolated measurement of IQ.

We observed that 43.1% of participants took the WAIS-III or WAIS-IV, widely recognized and used IQ tests known for their ability to measure various cognitive abilities. A significant portion (47.1%) opted for tests from other institutions, such as the Mensa test, which, although useful for screening and admission to high IQ societies, may not offer a detailed analysis of the different facets of intelligence. Other tests mentioned, such as Raven (15.7%), Miller, Binet (6%), Cattell (5.9%), and WISC (3.9%), were also used, each with its own specificities and distinct focuses.

Although these tests provide important information about cognitive aspects, they do not always capture all the dimensions necessary for a complete assessment of giftedness. For example, the Raven, by emphasizing nonverbal reasoning, is effective in assessing abstract reasoning skills, but may not be sufficient to identify nuances at higher IQ levels. Similarly, the Mensa test and the ISPE test have specific purposes and do not replace a more detailed assessment of cognitive abilities.

The study therefore highlights the importance of using a combination of instruments, such as the WAIS-III/IV, Stanford-Binet 5, and other widely accepted tests, to provide a more accurate and comprehensive assessment. These tests have a robust psychometric basis and offer a more comprehensive profile of intellectual abilities. However,

more than that, our study highlights the need for an assessment that goes beyond IQ.

Only about 13.7% of participants reported having taken tests that assessed emotional and social intelligence and creativity, areas that play a crucial role in the personal and social development of gifted individuals. The majority of participants (64.7%) based their assessment solely on the IQ test, which, while an excellent starting point, may fail to capture other equally important forms of intelligence.

Given this, this study encourages the adoption of a more comprehensive and integrated approach to giftedness assessment, including instruments that can measure not only IQ but also other essential skills, such as emotional, social, and creative intelligence. Broader assessments can provide a deeper and more comprehensive view of the potential of gifted individuals, allowing for more personalized and effective educational and therapeutic interventions.

In conclusion, we emphasize that the diagnosis of giftedness should be treated with a multidisciplinary approach, conducted by qualified professionals who can interpret the results and develop a comprehensive and individualized report. This will allow for understanding and meeting the diverse needs of gifted individuals, promoting their integral development and the full use of their talents.

## Final Considerations

This study reaffirms the need for a conceptual and methodological reformulation in the practices of identifying giftedness, proposing an approach that transcends the one-dimensional focus on IQ. Based on the data collected, it was observed that a



significant portion of gifted individuals are still not covered by assessment tools capable of capturing their emotional, social, and creative complexities, which compromises the comprehensive understanding of their potential. The absence of tools such as the MSCEIT, EQ-i, TTCT, and WGCTA in the applied protocols highlights a recurring practical limitation, restricting assessment to classic cognitive skills and ignoring predictors of adaptation and personal fulfillment. The concept of dual exceptionality, present in part of the sample, reinforces the urgency of instruments sensitive to the interactions between high abilities and coexisting neuropsychological conditions. It is therefore recommended that interdisciplinary protocols be adopted, involving professionals from the fields of psychology, education, neuroscience, and human development, with a view to constructing more accurate diagnoses, more effective interventions, and more inclusive public policies. The assessment of giftedness in the 21st century requires a multifocal, evidence-based approach that is sensitive to diversity and committed to full human development. Moving in this direction requires institutional investment, validation of instruments adapted to the Brazilian context, and expansion of samples in future studies.

## References

- ALENCAR, E. M. L. S.; FLEITH, D. S. *Superdotados: trajetórias de desenvolvimento e realização*. Petrópolis: Vozes, 2001.
- BAR-ON, R. The Bar-On model of emotional-social intelligence (ESI). *Psicothema*, v. 18, supl., p. 13–25, 2006. Disponível em: <https://www.redalyc.org/articulo.oa?id=72709503>
- BEATY, R. E.; BENEDEK, M.; KAUFMAN, S. B.; SILVIA, P. J. Default and Executive Network Coupling Supports Creative Idea Production. *Scientific Reports*, v. 6, p. 10916, 2016. DOI: <https://doi.org/10.1038/srep10916>
- BENSON, N. F.; HULAC, D. M.; KRANZLER, J. Examination of the Wechsler Adult Intelligence Scale-Fourth Edition (WAIS-IV). *Psychological Assessment*, v. 22, n. 1, p. 121–130, 2010. DOI: <https://doi.org/10.1037/a0017807>
- CHERMAHINI, S. A.; HOMMEL, B. The (b) link between creativity and dopamine: Spontaneous eye blink rates predict and dissociate divergent and convergent thinking. *Cognition*, v. 115, n. 3, p. 458–465, 2010. DOI: <https://doi.org/10.1016/j.cognition.2010.03.007>
- FLEITH, D. S. *Desenvolvimento de talentos e criatividade: da identificação à intervenção*. Petrópolis: Vozes, 2007.
- FUSAR-POLI, P.; KEMPTON, M. J.; ALLEN, P. Neuroimaging markers of vulnerability and transition to psychosis: A review of the evidence. *Neuroscience & Biobehavioral Reviews*, v. 75, p. 202–219, 2017. DOI: <https://doi.org/10.1016/j.neubiorev.2016.12.012>
- GARDNER, H. *Estruturas da mente: a teoria das inteligências múltiplas*. Porto Alegre: Artes Médicas, 1983.
- GOLEMAN, D. *Inteligência emocional*. Rio de Janeiro: Objetiva, 1995.
- KIM, K. H. Can We Trust Creativity Tests? *Creativity Research Journal*, v. 18, n. 1, p. 3–14, 2006. DOI: [https://doi.org/10.1207/s15326934crj1801\\_2](https://doi.org/10.1207/s15326934crj1801_2)
- MAYER, J. D.; SALOVEY, P.; CARUSO, D. R. Measuring emotional intelligence with the MSCEIT V2.0. *Emotion*, v. 3, n. 1, p. 97–105, 2003. DOI: <https://doi.org/10.1037/1528-3542.3.1.97>

MICHEL, N. M. et al. WAIS-IV Profile of Cognition in Schizophrenia. *Assessment*, v. 20, n. 4, p. 462–473, 2013. DOI: <https://doi.org/10.1177/1073191110394772>

POWERS, K. E.; CHAVEZ, R. S.; HEATHERTON, T. F. Social rewards and social networks in the human brain. *Neuroscience & Biobehavioral Reviews*, v. 95, p. 207–224, 2018. DOI: <https://doi.org/10.1016/j.neubiorev.2017.04.020>

RENZULLI, J. S. The three-ring conception of giftedness. In: STERNBERG, R. J. (ed.). *Conceptions of Giftedness*. Cambridge: CUP, 2005.

SCHNEIDERMAN, I. et al. Oxytocin during the initial stages of romantic attachment: Relations to couples' interactive reciprocity. *Psychoneuroendocrinology*, v. 89, p. 54–63, 2018. DOI: <https://doi.org/10.1016/j.psytneuen.2017.10.005>

SOUTSCHEK, A. et al. Dopaminergic Modulation of the Functional Neuroanatomy of Cognitive Control in Humans. *The Journal of Neuroscience*, v. 36, n. 9, p. 2762–2770, 2016. DOI: <https://doi.org/10.1523/JNEUROSCI.2510-15.2016>

STERNBERG, R. J. *The Nature of Human Intelligence*. Cambridge: Cambridge University Press, 2018.

TORRANCE, E. P. *Torrance Tests of Creative Thinking: Norms and Technical Manual*. Bensenville: Scholastic Testing Service, 1974.

WARD, W. C. Convergent and Divergent Measurement of Creativity in Children. *Educational and Psychological Measurement*, v. 35, p. 87–95, 1971. DOI: <https://doi.org/10.1177/001316447503500110>

WATSON, G.; GLASER, E. M. *Watson-Glaser Critical Thinking Appraisal Manual*. London: Pearson, 2012. DOI: <https://doi.org/10.1037/t02406-000>

ZHAO, W. et al. Altered Connectivity of the Default Mode Network in Autism Spectrum Disorder: A Resting State fMRI Study. *Brain Sciences*, v. 11, n. 2, p. 225, 2021. DOI: <https://doi.org/10.3390/brainsci11020225>