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WHAT IS INTELLECTUAL INTERFERENCE, COGNITIVE DISCREPANCY?

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Abstract: Intellectual interference is a concept that describes the difficulty faced by gifted individuals when trying to convey complex and abstract ideas to interlocutors with lower cognitive abilities. This phenomenon occurs when the depth and multifaceted nature of the gifted person's thinking is not understood, leading to the need for oversimplification, which results in the loss of essential nuances. Although similar to cognitive discrepancy, which deals with the mismatch between intellectual development and emotional/social skills, intellectual interference is centered on communication and its breakdown in the face of the complexity of ideas. The essence of intellectual interference is the difficulty of balancing sophisticated reasoning with the clarity needed to be understood in simpler contexts. This concept can be seen in studies on the communication of gifted individuals and the barriers they face when trying to convey innovative and abstract information.

Keywords: Intellectual Interference, Cognitive Discrepancy, Giftedness, Complexity, Communication.

INTRODUCTION

In my view, intellectual interference, as well as cognitive discrepancy, is a common phenomenon in the lives of gifted people, since their brains work more efficiently in terms of logic, analysis, abstraction, creativity and literalness. When examining each line of reasoning, multiple strands and nuances emerge which, in many cases, are not perceived by other people. Simplification can be a form of objectivity, but many ideas have several layers and interpretations, which often interferes with communication, leading to the trivialization of the original content.

In the dialog, there may be superficial agreement, but the intention to go deeper is rarely followed up. Even if the interlocutor doesn't fully understand, the gifted person

may continue to try to explore the subjectivity of the idea, seeking to refine and rephrase the concept in a more accessible way. Even so, the need to convey the message prevails, and the limit of understanding is overcome by the insistence on explaining. Giving up only happens after repeated attempts, often with a sense of frustration at not being able to convey the reasoning effectively.

A hypothetical example would be a conversation between three adults, one of whom is gifted, and a child who is also gifted. Two typical adults prefer a country with a language similar to their native one, believing that they would understand it better. The gifted adult, however, prefers a country with a different language, arguing that it would be easier to speak another language. Typical adults don't understand this perspective, while the gifted child, despite not being able to explain why, understands the line of reasoning. They realize that switching completely to a new language is more efficient than dealing with similar words that could cause confusion.

Then the gifted adult explains that, when using another language, the brain activates different regions, which improves the fluidity of communication, rather than worrying about constant comparisons between similar words. The child, without knowing exactly why, had already understood this subjectivity, while typical adults were unable to grasp the abstract reasoning.

DEVELOPMENT

The cognitive discrepancy often observed between individuals with high intellectual abilities and the general population can be a source of significant communication challenges. Research in the field of cognitive neuroscience suggests that discrepant cognitive abilities are more common in people with high abilities and may be associated with specific neuropsychological profiles. This phenome-

non reflects important differences in cognitive and perceptual processing, affecting the fluidity of communication, especially when interpersonal interactions involve people with normative cognitive abilities (Ankenman et al., 2014).

Gifted people often experience a divergence between their intellectual and emotional capacities, a phenomenon similar to that observed in studies on autism spectrum disorders (ASD), where the discrepancy between the verbal intelligence quotient (VQ) and the non-verbal intelligence quotient (NIVQ) can hinder social communication and generate isolation or social anxiety in typical social environments (Zukerman et al., 2020).

On the other hand, the complexity of communication in individuals with high abilities is often exacerbated by variations in cognitive structure which, while facilitating abstract thought, can be perceived as disconnected or excessively dense by interlocutors less familiar with this processing pattern. The study by Georgiou et al. (2022), which assessed neurocognitive profiles in children with high intellectual abilities, identified that 54% of the participants showed significant discrepancies in planning, attention, simultaneity and successivity skills, directly implicating them in communication efficiency and the ability to engage in fluid social interactions (Georgiou et al., 2022).

Intellectual interference, a concept that refers to the ability to perceive multiple layers of meaning within an idea, can therefore cause not only frustration in interpersonal communication, but also lead to cognitive dissonance. This concept, although little explored directly in the literature, is backed up by research into the discrepant abilities and neuropsychological profiles of gifted individuals or those with developmental disorders, who often demonstrate difficulties in translating their rich internal understanding into more

accessible and conventional communicative forms (Bradshaw et al., 2018).

It is therefore concluded that cognitive discrepancy in individuals with high intellectual abilities, although a source of innovation and creative thinking, can represent a significant challenge in everyday communication, especially in interactions with individuals who have more typical cognitive profiles. Strategies that take into account the peculiarities of each neurocognitive profile are essential to mitigate these difficulties and promote more effective communication.

The main concepts addressed in scientific studies dealing with these issues include:

1. COGNITIVE-SOCIAL MISMATCH

The concept of a cognitive-social mismatch, or discrepancy between intellectual development and social/emotional development, is widely documented in the literature on giftedness. Intellectually gifted children often show much more advanced cognitive development compared to their social and emotional development. This mismatch can result in significant difficulties in adaptation and social interaction, especially in the school and family environment (Francis et al., 2016).

In addition, there is evidence that this discrepancy in development can lead to emotional problems, such as social anxiety and emotional dysfunction, particularly in gifted children with asymmetrical developmental profiles, as highlighted in clinical studies that assess discrepancies in the profile of verbal and non-verbal skills. This asynchronous development is pointed out as one of the factors that aggravate the emotional and behavioral problems observed in children with high intellectual abilities (Guénolé et al., 2015).

In general, the mismatch between cognitive advancement and emotional/social skills can directly influence the adaptation of gifted children, highlighting the need for educatio-

nal interventions that consider both their intellectual abilities and their emotional development (Reis & Renzulli, 2004).

2. INTELLECTUAL OVEREXCITABILITY

Intellectual overexcitability, as described in Kazimierz Dabrowski's theory of Positive Disintegration, refers to the increased and intense capacity for thought in gifted individuals. This characteristic is notable in people who process information in a much more complex, abstract and profound way, which often results in communication difficulties with those who do not share the same cognitive intensity (Mendaglio & Tillier, 2006).

Recent research highlights that intellectual overexcitability is linked to greater developmental potential in gifted individuals, who display high levels of cognitive and emotional energy. This exacerbated excitement can sometimes be misinterpreted as hyperactivity or attention disorders, when in fact it is part of a natural mechanism that stimulates intellectual and emotional growth (Chang & Kuo, 2013).

In addition, the concept of Positive Disintegration suggests that this over-excitability plays a crucial role in promoting self-reflection and personality development, disintegrating pre-existing psychological structures and facilitating the emergence of new forms of adaptation and personal growth (Beduna & Perrone-McGovern, 2016).

3. POSITIVE DISINTEGRATION THEORY

Kazimierz Dabrowski's Theory of Positive Disintegration (TPD) proposes that people with high intellectual potential tend to experience intense developmental crises, often due to their emotional and intellectual hypersensitivity. These individuals are likely to experience a significant discrepancy between

their cognitive abilities and their interactions with the social environment, which can result in alienation or social incomprehension. The concept of overexcitability (high intensities of emotional and cognitive response) is at the heart of TPD and is widely used to describe these developmental processes (Mendaglio & Tillier, 2006).

Recent studies suggest that the emotional and intellectual hypersensitivity of these individuals not only provokes internal crises, but also fosters a process of personal development and self-transformation. Through successive disintegrations and subsequent internal reorganizations, these people undergo a process of development that results in a higher level of psychic functioning and creative adaptation (Sisk, 2022).

In addition, Dabrowski's theory emphasizes internal tension and emotional conflict as essential driving forces for psychological growth and maturity. This process of "positive disintegration" involves the transition from lower to higher levels of psychological development, facilitated by crises that destabilize existing psychological structures, promoting new forms of adaptation and self-discovery (Beduna & Perrone-McGovern, 2016).

4. TWICE-EXCEPTIONAL THEORY

Two-exceptionality refers to individuals who have both high intellectual abilities and some kind of disability or disorder, such as dyslexia, attention deficit hyperactivity disorder (ADHD) or autism spectrum disorder (ASD). These individuals face unique challenges, as their intellectual abilities often mask their difficulties, making proper diagnosis and intervention difficult. Research indicates that the discrepancy between their cognitive abilities and their social difficulties can exacerbate adaptation and communication problems, often leading to academic underperformance and social isolation (Assouline et al., 2010).

Studies suggest that the overlap of high intellectual abilities with difficulties such as ASD or ADHD results in asymmetrical developmental profiles, characterized by large discrepancies between cognitive processing speed and verbal ability. This divergent cognitive profile is commonly associated with behavioral and emotional difficulties, exacerbating feelings of inadequacy and anxiety in these individuals (Michaelson et al., 2021).

Dual exceptionality is also particularly difficult to identify, as these students' talents often mask their difficulties, which slows down the diagnosis and intervention process. A comprehensive assessment is essential to recognize both the strengths and weaknesses of these individuals, facilitating the creation of more appropriate educational strategies and allowing the full development of their potential (Maddocks, 2020).

5. COMMUNICATION PROBLEMS AND INTELLECTUAL ISOLATION

The social isolation often experienced by gifted individuals, especially those with well above average intellectual abilities, has been widely studied and is related to difficulties in communication and social adaptation. Gifted individuals often report a sense of alienation, as their ability to think in abstract and complex ways is often not understood by their peers, leading them to experience loneliness and social disconnection. This phenomenon is partly explained by the difficulty these people have in sharing their thoughts and ideas in a way that others can understand, resulting in feelings of frustration and emotional isolation (Chung et al., 2011).

Studies such as that by Laznibatová et al. (2018) identify that gifted adolescents tend to use social isolation strategies more often in stressful situations than their peers, reinforcing the fact that the discrepancy between their intellectual and social abilities can

generate significant difficulties in adapting in typical social environments (Laznibatová et al., 2018). Furthermore, Peterson's (2015) research explores how heightened sensitivity and emotional intensity, common in gifted individuals, can intensify social discomfort and feelings of inadequacy, exacerbating their tendency towards social isolation, especially during school and family transitions (Peterson, 2015).

6. LIMITED INTERSUBJECTIVITY

Limited intersubjectivity is a widely debated concept in philosophy of mind and cognitive psychology, particularly in relation to the ability of individuals, such as gifted people, to share complex experiences with their peers. In contexts where the level of abstraction is high, communication becomes challenging, generating a "vacuum" between the sender and the receiver, as identified in the literature on social cognition and language. This phenomenon is discussed as a significant barrier to efficient communication in individuals with exceptional cognitive abilities, often resulting in feelings of isolation and incomprehension.

Studies exploring intersubjectivity suggest that the sharing of cognitive, affective and intentional states is central to the construction of shared social and cultural meanings, as observed by Zlatev and Sinha (2008). In these cases, the lack of effective intersubjectivity between gifted people and their peers can accentuate the cognitive-social discrepancy and exacerbate emotional and social isolation (Zlatev & Sinha, 2008).

In addition, Trevarthen and Aitken (2001) suggest that intersubjectivity manifests itself from childhood as a form of shared consciousness that facilitates social cooperation. However, when intersubjectivity is not fully developed or encounters significant limitations, as in the case of people with high intellectual ability, social interactions and communication be-

come less fluid, resulting in difficulties in developing healthy interpersonal relationships (Trevarthen & Aitken, 2001).

This issue of limited communication is also analyzed from the perspective of social cognition theory, as discussed by Gallese (2003), who suggests that understanding other individuals is deeply rooted in relational interactions with the world. This “shared manifold” of intersubjectivity allows for the attribution of intentionality and facilitates communication, but when there is a disconnect in the ability to share complex experiences, breakdowns in effective communication occur (Gallese, 2003).

7. INTELLECTUAL INTERFERENCE

Intellectual interference throughout life can induce the gifted individual to adopt a posture of cognitive conservation, deliberately reducing the depth of their thought processes as a way of minimizing the emotional exhaustion and frustration generated by the constant incomprehension of their interlocutors. This adaptation strategy, although effective in avoiding conflicts and misunderstandings, can be mistakenly interpreted by others as an intellectual limitation or cognitive superficiality, when in fact the gifted person is simply adjusting their communication to a more direct and simplified level. This behavior does not reflect a decrease in their abstract capacity, which remains active at a high internal level; on the contrary, it is an adaptive mechanism aimed at ensuring greater fluidity in social interactions. This economy of mental energy is a way of disguising the true breadth of their intellectual abilities, allowing the gifted to adjust to more conventional communication patterns, thus guaranteeing a sense of belonging and minimizing the cognitive dissonance that often emerges from these interactions.

DISCUSSION

Intellectual interference, in the context of giftedness, refers to the difficulty that highly gifted individuals have when trying to express their complex and abstract thoughts, especially when the interlocutor does not share the same cognitive abilities. This phenomenon is associated with cognitive discrepancy, where gifted people’s deeper and more multifaceted way of thinking is not always understood by others, which leads to frustration in communication and oversimplification of ideas. Studies show that gifted individuals have a high cognitive capacity, especially in areas such as logic, creativity and analysis, characteristics which, paradoxically, can be obstacles in interpersonal communication, as observed in research by Bharaj (2016), which highlights the need for acceptance and understanding by interlocutors so that the potential of these individuals is fully recognized (Bharaj, 2016).

CASE STUDY 1: CONVERSATION BETWEEN TWO PROFESSIONALS FROM DIFFERENT FIELDS

Imagine a discussion between a theoretical physicist and a software engineer. The gifted physicist describes a problem using highly abstract mathematical models, while the engineer tries to adapt the idea to the context of practical coding. Although both have sophisticated reasoning, the way each conceptualizes the problem generates “interference”, where the engineer tries to simplify the issue to fit software paradigms. This is a classic example of intellectual interference, where the abstraction needed to understand the physicist’s model has no parallel in the engineer’s practice.

This “disconnect” between interlocutors reflects the findings of Gubbels et al. (2018), who show that subgroups of intellectually gifted individuals, especially those with combined analytical and creative abilities, demonstrate greater capacity for conceptual manipulation,

but encounter communication barriers when explaining these concepts to people with different profiles (Gubbels et al., 2018).

CASE STUDY 2: CLASSROOM DISCUSSION

In a school environment, a student gifted in science argues that solving a mathematical question should follow an alternative path, based on an advanced understanding of abstract algebra. His classmates and teacher, however, follow a more traditional path. The student's attempt to convey his idea leads to frustration, as his classmates are unable to follow his reasoning. The student's need to simplify the concept can result in important nuances of the original thought being lost, creating a barrier to understanding.

Sommer et al. (2008) point out that parents and teachers can more easily identify the intellectual abilities of the gifted, but often fail to recognize or nurture their creativity and ability to deal with abstraction, which contributes to this communicative discrepancy (Sommer et al., 2008).

FINAL CONSIDERATIONS

Intellectual interference is a notable phenomenon among the gifted, arising mainly when the complexity of their ideas exceeds the capacity of their interlocutors to understand. This interference occurs at times when the individual, endowed with advanced cognitive abilities, finds themselves unable to convey concepts that require a higher level of abstraction and intellectual sophistication in a clear and accessible way. The direct consequence of this process is the need to oversimplify ideas, which often frustrates both the sender and the receiver. This can result in the trivialization of the original content, diluting the deeper nuances of the reasoning.

Although cognitive discrepancy and intellectual interference share similarities - such

as the difficulty in aligning communication between individuals with different levels of cognitive ability - they are different concepts in essence. Cognitive discrepancy refers to the difference between intellectual and emotional or social development, which is common in gifted people. In this case, there is a dissonance between the speed with which the individual processes information and their ability to adapt emotionally or socially to the surrounding environment. This can lead to difficulty adapting to interpersonal interactions, but is more related to the mismatch between cognition and emotional and social aspects, not necessarily involving the complexity of ideas.

On the other hand, intellectual interference is more focused on how the gifted individual deals with the communication of abstract and advanced concepts, especially when the intellectual level of their interlocutors does not match the depth of their ideas. In essence, intellectual interference involves the breakdown of communication due to excessive complexity, while cognitive discrepancy deals with the tension between cognition and other aspects of human development.

ESSENCE OF THE CONCEPT

The essence of intellectual interference lies in the inefficiency of transmitting complex information when the interlocutor is not intellectually prepared to absorb the content. The gifted mind operates at a high level of abstraction, which allows them to access multiple interpretations and layers of the same concept. However, the difficulty arises when these various layers need to be converted into a language that is accessible and understandable to others. In this situation, the gifted person is forced to simplify their ideas, which can result in the loss of important meanings, i.e. the "interference" of their own capacity for abstraction with the clarity of communication.

This interference can be observed in various contexts. For example, in an academic or professional environment, a gifted person may come up with innovative solutions to complex problems, but their explanation may seem confusing or disconnected to those who don't have the same intellectual background. Unlike cognitive discrepancy, which encompasses emotional and social aspects, intellectual interference is rooted in the difficulty of conveying ideas in such a way that others can follow their reasoning.

Intellectual interference throughout life can lead gifted people to opt for cognitive economy, in other words, to avoid delving too deeply into their thoughts in order to reduce the stress and frustration that comes from constant incomprehension. This adaptive process can be perceived by interlocutors as

an intellectual limitation, when in reality the gifted person adjusts their communication to be simpler and more objective. This does not imply, however, that their abstract capacity is inactive; internally, they continue to operate at high levels of complexity. This simplification is just a social adaptation strategy, a way of «camouflaging» their real ability and facilitating interaction with others, promoting a sense of belonging to the environment.

In conclusion, while cognitive discrepancy involves a mismatch between intellectual development and other aspects, such as emotional or social, intellectual interference occurs when the very depth of ideas becomes an obstacle to communication. Both situations lead to challenges in interaction, but their causes and manifestations are fundamentally different.

REFERENCES

1. Ankenman, K., Elgin, J., Sullivan, K., Vincent, L., & Bernier, R. (2014). Nonverbal and verbal cognitive discrepancy profiles in autism spectrum disorders: Influence of age and gender. *American Journal on Intellectual and Developmental Disabilities*, 119(1), 84-99. <https://doi.org/10.1352/1944-7558-119.1.84>
2. Beduna, K., & Perrone-McGovern, K. (2016). Relationships among emotional and intellectual overexcitability, emotional IQ, and subjective well-being. *Roeper Review*, 38(1), 24-31. <https://doi.org/10.1080/02783193.2016.1112860>
3. Bradshaw, J., Gillespie, S., Klaiman, C., Klin, A., & Saulnier, C. (2018). Early emergence of discrepancy in adaptive behavior and cognitive skills in toddlers with autism spectrum disorder. *Autism*, 23(6), 1485-1496. <https://doi.org/10.1177/1362361318801615>
4. Chang, H. J., & Kuo, C. (2013). Overexcitabilities: Empirical studies and application. *Learning and Individual Differences*, 23, 53-63. <https://doi.org/10.1016/j.lindif.2012.10.005>
5. Chung, D., Yun, K., Kim, J., Jang, B., & Jeong, J. (2011). Different gain/loss sensitivity and social adaptation ability in gifted adolescents during a public goods game. *PLoS ONE*, 6, e17572. <https://doi.org/10.1371/journal.pone.0017572>
6. Francis, R., Hawes, D., & Abbott, M. J. (2016). Intellectual giftedness and psychopathology in children and adolescents. *Exceptional Children*, 82(3), 279-302. <https://doi.org/10.1177/0014402915598779>
7. Georgiou, G., Dunn, K., & Naglieri, J. (2022). Neurocognitive profiles of children with high intellectual ability: A pilot study. *Exceptionality Education International*. <https://doi.org/10.5206/eei.v26i2.7670>
8. Guénolé, F., Speranza, M., Louis, J., Fournieret, P., Revol, O., & Baleyte, J. (2015). Wechsler profiles in referred children with intellectual giftedness: Associations with trait-anxiety, emotional dysregulation, and heterogeneity of Piaget-like reasoning processes. *European Journal of Paediatric Neurology*, 19(4), 402-410. <https://doi.org/10.1016/j.ejpn.2015.03.004>
9. Laznibatová, J., Fábik, D., Belica, I., & Balážová, M. (2018). Coping strategies of intellectually gifted and common adolescents attending grammar school in the context of the personality dimensions structure. *Psychology and Pathopsychology of Child*, 52, 24-35. <https://doi.org/10.2478/ppc-2018-0002>

10. Mendaglio, S., & Tillier, W. (2006). Dabrowski's theory of positive disintegration and giftedness: Overexcitability research findings. *Journal for the Education of the Gifted*, 30(1), 68-87. <https://doi.org/10.4219/jeg-2006-246>
11. Peterson, J. (2015). School counselors and gifted kids: Respecting both cognitive and affective. *Journal of Counseling and Development*, 93(2), 153-162. <https://doi.org/10.1002/j.1556-6676.2015.00189.x>
12. Reis, S., & Renzulli, J. (2004). Current research on the social and emotional development of gifted and talented students: Good news and future possibilities. *Psychology in the Schools*, 41(1), 119-130. <https://doi.org/10.1002/pits.10144>
13. Sisk, D. (2022). Managing emotional intensities of gifted students in interdisciplinary study. *Gifted Child Today*, 45(2), 97-104. <https://doi.org/10.1177/10762175221074796>
14. Zlatev, J., & Sinha, C. (2008). The shared mind: Perspectives on intersubjectivity. *John Benjamins Publishing Company*. <https://doi.org/10.1075/aicr.53>
15. Zukerman, G., Yahav, G., & Ben-Itzhak, E. (2020). The gap between cognition and adaptive behavior in students with autism spectrum disorder: Implications for social anxiety and the moderating effect of autism traits. *Journal of Autism and Developmental Disorders*, 51, 1466-1478. <https://doi.org/10.1007/s10803-020-04619-4>