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DISRUPTIVE INTERFERENCE IN COGNITIVE CONTINUITY

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Abstract: The experience of gifted individuals with frustration due to interruptions during reasoning is not yet widely addressed directly in scientific literature. However, the issue touches precisely on the domains of cognitive flow, emotional self-regulation and hyperfocus - elements frequently documented in profiles of individuals with a significantly high intellectual quotient. Although there are no specific publications describing the so-called «pendency of interrupted reasoning", which I have called disruptive interference in cognitive continuity, the theoretical construction is robust enough to rely on the concepts of continuous cognition and sequential integrity of thought. These characteristics, present in subjects with intensely structured reasoning, reveal a low tolerance for logical breakdown - not as a weakness, but as a functional consequence of cognitive efficiency. In order to explore this hypothesis empirically, we activated the Gifted Debate group, a metacognitive analysis and discussion initiative linked to CPAH - Centro de Pesquisa e Análises Heráclito, in collaboration with members of internationally recognized high IQ societies, such as Intertel, IIS Society, ePiq Society and ISI Society, as well as extensive participation by members of the Triple Nine Society. All of these organizations have strict admission criteria, requiring intelligence tests with scientific validity and supervised in-person application. Within this context, a preliminary survey was conducted with 50 selected members of the group - out of a total of more than 500 participants - about the occurrence and intensity of frustration with interrupted reasoning. The results indicated not only a significant prevalence of the experience, but also a notable persistence of the feeling of unfinished business, often lasting for days before thinking can be resumed and completed. It was also observed that the higher the IQ score, the greater this sense of pendency, which is linked to greater emotional intensity.

Keywords: Giftedness; cognitive flow; hyperfocus; interrupted reasoning; working memory; emotional self-regulation; high intellectual ability; cognitive entropy; metacognitive frustration; continuous cognition.

INTRODUCTION

Among the characteristics often associated with giftedness are accelerated thinking, emotional sensitivity and the need for logical coherence in mental processes. However, the way in which gifted individuals deal with visitors in the flow of thought remains a field that has been little explored empirically, although it recurs in personal accounts and clinical contexts. Initial cognitive observations suggest that the break in continuity can generate in these subjects a prolonged sense of pendency, frustration or even metacognitive distress - specificities that still lack a specific conceptual definition.

The discussion on this topic requires an interdisciplinary approach, combining elements of neuropsychology, genetics, neuroscience, social cognition and education. Although terms such as «hyperfocus", «cognitive flow" and «emotional regulation" are well known in specialized literature, their specific application to cases of interrupted reasoning in people with high intellectual abilities still finds conceptual and methodological gaps.

In order to explore these aspects, members of the Gifted Debate group were consulted, a metacognitive analysis initiative linked to the Heraclitus Research and Analysis Center (CPAH). The sample selected included participants with intelligence quotients between 130 and 160 points - all members of international high-IQ societies such as the Triple Nine Society, Intertel, IIS Society, ISI Society and ePiq Society. Contact with these individuals resulted in qualitative support for reflection on the possible association between high intelligence and low tolerance for cognitive interference, without the intention of universalizing the

findings, but with a view to opening up a space for investigation into recurring subjective experiences in high ability profiles.

DEVELOPMENT

It is not uncommon for gifted individuals to show disproportionate cognitive and emotional responses to external interruptions during thought sequences. Although the literature is limited in directly addressing this condition - which we could name disruptive interference in cognitive continuity - multiple interdisciplinary constructs offer a viable framework to explain it and corroborate the concept.

Let's start with hyperfocus. This state of prolonged and rigid attention, often described in cases of high cognitive ability, imposes a kind of shield to the environment. When it is broken, however, the subject is not only dislocated from the task, but also fragments a logical chain whose subsequent recomposition may not be trivial. The work of Ishii et al. (2023), Ozel-Kizil et al. (2016) and Ashinoff & Abu-Akel (2019) observes that this hyperattention is functionally useful for complex tasks, but paradoxically increases sensitivity to external disturbance.

This phenomenon is closely associated with the so-called cognitive flow, described by Csikszentmihalyi (1990) not as a simple state of sustained attention, but as a cognitive self-suspension in which time, context and distractions become irrelevant. Interrupting this state, especially in individuals with high logical or verbal ability, is equivalent to introducing noise into a system that operates with low tolerance to external entropy.

This low tolerance can be understood, in part, by the more densely connected cognitive architecture in people with high IQs - especially in the executive attention and working memory networks. When focus is maintained on a complex task, there is a high metabolic and organizational cost involved in maintaining the internal coherence of reasoning. The introduction of exogenous stimuli forces an abrupt redistribution of neural resources, disrupting the functional symmetry between intention and processing. In brains that operate with greater cognitive efficiency, this disruption generates more acute dissonance, not because of fragility, but because the internal structure of thought is more specialized and less redundant - there is therefore less adaptive «slack". Thus, discomfort in the face of interruption is not a matter of temperament, but an emergent property of a cognitive system optimized for depth and continuity.

It is plausible, then, that the persistence of the «feeling of uncompleted reasoning" reported by some gifted people stems from incomplete active inhibition. In other words, the working memory remains loaded, operating on hold, looking for a logical resumption that never occurs. This was observed by Melo et al. (2018) in an adolescent with high verbal skills, who reported demotivation in environments with low cognitive predictability - a possible reflection of frustration at interrupted reasoning.

Research such as that by Ponte et al. (2012) confirms that students with more sophisticated reasoning tend to follow sequential deductive structures. These sequences, when interrupted, are not only lost; they suffer a break in the semantic linkage that can make it impossible to reconstruct them. Working memory, however robust - and it generally is in gifted people - does not guarantee logical reintegration. It can retain the trace of the absence, but not necessarily the content of the inference that was to come.

Emotional self-regulation enters this scenario as an unreliable mediator. Vantassel-Baska & Wood (2010) have already pointed out that gifted people, although cognitively capable, often face challenges in reorganizing their attention after frustrating events. This is exacerbated in academic or social contexts with strong pressure to perform, where there is no subjective space to recover unfinished thoughts.

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Therefore, the frustration caused by interruptions during reasoning in gifted individuals is not simply a matter of distraction. It is a failure of internal continuity, which interferes with systems of logical processing and active memory - causing not only frustration but, in chronic cases, a pattern of cognitive withdrawal.

The correlation between a high intellectual quotient, a feeling of incomplete reasoning and greater emotional intensity has been described in neuropsychological literature. Individuals with high abilities not only have above-average cognitive performance, but also show emotional vulnerability to environments that do not favor logical continuity of thought. This condition can generate prolonged frustration in the face of interruptions, as observed in the case study conducted by Melo et al. (2018), in which a gifted adolescent reported persistent demotivation associated with the breakdown of his cognitive flow in conventional school contexts.

Gifted people often display a characteristic called Sensory Processing Sensitivity (SPS), which implies greater sensitivity to sensory stimuli, greater empathy and heightened emotional reactivity. This sensitivity, when associated with high IQ levels, results in a significant propensity to emotional overload in the face of unexpected external stimuli, such as interruptions in their stress flow. This condition is compatible with Dabrowski's concept of hyperexcitability, which associates high cognitive abilities with intensified reactions in the sensory and emotional domains, which can lead to frustration, anxiety and a feeling of unfinished business when reasoning is unexpectedly interrupted (Rodrigues; Nascimento, 2025).

The DWRI theory of intelligence suggests that people with high IQs and continuous summary show marked traits of adaptive perfectionism. Such individuals tend to structure their thinking in a highly sequential and logically cohesive manner, which makes them especially sensitive to any disruption in their line of reasoning. The breakdown of this process can compromise the perception of logical completeness and activate emotional frustration mechanisms. The study by Rodrigues et al. highlights that this cognitive deficiency is not only linked to performance, but to the formation of personality traits aimed at excellence and control (Rodrigues et al., 2024).

In addition to emotional factors, neurobiological aspects can also contribute to this intolerance to interruption. Gifted people have greater neural connectivity and cerebral energy demands, which makes them potentially more vulnerable to conditions of metabolic overload, such as cerebral insulin resistance. This condition can directly affect functions such as sustained attention, working memory and emotional control - all critical for maintaining uninterrupted focus and continuity of thought (Rodrigues, 2025) .

People with high IQs show cognitive and emotional patterns that are highly sensitive to external stimuli, which can lead to states of frustration when continuity is broken . Perfectionism, often present in these profiles, appears as a trait linked to the sequential organization of thought and the need for control over the execution of ideas. When there is a transition, this structuring can generate intensified emotional reactions, associated with metacognitive overload and difficulty regulating emotions (Rodrigues et al., 2024a).

Neuroscientific studies show that gifted people tend to be more prone to chronic and anticipatory worry, associated with neural hyperconnectivity and heightened emotional sensitivity. These characteristics not only favor a highly functional working memory, but also make it difficult to switch off unfinished cognitive processes, intensifying the feeling of pendency when reasoning is interrupted (Rodrigues et al., 2024b) .

The subjective experience of these individuals is also marked by episodes of early self-consciousness and anxiety in social situations, which can include difficulties in environments where there is no space to develop or complete one's own flow of thought. An autobiographical study reinforces the hypothesis that high intellectual performance can coexist with intense self-criticism, insecurity and emotional vulnerability, especially when the individual feels unable to express their nervousness fully (Rodrigues, 2024).

Another important element is the impact of giftedness on the perception of time, memory and emotional intimidation. Individuals with high IQs tend to have stronger autobiographical memories, which contribute to intense mental connections and deep interpersonal relationships. When these structures of association are interrupted, even on a social or affective level, frustration can emerge as a mechanism of cognitive dissonance. The experience of «incomplete mental reunions" seems analogous to the feeling of unfinished judgment observed in these individuals (Rodrigues et al., 2024c) .

In addition to emotional and cognitive aspects, the literature also explores language difficulties in people with high IQs. The linguistic delay identified in some gifted people does not reflect a deficit, but rather an asymmetry between accelerated cognition and verbal expression. This discrepancy can cause discomfort, especially when there is external interference in the flow of mental elaboration, and can contribute to feelings of frustration at the impossibility of fully concluding or communicating ongoing reasoning (Rodrigues et al., 2024d) .

The condition of giftedness is discussed as a form of neurodivergence. Rather than a simple improvement in abilities, there is a brain reorganization that favours intensity, hyperfocus and emotional sensitivity. These factors together explain, in part, the low tolerance to interruptions in thinking: it's not just a matter of momentary discomfort, but a disruption that threatens the integrity of a cognitive system that operates in a denser and more interconnected way (Rodrigues et al., 2024e) .

The article by Rodrigues (2024) analyzes procrastination from a neurogenetic perspective and highlights that, in high-IQ individuals, this behavior may be related to hyperactivity of the prefrontal cortex, mental rumination and maladaptive perfectionism. These factors result in cognitive overload and latency between thought and action, or are directly connected to frustration at the interruption of updating. Transparency with genetic polymorphisms such as COMT and BDNF suggests that this condition has specific biological bases, directly impacting the logical continuity of thought.

The study by Rodrigues et al. (2025) reveals that gifted infants demonstrate unusual focus, early contextual anticipation and accelerated motor and language development. These early characteristics, such as prolonged observation and advanced memory, point to continuous cognition from infancy onwards, which may explain the future to continuous version in the flow of thought - a common hallmark reported by gifted adults.

Rodrigues and Nascimento (2025) discuss excessive empathy disorder in gifted people, associating it with hyperactivity in structures such as the amygdala, anterior cingulate cortex and insula. This exacerbated sensitivity is directly linked to the intensification of emotional states such as anxiety and chronic worry, which can aggravate the feeling of frustration when their reasoning is interrupted.

Research by Rodrigues and Nascimento (2025) points out that perfectionism in gifted people is intrinsically related to the need for validation and high empathy. When combined, these factors create a vulnerability to frustration and a breakdown in logical

thinking, exacerbated by the pressure of external expectations, especially in family contexts during childhood and adolescence.

Rodrigues et al. (2024) investigated increased sensitivity in high-IQ individuals, especially in stressful contexts. A survey of 100 participants in the Gifted Debate Project shows that these individuals demonstrate greater sensory reactivity and lower social tolerance in situations of overload. This hypersensitivity profile can contribute to intense frustration when the flow of thought is interrupted, intensifying metacognitive distress.

In the study by Rodrigues and Bulcão (2024), the intense empathy shown by high-IQ individuals towards animals is correlated with greater activity in specific regions responsible for emotional regulation and ethical perception. This empathy, linked to human and cognitive interactions, may explain the heightened emotional sensitivity when logical reasoning is abruptly interrupted.

Rodrigues (2024) suggests that individuals with a high IQ have a greater ability to deal with uncertainty and unexpected changes, due to the more efficient use of executive functions located in the prefrontal cortex. This ability to predict scenarios based on memorized patterns is directly linked to the ability to maintain continuous reasoning even in adverse situations, which would explain their intolerance to cognitive unconsciousness.

Rodrigues and Kamimura (2024) explore intelligence from the perspective of behavioral genetics and contemporary neuroscience, emphasizing that cognitive performance is not determined by a single gene or isolated factor, but rather by the complex interaction between various genes and the environment in which the individual is inserted. A central point of the article is the role of epigenetics - that is, the changes in gene expression caused by vivid experiences, without modifications to the DNA sequence occurring. This means that environmental events, such as chronic exposure to an invitation in the flow of thought, can «switch on or off" certain genes related to memory, attention and emotional self-regulation.

The authors highlight the importance of neuroplasticity, which is the brain's ability to reorganize itself functionally and structurally in response to stimuli and experiences. When gifted individuals are repeatedly subjected to situations that disrupt their thinking - such as constant, noisy, periodic environments or contexts that do not favor logical continuity - the brain can adapt to levels, reconfiguring neural networks in ways that compromise cognitive performance. This can affect both the fluidity of thought and the ability to pick up where it left off, aggravating the sense of frustration and the perception of mental «stuckness" that many gifted people report. This integrated approach between genetics, environment and neuroscience proposes a new perspective on the impact of poorly conducted cognitive experiences on the expression of high intellectual potential.

FINAL CONSIDERATIONS

The interruption of a line of reasoning in gifted individuals is not just a social noise or a trivial communicative input, it is an abrupt break in a highly structured, intensely interconnected and metabolically costly cognitive circuit. Thinking in high IQ individuals is often processed at high speed and anchored in multiple layers of simultaneous logical and semantic connections. This connective complexity requires a high degree of coordinated synaptic activation and mobilization of expanded working memory, resulting in a neurofunctional state of high energy demand. Under these conditions, an external interruption acts as a disorganized discharge that temporarily collapses this internal circuit, forcing the brain to restart processes that are not easily reconstructed in sequence.

The higher the IQ, the greater the associated emotional sensitivity tends to be, especially in contexts of logical dissonance, failure of predictability or breakdown of flow. This is because brains with higher intelligence not only process more information, but also attach a greater emotional charge to each stage of the rational chain - this seemed to be enhanced by the hyperactivity of areas such as the insula, the prefrontal cortex and the limbic system. Thus, breaking a line of thought is not only a loss of intellectual continuity, but also an emotionally aversive event.

From the point of view of cognitive economy, the gifted brain tends to minimize redundancies and automatisms, optimizing energy in favor of complex and abstract inferential processing. When this architecture is suddenly violated - as in an interruption during reasoning - the system is asked to redirect cognitive resources to emotional re-stabilization and thought reconnection, generating an additional effort that, for these individuals, can be perceived as extremely exhausting.

Epigenetics also offers another relevant component: recurring experiences of cognitive frustration can modulate the expression of genes associated with emotional self-regulation, impulsivity or social avoidance, perpetuating a negative relationship with environments where thinking is not considered a continuous process. Thus, this «mental pendency" is not just an unfinished memory, it is a neurocognitive and affective scar that requires a favorable context in order to be metabolized.

Understanding this dynamic is not just a theoretical exercise, but a practical necessity for educational, professional and interpersonal environments that seek to respect and integrate people with high intellectual capacity. Promoting spaces where deep thinking can be completed is therefore a form of respect for the neurological integrity of these individuals.

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