SPECIAL ARTICLE

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# Interregulation, shared awareness and attention: Depathologizing ADHD

## Interregulação, consciência e atenção compartilhadas: Despatologizando o TDAH

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**Summary**

The prevalence of the so-called Attention Deficit/Hyperactivity Disorder (ADHD) in children and adolescents in the world is estimated at 5%. From early classifications such as "Minimal Brain Damage" (1947) and "Minimal Brain Dysfunction" (1962) to the current nomenclature of ADHD (since 1987), nearly a century has been spent searching for the biological and genetic basis of the described condition. Despite technological advancements, the diagnosis of ADHD remains exclusively clinical. According to Vigotski, clinical diagnosis, however, may only amount to medical terminology for symptoms, without adequately addressing the real needs of the child, family, and school. From a historical-cultural perspective, the aim of this work is to critically analyze the psychopathological construct of "ADHD", whose conception and diagnostic criteria are unilaterally based on the individual. To do so, analytical categories of interregulation and shared attention were used to evaluate affective-cognitive processes (higher psychological functions) of a student referred by the school with suspected ADHD. In line with Werner's previous studies (1997), the analyses indicated the importance of shifting the focus of evaluation from the individual to ongoing intersubjective processes, and that signs of hyperactivity, impulsivity, and inattention do not characterize a specific disorder or intrinsic primary deficit. It can be concluded that the diagnosis of ADHD, increasingly present in medical reports sent to schools, while considering higher psychological functions as a product dissociated from social relations, contributes to the growing phenomenon of pathologizing child behavior, making it more challenging to address the true causes of students' school difficulties.

**Keywords:** ADHD. Attention Deficit. Hyperactivity. Interregulation. Pathologizing. School Difficulties.

**Resumo**

A prevalência do chamado Transtorno de Déficit de Atenção/Hiperatividade (TDAH) em crianças e adolescentes no mundo é estimada em 5%. Desde classificações iniciais como "Lesão Cerebral Mínima" (1947) e "Disfunção Cerebral Mínima" (1962), até a nomenclatura atual de TDAH (desde 1987), passou-se quase um século na busca pela definição do fundamento biológico e genético do quadro descrito. A despeito do avanço tecnológico, o diagnóstico do TDAH continua sendo exclusivamente clínico. Para Vigotski, o diagnóstico clínico, entretanto, pode significar apenas nomenclatura médica para sintomas, sem atender adequadamente às demandas reais da criança, da família e da escola. A partir da perspectiva histórico-cultural, o objetivo deste trabalho é analisar criticamente o constructo psicopatológico "TDAH", cuja concepção e critérios diagnósticos são fundamentados unilateralmente no indivíduo. Para tanto, recorreu-se às categorias analíticas interregulação e atenção compartilhada, para avaliar processos afetivos-cognitivos (funções psicológicas superiores) de um aluno encaminhado pela escola com suspeita de TDAH. Alinhadas com estudos anteriores de Werner (1997), as análises indicaram a importância de se deslocar o eixo da avaliação focada no indivíduo para os processos intersubjetivos em ocorrência, e que os sinais de hiperatividade, impulsividade e desatenção não caracterizam transtorno particular ou déficit primário intrínseco. Pode-se concluir que o diagnóstico de TDAH, cada vez mais presente nos laudos encaminhados à escola, ao considerar as funções psicológicas superiores como produto dissociado das relações sociais, contribui para o fenômeno crescente de patologização do comportamento infantil, dificultando o enfrentamento das verdadeiras causas das dificuldades escolares de alunos e alunas.

**Unitermos:** TDAH. Déficit de Atenção. Hiperatividade. Interregulação. Patologização. Dificuldades Escolares.

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## Introduction

> It should be clear by now that the group of disciplines which we have called evidential and conjectural (medicine included) are totally unrelated to the scientific criteria that can be claimed for the Galilean paradigm. In fact, they are highly qualitative disciplines, in which the object is the study of individual cases, situations, and documents, precisely because they are individual, and for this reason get results that have an unsuppressible speculative margin[...] (Ginzburg, 1989, p. 156)

The areas such as psychology, psychoanalysis, neurosciences and psychiatry, due to the lack of a "solid foundation in reality", are sciences that do not obtain the same status as hard sciences, such as physics and astronomy, being considered "ironic sciences", a term coined by writer John Horgan (2002, p. 13) for sciences that do not converge "towards the truth".

In this framework of uncertainties of the *ironic sciences*, the construct Attention Deficit/Hyperactivity Disorder (ADHD) is inserted, whose history dates back to the 1930s. Even assuming different names over the last few decades, such as Minimal Brain Dysfunction (Clements & Peters, 1962), the neurobiological concept of ADHD remains linked to the mechanistic and organicist conception, as represented in the main current classification systems for mental disorders - the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association (DSM-5, 2013) and the eleventh edition of the International Classification of Diseases (ICD-11, 2019) – as they associate a certain amount of findings about mental and behavioral functioning with the supposed primary entity originating from the individual's organism.

Georges Politzer (1998), in his Critique of the Foundations of Psychology and Psychoanalysis, published in 1928, ponders Freud's discovery – even though he criticizes his notion of the unconscious – towards a concrete psychology, when he analyzes dreams as psychological facts, in contrast to current theories, of a physiological and biological nature, in which dreams appear as an organic fact, devoid of meaning:

> The dream then appears not as a regular psychical formation, a thought, in the proper sense of the word, but as a phenomenon that, despite its regular periodicity, represents, in terms of its structure, an exception. Instead of embracing the originality and complexity of dreams and researching the processes that explain them, classical theory insists on considering them as a derogation from the rules of normal psychological work, as a negative phenomenon. (Politzer, 1998, p. 57)

Under this same hegemonic view, mental and behavioral functioning in terms of attention and self-regulation in ADHD are also considered as a mere consequence of a deficit or functional neurological disorder of the person, negative phenomena, devoid of any meaning as a psychological fact, confirming the "tendency of understanding the psychical in the light of biology", that is, the reduction of the psychological to the physiological, also pointed out by Vigotski (2023, p. 234).

Vigotski, when analyzing what he called *neuropsychological fascism* of his time, criticizes the error of "placing elementary physical-chemical processes of the human organism and higher functions in the same series", an error that he considers recurrent in the way bourgeois psychology rejects the "social nature of the human being" (2023, p. 237). In opposition to this mechanistic/organicist view, "the historical-cultural current conceives the human psyche as a social product, the result of the appropriation, by individuals, of cultural productions of society through the mediation of that same society" (Pino, 1991, p. 32). The radical difference between this approach and that of traditional psychology is, according to Luria (1979), that the origins of human consciousness are not sought neither in the depths of the soul, nor in the brain mechanisms, but rather in man's relation with reality, in his social history, strictly linked to work and language.

The historical-cultural perspective of psychology aims to study the human psyche, apprehending it not only as an image of reality, but also as an inheritance of the social existence of human beings. To do this, it analyzes the human psyche taking into account its multiple anthropological, psychological and sociological determinations, as well as the multiple political, geographical and historical dimensions in which the human being is inserted. This means that this theoretical-methodological approach postulates the fact that the human determinations of the psyche are within the scope of culture historically systematized by human activity (Werner et al., 2018).

In line with this approach, Politzer (1998) points out that the object of scientific psychology is the human drama, which is nothing "inner" – the drama, here in its broadest sense, unfolds in a place, like all phenomena of nature:

> For the place I am currently in is not simply the place of my physiological life and my biological life, it is also the place of my dramatic life, and, even more so, actions, crimes, madness take place in space, as do breathing and internal secretions. From another aspect, it is also true that space can only contain the framework of the drama: the properly dramatic element is no longer spatial. But it is not *interior* either, as it is nothing more than *meaning*. Now, this does not and cannot have a seat in any place: it is neither interior nor exterior; it is beyond, or rather, outside of these possibilities, without this in any way compromising its reality. (Politzer, 1998, p. 187)

In this sense, the study of the mental/behavioral functioning of children with reports of attention and hyperactivity problems must seek to clarify their significance within concrete social relations. To paraphrase Politzer, *behavior* implies *self-regulation*, and it seems impossible not to study this executive function. It is necessary to know, in this sense, that it is not self-regulation that is of interest to concrete psychological study, but *interaction* and interregulation, as they clarify the drama.

### New Approach

For Vigotski (1988), a radically new approach to a scientific problem inevitably introduces new methods of investigation and analysis. Thus, he contextualizes the method as arising from a given conception of the world, and not as an independent resource from it.

The key element of the method of investigation and interpretation of higher psychical processes (thought, language, voluntary attention) comes from the distinction established by Engels, with regard to the understanding of human history, between naturalistic and dialectical approaches. In naturalistic approaches, it is understood that only natural conditions determine historical development, while in the dialectical approach the influence of nature on man is admitted, but it is identified that "man, in turn, acts upon nature and creates, through the changes it causes in nature, new natural conditions for his existence" (Vigotski 1988, p. 70).

In this sense, complex mental processes, such as consciousness and language, are socially organized and culturally transmitted, therefore being conditioned by historical and cultural changes, which affect different formations in thought and language structures.

In addition to these guidelines, Vigotski establishes an interfunctional approach to psychical processes, which cannot have their development studied in isolation. An "analysis in units" is also advocated. Vigotski (2007) points out the mistakes of an "element analysis", which requires associative principles to explain the processes, and argues for the search for a unity that, unlike the element, preserves the properties of the whole.

## Satirical vignette on the rationality of diagnostic classifications

The satirical text "The Etiology and Treatment of Childhood", published in 1987 in the book Oral Sadism and the Vegetarian Personality edited by Genn C. Ellenbogen, illustrates in a humorous way the type of rationality underlying the method used to establish inaccurate diagnostic classifications such as of ADHD. In the table below, part of the

text that refers to the "clinical findings" of a disorder called "childhood" is reproduced (Table 1).

Similar to what was exposed in the satirical text below, if we exchange the "clinical signs of childhood" for the diagnostic criteria of "Attention Deficit/Hyperactivity Disorder" we will also find "persistent clinical signs", not pathognomonic, to characterize a disease or to characterize, for example, the "hyperactivity and impulsiveness" of people with ADHD, namely: "Often talks excessively", "has trouble waiting their turn", "interrupts or intrudes on others (e.g., butts into conversations or games", "fidgets with or taps hands or feet", "blurts out an answer before a question has been completed", "leaves seat in situations when remaining seated is expected".

Almost a century ago, Vigotski already considered clinical diagnoses as a mere description of symptoms or complaints labeled with a medical term, without adequately meeting the child, the family and the school's real demands, as it is the current case with the use of the term "disorder" preceded by a symptom to designate a specific psychopathological condition, such as ADHD.

**Table 1**

*The Etiology and Treatment of Childhood*

| **Satirical Vignette:** |
|---|
| **The Etiology and Treatment of Childhood**<br>**Jordan W. Smoller**<br>Childhood is a syndrome which has only recently begun to receive serious attention from clinicians. The syndrome itself, however, is not at all recent. As early as the 8th century, the Persian historian Kidnom made reference to "short, noisy creatures," who may well have been what we now call "children." The treatment of children, however, was unknown until this century, when so-called "child psychologists" and "child psychiatrists" became common. Despite this history of clinical neglect, it has been estimated that well over half of all Americans alive today have experienced childhood directly (Suess, 1983). In fact, the actual numbers are probably much higher, since these data are based on self-reports which may be subject to social desirability biases and retrospective distortion.<br>The growing acceptance of childhood as a distinct phenomenon is reflected in the proposed inclusion of the syndrome in the upcoming Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, or DSM-IV, of the American Psychiatric Association (1985). Clinicians are still in disagreement about the significant clinical features of childhood, but the proposed DSM-IV will almost certainly include the following core features: 1. Congenital onset; 2. Dwarfism; 3. Emotional lability and immaturity; 4. Knowledge deficits; 5. Legume anorexia.<br>**Clinical Features of Childhood**<br>**Congenital Onset:** In one of the few existing literature reviews on childhood, Temple-Black (1982) has noted that childhood is almost always present at birth, although it may go undetected for years or even remain subclinical indefinitely. This observation has led some investigators to speculate on a biological contribution to childhood. As one psychologist has put it, "we may soon be in a position to distinguish organic childhood from functional childhood" (Rogers, 1979).<br>**Dwarfism:** This is certainly the most familiar clinical marker of childhood. It is widely known that children are physically short relative to the population at large. Indeed, common clinical wisdom suggests that the treatment of the so-called "small child" (or "tot") is particularly difficult. These children are known to exhibit infantile behavior and display a startling lack of insight (Tom and Jerry, 1967).<br>**Emotional Lability and Immaturity:** This aspect of childhood is often the only basis for a clinician's diagnosis. As a result, many otherwise normal adults are misdiagnosed as children and must suffer the unnecessary social stigma of being labeled a "child" by professionals and friends alike.<br>**Knowledge Deficits:** While many children have IQ's within or even above the norm, almost all will manifest knowledge deficits. Anyone who has known a real child has experienced the frustration of trying to discuss any topic that requires some general knowledge. Children seem to have little knowledge about the world they live in. Politics, art, and science—children are largely ignorant of these. Perhaps it is because of this ignorance, but the sad fact is that most children have few friends who are not, themselves, children.<br>**Legume Anorexia:** This last identifying feature is perhaps the most unexpected. Folk wisdom is supported by empirical observation — children will rarely eat their vegetables (see Popeye, 1957, for review). |

In a recent publication, the person responsible for organizing the DSM-IV, Allen Frances (2017), recognized the danger of classification systems for disorders such as ADHD, Autism Spectrum Disorder (ASD) and others. Werner (1997, 1999), previously, had already carried out research in which he critically analyzed the diagnostic criteria for ADHD, focusing exclusively on the individual – on supposed "flaws" or "deficits" – without considering the relational processes underlying the clinical signs or symptoms.

This article does not intend, however, to insert itself into the dualist rationality of the organic as opposed to the psychical, and discuss the "existence" or the etiological hypotheses of ADHD, entering into abstractions about physical or psychological origins, but based on the historical-cultural paradigm, shift the axis of the discussion from the individual with "signs" of ADHD to ongoing intersubjective processes, allowing a deeper reflection on theoretical-practical aspects related to diagnosis, prognosis and guidance of therapeutic and educational action.

The specific case of a student referred by the school to a health service will serve as a guide, aiming to address aspects of the relation between health and education, in view of the growing demand for medical reports and explanations for children who have school learning and behavioral difficulties, as in the case of ADHD.

## ADHD and hegemonic metatheoretical models

Paradigms, metatheoretical models of science, can be seen as metaphors used to understand natural and human phenomena. Schaff (1987, p. 66) highlights the importance of metatheoretical reflection about the conceptions that determine the elaboration of theories, as a way to understand their philosophical relations and ideological motivations.

ADHD and the assessment methodologies based on the criteria established in the current hegemonic model are in accordance with the epistemological project of modern clinical psychiatry, which is linked to paradigms originating from natural sciences: mechanistic and organicist. For this reason, ADHD and other mental and behavioral disorders are sometimes understood as a mere defect in the machine (mechanism), sometimes as fragility or immaturity of the organism (organicism). Thus, the object of assessments also corresponds to this vision of man and the world, of health and illness, of normal and pathological. In mechanism, the objective of the assessment is to measure the subject's mental abilities and in organicism the aim is to describe the level of mental abilities. In both mechanistic and organicist assessments, however, the point of view is always retrospective in relation to the examinee's development, that is, it only goes up to the moment of assessment, noting their deficits, incapacities, weaknesses and/or delays.

The mechanistic principles in the epistemological process of knowledge of diseases, implementing the classificatory, quantitative and associative emphasis found to date in diagnostic manuals, widen the ever-widening divide between knowledge of diseases, diagnosis and therapy. In contrast to this epistemological path – of abstract objectivism and idealistic subjectivism – resulting from hegemonic paradigms (Schaff, 1987), Vigotski is inserted in the perspective of the historical-cultural model, which considers the human being as a social being, of language and of culture. One can understand the disease and the symptom as a dialectical process of struggle and compensation, at most a drop of illness in an ocean of health: "we notice crumbs of defects and do not capture the enormous rich areas of life of children who suffer from abnormalities" (Vigotski, 2021, p. 24). In the assessment, the emphasis will therefore be on proximal (imminent) development, in a prospective and collaborative vision, as the human psyche cannot be considered as a genuine expression of the individual without taking into account their sociocultural determination.

## The difficult childhood

Aiming to concretize the discussion and present alternatives to the hegemonic mechanistic-organicist view of ADHD, as carried out by Werner (1997, 2000), the case of Vinicius will be presented,

an 8-year-old boy who meets, according to conventional assessment, the criteria for ADHD, associated with Specific Learning Disorder and Oppositional Defiant Disorder (ODD). The association between two or more disorders is called comorbidity – presence or aggregation of two or more pathologies in the same individual, which can be related in three ways: sharing the same cause or one being the cause of the other, or even acting as a potentiating factor for each other and vice versa. According to the DSM-5, the prevalence of ADHD in children and adolescents worldwide is approximately 5%, although it varies widely among different countries. The association of ADHD with other disorders, as in the case of student Vinicius, is in line with statistics, which indicate that around 60 to 100% of ADHD cases present comorbidities, such as: ASD, learning disorders, tic disorders, mood disorders (depressive or bipolar), anxiety disorders, conduct disorder and ODD (Gnanavel et al., 2019).

Regardless of being redundant, tautological and devoid of pathognomonic characteristics, diagnoses and reports will influence the imagination of the family, the school community and the self-image of the "reported" child. It is common for children to describe themselves with bio-identity labels, as in the case of the boy Vinícius: "I am ADHD", "I am ODD". It is of even greater concern when, frequently, this student adopts compensatory narratives as an alibi to "submit" himself to the school social environment: faced with his difficulties and the diagnostic labels received, he takes pleasure in being sick, unintelligent, too stupid to learn, incapable of concentrating, without the possibility of controlling hyperactivity-impulsivity – narratives that often end up being reinforced by the benefits, possibly false, materialized: in flexibility – or infantilization? – of the curriculum, exams adapted for their "inabilities and limitations", and the need for technical mediators in the classroom.

Vigotski highlights, in his work about defectology (Vigotski, 2021), when faced with difficulty/disability, "children difficult to educate and teach" develop compensation mechanisms that will have a negative effect on personality development:

> Imagine that a child suffers from a certain weakness. Under certain conditions, this weakness can be converted into strength. The child can shield himself in this weakness. He is weak, he hears poorly; this reduces their responsibility compared to other children and requires more care from other people. The child then begins to cultivate the illness, since it gives him the right to demand that more attention be paid to him. It is as if, through a confluent path, the difficulties he experiences were compensated for. Adults know what advantages an illness entails when children's responsibility is reduced and, therefore, they can claim an exceptional situation. Children take advantage of this especially well when, due to illness, they readily become the center of attention of everyone around them. This escape through illness or this way of shielding oneself in one's weakness represents the third type of compensation, about which it is difficult to say whether it is real or not. It is real because the child obtains certain advantages, but it is also fictional because he does not get rid of the difficulties and, on the contrary, accentuates them even more. (Vigotski, 2021, p. 128)

## Vignette of a school child with Attention Deficit and Hyperactivity

### The case of the "weirdest boy in school"

Vinicius is a white boy, 8 years old, male, resident in the metropolitan region of Rio de Janeiro, studying the second year of elementary school. He was sent by the school because, according to the teacher, he had: a) **insufficient academic performance** – "he is not able to read and write, he has no attention span, he gets tired easily"; b) **behavioral changes** - "disturbs his classmates, can't sit still, hits his classmates." The mother also mentions the fact, without question, that due to difficulties in relationships with her classmates, the school organized a birthday party

for her son, in an attempt to integrate the "weirdest boy at school". Vinicius's medical-social history can be summarized as follows: his gestation, birth and perinatal period passed without abnormalities, he was a desired child, the couple's first child, and was born when his mother was 22 years old and his father was 32 years old. Currently, his mother is 30 years old, a housewife, with incomplete primary education; his father is 38 years old, with complete secondary education, a computer technician. Vinicius has no complaints about delay in motor development or speech, and presents appropriate vocabulary for his age. The father is more reserved, and the mother has a sociable temperament, very talkative. The parents are worried about their son, and the mother is very distressed, discouraged, and would like, given his son's difficulties and inability to learn to read, he "at least finished elementary school". Regarding the beginning of schooling, the mother reports that Vinicius entered kindergarten at the age of 5, but he did not adapt well to the activities at the school. The mother recognizes that she did not have much patience to do homework with her son – skills training work, such as motor coordination exercises (covering lines, connecting two dots, etc.) and copying letters and numbers. He is currently at a private elementary school in his own neighborhood – a small school with only 8 students in the class – he moved to this school because he was unable to learn how to read and write at the previous school, where he stayed for two years. According to his family, Vinicius has always been an active child and has difficulty accepting limits, because, according to his mother, being an only child, he "dominates" his parents. He likes playing video games and more dynamic activities, such as running and playing soccer. The mother had already sought medical treatment, due to recommendation from his previous school, when he was assessed and diagnosed with ADHD, and was prescribed several medications, including psychostimulants. At the moment, Vinicius is not taking medication and his current school is requesting a new medical report, which is why the family is seeking an assessment at another health service. Clinical and laboratory exams showed no abnormalities.

**The revolving door from School to Health and from Health to School:** When referring the student to a health assessment, the school provides a report, and receives feedback in a medical report, generally containing a diagnosis and guidelines, which, although generic, have the power to define the student as suffering from a psychopathological condition which requires specialized medications and treatment.

It is important to note that school complaints about Vinicius' inattention represent the clinical criteria for diagnosing ADHD. When emerging basically in a school context, signs and symptoms will depend mainly on the opinion and tolerance of the teaching team. In Table 2, shown in the next page, it's possible to see the clinical signs of ADHD defined in the DSM-5, which were marked by Vinicius' teacher in a standardized questionnaire (Table 2).

**Diagnosis:** It appears that the symptoms of hyperactivity and inattention (highlighted in bold in the text from Table 2), as they are more educational than medical criteria, are generally not observable during a medical consultation. Even so, according to conventional protocols, this does not exclude the clinical diagnosis of ADHD, as indicated in an excerpt from a medical review on the topic:

> It is important to emphasize that the diagnosis should not be excluded if the child remains quiet, without showing symptoms related to the disorder during the medical consultation, as some children are able to control the symptoms for a certain period of time. Furthermore, the structured consultation environment can facilitate self-control. (Andrade & Vasconcelos, 2018)

**Comment:** However, if the child is capable of showing self-control in certain contexts, wouldn't it be revealing that the set of signs and symptoms of ADHD also depend on the environment and the social situation experienced to manifest itself? Therefore, how could symptoms, by themselves, determine the child's primary disability?

**Difficult Childhood:** School difficulties related to learning to read and write, the lack of concentration in activities and behavioral problems (hyperactive and aggressive), would fit Vinicius into the set of characteristics common to a 'Difficult Childhood', namely: "difficult to teach as a result of their disabilities; difficult to educate due to their conduct; character traits that make social interaction difficult; insubordination to school discipline and problems in personality formation" (Vigotski, Tomo Cinco, p. 208).

**The student report about Vinicius and the minimalist goals:** Based on information from the school and family (clinical history etc.), as a rule, a standard medical report is prepared and sent to the educational institution, generally in the following terms (Table 3).

Based on this type of clinical information, focused on failures and difficulties in relation to the development of the student's psychological functions, not only the diagnosis and its comorbidities were established, but guidance and prognosis from a reductionist and limiting perspective. With minimalist goals and the aim of "helping the student", along these lines, it is recommended to make the curriculum more flexible, in quantitative and qualitative terms. Thus, the reports contain generic indications associated with palliative measures (longer time to take exams, etc.), all based more on the student's flaws and limitations than on their possibilities.

**Table 2**
*Form with DSM-5 criteria for Inattention*

| |
|---|
| • Often **fails to give close attention** to details or makes careless mistakes in **schoolwork**, at work, or with other activities |
| • Often has **trouble holding attention** on tasks or play activities. |
| • Often **seems not to listen when spoken to directly** (for example, the mind seems to wander, even in the absence of any obvious distraction). |
| • Often **does not follow through on instructions and fails to finish schoolwork,** chores, or duties in the workplace (e.g., starts tasks but quickly loses focus and is easily sidetracked). |
| • Often has **trouble organizing tasks and activities** (for example, difficulty managing sequential tasks, difficulty keeping materials and belongings in order, is disorganized at work, has poor time management, does not meet deadlines). |
| • Often **avoids, dislikes**, or is reluctant to do tasks that require constant mental effort (e.g., **schoolwork or homework** or for older teens and adults: writing reports, filling out forms etc.). |
| • Often **loses things necessary for tasks and activities** (e.g. **school materials, pencils, books,** tools, wallets, keys, paperwork, eyeglasses, mobile telephones). |
| • Is **easily distracted** by external stimuli. |
| • Is often **forgetful** in daily activities (e.g., **doing schoolwork;** teens and older adults: returning calls, paying bills, keeping appointments). |

**Table 3**
*Summary of medical report (example)*

| |
|---|
| The student presents a set of **failures and difficulties**, considered cognitive dysfunctions, in the following areas: **global and working memory**; **reading** (slow with difficulty interpreting texts); **writing** (changes, deletions and omissions of letters, does not follow grammatical rules); **executive functions** (limitations of initiative, planning and organization). There is also the presence of **signs of inattention, disrespect for the teacher's authority**, **lack of emotional control** (loses his calm, becomes angry). According to the diagnostic criteria of the manual used to assist in "conducting clinical assessment, case formulation and therapeutic planning" (DSM-5), Vinicius presents the following diagnoses: Attention Deficit/Hyperactivity Disorder, associated with Specific Disorder of Learning (dyslexia, dysgraphia and dysorthography), Oppositional Defiant Disorder and emotional immaturity. It is recommended that school tasks be reduced, exams with adjusted content, and a flexible curriculum fully adapted to their limitations, in terms of quantity and quality. |

**Need for a medical report and Technical Note No. 04 of 2014, from the Brazilian Ministry of Education:** The Technical Note considers it unnecessary for the child to be "reported" to obtain access to some type of benefit at school. However, medical reports have been increasingly required by schools and even by the Courts, even though this is contrary to the Ministry of Education's rule – the only one regarding Specialized Educational Assistance. Another consequence of the excess demand for reports and diagnoses is the harm caused to those who, due to their real disabilities and illnesses, really need to rely on Specialized Educational Assistance.

**Medicalization:** This demand also contributes to increasing the phenomenon of medicalization of school difficulties and ends up denying the student's right to learn. By placing the blame for school failure on supposed learning illnesses, it makes it more difficult to understand and overcome the true causes of the complex challenges of the schooling process. In this way, the reports exempt the education system, the family and the student himself for the "school failure".

> The transformation of difficulties in the process of teaching and learning into disorders are permeated by organicist assumptions, which attempt to locate the cause of non-learning in the individual, reproducing forms of exclusion and silencing, neglecting the complexity intrinsic to the schooling processes". (Beltrame et al., 2019)

Next, another assessment model will be presented, which does not focus on the individual and their disabilities, but on the intersubjective relation established between the evaluator and the examinee, a relation which, by the ways of a mutual help process, may enable the joint doing of a task that is unfeasible when the subjects are alone.

## Assessment of Affective-Cognitive Processes – APAC (Werner, 1999)

### Characteristics

**1. Change of axis in the assessment process:** From the perspective of historical-cultural theory and towards a more concrete approach in the mental health area, an alternative methodology will be presented below to assess the higher psychological functions of the student Vinicius, especially those related to the process of *shared attention* and *behavioral interregulation.* For this purpose, *the axis of assessment typically centered on the individual is shifted to the interactive processes taking place* (Werner, 1999).

**2. Proposed type of assessment:** APAC proposes the qualitative examination of higher psychological functions and aims to identify mental abilities that have already been formed, and, mainly, mental abilities in the formation process. The methodological resource used is microgenetic-evidentiary analysis, based on Vigotski's genetic-experimental perspective and Ginzburg's evidentiary, or clue-based, paradigm.

**3. Methodology and practice:** in the interactive process, relationships can be dyadic or polyadic, between adult-child or child-child. In practical terms, the assessment consists of a descriptive record of the interactive activity taking place, selection of elucidating episodes, transcription, and qualitative analysis based on categories such as interregulation and shared attention. Thus, by shifting the axis of diagnostic assessment centered on the individual to interactive processes, it makes it possible to better identify dynamic-causal processes underlying the behaviors studied.

**4. Type of Results:** In addition to considering information related to the student's personal, family and academic history, the APAC result aims to elaborate a synthesis focused more on prospective development than on retrospective and fossilized development. The type of assessment proposed, by seeking to identify psychological functions already formed, and, mainly, psychological functions in the process of formation, makes it possible to integrate, in the same conceptual line, diagnosis, guidance, level of assistance and prognosis. In the case of the student Vinicius, for example, who was referred with the central complaint of "attention deficit", the assessment can help both to identify factors that contribute to his difficulties, and, at the same time,

help to define the type of guidance and the quality of assistance needed, based on a dialogue between healthcare workers, school and family. Another aspect to be highlighted is that the assessment, as it is paedological in nature, enables interdisciplinary articulation – from consideration of drug treatment to the most appropriate literacy method.

**5. Research:** The form of assessment of affective-cognitive processes used here comes from doctoral research at UNICAMP by Werner (1997), carried out in a university Child Psychiatry outpatient clinic, with 154 patients, between 8 and 13 years of age, from which 8 children were screened and selected for Hyperkinetic Disorders (currently ADHD), based on the most restrictive conventional ICD-10 criteria (ICD-10 Diagnostic Criteria for Research, WHO). The microgenetic-evidentiary analysis of these patients' modes of action, in intersubjective contexts, highlighted how the *other* plays a crucial role in terms of the emergence, or not, of the behavioral manifestations that make up the clinical picture in question. When shifting the axis of the individual's diagnostic assessment to interpsychological relations, the symptoms of inattention, impulsivity and hyperactivity revealed that the processes underlying attention and self-regulation skills were differentiated depending on the type of interaction established with the evaluator. Voluntary attention, real or in proximal (imminent) development, depends on the interregulation established with and by the evaluator, and on the meaning of the activity taking place. Therefore, the results indicate that the presence or absence of signs of ADHD depend on the existence of skills already developed or in development and, mainly, on the type of interaction established between the child and the evaluator or peer. This means that signs relating to ADHD resulted from dialogic exchanges and shared actions inherent to intersubjective processes. The conclusion was that behavioral skills and cognitive functions can be impeded, promoted or triggered by certain peculiarities of social interaction.

**6. Zone of Proximal Development:** In the proposed assessment methodology, the evaluator is not passive or impartial, as if there were a possible neutrality towards the examinee, but, on the contrary, consciously assumes and plays a role of collaboration, mediation and guidance, not only to define the current level of their psychological functions, but mainly, to identify mental abilities in the process of formation – for which Vigotski uses the expression *zone of proximal development*:

> The child will become capable of carrying out independently, tomorrow, what he knows how to do today with collaboration and guidance. This means that, when we verify the child's possibilities throughout collaborative work, we also determine the field of maturing intellectual functions; the functions that are in an proximal stage of development must bear fruit and, consequently, be transferred to the child's level of real mental development. (Vigotski, trans. Prestes & Tunes, 2012, p. 206)

**7. Process analysis:** Due to the objective of evaluating and analyzing affective-cognitive processes, the methodology is based on the principles privileged by Vigotski:

> We can summarize [...] three decisive moments that underlie this analysis: analysis of the process and not the object, which reveals the effective dynamic-causal link and its relationship in the set of external indications that disintegrate the process; therefore, an explanatory and not a descriptive analysis; and finally, genetic analysis that returns to its starting point and restores all developmental processes in a way that, in its current state, it is a psychological fossil. (Vigotski, 2012, p. 70)

Vigotski (apud Werner, 1999) therefore bases his method for understanding the origin of behavior (understood as a process) on three principles: *analysis of processes* and not objects; *explanation capable of revealing dynamic-causal relations* as opposed to describing the external characteristics of behaviors; and *genetic analysis*, i.e. historical, of behaviors that have already undergone a long process of development. The proposed assessment also uses the evidentiary paradigm: subtle signs with semiological value (Ginzburg, 1989), to carry out analyzes of the interactive examinee–evaluator process.

## Report on the Analysis of Affective-Cognitive Processes (APAC)

Below, as an example, the assessment of the student Vinicius, referred by his school to the health service, will be presented. The methodology consists of: filmed recording (video and audio) of the interactive process, selection of significant excerpts, transcription and qualitative analysis of small and representative episodes of the *interactive processes occurring during activities with the examinee* (Werner, 1999).

## Vinicius' APAC Records

**I. Identification**: Vinicius, 8-year-old boy, in the second year of Elementary School.
**II. Episode**:
**Episode selection**: the episode corresponds to one of the significant excerpts that emerged from the evaluator-examinee interaction, being recurrent and capable of enabling the qualitative analysis of the processes underlying the functions assessed.
**Participants:** Vinicius and Evaluator (resident doctor in child psychiatry).
**Location:** Health service outpatient activities room.
**Guide activity**: The Evaluator proposes the activity of reading a story about the character Cebolinha (from the comic book "Turma da Mônica"), which is part of a comic previously chosen by Vinicius.
**Object of assessment**: Cognitive and executive functions of attention, learning, reading skills and self-control.
**Total duration of the assessment**: 60 minutes
**Length of selected episode**: 1 minute and 45 seconds
**III. Transcription of the audiovisual recording of the selected episode:**
**(turns 1 to 21)**

**1. Evaluator** – I will sit beside you, then I will follow you.

[Before the selected episode, the Evaluator had already spoken to Vinicius, who chose the comic book from the bookshelf and magazines in the outpatient activities room.]

**2. Vinicius** – Is this G or C?
**3. Evaluator** – This is a C.
**4. Vinicius** – "Cebolinha".
**5. Evaluator** – That's it. Let's start the story there.
**6. Vinicius** – "Pro..."

[Vinicius takes off his cap, without stopping looking at the comic.]

**7. Vinicius** – "...lo-go". ["Pro-lo-gue", reads separating the syllables.]
**8. Evaluator** – Prologue. Do you know what that means?
**9. Vinicius** – No.

[Vinicius shakes his head as he responds. He is looking at the appraiser.]

**10. Evaluator** – [means] Before. Before. Then it will begin.
**11. Vinicius** – "O ce-bo-li-nha a-cei-ta u-ma bala. Oba. O-bli-ga-do". ["Cebolinha accepts a candy. Yay. Thank you", reads in syllabic form.]
**12. Evaluator** – You know that Cebolinha speaks wrong, right? Did you know?

[Vinicius nods his head and continues reading. The caracter Cebolinha switches R for L, just as Vinicius read]

**13. Vinicius** – "Chom-pi, chom-pi, chom-pi" ["Munch, munch, munch", written chewing sounds read in syllabic form.]
**14. Evaluator** – And what does this drawing here mean?

[Evaluator points to a figure in the comic.]

**15. Vinicius** – He is eating.

[Vinicius returns to reading.]

**16. Vinicius** – "Chom-pi, chom-pi, chom-pi. "En-tão não es-tá sen-tin-do na-da não. Fal-ta um pou-co de a-çú-car. Bo-las mi-nhas."
**17. Evaluator** – No. You skipped here, right? Didn't you skip? This one is on the side.

[Evaluator points to the panel that Vinicius should follow.]

**18. Vinicius** – T-cha-u. ["Bye" read in syllabic form.]

**19. Evaluator** – Do you know what this is?
**20. Vinicius** – No.
**21. Evaluator** – Tchau. Tchau is spelled like this.

## Analyzed aspects

**1. Self-regulation, Voluntary and Shared Attention:** In the guide-activity of reading the Cebolinha comic book, specifically, the psychological function of voluntary attention associated with the function of self-regulation can be proven in the interregulation process. Between turns 6 and 7, there is a clear indication of concentration of voluntary attention: "Vinicius takes off his cap, without stopping looking at the comic book". Vinicius maintained voluntary attention during practically all 21 turns of the episode analyzed, remaining seated and interested in the story of the comic. A single moment of inattention was revealed in turn 17, when the evaluator promptly signaled to Vinicius that he skipped a panel in the comic story, revealing that the evaluator was sharing attention with Vinicius in the guide-activity: "No. You jumped here, right? Didn't you jump? This one is on the side", and the evaluator points to the panel that Vinicius should follow, helping him.

**2. Reading:** In turns 2, 6, 7, 11, 13, 15, 16 and 18 it is possible to see that Vinicius has great difficulty reading, even though he maintains voluntary attention throughout the activity. His reading is syllabled and, without the help of the evaluator, he cannot identify the word. Vinicius already expresses insecurity in reading and the evaluator promptly clarifies it. The reading of isolated syllables demonstrates that Vinicius is being taught to read with the methodology of "putting little pieces together". Reading in syllables, without fluency, makes it difficult to understand the text, which is only overcome by the help of the evaluator in turns 3, 5, 8, 10, 12, 14, 17, 19 and 21.

**3. Interregulation, Awareness and Interlocution:** The mutual process of interregulation between the evaluator and Vinicius was well demonstrated throughout the assessment process. The evaluator placed himself in the position of collaborator from the beginning, sitting beside, next to Vinicius, and announcing his intention to accompany him in reading the comic (Turn 1: "I'm going to sit beside you, then I'll follow"). Vinicius, in turn, sought help from the evaluator in Turn 2 ("Is this G or C?"), accepting his interventions throughout the activity. The evaluator demonstrates that he is regulating himself by Vinicius, and "lends his structure" to him (an expression coined by Werner throughout his work as a psychiatrist), without Vinicius having to previously express his questions or needs, as can be seen between Turns 6 and 10 (after reading Vinicius's syllables, the evaluator intervenes spontaneously: "Prologue. Do you know what that means?", to which Vinicius responds "No", looking at the evaluator). Therefore, the evaluator acts not simply by responding, but by perceiving Vinicius' needs throughout the shared guide-activity. The awareness and attention shared by the evaluator in the interaction with Vinicius, allow the type of interregulation necessary for Vinicius to self-regulate and continue carrying out the activity, appropriating new mental functions. The evaluator, specifically, made interventions in 10 of the 21 turns in the episode, indicating the level of assistance required by Vinicius for this type of activity.

### Diagnosis, Guidance and Prognosis

**4. Diagnosis:** Vinicius presented the functions of voluntary attention, self-regulation and social interaction, which were concretely manifested in the assessment's guide-activity, contrasting with the report and the school complaints. To this end, the participation of the evaluator was essential, mediating the entire process with questions, pointing to the comic, answering and explaining the meaning of difficult words. Analyzing the interactive process, it is also evident that the positive affect of trust between the actors in the roles of examinee and evaluator was subtly established, from when the evaluator made it possible to choose the comic book and sat beside, next to the examinee – not in front, as usually occurs in typical mental assessments –, communicating the intention of cooperation, and not of testing and demanding. Vinicius's mental abilities may be in the *zone of proximal development*, that is, they only come

to fruition in adequate collaboration. Therefore, the evaluator, in the process of intersubjectivity, establishes with Vinicius a zone of proximal development of new skills and mental functions.

In relation to reading ability, the delay in reading fluency and comprehension was confirmed, which could be considered symptoms of dyslexia, and Vinicius would receive the diagnosis of a Specific Learning Disorder. It is important to highlight, however, that the symptom "dyslexia" cannot be disconnected from the teaching method used. In this case, Vinicius' literacy has been taught through the syllabic method, in which the student has to combine isolated elements of the language such as letters, sounds and syllable. This can explain his difficulties in understanding the meaning of the written words, which, secondarily, gives rise to insecurity, low self-esteem and anxiety.

The reading difficulty presented by Vinicius would be enough to trigger, in the daily school life: inattention, lack of interest in learning, reactive attitudes and indiscipline. In the assessment, on the contrary, it was observed that even in a school-type activity (reading), adequate support provided the necessary social situation for Vinícius to remain interested in the activity.

**5. Guidance regarding the level of assistance needed:** Based on the identification of some of the processes underlying the reported signs and symptoms, the guidance aims to contribute to the construction of another narrative about Vinicius's cognitive capabilities, making it possible to indicate the level and type of interregulation and assistance necessary for him to establish and express his new skills. The assessment showed, in this sense, that one of the important factors in interregulation was the social mediation implemented, for example, in the fact that 50% of the turns analyzed were the evaluator's interactive participation. In this sense, Vinicius' skills in a state of transition, have the possibility of becoming real and autonomous. To this end, it is demonstrated that Vinícius needs to have access to the type of collaboration similar to that received during the assessment, in a way in which the activities are meaningful, and it is important to observe the evaluator's attitude, starting from the cooperative choosing of the material used in the activities carried out.

Considering that Vinicius is at school age, when, according to Vigotski (2006), the "7-year-old crisis" occurs – in which the child begins to perceive the separation of inner and outer life, interfering with his self-evaluation –, he would be experiencing his failure at school more consciously, internalizing a stigma when he says "I have ADHD". The role of adults, teachers, therapists and family members needs to be, first and foremost, to act on the symbolic plane of the shared awareness with Vinicius. As an example of what happened in the relation with the evaluator, it is important to work, right from the assessment activity, on the process of deconstructing the narrative that the student, due to supposedly presenting a neurobehavioral deficit, is unable to concentrate, learn and self-control.

To increase Vinicius's awareness of cognitive self-confidence, it is also recommended to use a more appropriate methodology for teaching reading and writing, based preferably on the "phonematic structure of words", that is, "on the sound within the unit of the meaningful word" (Luria, 1979), as also indicated by Marinho (1987) in the Natural Method of teaching reading and writing, with the aim of guaranteeing the semantic integrity of words, phrases and stories, as they depart from the unity of the word, and not isolated and mechanical elements.

**6. Prognosis:** According to Góes (1997, p. 91), the "analysis of development based on intersubjective and dialogic occurrences that lead to the internalization of actions" provide "the understanding of the emergence and consolidation of knowledge and behaviors". In this sense, Vinicius's mental abilities, which are in the process of formation, are located in the *zone of proximal development*, that is, they emerge in interaction and collaboration with the other. Therefore, based on the observed and analyzed signs, it is possible to establish the prognosis that Vinícius will certainly achieve the abilities of voluntary

attention and self-regulation, if the same form of interregulation experienced during the analyzed interaction episode is maintained.

## Final reflection

This article specifically points to the understanding that mental functions in the process of formation may or may not manifest themselves as a function of the interregulation established in social relations. Students referred by the school with reports of "attention deficit, hyperactivity and impulsivity", as in the case presented and in accordance with previous studies (Werner, 1997), could, in the assessment process, not manifest these signs in the *intersubjective situation experienced*, due to the type of meaning of the action shared by the actors and the presence of effective collaboration offered by the evaluator in the interactive process – enabling the emergence of psychological functions that had not yet been configured independently. On the other hand, when signs of *inattention, hyperactivity and impulsivity* appear, there is a need to recognize the underlying mechanisms and the meanings of these signs in the relationship. They may be signs of difficulty in interregulation, a learned form used by the child to regulate others, or, more specifically, a form of communication – a "quasi-language" – in search for help and collaboration. Psychological functions and their externalized manifestations should not, therefore, be taken in isolation and dissociated from the social relationship, of which they are part and by which they are constituted.

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