

# RE-THINKING THE SUBJECT IN THE FIELD OF COGNITIVE SCIENCES

## Re-pensar al sujeto en el campo de las ciencias cognitivas

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### Abstract

In this article a documental review is unfolded that has as fundamental objective to analyze the relevance of cognitive science in articulation with educational field. For the sake of reflecting about notion of subject, it is determined important to review the neoliberal speech and its inscription in the enigma of subjectivity. To resignify the human experience factor, implies to overcome challenges of biological reductionist vision, to privilege the maxim of unconscious knowledge. The hermeneutical overview of this document takes up an interdisciplinary scaffolding, which base is represented by disciplines like: philosophy, neuroscience and psychoanalysis. To this effect, it is considered necessary to carry out a change of paradigm shift that ponders over History and subjective constitution, in opposition of practices that degrade the uniqueness of human being. To prioritize the influence of social environment on students 'life, joined to safeguard their mental, physical and psychological development, it is outlined as a key requirement to hold an ideal operation of nervous system and construction of psychism. It is imperative to extend the advance of science to the auspices of public politics, to link neuroscientific knowledge and subjective condition to teachers training spaces, it is an exercise of educational prophylaxis.

### Keywords

Knowledge, psychoanalysis, philosophy, neoliberalism, history.

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### Resumen

En el presente artículo se despliega una revisión documental que tiene como objetivo fundamental, analizar la relevancia de las ciencias cognitivas en articulación con el ámbito educativo. En aras de reflexionar sobre la noción de sujeto, se determina importante revisar el discurso del neoliberalismo y su inscripción en el enigma de la subjetividad. Resignificar el factor de la experiencia humana implica sortear los desafíos de la visión biológica-reduccionista, para privilegiar la máxima del saber inconsciente. El recorrido hermenéutico de este documento retoma un andamiaje interdisciplinario, cuya base es representada por disciplinas como la filosofía, las neurociencias y el psicoanálisis. En tal sentido, se considera necesario efectuar un cambio de paradigma que pondere la historia y constitución subjetiva, en contraposición de prácticas que degradan la singularidad del ser humano. Priorizar la influencia del entorno social en la vida de los educandos, aunado a salvaguardar su desarrollo mental, físico y psicológico, se perfila como un requisito clave para sostener un funcionamiento idóneo del sistema nervioso y construcción del psiquismo. Es imperativo extender el avance de las ciencias a los auspicios de las políticas públicas, vincular el conocimiento neurocientífico y condición subjetiva a los espacios de formación docente, supone un ejercicio de profilaxis educativa.

### Palabras clave

Conocimiento, psicoanálisis, filosofía, neoliberalismo, historia.

122



## Introduction

The study of cognitive science today represents a revolutionary movement to understand the human being, through the findings of neural plasticity and the transcendence of learning in context, it is possible to capture more clearly the functioning of the central nervous system and, therefore, reflect on everyday aspects such as the learning of students, or where appropriate, human behavior.

Among the advances observed in this interdisciplinary construct, the one that has to do with the understanding and functioning of mind-body dualism stands out, specifically with the emotional component. Among the advances observed in this interdisciplinary construct, the one that has to do with the understanding and functioning of mind-body dualism stands out, specifically with the emotional component. Although it is true, this represents perhaps one of the main challenges, as Martínez (2000) already mentioned, its dynamic foundation has made it possible that, in the case of educational discourse, there is a synchronization between the development of adolescence with the structural changes of the brain.

Although the relevance of the neuroscientific field contributes to strengthening the educational response and understanding of the human mind, the conception of subjectivity, as a process of dynamic configuration, provides a theorization and approach different from that of a neurological basis. According to Pajares (1992), the set of elements

rooted in the field of study of perceptions is configured by those beliefs and points of view that certain subjects experience in their contextual reality, so that interpellating the subjective meaning is equivalent to specifying what was underlined by Socolovsky (2014), “subjectivity itself is not something quantifiable or static, nor is it physical or traceable in inheritance and it does not encompass only conscious but also unconscious experience” (p. 175).

Therefore, the purpose of this study is to analyze the discourse of subjectivity in correlation with those disciplines focused on the understanding of the subject —namely— philosophy, neuroscience, and psychoanalysis. Discussing them allows arguing that singularity, that is, that notion of being and being in the world is inscribed in a dilemma; through a reading on depression and attention deficit disorder, it is determined that although there may be different explanations and opinions about its genesis, the need to recognize the basis of both neural networks and the construction of the psyche, aims to re-signify the history of life, even more so, when living times in which consumerism and globalization challenge becoming a subject.

The structure that the document follows is broken down into the following sections: the relevance of establishing an interdisciplinary work, crossroads of the subject and cracks in the social fabric, insurrection or exclusion of the subject in the study of science.

Information treatment is supported by a bibliographic review of databases and primary sources (books, theses, scientific journals) on the study of cognitive and dialectical sciences of subjectivity. The criteria for the selection and analysis of articles are limited to the following: 1) their international recognition and indexing; 2) contribution to the topic of analysis.

## The relevance of establishing interdisciplinary work

The importance of embracing other languages of knowledge lies in the fact that, for a long time, it has been experienced within educational practices, a deployment of actions that have taken into account only the brain as a learning engine, that is, it is part of an isolated vision of intelligence and reason, and thereby the relevance of the context that guarantees meaningful learning and the benefits that anthropology can confer on cognitive sciences are ignored.



For Baker, Salinas, and Eslinger (2012) the contribution of social research has not been sufficiently valued to reduce the knowledge gap between the field of cognitive neuroscience and education, through correlating the importance of social contexts with the findings from evolutionary biology, one can access a scheme where the ‘social neurocognitive’ revolution is conceptualized.

Within educational institutions, diverse knowledge is outlined that will have to be transmitted to students, among which, one has to do with the same knowledge/ability and another that ventures into the external reality. For García (2018) this difference between ‘epistemic subject’ and ‘subject of knowledge’ implies questioning the pedagogical approaches and distinguishing which faculties are played from the position of the teacher and from the students. Rethinking the course of the school career is to reflect on the educational link that consists of the following:

Having thus established the relationship between school administrators and teachers with students and their parents, it can be thought that primarily students are located in a place of “epistemic subjects”, in which they are thought about from the connection with specialized knowledge, they are situated in a region of knowledge that excludes others, which is a way of separating the world from school disciplines. The contents of the school are transmitted to the students regardless of the modes of relationship that they establish with the world. Thus, pedagogical objectives such as “focus on literacy” or wanting them to “reach university” are proposed (García, 2018, p. 104).

There is no doubt that the cultural influence on the training of apprentices is an issue of yesteryear but that today, it continues to generate uncertainty and, at the same time, analysis within the social or educational spaces where it has influence. As Mead (1993) already related in his experiences with the Samoan community, the transition from childhood to adolescence is strongly marked by the cultural environment to which one belongs, the latter introducing a certain set of codes and social norms that, by way of ideals, they represent that which must unquestionably be fulfilled as a choice, at least, propped up on the lures of hope. Here the main conflict and reason for reflection has to do with freedom of choice; the educational and family fields must be shaken off of that belief that to fend for oneself is only way of life:

It is inconceivable that a final recognition of the great number of ways in which man, during the course of history and in the present age,

solves the problems of life, would, in turn, bring about the destruction of our belief in a single norm (Mead, 1993, p. 228).

From other latitudes and referring to López's (2017) scrutiny, the case of the so-called conduct disorders or school disorders is presented, which, in its quality of adherence to a positivist-behaviorist orientation, gave way to the fury of child psychiatry in the Secretariat of Public Education of Mexico in the years 1930 to 1970. Through the remarks that the author develops about the child psychiatry movement in conjunction with the SPE, it is possible to trace a set of actions, theories, and approaches that serve to weave the threads that serve as the basis for the actions of educational practice in relationship with the subject; although he indicates the instrumentation of psychiatric spaces to investigate the genesis of school disorders, giving rise to *peidopsychiatry* as a kind of link between medical and school discourse, it refers to the fact that given the insufficiency of this perspective to guide explanations, it is valid to not ignore the understanding of an entire educational system, weakened in terms of its structures, and ineffective in its operation. The main reason that led to a radical dissociation according to López (2017) was that:

For thirty years the presence of psychiatrists in the Mexican educational system was sustained under the justification that mental medicine, being the discipline with the greatest knowledge about the physical and mental development of children, could explain and counteract the lack of satisfactory results. in the classrooms (p. 124).

The rise of cognitive sciences in relation to education implies taking up other areas of knowledge to reformulate those concerns that emanate from the enigma of the mind and its correlates with the environment. The purpose of establishing an open field to other dialogues and narratives of being, consists of maintaining an interdisciplinary work not only to identify the difficulties that shake the school structure, but also to counteract the barriers that students and teachers face in their quality of difference.

Although cognitive sciences as mentioned by Medina (2008) are built from other disciplines, their significance and object of study can serve as a basis for understanding certain phenomena that occur in the educational process; the importance of taking into account the context in the student's learning reappears as a crucial situation for pedagogical praxis since, according to Silenzi (2012), it is from this interaction that commitment, ethics, and responsibility of the subjects involved in school



formation can be raised. Its base of action allows to rescue an embedded approach that emphasizes the relationship of man with the world, that is to say, the mind is no longer perceived as an isolated entity, but its social bond with others is enhanced.

From this perspective, it is valid to mention that this way of proceeding is mediated, in terms of Castoriadis (2011), by the society/psyche dualism, by means of which the imaginary construction of institutions is in itself the totality of the universe that encompasses the subjective sense of the people who make it up.

According to Medina (2008) this situation is pressing for the study of the human mind: points out that although it is true there is a tendency to clarify its operation according to the canons of experimentation, its dynamism as a holistic construct does not allow to avoid the intervention of an agent that, in its quality of signifier, gives meaning to the representational field of knowledge. According to the author, this passage reflects a significant fact for the movement of cognitive sciences since it covers the perception of the subject, giving credit to the subjective meanings.

The understandings unveiled by Martínez (2017) show that, in the exercise of mental processes, the representations that the subject makes about certain facts are fixed based on language, from which a series of differences between internal/external can be established, but the imperative, in this case, is to consider that its base is built on a computational scheme. After the vision of comparing the mind to a virtual machine, Dennett (1993) considers that the transformation of the human brain is due to an inscription of language, that is, through words (memas) consciousness is configured.

This is important because it adds elements to the understanding of the human mind, interpellating knowledge of other disciplines by virtue of a reflective act becomes an obligatory task. Thinking about the notion of the subject for Colas-Blaise (2019) represents an integrative exercise whose genesis begins to be structured from the interaction with the other, to then settle in the deployment of reflexivity and action crossed by the marks of language and enunciation. Although the communicative process that emanates from this dynamic visualizes in the distance, on the shores of contemplation, a paradigm mediated by positivism and classical rational character to understand the unity of man, it is important to give ground to the inscription of the intersubjectivity. As stated by (Sarria, 2005) "The subject is not, then, an isolated organization; it is a system that is constituted in exchange, in transactions, in negotiations, in the recognition of the other" (p. 613).



What is revealed here refers to thinking about the modes of anchoring between man and the world, that is, to the way in which the subject is represented as a psychosocial entity. Knowledge of reality will be configured based on the perceptual act and in tune with reminiscences, which according to Vázquez (2017) refer to the symbolic register:

The point of reference to apprehend perception is no longer a previously defined world, which does not depend on the subject who perceives, but rather on the sensory-motor structure of the cognitive agent, in the way in which the nervous system connects sensory and motor surfaces (p.12).

The centrality in the symbolic dimension makes it possible to take into account a capital question, namely, the emotional scaffolding of the subject as a value judgment and belief system, according to the approach of Peres (2015), granting credit to emotions as a set of actions derived from the cognitive component, is equivalent to laying the foundations of rationality, from which parcels of knowledge are installed that come to mark the lineages of intelligence and ethical reasoning “emotions are nothing but the way of being human being-in-the-world, of expressing his connection with things” (p. 224).

Emphasizing emotions as a process of human development is a task that can and should be inserted into the educational field, the functioning of the brain is intimately linked with the emotional dimension, and this, in turn, with the experiences that are registered from contact with the context, therefore, retaking this consideration is not only conceived as a favorable panorama for the subject, but also for society, since as Bernal (2013) states:

(...) For optimal learning to take place, the subject must be emotionally competent, which requires communication between different parts of the brain, the deeper levels that automatically process emotions and the more evolved brain structures that deal with cognitive processes with greater awareness (p.119).

The biological basis of emotions is for Castaño (2017) a dimension that allows human beings to adapt to the world in which they live. Returning to the factor of experiences, the emotional configuration aims to reconsider the crossover that takes place towards the outskirts of the organism; given the plasticity of the brain quadrants, it is elementary to see in what way, what is blurred in the peripheries of sensory perception can make human development drinkable or, where appropriate, dethrone, in light of this the author postulates that:



The value judgments that are internally linked to the biological function of the emotions contribute to the subjective that accompanies the experiences, in such a way that the affective reactions provide meaning to life and behaviors; they show us that we do not act without meaning and that each of our actions is linked to a feeling and its affective valence (p. 11).

The concomitant factor to this scrutiny is that moral development is traversed by the set of emotions that occur in the subject when making value judgments. According to Pinedo (2015), establishing an ethical and moral education that is so demanded today by educational spaces requires working from different areas of knowledge, since as previously indicated, cementing reasoning barely, under the findings of a discipline, as cognitive neuroscience may well be, is to exclude other research axes, which in the words of Martínez, Segura and Sánchez (2011) means:

The debt with empiricism is being too attached to the materiality of cognitive functions. Another way is to collect all the elements that current neurology has discovered without disregarding them and turn to other sources to give way to consciousness (p.180).

Recognition of emotions becomes evident in intervention programs or models that keep a better social adaptation as a badge, beyond its biological basis, the emphasis is placed according to González (2006) on the context, through which it can be given account of a chain of elements that represent expressive behavior. Emotional learning is therefore derived from neuronal attachments, but its specificities will largely depend on the interaction that occurs with the other or with the environment. In this way, Arboccó de los Heros (2015) points out that, in order to potentiate a social adjustment, both the family, school and society must re-feed from neural networks through activation/stimulation mechanisms “The fact of growing, learning, socializing and maturing is related to good brain performance and especially with the neocortex areas” (p. 8).

According to Dosil (2014), this marked dilemma can be re-elaborated from the educational field, the fact of developing actions to redefine the history of the student through a symbolic record contributes to generating more liberating and less repressive conditions and environments.

The management of emotions in the educational context serves as the basis to strengthen the teaching work since, as Benavidez and Flores (2019) point out, based on neurodidactics, teachers can know how the brain learns; the study of the limbic system allows to have a complete vision of the daily life of the students and to develop a praxis of greater flexibility. A retrospective examination of the above allows us to main-





tain that in the relationship of the emotional component with the brain, practices that are not necessarily destructive of the educational field, but rather, of the new styles of parenting are revealed. The central nucleus between cerebral and emotional development must be located in the area of mutual understanding, that is, in the capacity and disposition of the adult to understand not only the physiological needs of the child but also the psychological ones, since as Torras de Bea affirms (2010):

If the neuronal and connection loss is prolonged, it becomes irreversible. This loss of connections means an impoverishment of the psychic capacities of the child, adolescent and adult in the different areas: intellectual, emotional, social, learning capacity (p. 158).

According to Lipina and Álvarez (2011), the processes of globalization, consumerism, and competitiveness stress not only educational and work practices, but also family demands for the care of children and adults. The advancement of the sciences, in particular cognitive neuroscience, is an issue that must be within the reach of governments and systems (education, health) in charge of designing policies focused on human development, however, the false perception of considering neuroscience as a discipline distant from the problems caused by poverty, it is based on the notion that its suitability is low and, therefore, scarce for community development purposes. To counteract this dilemma, it becomes unavoidable to expand and disseminate the knowledge extracted by scientific research, taking into account the factors of ethics and citizen responsibility translates into the following: “Aspiring to this role necessarily implies overcoming the deep gap that exists between knowledge produced in academic centers and its application in a social context” (p. 244).

The consideration of integrating concepts from the science of cognitive development into economic and educational models allows, according to Howard-Jones, Washbrook, and Meadows (2012) to provide valuable tools (early childhood) for the politicians of tomorrow. The investment in this sense must be weighed towards the first years of life.

The gradual discovery of the benefits that these sciences can bring to the educational field should be underpinned in reciprocal dialogue, the study of the mind in conjunction with teaching and learning is for Barrios-Tao (2016) an insufficient question that does not manage to cover all the dimensions of the human being, to the extent that the learner interacts with his context, in that sense, he will be able to establish new channels to apprehend significant knowledge. Likewise, the importance



of considering real contexts and, above all, of contextualizing the spaces where the pedagogical meeting takes place is pointed out.

Recognizing some of the limitations of the study of neurosciences is of vital importance because although they offer valuable ideas to understand learning, the results and knowledge derived from research should be handled with caution, since as determined by the Organization for Cooperation and Economic Development (OECD, 2007):

Educational policy informed by neurobiology simply cannot be imposed on schools —the educational implications of any line of research must be involved in a synergistic interaction with each educational community, in such a way that the appropriate policy for each culture is developed— (pp 232-233).

130



To exemplify the above, it is necessary to take into account the speech of Dolto (1990) who already points out the importance of creating a flexible curriculum, to which all students can easily involve themselves; learning understood as a process of constant evolution must be based on knowledge and skills that are alternative to the basic ones, that is, the teaching that is acquired through experiences and social interaction must also be considered as an elementary function for human development. In addition to these factors (sociological, psychological, and pedagogical), it is necessary to consider another aspect whose analysis lies in the duality teacher/student relationship.

One of the specific advances in this rhetoric refers to the new ways of conceiving adolescence, according to Marina (2014) this process must be accompanied by a new paradigm that ends up disdaining the notion that the brain reaches its maximum development during infancy. On the contrary, the adolescent period becomes an ideal space for learning since there is a refinement of synaptic circuits and processes, which allows, as far as possible, to develop a certain task with greater finitude. As well as this period is fertile ground for human development, it is also represented as a table of risks that, according to the author, are in correspondence with the environment, so that both myelination and synaptic pruning are affected, or in their case favored, by reciprocal interaction. In this exchange, what Choudhury, Blakemore, and Charman (2006) call social cognition unfolds; It is a component of greater structure unlike the infantile period, which is amalgamated with decision-making and emotional understanding.

## Crossroads of the subject and cracks in the social fabric

The transgression that the social fabric has suffered in terms of security within the Mexican territory has become a constant source of grievances against the uniqueness and physiological development of children and adolescents. To assume a position like this is to understand that the plasticity of the adolescent brain in terms of Marina (2014) cannot be sculpted, their condition as a person is not subject to a solid structure and, on the contrary, it is exposed to the most perverse forms of violence.

In order to reduce the situations of inequality, injustice, and violence, it is necessary, according to Arzate (2015), to redefine public policies; the multiple forms of marginalization and poverty that are experienced in Mexico represent a situation of encounters and miss encounters with well-being and human development. Although there are efforts in terms of investment, these are insufficient given the marked gap of social inequity, in this sense, it is important to design prevention practices for children and adolescents who are the product of exclusion and discrimination:

(...) Young people cannot be on the street exposed to violence, crime, poverty, and multiple forms of vulnerability; they should, on the contrary, have quality educational opportunities that provide them with the tools to build a dignified and productive future. The school for all, free public and secular, is one of the best projects of the Mexican nation which should not be blurred; Therefore, it is necessary to understand it as one of the priority objectives of democracy and economic development (Arzate, 2015, p. 132).

The above implies making a change in the cultural paradigm that aims to deconstruct how the phenomenon of violence has been installed in the social sphere; violence against children has become a subject of great importance for society in general, the high rates of physical, sexual, and emotional abuse experienced by girls and boys invite us to reflect on parenting styles and ways of coexistence (an ideal environment where the study of cognitive sciences could have a place). According to Jiménez (2019), the damage generated by the manifestations of violence can be serious, transgressing the mental, physical and social health of the people who suffer it. Through these behaviors, neuropsychological alterations are revealed that compromise executive functions.

The relevance of these observations is correlated by that already stated by Stein et al. (1996) who, through a comparative study and



through the use of the interview, express that physical or sexual abuse in childhood is particularly associated with patients with anxiety disorders.

According to the review by Mccrory, De Brito, and Viding (2010), it is specified that, although the neurobiological mechanisms by which child abuse increases vulnerability to psychopathology remain poorly understood, the evidence recorded on adverse situations in Nursing, accounts for a series of alterations in the structure and function of the brain that are harmful to the developing baby. In this sense, the maternal function plays a determining role since the interruption of early care can affect the psychological and emotional development of a child.

The research that Fares (2016) breaks down, agrees that infants who suffer from some type of abuse tend to suffer from neuropsychological affectations and therefore poor cognitive functioning, a specific intervention that takes into account neural plasticity is of utmost importance, since that in this way socio-adaptation difficulties and disorders in adult life can be prevented.

The approaches of Liévano (2013); Urazan and Ávila (2015) who, following the lines of the neurobiology of aggression and violence, demonstrate an articulation between aggressive and violent behavior with brain processes (amygdala, hippocampus, among others); however, these studies should take into account the in-situ context to have greater scope and affinity, since in terms of Ortega and Alcázar (2016):

(...) the concrete expression of aggressive or violent behavior will be promoted, inhibited, or modulated by the society and culture where such behavior is expressed, which will take place during the development of the individual in constant interaction with the subject's brain in order to develop situational models that allow the prevention of violent behavior by a subject in a specific situation (p. 67).

If up to now it has been shown that the phenomenon of violence has its correlates with people's brain function, some authors Liévano (2013), Ortega and Alcázar (2016) and Jiménez (2019) assume that to carry out a comprehensive study of it, it is convenient to reconsider the role of the sociocultural aspects and life history of the person, in such a way that it was possible to expand knowledge towards other frontiers of knowledge and thus apprehend new starting points. In this situation, Novo and Pérez (2009) mention that: "Socio-cultural circumstances are as decisive as the genetic load of the individual, even a two-way communication between these two universes can be ensured..." (p. 81).



Although the thought of Bleichmar (2007) argues that the new forms of violence invite us to think about the processes of desubjectivation, in the case of Mexico the effect that organized crime has on the psychic constitution of girls, boys and adolescents is surprising. The game as such is no longer a space to develop creativity and imagination, its main motive is in the drama of “the good guys” and “the bad guys” polarizing what is instituted as justice. This fantasy in the game is not exclusive to infants, their redirection towards youthful times is disguised under the representation of power and submission that is commonly visualized in everyday life.

The constant flow of encounters and disagreements, of struggles and alliances, as well as of failed attempts to safeguard a singularity, which, according to the capitalist empire, is under the costs of an alienated market, represents the atmosphere through which it is possible to access a ‘cognitive sciences’ episteme that covers social mobilization and resistance but also gives meaning to the psychic configuration of the subject.

It is important to open new areas of knowledge to analyze the discourse of a society engulfed by globalization and consumerism, which in the words of Aprenda (2006) tend to reify subjectivity. “Even more significant for the self-understanding of psychiatry is the growing propensity to the neurosciences to declare subjectivity itself as merely an epiphenomenon of brain processes” (p. 38).

This conception is forged in the foundations of the neoliberal sphere that only shows the productivity and competitiveness of the human being, since it is inscribed in market conditions and logic that visualize it more as investment and consumption, than, as a person with a free will, in this way, Vecslir (2017) affirms that:

Neoliberal governmentality finds in the brain a privileged protagonist since from now on this will be the locus of behaviors and decisions, especially those of an economic nature. In this way, the individual is challenged as the exclusive responsible for his living conditions and held responsible for his permanent self-scrutiny, for the development of adaptive and competitive behaviors (p. 99).

On these lines Martínez (2018) expresses that in order to revalue the knowledge of cognitive sciences, it is necessary to avoid with rigorous discipline the actions of a polarizing and confusing nature; It is unintelligible for the conscience to appropriate facts and merely speculative aspirations and lacking scientific judgment since the structure of the cognitive subject can be similar to the representation of a computer, whose genesis is cons-



tituted from an information processing system. From this point of view, Fierro (2011) points out that there is a point of agreement between the classical cognitivist model and the connectionist model since both positions work from a computational system that: “allows us to explain the speed with which cognitive and its resistance to damage, that is, very rarely is the whole of a skill engaged; it is almost always partially preserved” (p. 531).

## Insurrection or exclusion of the subject in the study of science

The advanced scientific-technological terrain that has been deployed in recent times represents for Cabañes and Rubio (2013) an opportunity to reflect on the notion of the subject; they express that the emerging findings of computational and neurobiological experiments set the course for the new ways of conceiving the future of humanity, they also emphasize the importance of reviewing not only the theories of mind as a unilateral action of cognitive sciences, but also given its hybrid methodology, it is imperative to place oneself on the contours of the subject.

This line of thinking questions a field of study devoid of meaning, since thinking of the subject only from a computational model as an isolated entity and devoid of meaning, according to Sarria (2005) is equivalent to not seeing the historicity that protects and represents it before the Exterior.

Given the complexity of mental processes and human behavior, it is affordable according to Zumalabe (2016), not to disdain, but not to exclusively use the contributions of neurosciences to explain human functioning, thus transcending the importance of articulating in the center of the cognitive sciences, an interdisciplinary network that advocates for interpretive psychological lines. On the contrary, it would mean betting on a practice and ethics that are increasingly remote from reality while a reductionist model is manufactured “... explaining all behaviors and mental phenomena exclusively based on biological mechanisms, chemical reactions, etc., is to grant excessive importance of biological determinism, which implies a radical reductionism” (Zumalabe, 2016, p. 276).

In order to contextualize the above, it is licit to focus attention on a phenomenon that in recent years has gained great relevance in the school environment, it is the construct of ADHD that affects girls, boys, and adolescents so much. It is important to point out the existence of two positions, of two aspects that, keeping the proportions, answer the call of its understanding and treatment.



From the neurophysiological ranks, Martínez and Vasco (2011) point out that the failures in the regulation and behavioral management clearly reflected in these cases are related to alterations in the neurotransmitters whose base of explanation reveals a lack of linkage between the learning of an action and its trigger as a response, thus preventing further reflection on what has already been experienced. In this sense, Ortiz (2009) explains that attention deficit hyperactivity disorder is a psychiatric disorder with a higher prevalence in childhood, whose structure amalgamates a series of important cognitive correlates. Likewise, it points out that there is a tendency to explain its genesis from the functioning and vision of the alteration at the level of the prefrontal cortex, in charge of the executive functions that allow impulse control, planning, and concentration, among other executive variables.

Its treatment becomes controversial since, the pharmacological use as the main response route must be subjected to an analysis that prioritizes the uniqueness of the people and the relevance of the attached social construction, as García, Alda, and Gascón (2012) point out:

The presence of certain symptoms is necessary in order to define a disease, but it is not enough. Psychiatric classifications require that these symptoms produce a deterioration in social, academic, or work activity. This key aspect of the disease is subjective and socially determined (p. 126).

This is interesting given that it reflects a prevailing situation that has to do with the dynamics of ADHD and its progressive correlation with school functioning, in this sense, Avellón (2013) mentions the existence of two positions; while one has to do with the physiological model, the other is positioned in the psychopathological space. Here we can glimpse the risks that are configured and have an effect on the students, when in chess terms their psyche is put in checkmate by labeling said disorder, in view of this, it is postulated that it is essential to consider a psychotherapeutic model since, from this, work can be redirected that allows clarifying the psychic processes of early childhood:

It is in this initial mother or primary caregiver bond that the formation of the psychic is played out, the mind and body, the psychological and the biological being indissolubly united from the beginning. It would be absurd to ignore the biological basis of a given individual, but it would be just as absurd to pretend that only biology determines the psychic functioning of a person (Avellón, 2013, p.18).



The vicissitudes that appear today under the label of attention deficit and other problems that afflict the child-youth population, deserve to be addressed from a holistic perspective; the revelations of Jiménez (2003) show that to the extent that difficulties are manifested at the neuronal level, this implies fissures in the psychic structuring of the individual, so that the professional approach, far from supporting itself in a single position, must take into account both the neurological and emotional development “If these factors are not taken into account there is a risk of confining the child in a diagnosis (sometimes with dire connotations) and in most of the times with asymptomatic approach” (p. 146).

The controversy of this debate is encouraging for the field of research and demands, in that sense, another treatment of the information, however, its analysis allows adding elements of reflection to this article as long as the practice that unfolds in the daily school life is seen benefited. In this vein, it is possible to elucidate some notes that organizations such as the Association for Infant Mental Health since Pregnancy (ASMI, 2015) have expressed in this regard; they state that given the increase in ADHD cases, it is important to establish a critical stance that tends to a more accurate treatment, its characterization and diagnosis from a physiological basis supposes that:

Suffering, as well as the complexity of the human being and his psychic-emotional functioning, are thus limited to reductionist and simplistic conceptions, based on pseudoscientific conceptions of the biological, psychological, social, and genetic that constitute us, presenting us as subjects without subjectivity, subjected to the biological and neurochemical empire of our brain, as if our organism functioned independently, isolated and separated from what we are, what we do and how we live with what we are and do (ASMI, 2015, p. 1).

Far from predicting the relevance of these two positions, it is considered essential to establish a dialogue that helps to understand these disorders in the educational context, it is worth noting that knowledge versed in the auspices of teaching, is not relegated to the encounter with the enigmas and uncertainties of the accelerated technological advance, which, therefore, will lead to a constant reflection on the subject.

In this case, it is so sublime to ratify the construction of a subject based on conformity, on completeness, as the act of recognizing oneself based on superfluous praise is fallacious. It should be mentioned that recognition as such is not the equivalent of a recipe book or a system of





classifications, which can later be argued as valid, but must at all times be established as an unfinished and constantly transforming process.

It is worth mentioning that in this passage the notion of the capitalist system as such refers to thinking about a form of degradation or ‘dehumanization of the fellow man’ as mentioned by Bleichmar (2011). In the enclosure of this scheme, a void appears, a kind of absence that clouds the view, not allowing us to see beyond the projected codes, as if these were by themselves the only way of access to understand the implicit art. This linear interlocation corresponds to forms that deconstruct subjectivity as there is no open field for the construction of ethics and responsibility.

In line with the above, it is feasible to refer to the thought of Merlin (2019) who, from a lucid position, aims to interweave the milestones of neurosciences with the socio-historical moment that represents them, exposes that under these indications of reflection one must undergo meticulous review of the neoliberal socio-political scheme, because beyond being a purely economic model, it is currently reflected as a system that tends to suppress subjectivity through practices and discourses of power such as marketing and a biological approach.

According to Segura (2016), the production of the subject from a neoliberal perspective tends to make subjective conditions invisible and massify, by virtue of installing a process, a discourse, and an ideal that transcends into spaces of consumerism and productivity; the obsession with the establishment of a social order in which each person must be and socialize in the world, according to the universality of social norms and practices, is simply a condemnation of emptiness and reductionism.

The constraints that are added to this framework is that neurosciences, as a means of control to achieve a redirection on the evolution of humanity, are installed as a discipline from which it is possible to access the field of happiness and human dignity; faithful to the footholds of consumerism and the market, they develop a strategy that, rather than favor a comprehensive vision of mental health, demarcates the limits between what can be considered ‘normal’ and ‘abnormal’ according to the statutes that justify the use and pharmacological treatment. Based on the boom in today’s society and the normalizing language in the logics of the economy, Beckdorf (2019) points out that:

Neurosciences challenge emotions with a purpose that is to achieve docility from the subject: the best possible way to govern it, fulfilling the latter in turn with the objectives and ends of market economies that they expect from society, productivity, profitability, and excessive con-



sumption of psychotropic drugs so that their economies function and produce (pp. 28-29).

In this market logic, a problem stands out that erases the subject's intersubjective gear from the map to place it under a regulation, assuming, as García (2011) mentions, the existence of a standard subject from which universal facts can be extracted:

The scientific validity of this methodology is more than questionable, as science always works from theoretical models to deduce laws of causality or explanatory correlations. There is only the schizophrenic brain because we assume a standard schizophrenic individual (pp. 670-671).

This means, at first glance, a latent risk since it is untenable to think about certain psychopathology only by filling in and meeting certain diagnostic criteria.

In order not to fall into a reductionist vision of subjectivity, as already stressed by Apreda (2006), it is necessary to go from a purely biological paradigm to an ecological one, under this last approach it is proposed to analyze man's knowledge based on his subjective condition and in correspondence with the environment where we develop. It is pointed out that the brain alone cannot account for affectations such as anxiety or depression, in its case, it needs the analysis of the senses and meanings that a subject can give to certain experiences of daily life.

According to Carpintero, Hazaki, and Vainer (2020), the pharmaceutical marketing that exists to promote a cure in depressive disorders is worth noting; It is common to observe and hear in psychiatry and in everyday language the infinite use of terms that refer to a picture of depression and anxiety, or simply a lack of desire or motivation to do things. The classifications and diagnoses at all costs that are practiced today are still another instruments to normalize the subject in question (adult/adolescent). Giving voice and listening to the uniqueness/history of each person implies recognizing that the drug mitigates the effects of depression, but does not analyze the causes that cause it:

The promise is that the drug, beyond curing the disease, tones the brain to allow a better lifestyle. Selling new lifestyles works like marketing that is illustrated with convincing images: when an antidepressant is taken, it stops raining, the sun rises and the perception of the world changes (Carpintero, Hazaki and Vainer 2020, p. 4).

The way to approach this situation leads us to reflect on the paradigms and disciplines that allow, as far as possible, to build a vision to

interpret the human being in juxtaposition with the socio-historical context that surrounds him/her. Although the scope of the neurosciences has become very important in the study of the brain, since from its operation conjectures about its actions in daily life can be extracted, this represents a vestige that, crossed by the rigor of the scientific order, escapes the re-encounter of knowledge with subjectivity, which inevitably weaves itself in the ranks of psychoanalysis. Then, it will be necessary that, in order to establish an ethical work, a space to think about the subject not only from the structures of neuronal plasticity is prioritized.

Due to a lack of exploration of the techniques used by the neurosciences to understand the life and global functioning of man, Cusumano, and Raz (2014) mention that it is feasible to look for those methodological tools and techniques that, from the discipline of psychoanalysis, can serve as a basis for the understanding of the constitution of subjectivity. They argue that both neuroscientists and psychoanalysts are motivated by mutual recognition between both disciplines, thus giving rise to the flourishing movement of neuropsychanalysis. A debate is set up on this scaffolding that according to Cieri and Esposito (2019) implies overcoming the challenges that the biological-reductionist vision of subjective experience brings with it.

The analysis of subjective experience represents for Feinberg and Mallat (2019) a fundamental step to close the gap between objective explanations of brain functions and the subjective feelings that accompany them, they argue that consciousness is entirely complex, with three domains or subtypes standing out. partially overlapping: exteroceptive, affective, and interoceptive. Therefore, the gap can be better explained by taking into account the scaffolding of the following factors: the personal embodiment of life-derived subjectivity, with the unique, complex, and diverse neurobiological characteristics that contribute to consciousness.

From neuroplasticity studies, traces can be drawn to understand the functioning of psychic processes in conjunction with the neural networks of the attentional model, according to Palencia (2018) the need to formalize a work from interdisciplinarity becomes a nodal point that questions not only the practical but also the theoretical:

Obviously, each experience perceived and lived can leave a mark, determining the character of the subjective inscriptions. However, it is clear that only a portion of what is perceived reaches the level of consciousness, and that the conscious is not exactly what is perceived (p. 7).

In addition to the issue of how to understand the notion of subjectivity from the field of neurosciences, the approach of Franck (2019)



is added, who invites not to ignore the appointment of the field of philosophy as a discipline oriented towards the understanding of the human being, he expresses that man as such cannot be understood from a purely neurophysiological basis, that is, it is unintelligible to explain his behavior on the basis of a neural network, he mentions on the contrary that there are elements traversed by language and experience that is positioned in an analysis of ontological character, in such a way that as Marcos (2015) states:

The correct way to mitigate human vulnerability is not the overcoming of the human, but the deepening of the human, that is, the adequate convergence and integration in each person of all the aspects of our human nature (p. 412).

140



Beyond the psychological or cognitive positions that come to offer a current panorama of the brain in relation to learning, the support of educational programs must also be based on the ideal of anthropological or sociological contributions; As the milestones of the human mind break down, ramifications appear that according to Ruiz (2018) become the object of study:

(...) Subjective and intersubjective transformations, which can influence culture and environment, are mediated by communicative actions, which in turn imply the development of thinking faculties that make it possible to discern, argue, debate, propose, choose and take responsibility individually and collectively (p. 296).

In the process of instituting the rethinking of educational programs and understanding the holistic nature of school life, it is feasible to evoke a situation of analysis and contrast; Although the subjects in training (students) come to manifest difficulties in their learning process or academic performance, the response as an operating rule rather than leading to reflection, leads to adopting a paradoxical position, since to the extent of objectifying and normalize the needs present in the school corridors, the ontological process of being tends to be concealed under the nuances of the deficit or, where appropriate, under the paradigms of diagnostic manuals. This is of the utmost importance since it is necessary to ask oneself: where are the student's word and desire when his human rights are trampled upon, while, under the haste of having explanations for his learning difficulties, it will prevail, like that society shaken by immediacy, to a praxis of reduced complexity?

The concern of developing educational practices of a greater humanistic nature lies in the need to counteract the false perceptions and beliefs that the teaching staff may have about human development. Such is the case of what was pointed out by Tardif, Doudin, and Meylan (2015) who, through quantitative research in the region of Switzerland, analyze what is the position of teachers towards ‘neuromyths’, that is, on those misconceptions of the brain and its functions. The discourse offered by the participants (active teachers-students in teacher training) allows registering a favorable recognition of the functionality of the brain structures and hemispheres. Derived from this, it is important to consider neuroscience as a means to better understand a series of topics relevant to education, but not as a prescriptive tool for teachers.

Helmuth (2016) argues on this point by emphasizing that in the lures of teacher training a work plan aimed at research and global understanding of the human being must be sustained. From theories of the mind, a new treatment that, adjusted to the needs of society, allows a circular dialogue between the natural and social sciences is already required.

By way of a simple but forceful training is the categorical way in which the subject, according to Sisto (2006), can be ‘inscribed’ in the register of what is desirable by cognitive processes, so that in light of such events It becomes essential to listen to the discrepancies manifested in the face of cognitive sciences, namely, the displacement of the social constitution and structuring of language as a determining entity in the development of the subject. This implies a restriction of the gaze that does not allow us to see beyond the wall, the lens is, in this case, encapsulated, and perhaps the only way of escape, to think and say in the world is through cause-effect logistics.

The importance of reconsidering the human experience factor is a situation that must be prioritized not only in the field of education but also in the field of mental health. Following the rhetoric of Schiffer (2019) it is possible to understand the interaction of subjectivity with the brain, while the latter is affected by subjective experience. The maxim of alluding to this dialogue rests on a thesis that with the passage of time has become more evident by reason, of unconscious knowledge.

## Conclusions

The insights revealed through this bibliographic analysis refer that, although the field of cognitive sciences is of utmost importance for the



educational field, its application must be carried out under a framework of responsibility and ethics. Faced with this invitation, Puebla and Talma (2011) agree with the fact of incorporating the knowledge of neurosciences into teacher training processes. In order to reduce the gap between both disciplines, a greater approach is requested whose purpose helps to overcome the neuromyths of the educators' beliefs.

Giving reading and voice to the new challenges that arise in the conception of the human being, is a demand that requests the rethinking of the ways in which the disciplines attached to education are approached, although this has contemplated a gateway of compendia and constructs, perhaps some more sophisticated and rigorous than others in their approach, this has not been enough, so it is necessary to delve into the variety of existing paths to access knowledge and try to interpret reality. The effort of professionals to enhance the relationship between neuroscience and education lies according to Benarós et al. (2010), in considering how professionals from different disciplines contribute to crystallize the gaps through their practices.

To solidify the relationship between both disciplines, it is necessary to use a hybrid methodology that translates into knowing how neuroscientific information is used. The objective according to Zadina (2015) is to know how future professionals are being trained to interweave said knowledge. It is about establishing a circular dialogue that incorporates scientific training, real learning environments, that is, schools with students living in poverty.

What is revealed here is a conscientious review of the disciplines devoted to the study of the human mind, because as these are useful to the life of the subject in training, emphasizing a permanent correlation with their immediate context and taking into account the configuration of the psyche and neurological functioning, the journey through the educational paths would be more enjoyable and meaningful. Otherwise, it is not strange to imagine that that torrent of energy that aspires to excel is collapsed by bureaucratic actions and segregating mechanisms that subtract, instead of adding, to a cause worthy of autonomy and freedom, and where appropriate, obey a heteronomous character. It is precisely this mechanism of metamorphosis and interaction that is the alternative door to the torments of positivist and neoliberal logic because as the image of a literary work is kept in mind, from whose meaning different positions and expressions arise, in that sense its value it becomes important, that is to say, that through a hermeneutical act it can approach its understanding. If, for the understanding of the human act, at least a reversible



work is needed that implies a vision from the general to the particular, it is because this allows us to reflect on the genesis of its work, in such a way that, if it is required to grant recognition to the subject, it is not enough to just look at the event from above or far away, it is required, where appropriate, to apprehend it in the foundations of its constitution, which in educational terms would mean from the dimension of healthy and peaceful coexistence.

The narrative of neoliberal ideology establishes a framework of actions that, by virtue of radical authoritarianism and strong conviction towards the dispersion of capitalist well-being, erodes the field of individuality, affecting, as PrestiFlippo and Wegelin (2016) point out, the unfolding of subjectivities. This kind of training is revitalized from four spheres that disrupt the construction of meanings: the justification of inequality, meritocracy, technocratism, and the ideology of the flexibility of life. From this perspective, it is plausible to allegorically evoke the thought that, according to Fromm (1990), would position itself in favor of justice and social responsibility:

Humanistic conscience is the expression of self-interest and the integrity of the man. While the authoritarian conscience deals with obedience, self-sacrifice, and man's duty or his "social adjustment". The goal of humanistic consciousness is productivity, and therefore happiness since happiness is the necessary concomitant of productive living (p. 174).



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