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COGNITIVE REFLECTIONS IN CHILDREN WITH ADHD AND PROPOSALS TO PROMOTE LOGICAL THINKING

ÁNGEL SALVATIERRA MELGAR[1], WALTER ARTURO QUISPE-CUTIPA[2], IRMA REYES-BLÁCIDO[3], LISET SULAY RODRIGUEZ-BACA[4], MANUEL FELIPE GUEVARA-DUAREZ[5], MITCHELL ALBERTO ALARCÓN-DIAZ[6]

[1]Universidad César Vallejo, Perú, smelgara@ucv.edu.pe, ORCID: https://orcid.org/0000-0003-2817-630X

[2]Universidad Nacional Intercultural de la Amazonia, Perú, ORCID: https://orcid.org/0000-0001-9355-1984

[3]Universidad Nacional de Educación Enrique Guzmán y Valle, Perú ORCID: https://orcid.org/0000-0002-6864-3059

[4]Universidad Autónoma del Perú, Perú, ORCID: https://orcid.org/0000-0003-1850-615X

[5]Universidad Nacional Mayor de San Marcos, Perú, ORCID: https://orcid.org/0000-0001-7266-0508

[6]Universidad Nacional Mayor de San Marcos, Perú, ORCID: https://orcid.org/0000-0003-0027-5701

ABSTRACT

The present study shows the need to reflect on the sequences of cognitive processes of logical thinking in children with ADHD, andit also provides strategies to promote them. The research was carried out on a sample of 11 children with ADHD within the ages of 5 and 6, identified by the checklist of the DSM_IV in addition to the interview sessions with their teachers and classmates. Due to the characteristics described, the study is based on the qualitative approach of ethnographic design and documentary review. It was concluded that these children often make frequent errors in the resolution of logical operations due to lack of attention and concentration during the algorithmization of arithmetic operations. They cannot combine the implicit data of situations in problems with literal statements, and they also show a high level of dyscalculia. On the other hand, the learning of these children is manifested with the manipulation of concrete materials, documents with clear and colorful texts, activities with serial games, which allow activating their attention by means of graphics, silhouettes, guides and sequences with defined procedures for the achievement in following instructions.

INTRODUCTION

In the statements by Sánchez, Torres, Barrios, Bahamón and Uribe (2020), children show a set of cognitive processes intrinsic to development, which emerge before they start school learning; these processes are determinant for success during the academic progress; however, they mark distance from each other within school environments due to multiple problems such as brain injuries, deformation problems, maturation processes, learning techniques and strategies, among others. Low achievements in university environments is due to economic, social and motivational factors, also due to intelligence, habits, learning styles, learning strategies, etc., all associated to attention, memory and executive functions. Under this perspective, Baron and Zapata (2018) expressed the virtues of the cognitive processes associated with the bias to understand and give explanations in situations of high complexity during the academic professional development.

In the face of these arguments, it is necessary to implement the neuropsychological evaluation and assessment on children in order todetect their cognitive level and, in forced cases, apply memory intervention by means of opportune treatments, sincememory is a regulating entity needed for solving problems, planning and orienting oneself in space and time. In this regard, Montserrat, Laura, Dolores and Ángeles (2015) point out that from the age of 7 children start to develop essential processes such as reading, mostly stories and fables; they begin writing common words and doing mathematical calculations related to the basic notions of numbers. It is the stage where the cognitive processes have a greater presence, thus allowing the detection of neuropsychological problems that

could be affecting the academic processes. These problems are manifested in the lack of comprehension, attention, lack of inferential capacities and inductive logical thinking, among other characteristics. Actually, the study is focused on children with lack of attention, so they deserve the assistance of a tutor or specialized personnel for their diagnosis and treatment. However, these children have powerful compensatory resources such as imagination, rhythm and melody management, movement, interest in the natural world, interpersonal skills and divergent thinking styles (Berkley, 2000).

When dealing with cognitive aspects in mathematics, Defaz (2017) refers to the fundamentals of thinking, to processes of direct and indirect observation, to intuition in a spontaneous way, to imagination during logical reasoning in order to establish relationships and apply meaning to a concrete situation. In children with ADHD, there has been detected an absence of superior and complex cognitive processes, as they cannot manage to sequence the processes inthe short term memory. This is due to the lack of fixed attention; these children show, therefore, learning difficulties in mathematics. Another acceptable method for children with hyperactivity is the psychomotor problem solving techinque, which allows group interaction, obeying set rules in front of their peers. In this scenario, children are very heuristic; besides, they use very assertive technological resources, creating free games and interacting in a spontaneous and dialogic way.

As for the skills, Salas, Asún and Zúñiga (2020) understand them as adapting our behavior to understand that of others. The path to a good education in skills implies a new way of understanding culture and giving it meaning for life (Santos, Fuly, Souto, dos Santos and Beretta, 2019). By nature, each person presents different academic levels; in other words, their cognitive proficiencydevelops at different rates due to individual characteristics, the environment where they develop and the opportunities they are given,leading to a good personal record in values and a dignified school life, here lies the importance of the actors in education and of the family environment. These aspects are treated very rarely or not at all within the educational institutions; therefore, an administrative reorganization is urgent, prioritizing the Psychology Area to meet the multiple demands of learning problems that children suffer, among them, ADHD.

Pineda, Aristizabal, Escudero, Acosta and Vélez (2018) define ADHD as a disorder of attention and concentration deficit due to hyperactivity-. It is also a disturbance of neurodevelopment associated with motor hyperactivity and impulsiveness. Montante, Calvillo, Licona and Grespan (2019) affirm that ADHD is associated with parenting; furthermore, the symptoms of this disorder influence communication, family time sharing, parents' expression of affection, and leisure activities. All these aspects are reflected in academic activities. Roca, Vasquez and Yurba (2019) state that the behavior patterns of these children are improved by the creative activities designated by their mentors.

MATHEMATICAL LOGICAL REASONING

The practice of reasoning leads, in a formal way, to the solution of questions that are inherent to reality and generates pertinent, interesting and novel conclusions as a result of mathematical logical reasoning. Reasoning is also part of our daily lives and social development, as when dealing with commercial transactions, payments for services, games in casinos, in board games, during the distribution of objects on the table, in estimated calculations of length and weight of some object, among others (Reyes-Santander, Aceituno y Cáceres, 2018). Students make use of their mathematical skills during the process of solving logical questions, involving the use of verbal symbols and visual representations during the resolution of contextualized and significant mathematical questions. These allow developing and fostering the capacity of reasoning in abstraction, sequencing, decision making, case analysis, synthesis of statements, predictions from data, systematizing and solving algorithmic and heuristic logical order problems, in addition to the logical development associated with the cultural environment within social demands. Thought, intuition and observation allow the manifestation of mental representations; logical reasoning predefines the meaning of symbolic and inferential situations, which falls within the development of didactic processes and sequences.

Within the educational scenarios, mathematical reasoning is formalized in the interaction of the needs to face a problematic situation using symbols and mathematical concepts inserted in the arithmetic operations; this process fulfills the expectations by integrating the importance and usefulness in their daily life, it becomes significant for their personal development in society. Reasoning is associated to the vocalization of symbols carried to the abstract world and to the verbal statements that allow communication according to their purpose and the nature of

the situations. Perez (2008) indicates that numerical and symbolic information allows the resolution of situations that are translated into real cases by guiding the understanding and interpretation of sequences under heuristic procedures with creative predominance.

CHILDREN WITH SPECIAL EDUCATIONAL NEEDS

In Peru's educational system, the child is valued for his or her personal differences; children with EN need guidance and a guided follow-up with clear instructions in order to be assessed. Mendoza, Burbano and Valdiviezo (2019) point out that the teacher is involved in the children's learning; they internalize and face several problems that hinder their academic development. It should be noted that teachers are not properly trained to address the needs of children with the following difficulties: a) children with hearing and vision impairments, b) educational learning disadvantages, c) difficulty in the learning process, and d) emotional and behavioral disorders. These needs are common in classrooms, however, educational authorities pay more attention to cognitive assessments and the technical actions of the teacher.

The National Institute of Statistics and Informatics (2014) detected the recurrence of the syndrome (ADHD) or attention disorder among the multiple special needs. In the same way, Martin, Salas, Diaz, Blanco and Howard (2018) stated that, on average, 5% of children worldwide present this disorder, which is more evident in boys than in girls; that is, for every three boys with ADHD, there is just one girl. The ADHD in children is manifested before age 7 and remains in time until adulthood, affecting their academic performance and social skills.

Sierra, Mesa, Cuarta and Ochoa (2018) proved that 80% of the origin of the syndrome is due to factors often inherited; that is, by biological factors during the prenatal, perinatal and postnatal periods; also, by brain activations, as well as by concordance rates for fraternal and identical twins. On the other hand, Martinhago, Lavagnino, Folguera and Caponi (2019) stated that the origin is reflected in the psychopathology of the parents, deficiency in food consumption, exaggerated consumption of alcoholic beverages and violent video games. It could also be caused by photon scans taken during pregnancy, deficit of dopamine and norepinephrine regulation in the frontal cortex (Mínguez, Domingo y Parra, 2020). It is necessary to pay due attention to these children and to assume specialized treatments that improve their level of attention and social skills. Against these arguments, the study is oriented to the cognitive reflection of the logical thinking of the child with ADHD and the interventions developed during the school stage to improve their level of attention.

LOGICAL THINKING SEN CHILDREN

Logical thinking is built throughout the child's evolutionary process and develops throughout existence; it is reflected in rationally assumed decisions. In this regard, Ramírez, Hernández and Prada (2018) pointed out that during their cognitive development, children go through the levels of formal thinking and concrete thinking; these levels allow the development of logical thinking, thus developing progressively. Gualdrón, Cudris, Barrios, Olivella, Bermúdez and Gutiérrez (2020) demonstrated that children are capable of developing activities until they reach numerical knowledge; children in kindergarten bring with them a series of mathematical competences which allow them to develop in a concrete and logical way, since these were acquired in their natural world, that is, they were acquired within the family and social environment in a spontaneous way. The development of thought is fostered in a social play environment. The term social consists of interaction between children through communication, role-playing, turn-taking activities, cooperative actions and mutual support.

In the thesis by Gualdron et al. (2020), mathematical competence in children affects formal and informal competence in different ways, and though comorbidity does not condition attention span, it does condition mathematical competence. In Chile, the studies of children with special needs (NNE) developed by the Ministry of Education (2016) identify four specific components: mathematical problem solving, mathematical communication and argumentation, representation and modeling of concrete situations; the main interest is focused on practical development-oriented actions to promote innate logical thinking skills; however, children with special needs often present difficulty in calculating because of easy distraction due to the inability for global processing and loss of sequence in the mental elaboration of logical procedures. In this regard, Martinhago et al. (2019) state that attention deficit hyperactivity disorder (ADHD) is shown in the lack of sequencing, in the follow-up during the resolution of situations, positioning and inadequate calculations in arithmetic operations; consequently, the performance is lower due to its low level of functioning.

Children with ADHD present deficiencies in mathematical skills, reflected in a lower IQ for their age; this is associated to the deficit of their executive functions in logical reasoning. Marín, Gutiérre, Martínez, Bernadó, Lafuente and López (2020) indicate the procedures followed during execution like enumeration and calculation; they constantly express the lack of accuracy in the arithmetic calculations due to bad positioning of the numerical terms and to the operation processes during the resolution. These children do not manage to systematize implicit data or to sequence procedures in the ordering of numbers, or in the sequences of the mental processes for their solution. All these elementspresentedto the children are congested, generating a kind of bottleneck in their working memory, which they try to access but fail to sequence; this is a serious consequence for the learning of mathematics, which explains the poor results to teachers and parents.

METHODOLOGY

The methodological processes of the study are based on the qualitative approach of ethnographic design as it allowed to describe, reflect and argue about the behavior of the 11 children with ADHD identified under the DSM_IV checklist (Cornejo, Sanchez, Gomez and Ossio, 2010); Semi-structured interviews were conducted with their teachers; individualized interaction with the student was also achieved under identification codes, paying attention to their dialogues, to the behavior in the classroom and outside of it, to their experiences in the classroom and their interaction with other children. Data was collected by paying attention to the children's behavior in the classroom during academic activities and in front of their peers. The analysis and interpretation of the data was carried out with the method of multiple triangulation. In addition, they were organized in hermeneutic units and balboric quotes as a result of the report of the software Atlas.ti_9 obtaining categorized networks. For the identification of the experiences developed in the confrontation of the children with ADHD, the technique of the documental analysis was proceeded, detecting findings of the application of intervention programs that allowed to improve logical reasoning in the children.

PROCEDURES

Given the results of interviews, observation, and reflective processes about the problem, the deficiencies and limitations of students with ADHD were recognized; there were identified two components resulting from the analysis of codification, subcategorization, and categorization: a) children with cognitive needs and b) children with lack of skills in mathematical reasoning.

Concerning the first component – children with cognitive needs, this one is associated to difficulties in short and long term memory (Luna, Manzanares, Rodríguez y López, 2018); children identified by the lack of concentration frequently evoke words without a logical order; theyshow difficultiesinkeeping steady in a place; they do not pay attention to the teacher's explanation; in front of this scenario, children react by biting their nails and biting their lips continuously. These actions cause their learning to be deficient due to the lack of concentration and fixed attention, not being able to perpetuate the sequentiality during the solution or processes of the instructions given by the teacher. They also show logical thinking deficiencies, such as serialization, complementarity, sequentiality, not in correpondance to their age in comparison to other children of their same age group.

With respect to the lack of abilities in mathematical reasoning, these children show better learning when manipulating concrete educational materials; it has been observed that they are very attentive with big and colorful icons, slides that show attractive graphics and with a great amount of stimuli or big texts,and with orienting sentences that generate significant stimuli. It has been perceived that these children read instructions very well; however, most of them do not understand; neither do they manage to identify the implicit data, so they get confused when they perform arithmetic operations. Andersson and Lyxel (2007) stated that the actions to initiate the learning of mathematics respond to the skills of processing and storing information simultaneously; this action is part of the central executive, of coordinating, monitoring and sequencing the functioning of the two systems: the visuospatial component and the phonological loop.

Regarding cognitive needs, during the learning of mathematics, children simultaneously activate three types of knowledge: declarative, operational and resolution strategies (Negrin, Cera, Senior and Marin, 2020); it has been detected that children with learning problems are capable of activating declarative knowledge; however, they show difficulty in acquiring operational strategies due to the impossibility in the global processing and failures in

the information sequencing process. On the other hand, Roca et al. (2019) analyzed the cognitive processes ocurring during the approach of arithmetic problems in young children with learning difficulties in mathematics; the authors demonstrated that the executive processes were the main aspects taken into account in the resolution of problems. In addition, it has been observed that these children show greater protagonism when the teacher shares concrete materials like small plates to make arithmetic operations; small tubes to identify sizes; printed materials with graphical representations for painting; patterns like number games, among others.

It has also been found that their actions are executed in the manner of a contest, not realizing about the appropriate certainty for instructions; futhermore, in graphical representations, they make very visible color combinations, but fail to paint all the space within the line, and sometimes even end up scribbling. During the arithmetic operations executed with concrete materials, they manipulate them very well in comparison to other children; they perform the operations, but many times, when about to finish, they forget the order required to begin or the exchange at the moment of doing subtraction, or the number carried in the addition; Nevertheless, during the playful activities in which the teacher shares a game with numerical dominoes for sequencing, these children pay attention to the results of their other classmates, and they are the ones showing most interest in the activity; actually, hey wait for their turn to place the game pieces or tiles on the table and they encourage motivation; although they mislead their vision to the pieces.

RESULTS AND DISCUSSION

Based onthe observation instrument and the interviews with the participating agents as teachers, the decoding of the information recorded in the researcher's field notebook as well as the theoretical approaches indicated in the study, the data obtained were entered into the Atlas program. ti_V_7. The previous results showed two macro components generated by the nodes in the semantic networks, which will be reffered to as categories; these were (1) children with cognitive needs and (2) lack of skills in mathematical reasoning, which are shown in the connections of the fragments defined as cognitive characteristics of children with ADHD during the process of logical thinking.

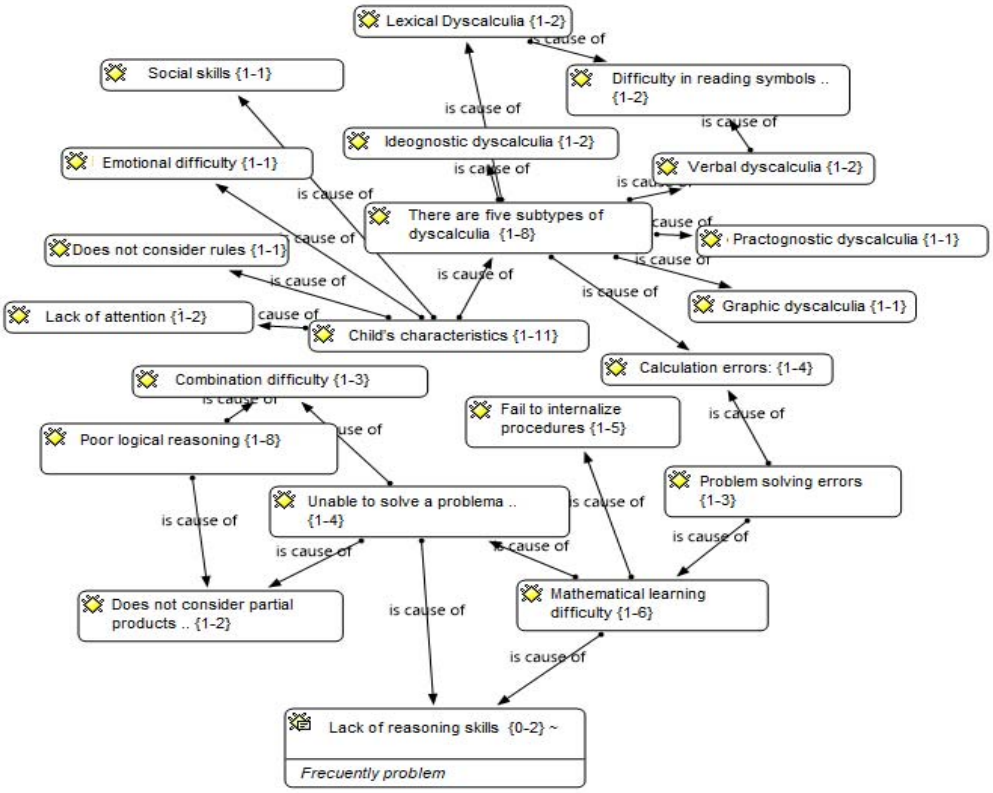

Figure 1. Characterization of the lack of logical reasoning skills in children with ADHD

Regarding the results of the semantic network, the directional nodes referring to the lack of mathematical reasoning skills in children with ADHD disorder are presented here. The impatience and reactions of these children prevent them from carrying out operations that demand sequences, due to lack of attention, and manifesting their frustration in front of their peers who do succeed fulfilling the instructions requested by teachers. In this respect Guadrón et al. (2020) states that the reasons for the learning difficulties are based on the Activity Theory Approach, because when performing the mathematical operations, they forget to sequence the algorithms that they do many times from left to right. In the arithmetic operations of subtraction, they do not manage to empower themselves of changes, nor in addition operations, as they forget the quantities that pass to the immediate units, thus generating difficulty in the learning of the operations less in the process of solving mathematical problems, or they simply feel impotent. These children do not show good social abilities concerning their behavior, because they are not easily accepted by the groups (Negrín et al. 2020). During the interaction in the recess time and free games activities, these children are very solidarious and collaborative; they are even able to share what they bring in their lunch boxes as well as their toys, something that does notoccur inside the classrooms. They frequently yell and move from one place to another, disturbing the nearby group

.

The frequent errors that these children make during the procedures of the mathematical exercises are associated with the lack of attention to sequence during the algorithmization of the operations. They lose the sequence of their logical reasoning.This is mainly appreciated in the procedures followed for the combination operations (Martinhago et al., 2019). These children do not manage to combine; therefore, it is difficult for them to understand the parts to everything in terms of addition of objects. Likewise, these children have difficulties with theirconcentration during the teacher's explanation, and they even lose concentration on the actions they have started, since they suddenly leave an activity unfinished and start others. They easily lose their attention;they are attentive for an average of 5 to 7 seconds, andthen immediately seek to attract the attention of the classmate sitting next to him/her by scratching the folder or making funny sounds. About this issue, Prieto and Valls (2010) indicate that these behaviors, which are natural for their high energy level, make others uncomfortable because they distract them. Cornejo et al. (2010) point out that, despite the fact that their classmates and their classroom neighbors try to regulate such behavior, they are very detached as they cannot stabilize themselves for the fulfillment of their tasks. Nevertheless, when it comes to learning with some concrete material in mathematics, these children are very skillful in making comparisons, they are the first ones to lead until they fulfill the task, and they are even capable of following other instructions in a logical order, such as identifying sizes, masses, color combinations, and the origin of the objects. But, when some rules of change are given to them, the fact of replacing the units by a dozen makes it difficult for them to understand and to form other numerical structures (Villarejo and Marí, 2016). As a consequence of failures, these children shift emotionally and they are very irritable. Rodríguez and Martínez (2018a) express their concern in teaching the acquisition of knowledge and the development of mathematical skills, and as an alternative they suggest using games and narratives during cooperative learning.

These children, frequently make errors during their attempts in problem solving and arithmetic calculations. Five types of discalculia are detected (Reigosa, Castro, Estévez, Santos, Torres, Mosquera and Valdés, 2020) concerning the impossibility to understand the meaning of numbers and amounts.They make frequent errors in the operations of addition, subtraction, multiplication and division. The study shows that the most frequent errors in these operations are associated to the ideognostic discalculia. Perez (2008) points out that, by not considering the value they carry, they forget the borrowed (swapped) value of the figure in the subsequent minuendo. Likewise, lexical dyscalculia was detected, which is manifested in the difficulty to read and identify the symbols of the mathematical operators present in the combined operations, affecting the level of verbal statements. The practical-gnostic dyscalculia, has been observed in a simulated way when doing comparison or for activities with icons, since they showed mastery in the manipulation of objects for the comparison of size and shape. Consequently, the manipulation of concrete materials is recommended to improve the learning of children with ADHD. Most of these children show verbal dyscalculia due to the difficulty in naming and understanding mathematical concepts. About this verbal dyscalculia, Shalev, Marior, Amir and Gross (1993) understand it as a learning disability that affects children during problem solving activities of logical and arithmetic reasoning; this anomaly is associated to the difficulty of reading numbers and symbols during arithmetic operations. Finally, there were observed children with difficulties in writing numbers by dictation, due to the lack of numerical competence and their psycho-pedagogical and pedagogical difficulties.

Under these arguments, the identified children present difficulties in learning mathematics, even more so when it comes to literal statements to express themselves in numerical procedures. Actually, they do not manage to combine data and the implicit instructions of the problem. Logical reasoning is framed within the competence of using deductions and inferences, discoveries and the solution that are detected in the procedures from the instructions. They show limitations in their logical reasoning since they are not able to link or attach the concepts under the procedures that permitfinding the solution; this is due to the limited attention they pay to their own procedures (Garcés and Hidalgo, 2018); many times, they continueshowing limitations in their adult life when facing daily life logical situations; therefore, it is necessary to assume, transversally, mathematical literacy from the very beginningof school life.

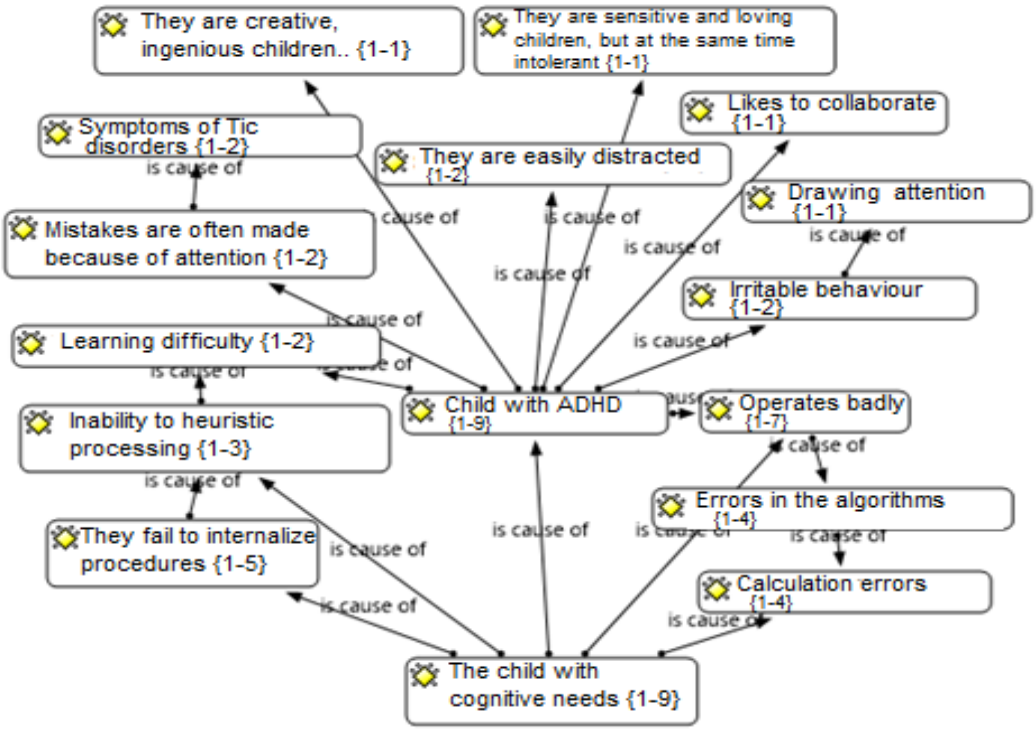

Figura 2. Characterization of cognitive needs for math learning in children with ADHD

Because of the lack of prolonged attention, these children, do not manage to sequence the algorithmic procedures during arithmetic operations. Fields and Backofen (1957) state that the student who makes use of the open method based on number manages to improve the arithmetic procedures, mentally. However, children with ADHD show neurodevelopmental disorders that are evident in the attention deficit during the learning process, as they lose the algorithm sequence. It has been observed that as soon as the child with attention disorder starts an activity, he or she inmediately leavesit aside to start another one; the inability to complete arithmetic calculations and the abandonment or completion with grouping and combination errors are also evident. López and Sánchez (2020) identify the typology, nature and evolution of errors in subtraction operations, and especifially these children present these problems or confuse the procedures during addition, subtraction or during the combination of operations.

Attention implies both cognitive and behavioral processes of fixation and selective concentration on the object, which will determine the quality of response. Under this logic, the child with ADHD fails to pay attentionto mathematical calculation without previuosly finishing the instructions givenbecause of distraction. Other activities that they do simultaneously are playing, trying to capture their partnes' attention. They move around the classroom permanently and frequently show restlessness, since they easily get irritated or tired when doing acttivities such as paper cutting, making balls, painting prototypes, glueing objects, among other motor actions. For Martínez and Antón (2018), corporal movement is key for their mental development; hence the importance of psychomotor development in children with Down syndrome; this manifestation is comparatively inverse in the

case of the children object of study since they show impulsive actions that end up being wrong during their operations.

Rodríguez and Martínez (2018) developed three methodologies: centers of interest, games and narrations and cooperative learning; the results showed that the level of cooperative learning was higher in the development of mathematical competence in pre-school children. During the observation, the teacher shared participatory strategies as in the case ofcollaborative learning; however, in that space, these children do not achieve their learning since they do not manage to connect to the rhythm of their other classmates,nor can they manage to carry out arithmetic operations without making frequent errors. They cannot sequence the text of a problem, and for that reason they cannot recognize the algorithms and the implicit data of the questioning. On the other hand, these children make friends easily; they are very kind, enthusiastic and show affection with their set friends (Vargas and Parales, 2017).

To achieve the learning of these children, it is necessary to manipulate concrete materials or documents with clear and colorful texts with punctual data that allow to capture their attention through drawings, guides, procedure sequences. Although the child reads the problematic situations correctly, apparently he does not understand what he is reading. Roca et al. (2019) state that the disorders hinder the reading ability, the writing ability and arithmetic calculations skills; their manifestation is varied and differentiated in children, mainly in the academic field.

PROPOSALS TO PROMOTE LOGICAL THINKING IN CHILDREN WITH ADHD

The academic progress of these children with ADHD is worrisome since the traits and sequels of the disorder continue into adulthood. Their cognitive processes deteriorate as they reach a certain age, and theyalso feel they have few opportunities in working field.

After sharingthe theoretical arguments and the presentation of the results, studies have been carried out with the aim of contributing to and carrying out the corresponding actions in view of the severity of the syndrome. In this regard, in the experiments and essays conducted on students with ADHD, Pineda et al. (2018) develop the procedures of their technical-educational model for solving mathematical problems through seriousgames. They consist of a set of teaching strategies that direct and control students in order to regulate their emotions and temper, and to control their behavioral reactions toward their peers or class situation, thus allowing greater participation and intervention during the development of the session. The methodological sequence was based on the techniques of gamification (Prieto and Valls, 2010), which allow the insertion of the game for interaction with the thematic content. The proposal wascalled A Journey through Mathematics, and it consisted of a story through a timeline with the historical events in the life of the mathematician Pythagoras, combining these actions with the reading of the book The Wizard of Oz because of its characteristic content. After experimentation, the results looked very encouraging as children with ADHD showed great motivation and enthusiasm for learning. Shalev et al. (1993) state that serious games for school children, allow to improve attention, by incorporating software engineering elements and the integration of augmented reality as therapeutic processes for the individual learning of children.

As for Rodríguez and Martínez (2018b), they developed a methodology of experimental, pragmatic and social actions; it consisted of acting exercises as a dramatized model, where children imitate movements, displacements and emitted words. These actions made it possible to improve behavioral problems and linguistic and emotional difficulties. These children also developed respect for their turn, they showed empathy towards their peers and they verbalized more organized concepts of logical order.

In this sense, the ludic activities of these children are very frequent, even more with the closeness of virtual games hosted in electronic devices. Fanjul, González and Peña (2019) showed strategies of how to take advantages of these playful aspects in virtual environments for learning, where the primary agent is the Internet, which allowsindividualizing teaching, and paying attention to the operations of the computer; it also allows group teaching, whose product is a collaborative work since the tasks of the moderator are motional actions for the search of data, exploration of graphics, icons, and videos related to the topic, among other actions. These activities make the child be in a motional activity with defined instructions. In this regard, Mendoza et al. (2019) state that tasks and academic performance act as protective factors, since the school environment provides

adequate factors that combine motion activities; however, difficulties are evident in the sequential processes during the development of the instructions.

CONCLUSION

Children exposed to the ADHD syndrome often make frequent errors in solving logical operations due to little attention and concentration on the sequences of the approach during the algorithmization of the arithmetic operations. Even when they are presented with literal statements, they do not manage to combine data and the implicit statements of situations. It has been observed that in very frequent cases during the solution of combination operations, they are not able to understand the parts to everything, and inadequate positioning of the terms during the arithmetic operations have been detected too. They show simultaneously disorder and an inadequate combination in operations between addition and subtraction, indicating a high level of dyscalculia. Seeing the behavior level of the children under study, they show interest and participation in a) activities inside the centers of interest, workshops, spaces of the different learning areas, hygiene corners, and during guided visits. b) games and narrations; these children are very participative and join in motion activities, they aslo exhibit fluid expressions and c) cooperative learning, this last one is the highest level for the development of logical learning competence. In addition, for the accomplishment of learning, it is recommended that these children manipulate concrete materials and documents with clear and colorful texts, and also that they do activities with defined sequences and serial games that allow to activate their attention by means of drawings, guides and sequences with defined procedures.

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