

## MEDIATION IN THE CLASSROOM IN THE CONSTRUCTION OF KNOWLEDGE IN INCLUSIVE SCHOOLS

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### ABSTRACT

Based on the principles of historical-cultural psychology, especially in Vygotsky's studies of defectology, this work aimed to identify emerging semiotic mediations between teacher-students and student-student in a collaborative activity in the inclusive classroom. The impact of these mediations on the development of students in the process of knowledge construction was analyzed. The study was developed from a microgenetic analysis, with the analysis of a videotaped research episode in a third year class of elementary school. The episode involved a student with Down syndrome, a regular student and a teacher. In the analysis, original forms of understanding and meaning of knowledge emerged based on the pedagogical exchanges between these actors.

**Keywords:** mediation; construction of knowledge; inclusion.

### Mediaciones en el aula en la construcción del conocimiento en escuelas inclusivas

#### RESUMEN

Basado en los principios de la psicología histórico-cultural, especialmente en los estudios de defectología de Vigotski, este estudio tuvo como objetivo identificar las mediaciones semióticas emergentes entre maestros-estudiantes y estudiantes-estudiantes (con y sin discapacidades) en una actividad de colaboración en un aula inclusiva. Se analizó el impacto de estas mediaciones en el desarrollo de los estudiantes en el proceso de construcción de conocimiento. El estudio se desarrolló a partir de un análisis microgenético, con el análisis de un episodio de investigación grabado en video en una clase de tercer año de la escuela primaria. Este episodio involucró a un estudiante con síndrome de Down, un estudiante regular y un maestro. En el análisis surgieron formas originales de entender y significar el conocimiento basado en los intercambios pedagógicos entre estos actores.

**Palabras clave:** mediación; construcción del conocimiento; inclusión.

### Mediações em sala de aula na construção do conhecimento em escolas inclusivas

#### RESUMO

Fundamentado nos princípios da psicologia histórico-cultural, em especial, nos estudos de defectologia de Vigotski, este trabalho objetivou identificar as mediações semióticas emergentes entre professor-alunos e aluno-aluno (com e sem deficiência) em uma atividade colaborativa em sala de aula inclusiva. Analisou-se o impacto dessas mediações para o desenvolvimento dos alunos, (no processo de construção de conhecimento). O estudo foi desenvolvido a partir de uma análise microgenética, com a análise de um episódio de pesquisa videogravado em uma turma de terceiro ano do ensino fundamental. O referido episódio envolveu uma aluna com síndrome de Down, uma aluna regular e uma professora. Na análise, originais formas de compreensão e significação do conhecimento emergiram com base nas trocas pedagógicas entre esses atores.

**Palavras-chave:** mediação; construção de conhecimento; inclusão.

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## INTRODUCTION

The process of school inclusion of children with disabilities (physical, sensory and / or intellectual) in educational institutions of regular education has, in recent decades, been the target of numerous researches (Díaz, Bordas, Galvão, & Miranda, 2009; Glat, Viana, & Redig, 2012; Pletsch, 2009; 2014). Although this process implies benefits for the educational field as a whole, there are still many challenges for its effective implementation, especially when dealing with issues related to pedagogical praxis.

In fact, the constitution of mixed learning spaces, of living with differences, are essential conditions for promoting the development of the students with and without disabilities (Oliveira, 2013). However, just to cite an example, the literacy process of children with intellectual disabilities is still challenging (Padilha, 2004). Another challenge is the bilingual inclusion of the deaf (Monteiro, 2014) or even the learning process of children with autism (Silva, 2017).

In this way, this article proposes to analyze the semiotic mediation between students with disabilities, the other peers in the inclusive educational space and the teacher. As can be seen, such mediations, resulting from the pedagogical activities, intentionally planned by the teacher, may provide opportunities for the construction of scientific knowledge, activating compensatory dynamics that are promoters of development.

### **The disabled person in the light of historical-cultural psychology**

Vigotski, a precursor of historical-cultural psychology, between the years 1924 to 1932, devoted himself to intense research on the peculiarities / possibilities of development and the educational practice of people who had some type of disability (Barroco, 2007). His concern about that, as analyzed by one of his main collaborators, A. Luria (1988), was to observe what was in favor (and not against) the development of people with disabilities, with the objective of finding ways to enhance this development.

For Vigotski (2014), since the child is born, he is inserted in a culturally specific context, and it is in the history of his cultural development that the explanation of his higher forms of behavior is found. In this sense, his ways of thinking, feeling and acting, as well as his natural and / or biological functions are limited to a transformation process that occurs in the dialectical relationship of man with the historical context, based on social relations, mediated by language (Mendonça & Silva, 2015)

Therefore, every child (with or without disabilities) is constituted from the determinations and cultural

conditions in which he is inserted. Indeed, its developmental possibilities expand as the cultural dynamics that surround it become more dialectical and complex, thus favoring the constitution of new development routes.

In order to understand the development of people with disabilities, Vigotski discovered a fundamental principle, namely: "any disability creates incentives for the formation of compensation" (Vigotski, 1989, p. 5). That is, when experiencing the lack of some organic and / or psychological function, the development of a qualitatively differentiated form of functional organization may occur in the development of the subject; activated from social and pedagogical demands (Silva, Mendonça, & Mieto, 2015). These demands promote learning and the formation of new development cycles (Borges et al., 2008).

Indeed, Vigotski says that it is in collective social life that the child with disabilities finds resources for the formation of internal functions that will trigger the compensatory development process. For him, the difficulties or demands that arose in the socio-cultural environment in which the person with disabilities are inserted, emerge functions to compensate for their defects and, through the internalization process, promote a reorganization of their psychological functions, as we have previously indicated.

For this reason, according to the Belarusian author "cultural development is the main sphere in which it is possible to compensate for the deficiency. It means that, where it is not possible to advance in organic development, an open path for cultural development opens up" (Vigotski, 2011, p. 869). However, he points out that, even though he needs indirect and specific ways in his developmental process, the person with disabilities develops from the same general laws that define the development of any human being (with or without disabilities). This means that development is a process that takes place from interpersonal relationships, in which the synthesis of shared meanings, when converted to the intrapsychological plane, enhances, throughout the subject's history, the greater complexity of psychic functioning (Pino, 2005).

Such statements are based on the principle of substitutive functions, according to which, due to the dynamic and systemic nature of development, changes occur in the process of correlation between functions. In other words, in view of the difficulties faced by people with disabilities in the development process and in adapting to the environment, they react to the challenges imposed by constituting and configuring a series of alternative functions that allow compensating, level and replacing the limitations and / or challenges associated with deficiencies (Vigotski, 1989).

In a broader sense, the specificities in the development of people with disabilities are not associated with the lack or disappearance of functions presented by subjects without disabilities (in quantitative terms), but in the

peculiar way in which these functions are developed and consolidated, qualitatively, in people with disabilities, in order to socially compensate for their limitations (De Carlo, 2001). In this way, subjects with disabilities have a unique way of being and relating to the world, to the other and to knowledge (Oliveira, 2010).

The notions developed by Vigotski (1989) and Luria (1990) already showed, at the beginning of the 20th century, brain dynamics, compensation and aspects of neuronal plasticity, anticipating what has subsequently been more widely researched in the field of neurosciences. Such discoveries - in particular the one about cerebral plasticity - refer us to the importance of the quality of social relations (their challenging and creative characteristics), as well as to the cultural and historical conditions in which the subjects are immersed. In these terms, social relations are, therefore, promoters of development, insofar as they promote the transformation of psychic processes (Bastos & Alves, 2013).

It is worth mentioning that the compensation processes - and their unfolding in neuronal plasticity - have a privileged space in the school context for their activation, given the countless relational dynamics between teacher-students and student-students that are made available in pedagogical activities, through semiotic mediations that result from them.

In other words, the mediations derived from the pedagogical activities established in the classroom, which focus on the systematization of knowledge, the production and expansion of scientific concepts, can be, par excellence, enhancing the development of children, regardless of whether they present (or not) developmental peculiarities. In other words, although advances in development do not always occur in a noticeable or significant way for all children involved in pedagogical dynamics at the same time, it is important that all children be given participation in the various relational and cooperation possibilities in the classroom, sharing and exchange of knowledge, as we will go into more detail below.

#### **Semiotic mediation, compensation and pedagogical knowledge shared in the classroom**

As Rego (2010) points out, Vigotski gives essential relevance to the practices shared in the construction of knowledge, since it is with the other, through language, that the relations between the subject and the object of knowledge are established.

However, even if the processes of semiotic mediation between peers, within the scope of the inclusive school, constitute relationships that promote learning and development, generally the investigative works do not focus on this aspect. Studies on classroom situations, in which interactions occur between children without

disabilities and children who show atypical development (disabilities, learning difficulties, disorders, among other peculiarities), mostly emphasize only the socialization process of the disabled child in relation to his or her non-disabled peers.

Through a bibliographic survey carried out in the databases of the electronic libraries Scientific Electronic Library Online (SciELO-Brazil) and Portal Capes, in research published from 2007 to 2017, based on the descriptors: intellectual disability; kids; school; and inclusion, we identified that this fact can be evidenced, for example, in the researches of: Anhão (2009), Carvalho (2007), Freitas (2010) and Santos (2009).

However, the study by Silva and Galuch (2009) can be considered an exemplary work, as it sought to understand the processes of interaction between students with and without disabilities in the school context, emphasizing the interactions that made mental actions possible (term used in the research). The results suggest the importance of interaction between students (with and without disabilities), emphasizing the repercussion of these relationships in the students' learning and development process, as recommended in the historical-cultural perspective. The authors of that study recommend an education that contemplates mediational dynamics among all students in a given classroom. For them, it is not enough that students with and without peculiarities in development share the same physical space, but it is necessary to implement challenges in pedagogical activities in an intentional and systematic way, conducted by the teacher, in order to favor the appropriation of knowledge.

In this same perspective, the works of several authors that are based on the assumptions of historical-cultural psychology can also be listed. Among them, the studies of: Campos and Glat (2016), Dainêz (2009), Mendonça (2013), Monteiro (2010), Oliveira (2010; 2013), Pletsch (2009) and others. In such studies, it is pointed out the need to explore mediational actions that focus on the spheres of symbolic activity and dialogic processes (between students with and without disabilities), providing pedagogical challenges from which all children can transform and become develop intellectually.

#### **METHOD**

In order to contemplate the objective proposed for this article, to analyze the processes of semiotic mediation produced in the relationship between children with disabilities, their peers in the classroom (children without disabilities) and the teacher in the construction of knowledge, we started with the microgenetic approach from the historical-cultural perspective (Góes, 2000; Molon, 2008). This approach is "oriented towards the details of the actions,

the interactions and socio-cultural scenarios, the establishment of relationships between micro-events and macro-social conditions” (Góes, 2000, p. 11).

The microgenetic analysis is committed to the theorizing of the genetic vision proposed by Vigotski (1987), which seeks to understand the history of human beings in the genesis of social relationships and transformations, thus understanding the peculiarities of the analysis of singular events in relation to others cultural and social plans (Góes, 2000). Based on these assumptions, it is worth emphasizing, according to Góes (2000, p. 10), that “microgenetic analysis is not ‘micro’ because it alludes to the short duration of events, but because it is oriented towards the minutiae details”.

The analysis processes focus on interpsychic relationships, differing from other methodological perspectives that focus on the individual and / or facts, in a decontextualized way. In this perspective, the researcher assumes that culture and semiotic mediation are at the genesis of the psyche, and it is essential to perceive both the development processes that are occurring and their future projections, linked to past and present conditions of development (Góes, 2000; Werner 1999). Such aspects characterize the microgenetic analysis as a relevant theoretical-methodological approach for investigation in classroom contexts, considering the complex and varied relational dynamics that constitute them.

Based on these premises, an episode selected from a database of the master’s research conducted by Mendonça (2013) was analyzed. The scenario of this episode was an inclusive room for students of the 3rd year of elementary in a public school in the Federal District (DF). It was a reverse integration<sup>1</sup> class for students with intellectual disabilities. The subjects (with fictitious names) who participated in the selected episode were: Lídia (class teacher), Bianca (student with Down Syndrome) and Jane (regular student), as described below.

## RESULTS AND DISCUSSION

### Episode: The story of the rat

The description of the video recording scenario refers to a moment in the classroom when the students in the class are sitting at their school desks (in a half circle) and facing the blackboard. The teacher provides a sung story (in audio) so that, first, the students can listen. Subsequently, she mobilizes students to listen to the story by making plays (some students went to the front of the class with a doll in their hands representing

<sup>1</sup> The reverse integration class has reduced student modulation to meet the inclusion of students with disabilities. In the case of students with intellectual disabilities, the class has 15 regular students and up to three students with intellectual disabilities.

each of the characters in the story). The story was about a mouse that was looking for a mate to marry. After listening to her and following the staging performed by the students in the class, the teacher turned to the blackboard in order to explore the names and order of the characters, as they appeared in the story, with Bianca’s participation in the drawing and writing the characters’ names. Finally, the teacher hands a sheet with a fold in half for each two students and explains that they will draw the characters of the story on the top side of the sheet and write it on the bottom side (in pairs), according to the following dialogue:

**Standing in front of the class, Lídia gives the following guidance:** *Now ... we have one, two, three, four, five, six pairs here in the room. You are sitting in pairs, two by two. . . . Aunt<sup>2</sup> Lídia will fold the sheet because in one half we will draw the story and in the other half we will tell this story. As Bianca is an excellent designer, she will illustrate with Jane the history of the mouse. Okay, Jane? Bianca will draw on that top and Jane will write the story on the bottom. It will be different here (referring to the next pair of regular students). All two will draw together on the sheet and then you will write this story together, helping each other.*

**While guiding the rest of the pairs about the activity to be performed, Jane calls the teacher in a complaining tone:** *Aunt! Aunt! Aunt! Aunt, Bianca doesn’t want to draw! Lídia walks towards Bianca’s desk, affectionately saying: Draw Bianca! Then, she takes the sheet next to Jane, puts it in front of Bianca and says: Here look! Then she tells Jane: Let her draw first. Addressing Bianca, she says: Draw for people to go to the playground later. Make the drawing just as you did here! Lídia goes to the board and shows the drawings of the characters that Bianca had done in the previous moment of the lesson saying: The drawing of the mouse, the moon, the cloud, the breeze, the wall. OK? Did you see? Lídia then goes to Jane’s desk and explains: You are going to talk to her. First, who was it? The mouse. You guide her. Lídia touches Jane’s arm lightly and repeats emphatically: You who guide her!*

While Lídia goes through the pairs to check if they understand the activity, Jane and Bianca start to draw. Jane stands next to Bianca, leans a little over her desk and closely observes what she is doing. **Lídia passes Bianca’s desk and says:** *Yes! Very well! This work is getting excellent here.* While drawing, Bianca looks quickly at Jane and smiles.

**After a few minutes Jane takes Bianca’s pencil bag, which was on the other side of her desk, removes an eraser, erases a part of the drawing she had done and says: Go!** (signaling Bianca to continue drawing). **Bianca gives continuity while Jane guides her:** *Now the little*

<sup>2</sup> In Brazil, elementary schoolchildren usually call the teacher that affectionate way.

hand! Jane takes the eraser and erases part of the drawing again. Then he takes a pencil and starts drawing while Bianca waits. Bianca stretches back and swings her pencil while waiting. Then, they start drawing together.

*Jane stops drawing, looks back at Bianca and asks: And here? What is? (pointing to the drawing that Bianca had started). Is it the mouse? Draw here! (referring to the place on the sheet that she should draw the mouse). At a certain point in the activity, Jane goes to the board and shows Bianca the drawing of the heart (one of the characters), indicating that he would be the next to be drawn. Jane says to Bianca (pointing to the board): So look! Just like this one! Jane goes back to Bianca's desk, observes how she is drawing and says after a few seconds: Not like that! Then, draw her pencil close to the sheet to draw and say: That's it! (But Bianca pulls Jane's arm up, draws something quickly and then allows Jane to continue). Jane draws for a few seconds and says looking at the painting: Wait! Jane continues to draw and then says: Now it's the heart! (Indicating to Bianca that would be the next character to be drawn).*

When finishing the drawings of the characters, Bianca demonstrates that she wants to write corresponding name to each drawing. Then Jane begins to spell the letters for Bianca to write. **Bianca takes out her purse, takes out a pencil and asks Jane: Wait! Jane waits a little and keeps talking: Write the "E", down here, very tiny!** (Bianca starts to write). **Jane watches with her chin on the desk and says: The "R". Look again and say: It's wrong! Give me the eraser.**

Bianca stretches her arms out to the sides with her palms up and makes an expression signaling that she doesn't know. Jane takes the rubber from her bag and erases what Bianca had written. Bianca watches Jane erase and tries to write again. **Jane says: No!** (Signaling it is wrong). Bianca puts her hands on her ears and lowers her head on the desk. **Jane writes something and says: That's it! That's it!**

Meanwhile, Lídia goes from pair to pair to assist students in the activity. **Upon reaching Bianca and Jane's duo, she leans over to see what they have already done and guides Jane: Let her write. You spell the letters and she writes. What will she write? Jane start spelling the letters while Bianca writes: The "C", the "O", the "R", the "A", the "C", the "A" and the "O".** When spelling the last letter of the word "coração"<sup>3</sup>, Bianca repeatedly touches Jane's shoulder and puts her finger to her mouth asking her to stop talking. **However, Jane keeps saying: Look at the "O" here. Bianca responds in a louder voice: Look at the "O" here!** (Pointing to the other side of the sheet). **Jane points out where the "O" is in another word and says: It's here again! Bianca abruptly takes Jane's hand off the sheet and covers the sheet with her hand so**

**she doesn't show it and says: It's here.** (Jane stands and insists on showing Bianca where the "O" is). At that moment, Bianca sticks out her tongue and shakes her head. Jane does not react. She and Bianca continue to write the characters names together. Then Jane starts writing the story on the other side of the sheet alone while Bianca just watches.

When analyzing the episode, we can see that Lídia initially limits the pedagogical activity carried out in pairs composed by students with disabilities. While, in pairs with regular students, she points out: *"It will be different here. . . All two will draw together on the sheet and then you will write this story together, helping each other."* As evidenced in the research by Mendonça and Silva (2015), this attitude seems to be based on the teaching belief about disability of students with intellectual disabilities, especially in relation to the pedagogical work carried out among peers. Starting from the principle that intellectual disability (its diagnosis) and the limitations associated with it are decisive for the developmental limits of these students; the teachers define, in advance, the capacity for achievement and the possibilities for mutual collaboration. As can be seen in the research carried out by Mendonça and Silva (2015), teachers do not believe that children with disabilities can benefit and contribute significantly to the pedagogical relationships among the students, thus restricting their forms of collective participation.

However, it is important to emphasize that, later, in the reported episode, Lídia, despite starting from Bianca's limitations, leads the relationship between Bianca and Jane, reinforcing to Jane: *"You who guide her!"* Jane then takes on the teacher's invitation to guide Bianca. What can be observed in the sequence of the episode is that Jane, in response to Lídia's request, creates several mediations that assist Bianca in the production of the activity. Jane: a) closely observes what and how Bianca is drawing; b) encourages and guides Bianca, saying *"Go! [...] Now the little hand!"*; c) assists in the use of the space on the sheet showing the drawing of the mouse: *"Draw here!"*; d) erases parts of the drawing when you think it is necessary and draw some details for Bianca to see and signal *"So look! Just like this one! [...] Not like this! [...] That's how it is!"*, allowing and encouraging Bianca to continue; e) shows the drawing to be done on the board and guides her as to the order in which the characters appeared in the story, stating: *"Now it's the heart!"* Bianca, in turn, accepts the interventions of her colleague, shows satisfaction when they draw together and, going beyond what was instructed by Lídia, she start writing the names of the characters in the drawings, as she had been done on the board before the lesson.

Jane then continues to assist her colleague. She spells the letters that make up the words to be written

<sup>3</sup> Heart.

to Bianca, with the approval of the teacher, when she notices what they were doing, she guides Jane saying: "Let her write. You spell the letters and she writes. What will she write?" Jane then remains watching Bianca and intervening whenever necessary.

On the other hand, Bianca is not passive in the relationship. She listens to Jane's directions, observes what she is drawing or writing and then does it herself. However, she also thinks, asks Jane "Wait a minute!", while getting organized to start writing the names of the characters. Sometimes she disagrees with Jane's intervention, holding her arm and covering the sheet with her hands, in order to prevent her partner from drawing or writing. She also insists on her point of view when he emphatically says: "Look at the" O "here, look!" (pointing to the other side of the sheet); put her hands on her ears and her tongue out as a way to contest what is being said by her colleague and also to show that she has some knowledge about the subject.

At the end of the episode, it can be observed that Jane performs the last part of the activity alone (as directed by Lídia), in which a text about the story heard and staged would be produced, which causes some concern in Bianca, who remains idle and begins to move the pencil (as if it were a flying object) towards Jane's face. She tries to get the attention of her colleague, who ignores her and continues to write by herself.

It is clear, therefore, from the episode presented, the importance of collective practices provided in inclusive school contexts. As Vigotski (1989) pointed out, despite the merits of special education, this brought numerous disadvantages, mainly because it restricts the collective school circle of students with disabilities and, consequently, generates a segregated space, adjusted and conformed to the child's limitations, as such teaching signs "your attention on bodily deficiency and does not embody it in real life" (p. 41).

For the author, the human being is always in development, and the organic defect cannot be considered an impediment to its development. The author emphasizes that the main developmental limitations presented by people with disabilities are due to the deprivation of an effective participation and insertion in the collective / cultural environment, shared and built in social relations.

From this perspective, the importance of semiotic mediation in the exchanges between Jane and Bianca is evident, which promoted the development of both. Bianca benefits from the intervention of her colleague who, although assisting her in drawing and writing, also allows her to place herself and show her knowledge that is consolidated and in the process of consolidation. Jane, by having to observe and teach her colleague, is also building her knowledge and producing new knowledge

in partnership with Bianca.

In addition, the relationship between Jane and Bianca (student-student) is more horizontal than the relationship between teacher-student, giving Bianca the opportunity to position herself, risk, opine, imitate, cooperate and negotiate knowledge, as well as internalize new meanings about of itself, of its learning, in order to develop confidence in its capacity of accomplishment.

As explained by Padilha (2015), mediation can be understood, especially in teaching relationships, as processes of meaning. That is, as processes, the other from social relations signifies that and, they are converted to an intrapsychic sphere. According to the author, "what the student transfers to the intrapsychic sphere are not words, they are their meanings; they are not the actions, they are their meanings" (Padilha, 2015, p. 324). Such a conversion process occurs, therefore, in the semiotic field, producing different meanings and often-unforeseen results. This allows us to agree that all pedagogical mediation (a term coined by Fontana, 2005) is always of a semiotic nature, insofar as we understand the centrality of the processes of signification emerging in the interpersonal relationships of the classroom for the construction of knowledge.

In the episode analyzed, it is important to note that this collaborative space between Bianca and Jane was only possible due to the activity planned by Lídia, which favored mediational relations among children. Lídia organized an activity that involved, in addition to her direction, her collective and individual intervention (with the pairs), as well as several signs that mediated the construction of knowledge: the sung story, the dolls representing the characters, the drawings and the writing of the names and the order of the characters on the blackboard, the partnership of the colleague (the other). That is, the teacher proposes an activity that directs and organizes the children's action in the elaboration of knowledge, so that support and intervention in the learning process were not centered only on her.

About this, Pino (2000, p. 58) highlights that the teacher is a mediator and facilitator for students in the boldness of "knowing, questioning every educational system based on the narrow and unidirectional concept of a 'pedagogical relationship' centered exclusively in the "teacher-student" pair. Regarding the teacher-student relationship, Fontana (2005), in turn, emphasizes the teacher's planning, guiding and systematizing role in conducting the processes that involve the formation of scientific concepts at school. It is important to note that, in signaling the teacher-student relationship, Fontana did not disregard the central importance of student-student interpersonal dynamics in the construction of

knowledge.

The issues pointed out and discussed so far lead us to the need for changes in educational methodologies, implying a new way of understanding the processes of knowledge acquisition and construction. Especially for those students who have a particular mode of cognitive functioning, it is necessary to break with reductionist conceptions, which pre-determine their performance, excluding them from relationships and, consequently, from the knowledge construction process.

It is true that, initially, Lídia starts from a limiting vision of Bianca's possibilities, when requesting that her work be different from other peers in the class. Nevertheless, it is also true that the pedagogical relationship provided by her, between Jane and Bianca, allowed learning that went beyond the imposed barriers. Furthermore, when she perceives Bianca's interest in letters, Lídia also encourages and guides the pair to continue their activity with writing. In this episode, everyone learns: Bianca, Jane and Lídia.

#### FINAL CONSIDERATIONS

The presented analyzes suggest the importance of the activities proposed in the pedagogical space. They deserve to be intentionally challenging for all children (with or without disabilities), being directed towards a prospective development and not only to knowledge already consolidated by the children, in order to promote development routes not yet foreseen. In the case of the school, these new routes emerge from the relationship with the other, through language, in the construction of knowledge.

As we can see, the sharing of knowledge and experiences move development processes in unusual directions, producing new forms of understanding, meaning of culture and knowledge (creative activities); elements that are not naturally given. The collaborative and challenging pedagogical space - aimed at creating new unusual development paths - is what makes possible the emergence of compensatory processes. In this way, the formation of higher psychological functions is leveraged, through the correlation among these functions for the development of the complex functional system, as Vigotski pointed out.

Starting from the principle that there is a dynamics between brain functioning and cultural processes and that plastic transformations are associated with the way cultural demands are created and experienced by subjects, Andrade and Smolka (2012) point out that "the expression for themselves and for the other, a neural reorganization always happens through the relationship with the cultural modes of human interaction, through language, through gesture, through the sign" (Andrade & Smolka, 2012, p. 707). And the school, as we have defended previously, is a special space for the activation

of these processes.

In addition, the teaching relationships and learning processes experienced by children at school enable the appropriation of material / symbolic goods made available in culture, as well as of historically constructed knowledge. The fact is that, from the pedagogical meetings in the classroom, students and teachers can explore their differences in ways of learning as a sum and union of forces, instead of asserting their disabilities and differences.

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This paper was translated from Portuguese by Ana Maria Pereira Dionísio.

Received: March 20, 2019

Approved: November 20, 2019