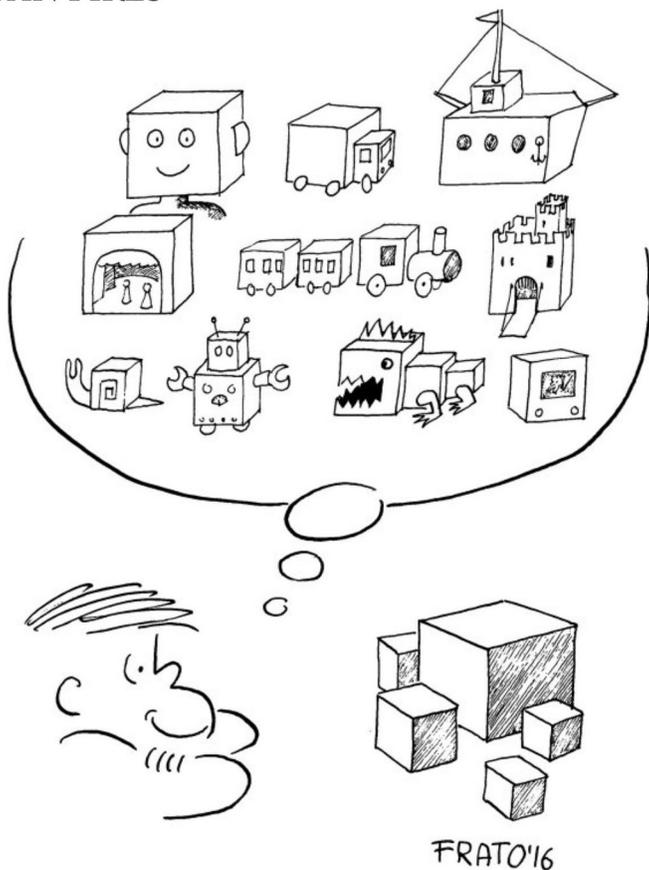


LANA DE SOUZA CAVALCANTI
MATEUS MARCHESAN PIRES
(Orgs.)



SCHOOL GEOGRAPHY

DIALOGUES WITH VIGOTSKI

Theoretical Dialogues I

*The teaching of
Geography and
conceptual training*

Theoretical Dialogues II

*The education
of geography teachers*

Theoretical Dialogues III

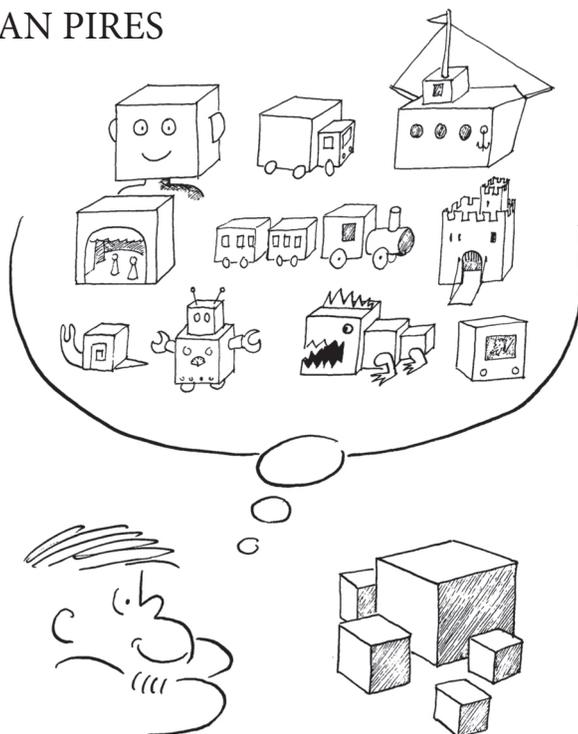
*Research with
the basic school*

SCHOOL GEOGRAPHY
DIALOGUES WITH VIGOTSKI

PPGEO

Programa de Pós-graduação
em Geografia

LANA DE SOUZA CAVALCANTI
MATEUS MARCHESAN PIRES
(Orgs.)



FRATO'16

SCHOOL GEOGRAPHY

DIALOGUES WITH VIGOTSKI



Goiânia, GO | 2022

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PRESENTATION

The production of this book was an act of resistance. The theoretical and practical formulations presented here – by us, organizers, professors, researchers, intellectuals, authors of the texts – are part of a process that started before and intends to continue after its production, but that, certainly, is marked by the context of serious crises: health, political, social, economic. For this reason, we could not start this presentation without mentioning this context and the resistance to it. In times of uncertainty, of sadness and losses associated with the pandemic (Covid-19), of denial and devaluation of science and education, to produce a book like this, on theoretical and methodological paths, explicitly guided by an epistemological line, to enhance the learning and formation of children and young people with the help of knowledge of geographic science, is to resist and to venture on the possibilities of becoming, on the possibilities of what it might be, of utopia. To resist, to persist, to rebel, not to give up on our projects and to work to develop them, even in such difficult situations, is what we have done and what we will do in order to participate in the construction of a better world.

The texts have been brought together in this book because of their proximity to the theoretical and methodological principles and concepts common to the teaching of Geography, although with their differences and diversity of focus. Among these principles and concepts, in the line of the Cultural-Historical Theory, we can highlight the conviction of the crucial role of the socio-historical-cultural context in the process of development of the subjects' higher mental functions. By this principle, the authors of the texts argue that school learning (part of the context external to the individual, intersubjective) is remarkable for the development of students (whose development process is internal, intrasubjective). Along these lines, the various texts in the book explore the roles that the processes of internalization; cognitive and didactic mediation; the zone of proximal development; concept formation and the conceptual system; wording; and the system of senses and meanings of the word play in the learning and development of students.

Specifying a little more the dialogical possibilities that the texts propose and provide, we highlight the theoretical understanding, to some extent shared, about our specific disciplinary field. We can say, in this sense, that the texts and their authors are close to each other because they participate in a movement of school Geography that seeks to realize itself based on its social relevance. Its social role is to help students, at all levels of education, to develop intellectually, affectively and socially with Geography, learning to think geographically about the world, learning to care about it, realizing its complexity, its problems, its contradictions and its challenges. All this in the venture, with Soja, that "Geography is an extremely interesting way to understand the world" (BENACH, p. 53).

We organized the texts by grouping them into three major themes, in an attempt to give, in our opinion, a greater possibility of articulating their contributions. However, we understand that, obviously, each contribution contains its own potency, leading the

reader to understand several elements of the legacy of Vigotski and his followers, which can help Geography teachers to elaborate and develop their work. It is necessary to explain that the spelling of the central author of this work, Lev S. Vigotski, in the numerous references to him in articles and books in Brazil, appears in various forms, sometimes with Y, sometimes with I. In this book, the choices of the authors of each text are being respected, as well as our own, as authors and organizers of the book. In the case of the organizers of this book, we opted for the spelling most recently adopted in translations into Portuguese (VIGOTSKI, 2009, 2010, 2021), which spell the author's name with the letter I: Vigotski.

In the first part of the book, entitled *Theoretical Dialogues I: the teaching of Geography and conceptual formation*, we gathered texts that deal with the teaching and learning process in Geography, addressing the ways in which the formation of geographic theoretical-conceptual thought occurs and the role of language in this process.

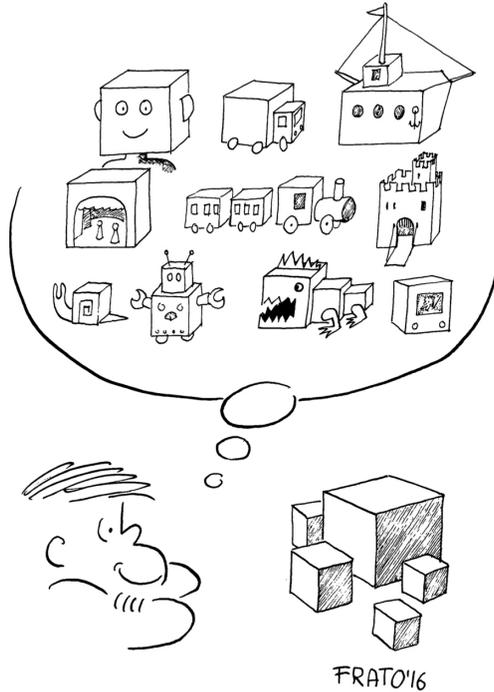
In the second section – *Theoretical Dialogues II: the education of Geography teachers*, the texts are gathered because they focus on reflections about processes of teacher education guided by the main goal of acting professionally with the orientations of the Vigotiskian thought, as well as its principles and concepts.

In the third, *Theoretical Dialogues III: research with the basic school*, the gathered texts report experiences with students from the basic school in different contexts, focusing on their childhood, students' learning, special educational needs such as blindness and deafness, guided by principles and concepts of the Cultural-Historical Theory.

Finally, we are very happy and satisfied to have concluded this project and to bring to the public a set of reflections, productions, and theoretical and practical proposals from authors and researchers from several institutions and regions in Brazil and Latin America

(Cuba, Chile, and Mexico). We believe that such a set of texts is of great contribution to continue the studies with theoretical and methodological deepening in the area of Geography teaching, an already legitimate field of academic research and citizen actions committed to the construction of new natural and social realities.

The organizers



THEORETICAL DIALOGUES I

**THE TEACHING OF GEOGRAPHY
AND CONCEPTUAL FORMATION**

THE RELATIONSHIP BETWEEN TEACHERS AND STUDENTS WITH GEOGRAPHICAL KNOWLEDGE

*Foundations of cultural-historical theory
for the teaching and learning process*

LANA DE SOUZA CAVALCANTI

In the context of the current global and Brazilian society, marked by the demands of performance, results, efficiency, speed (CHARLOT, 2020; HAN, 2017; among others), there is a risk that educational goals linked to humanization projects will not prevail. In it, everyday practices may become overly aligned with these demands. To act as resistance to this context, the questions are pertinent: What is the role of school today, in different places on the planet? What conceptions about the purposes of school in today's world permeate the representations of the different segments of society? How do students and teachers relate to school and the knowledge it conveys?

In this sense, my investigative work has addressed the teaching and learning process in Geography, to provide students with references that contribute to their full development. To accomplish this, the contribution of Vigotski and specialists in his thought, such as Piño (2005, 2006); Daniels (2002); Engeströn (2002), is fundamental. In several texts (CAVALCANTI, 2005; 2012; 2019), I have systematized my reading of Vigotski, selecting aspects linked to components of teaching. Here, I resume key concepts of Vigotski about human development and learning, with

the intention of advancing in their understanding and, with that, present new ways to articulate such conceptions in a proposal for teaching Geography. To this end, I begin the text by highlighting topics from this author for the understanding of the human development process and its relationship with learning. Next, I highlight the concepts of Zone of Proximal Development (ZPD), mediation, and the process of formation of scientific concepts, among which are those of Geography. These points are the basis for a deeper understanding of the relations that students and teachers establish with the geographic knowledge at school and its unfoldings for the actions of teaching.

Essential topics of the legacy of Vygotsky's production for the cultural-historical theory of human development

For this theoretical line, the development of people is a complex process with phylogenetic, ontogenetic and sociogenetic roots (sociocultural history, as WERTSCH and TULVISTE, 2002). In other words, the process that produces an adult subject, with "normal" intellectual development, results from syntheses of the history of humanity, the life history of this subject, and his or her insertion/participation in a cultural and social context. There is, thus, a unique articulation of these roots of the subject that shapes its identity (or identities), its way of operating and thinking. In this understanding, the subject and its subjectivity are forged in social life, in intersubjectivity, because they result from a dialectical interaction between the subject and the social. Arguing in another way, at birth, this subject finds a material, socially and symbolically produced world, and, in an active/creative process in his life, by internalizing senses and meanings, he structures himself as a being of practices and as a thinking being. The movement that results, therefore, in human development occurs from the objective world (social and natural) to the subjective world. There is, in this movement, a tension between the subject, in relation with the other,

with reality (the world) and with internal processes of meaning production of the world and of himself. In this tension, the subject and the reality with which he interacts are equally active.

Therefore, human development does not start unilaterally from the subject to the world, but moves from the world (of which he himself is part) to a subject in permanent becoming. Not only the subject's historical and cultural conditioning factors are important here, but also its production of meanings. What the subject learns is the result of his internal conditions, of his intelligence, of his senses, but depends fundamentally on his relations with the environment and with others, and on how he appropriates his experiences with such context. According to a famous formulation by Vigotski (1988, p. 114):

All higher psychic-intellectual functions appear twice in the course of the child's development: the first time, in collective activities, in social activities, that is, as intersychic functions; the second time, in individual activities, as internal properties of the child's thinking, that is, as intrapsychic functions.

Vygotsky specialists comment on the course of his production, identifying in the final phase the most explicit development of the role of language in social practice (MINICK, 1997). In this phase, Vigotski emphasizes that language has a function for communication and social interaction, as well as for thought control, and that the processes of development and learning are social. In these processes, thought articulates different higher functions resulting from the relationship between individual behavior and social participation.

Advancing in his explanation, Vigotski presents the word and its meaning as abstraction and generalization, as a unit of analysis of thought, establishing a unity between these processes and social development. Specialists insist on emphasizing the importance that Vigotski gives to the social origin of thought (WERTSCH and TULVISTE, 2002). However, they point out

weaknesses in him for not having, according to them, sufficiently developed his understanding of culture and its role in subjectivity, giving room for one to interpret his thought as an expression of Eurocentrism and evolutionism.

It is understood, in this sense, that Geography contributes to human mental development by providing, through conscious processes of semiotic mediation, socially organized cultural tools. However, considering the questioning of these authors, I defend cultural mediations, in their different manifestations, as tools for the constitution of subjectivity, without having as a premise that one culture is more evolved than the other, because diversity and multiplicity are coexistent dimensions of the subjects.

This reasoning leads to the understanding that, in human development, the intrasubjective dimension does not occur in isolation, but in particular spheres of situated, contextualized activities. As Wertsch and Tulviste (2002, p. 77) state: “what is important is that the intermental mediated forms of functioning involved are themselves recognized as socioculturally situated with respect to activity environments and the related instruments of mediation”. These observations are important to analyze the mediated actions, at the “intermental” level, that occur in school and in the teaching of Geography, in view of the situated character of school activity, which presupposes specific relations of subjects with the contents conveyed.

The premise of the social character of human development conditions the ways of understanding man and his educational processes. It is, therefore, an important reference for educational actions in schools. In this respect, one can ask: if one accepts this explanation that processes result in the development of people and students in general, what place does, or can, school knowledge have in this matter? One answer is that this knowledge is a cultural product for understanding and acting in reality. They are possibilities of the social world that participate in the development

of the subject, since they are part of its cultural-historical context; they are instruments that mediate its relationship with the world. They are, therefore, marks of the social world that participate in the constitution of the subject.

Adding elements of this theory to the issue, I refer to the author's contribution on the relations between development and learning. According to his understanding, these are specific and interdependent processes. Learning can anticipate development. His concern is to understand the development process and the influence of learning in this process. In his experiments, Vigotski (1988; 2009; 2021) is interested in identifying in the child's behavior processes that are not fully developed, but that are in development. According to him, in the tradition of psychology of his time, studies have advanced in identifying the stage, nature and characteristics of child development. To contribute, he then formulated the concept of Zone of Proximal (or Imminent) Development, which is well known and explored among scholars and researchers. For him:

The child's zone of imminent development is the distance between the child's current level of development, defined by the autonomous performance of tasks, and the child's possible level of development, defined by the performance of tasks that are solved by the child with the guidance of adults and in collaboration with more able companions [...] indicates the functions that have not yet matured and are in the process of maturing, functions that will mature tomorrow, that are still in an embryonic state (VIGOTSKI, 2021, p. 190).

This action of advancing the subject's development through learning, acting in the ZPD, makes sense when we understand the role of mediation. This Zone, formed in the relationship between the teacher and his students, is a "space" of action in the learning processes, since, in shared work, they can perform more significant tasks for such increment.

In his work, Vigotski marks how the child's development happens from what is symbolic in the world. In other words, every

relationship of the subject with the world is mediated, because among them are instruments, practices, symbols already produced historically and socially. Thus, without understanding the senses and meanings of these mediators, it would be impossible for the subject to relate to the world. This is valid for the child, in its early years, when it learns to use, for example, domestic instruments related to food, such as cutlery, plates and glasses, as well as napkins. These are human creations in the historical and social process, cultural artifacts that mediate the relationship of people with the world. In school learning, the instruments that matter are, above all, the symbolic ones, represented in written and spoken language. In this process has prominence the word and its meaning, which has a specific course of formation, but that at some point meets the thought and goes on to constitute it as its objectification and materialization, as discursive thought or conscious word. For him:

The meaning of the word is nothing but a generalization or concept. Generalization and meaning of the word are synonymous. Every generalization, every concept formation is the most specific, most authentic and most unquestionable act of thought (VIGOTSKI, 2009, p. 398).

The relation between thought and word is, first of all, not a thing but a process, it is a movement from thought to word and from word to thought [...] For this reason, it would be possible to speak of formation (unity of being and non-being) of thought in the word (VIGOTSKI, 2009, p. 409).

Another observation of the author is that the meanings of words develop, overcoming the postulate of constancy and immutability. The meaning of the word changes; however, it is not merely an act of new associations of contents, but a change in the psychological structure of thought. The word has generalization as a central element, understood as a conscious representation of reality, part of the process of concept formation, which will be discussed in the following item.

Geographical concept formation and Vygotsky's legacy for teaching Geography

Once a certain stage of development is reached, when thought is already capable of forming concepts, language becomes the expression of thought, with the function of communication, socialization, but mainly that of controlling these meanings. In this sense, there is a complexity to be observed by the teacher, since his purpose is, through language, the cognitive mastery by students of concepts of Geography, such as, for example, what has to do with the awareness of its systematization (VIGOTSKI, 2009, p. 370 and 371).

In Vigotski's theory, concepts are fundamental tools in the constitution of thought. In school, concepts can be taken as the basis of the contents taught. However, this perspective does not mean teaching a ready-made concept, as a structured definition, but guiding the work so that the student develops his conceptual thinking. Aware of the complexity of concept formation, it represses the practice of classes without intentionality regarding the development of students, since it results from relationships and tensions between the subject's activity and the situations of the context in which they live.

How to work with this orientation in Geography teaching? One can take, as an example, the concept of climate, which is widely studied in academic Geography and in teaching. When thinking about the student's learning aimed at the formation of this concept, as part of their thinking, it is necessary for the teacher to take into account the basic notions and meanings that the student already has about the subject in their everyday life. However, the focus in teaching is to provide new elements of this geographic concept so that, in processes of constant abstraction, the student arrives at a generalization: the climate, its senses and meanings. For this, one path taken is that of awareness of its structuring into a system. That is: that the student signifies in the word climate the expression of a generalization, with its mutability, in a constant process of new generalizations. In this journey,

the student can articulate the meanings attributed to the climate by their experience with the fundamental principles and nexuses indicated by geographic climatology: 1- the climate and its behavior are dynamic phenomena and are articulated with other physical-natural components of reality; 2- the climatic phenomena occur on different scales (global phenomena and microclimates); 3- there are elements that make up the climate: temperature, humidity, atmospheric pressure, solar radiation; 4- there are factors (geographic, such as latitude, altitude, seaside, continentality, as well as anthropic) that modify the elements and the general dynamics of the climate; 5- thermal comfort, thermal sensation, weather, thermal inversion, thermal amplitude, heat islands are part of people's daily lives and the conceptual system of climate. This systematization is necessary so that the word climate, when internalized by students, is accompanied by its full senses and meanings, serving as theoretical guidance for their actions in society, such as in movements regarding global or local climate agendas. It is, therefore, a fundamental task of the school and of Geography teaching to ensure that, through schooling, students have contact with generic concepts, such as climate, in processes of articulation with everyday life and the meanings they have, seeking ways to internalize them.

For Vigotski, the formation of concepts is an important and complex intellectual function, and not an act of passive assimilation of external conceptions. To understand its stages, he studied this concept thoroughly in experiments, observing that gradually words, meaning and sense lose their concrete referentiality to the object, in acts of abstraction and generalization. Therefore, concepts change the way the subject relates to the world and to things in the world. This is because, through them, it is possible to convert what is seen into a theoretical and generic object, into a product of thought.

To explore another example, we address the subject of the intra-urban dynamics of any city. As part of a conceptual system referring to the concept of city, are those of conurbation and urban expansion area. When a subject forms these concepts theoretically,

they become part of his thought and speech without referring specifically to any city, but to something resulting from a generalization process, “detached” from immediate experience, although it can be referred to it. As Vigotski (2021) explains, the subject is able to attribute to the object his understanding without linking it to a specific empirical referentiality, but by performing abstractions and generalizations. This generalized “something” becomes a tool for his thought, mediating his relation with objects and contributing to give sense and meaning to the experience. Thus, the subject is able to understand the expansion area of a city without making direct reference to an example, because it is the structure of a city model. In continuity, if this subject takes a part of any city as an area of urban expansion and articulates it with areas of social segregation and peripheralization and economically valued areas, he is not simply describing the reality with its observable features. Rather, with the mediation of concepts, he has the systematized language that expresses the complex reality, the dynamics of cities in modern and globalized capitalist societies.

To teach specific school contents, such as geography, Vigotski’s (2021) formulations concerning the formation of scientific concepts articulated to everyday concepts are of interest. In this regard, the author highlights characteristics of these concepts that are significant. For him, everyday knowledge is not conscious, it is not consciously activated, as a result of a decision by the subject to guide the action. It comes from the subject’s unreflective relationship with knowledge. The scientific concept is characterized, on the contrary, by being conscious and formulated in a system of concepts.

These elements help to plan teaching actions, understanding the role of the teacher to articulate the knowledge already formed by students, in everyday practices, and the systematized knowledge, aiming at its internalization. How do students deal with knowledge? Do they understand that their learning is part of a process, which can be expanded, corrected, questioned, as they are socially

produced products? Do they understand that the knowledge that the teacher presents is part of this process? Are they mediations systematically organized by science? Certainly this understanding is not predominant in school subjects, who see the contents studied as finished products to be assimilated and repeated in tests. However, the teacher, in this line, tries to help the students to be aware that they are studying something related to their lives, that this “something” contributes to qualify it. This search can be made through dialogues and actions focused on reflection, for example, on the relevance of Geography.

To work, then, for the formation of concepts in teaching, it is fundamental to understand that it is a process that results from the subject’s active relationship with the reality that is in motion. In this process, the subject captures, through abstractions, the elements of the objects that empirically present themselves, creating characteristic nexuses, in the sense of generalization. It is not, however, a mechanical summation of attributes of an empirical object. Generalization is more than the sum of elements, it is the creation of a unity of essential meanings and senses, by the word, which moves away from the objects.

Another aspect highlighted is that the scientific concept is organized and hierarchically arranged in formal, but dynamic and open, systems. In this logic, there is a structuring of knowledge, in which the relationship between concepts is expressed in an articulation, forming a system. The conceptual system does not say everything about reality, it is never complete, but it intends to be an interpretation that approximates it. Moreover, the scientific concept is also conscious. The possibility of the consciousness of concepts is a great contribution of human formation by the school. Vigotski, in establishing the distinction between everyday and scientific concepts, states that in the former the attention is focused on the object represented in it and not on the act of thinking itself, while the latter are the gates through which awareness passes. In his words:

Scientific concepts – with their entirely distinct relation to the object – mediated by other concepts – with their inner hierarchical system of interrelationships – are the field in which the awareness of concepts, or rather their generalization and apprehension, seem to arise before anything else [...] Only in the system can the concept acquire the potentiality of conscientizability and arbitrariness. Conscientizable potentiality and systematicity are, in the full sense, synonymous in relation to concepts just as spontaneity, non-conscientizable potentiality, and non-systematicity are three different expressions to designate the same thing in the nature of infantile concepts (VIGOTSKI, 2020, p. 290 and 291).

Understanding this process helps to decide about teaching activities, because it leads the teacher to pay attention to the relationships that students establish with knowledge. According to Vigotski, the scientific concept “necessarily presupposes the existence of relations between concepts, that is, a system of concepts” (idem, p. 294).

It is concluded that concepts are complex acts of thought, which evolve with the meanings and senses of words, going from one generalization to another. These peculiarities of conceptual thinking emerge in the analysis of its formation at different stages of the child and even the adult. The development of thought is dependent, therefore, on their experiences and imagination, contemplating the internal movement of the subject and the emergence in institutionally situated activity, such as school. In this sense, school Geography, as one of these experiences, has a fundamental place as a contextually situated activity, with didactic mediation.

Mediation by Geography in the relationship between subject and knowledge: the cognitive and the didactic

Is the practice of school Geography a teaching or a learning activity? Should the teacher be concerned with his or her teaching activity or focus his or her work on the possibilities for the student to learn? How to teach so that the student can learn? This last question expresses the idea that these are two complex and

articulated processes, neither identical nor mechanically opposed. Both have relative autonomy, and between them there are complementarities and tensions. For teaching to be implemented and carried out, aiming to “advance” the students’ development, a shared action is necessary. In other words, there is a moment to organize, to plan the activity, to foresee ways to direct it, which is centered in the teaching action, however, this teaching action aims at learning. If there is no learning, there is little chance of the student developing at school, and teaching is not effective. But this does not mean focusing exclusively on the student’s spontaneous learning processes, because there are possibilities to intervene in them. There is, therefore, a tension between the specificity of the act of teaching and the specificity of the act of learning. The action of teaching is focused on learning, but for the student to learn in school situations, it is necessary to organize and carry out teaching actions. For Meirieu (1998), teaching is enabling the student to learn. Teaching requires that the concern “with the subject be stimulated and informed by what we know about the knowledge to be acquired by him/her” (p. 42).

In this line, teaching is not merely presenting Geography. It is to work with the themes in such a way that the student can appropriate them to guide his thinking and actions. Thus, teaching that is based on the presentation of geographic knowledge is inadequate, because allowing the student to become aware of something, to recognize that a science has produced it, is not enough for him to learn. Learning and development require active intellectual involvement. To learn is to appropriate something. It is, by active processes of internalization, to take possession of knowledge as an intellectual tool to operate thought.

For Meirieu (1998), the teacher is a learning professional, a principle that guides his suggestions to guide teaching activities. Although not affiliated to the theoretical line of the text, his

formulations come close to it, for example, when, when addressing the learning process, he talks about the role of the concept. For him:

In fact, a “good concept” is precisely the one that clarifies my experience, that allows me to organize it, understand it, dominate it, and not the one that forces me to renounce it from the outside or artificially complicates my problems. A “good concept” does not replace a previous knowledge, even if it disorganizes my representations: it shapes my experience, makes reality more assimilable and allows me to act on it (MEIRIEU, 1998, p. 27).

In this direction, it is as relevant to understand the characteristics of the knowledge to be taught as it is to understand the subject's relationship with this knowledge. What relationship does the student have with science? From experience, it is known that a formal, conventional relationship still prevails, in which scientific knowledge is taken as something external, whose results, the “scientific data”, are products of a discovery. A passive/external subject relationship is established with the object of knowledge. However, for effective learning it is necessary to weave another relationship of the student with school knowledge.

To become an active subject of knowledge, moments of reflection are necessary, which help the student to become aware of the process in specific situations and give it a meaning. In this situation, we want the student to have a cognitive relationship with the available knowledge, not being satisfied with just recognizing what is there. The teacher also has the task of having an active and dialectical relationship with knowledge, through which he can change it, but also be changed by it. If the teacher does not have a theoretical-conceptual relationship with the school content that he or she conveys, in the classroom he or she will reproduce this content as if the recognition of the phenomenon were enough for knowledge. In other words: if the teacher doesn't think theoretically and scientifically about geographic knowledge, he will have limits to help the student to think this way. If he is not aware that, when

teaching Geography, he is dealing with a symbology built on reality, which is not reality itself, but an approximation to it, he will teach the facts without paying attention to the processes. Acting in this way, he will certainly reinforce the student's relation of externality with the objects of knowledge.

The teacher's relationship with the knowledge he "professes" matters for the definition of teaching proposals and for the results in student learning. In the same way, the kind of relationship he manages to imprint and stimulate between students and the knowledge conveyed interferes in their learning and development. This teaching work can be understood as didactic mediation.

In this perspective, for Meirieu (1998, p. 59), it is essential that the student comes into contact with the things to be learned, which requires a link with the knowledge to be learned, based on the ideas he already has about this content and the project he links to it (an intentionality, a reflection on its applicability in life). However, in the tension between teaching and learning, the knowledge that the student already has is an integral part of the process, not its totality. To expand on this, it is pertinent to consider what Charlot (2009) argues about the specificity of the relations between students and objects of knowledge at school. For this author, students should deal with school contents as objects of thought, not as mere information. He highlights the concept of activity (in the conceptualization of the cultural-historical theory) to understand the processes of student formation and to mobilize them for learning. In his research, he is concerned with questions such as: "For the student, especially for a student from a popular background, what is the meaning of going to school? For him, what is the meaning of studying, or refusing to study?" (idem, p. 92). He clarifies that in the activity of study (based on Leontiev, 1984) its motive and purpose must converge. For example, the student does Geography reading because he is interested in knowing its content

(not only because the teacher asked him to). This ideal is difficult to achieve in routine, but it is a principle to be pursued.

Stating that learning is an intellectual activity, the author argues that school is a place where the world is treated as an object of thought:

Sometimes this object of thought has a referent outside of school, in the student's milieu of life. But in this case the relation to the object of thought must be different from the relation to the referent. The Lisbon of which the Geography teacher speaks should not be confused with the Lisbon in which the student lives (CHARLOT, 2009, p. 95).

With this example, one can go deeper into the students' relation with the Geography contents. In fact, Geography teachers know that students "bring" to the classroom knowledge about the city where they live, and that this knowledge should be considered. However, it is equally important to take into account that the city they know in their lives is not the same as the one worked on by Geography, it is more than that. It is a theoretical construction about the city in general, forming, from this centrality, relationships with other concepts, in an explanatory system of reality. To relate to the world as an object of thought, the author points to the processes of distanciation-objectivation and systematization. His understanding is in line with Vigotski's formulations about conceptual thinking, highlighting its conscious and systematic character.

The subject's new relationship with the world allows him to think about it in a different way, insofar as the structure of thought changes. This new relationship occurs, for example, when one is aware of science as a social production that plays a role in the construction of humanity. Through school, therefore, students can be stimulated to have this relationship with knowledge: to think about their own knowledge, about the nature of scientific knowledge, about how it is used and what it is used for in their lives. Thus, scientific language is structured to understand reality and to act on it.

For the student, the school experience should be meaningful, not only from the point of view of socialization with peers and adults, but also because it is an experience that helps him to establish new relationships with the world, mediated by symbolic instruments that he appropriates. This school experience should contribute to his life outside school, to other places. At school, however, this mediation is not of the subject's initiative, because the school situation intervenes in the process and defines the objects for the subject's mediation.

Continuing in the search for the specificity of the process, I make use of Kravtsov and Kratsova's (2021) arguments about the activities of "children ready for school instruction" as study activities. With reference to Vigotski, these authors state:

In his approach, the author of cultural-historical psychology is guided not by the tasks of instruction, but by how the person in the process of instruction relates to the material being studied. According to the author, there is spontaneous instruction when the one who is in the process of instruction studies following his own program, and there is reactive instruction, when he instructs himself following a program "of the other" (KRAVTSOV; KRATSOVA, 2021, p. 25).

This specificity of the school leads to the consideration of another mediation process in the subject-object of knowledge relationship. This is didactic mediation, which is the teacher's intervention in the processes of cognitive mediation of the student with his objects of knowledge. Thus, it is part of the teaching task in Geography to strive for the student to understand that reality has a spatial dimension, that his everyday practices are constituted in this way. This learning transforms the understanding of their reality. This is an important "key" to work with geographic knowledge, in order to contribute to expand the student's action. For this, the teacher must first be convinced of the social relevance of Geography, only then can he invest so that the student is also convinced of this.

What kind of mediation can occur in Geography classes? In Geography teaching, a change is proposed in the relationship between the subject-student and the world, taking it as an object of his thought, appropriating concepts and its systems, so that he can question its dynamics and feel able to engage in struggles to transform it. How is this object constituted by Geography configured? How does it contribute to interfere in the subject's relationship with the world? This is discussed in the next item.

Unavoidable elements for thought formation: the potency of geographic theoretical-conceptual thinking

Taking the highlighted theoretical contributions as references, it is asked: what do we teach when we teach Geography? We teach a set of symbolic instruments, a system of concepts, reasoning and language, which structure a thought about reality, which is taken as an object, the geographic thought. Referring to the Vygotskian conception, there is the argument of Kravtsov and Kratsova (2021, p. 28): “if instruction guides development, then it is not necessary to teach mathematics, but to teach with mathematics”; paraphrasing, one can deduce: if teaching intervenes in the development of the student, then it is not necessary to teach Geography, but to teach with Geography. And they continue:

However, what lies behind the words teaching with mathematics or with literature still remains completely incomprehensible. But if we do not answer this question, the discussion about the content of education becomes innocuous. It is necessary to clarify what exactly mathematics and its subdivisions [...] offer the child (KRAVTSOV; KRATSOVA, 2021, p. 28).

In an attempt to elucidate these words, I turn to my formulations about the teaching of Geography. When it is said that it is not necessary to teach Geography, what is meant is that the fixed contents, the information, the data, do not require teaching, since memorization is enough to assimilate them. This is a Geography that has long been criticized; however, overcoming it

remains a challenge. So, why is it urgent, necessary, and politically pertinent to insist on the presence of this discipline in basic schooling processes? Because, more than just teaching Geography, by working with its contents, one can teach how to apprehend and evaluate reality in its spatiality. Thus, when teaching Geography, the teacher teaches a type of thinking that helps the school subject to think about the world through Geography.

Geography has a history of production resulting from the analysis of the relationship between society and nature. Geographical thinking is constituted in this general ability to perform this kind of analysis with specific elements, with the typical questions to answer, articulating concepts, categories and principles, about locations and their implications (GOMES, 2013; 2017; MOREIRA, 2007). At school, it has the sense to contribute to the development of the higher intellectual functions of students with the contributions of this science, highlighting its central concept: the geographic space; its concepts and conceptual systems, its reasoning and principles and its languages. The goal is to help the student to think through Geography, to internalize ways of thinking about the climate, the city, the intra-urban dynamics, so that they become tools for reflection and action in society and in daily life.

The main activity of the school is, therefore, to help the student to think, contributing to his intellectual development. To this end, school activities need to be articulated to the full development of the students, to their physical development, manual skills, affection, citizenship practices, and to the practices of relating to others. This full involvement, dialectically articulating desires and social norms (CHARLOT, 2020), has the chance to mobilize students to a less formal relationship with the contents. When working with learning, aiming at student development, one takes into account the ZPD, where important elements of the process are already present. Arguing in favor of this understanding, Kravtsov and Kratsova (2021) attest, based on Vigotski, the idea of

the “primacy of meaning over meaning, articulated to the process of “internalization” (or internalization) and the Zone of Imminent Development (or ZPD):

According to the author, the zone of imminent development, as well as the current level of development, has already formed in the person. Therefore, if we structure instruction objectively oriented to the zone of imminent development, it only means that in the process of instruction, the child does something with the help of the adult or another child and will ultimately be able to do it alone. In other words, what has already formed in the zone of imminent development, thanks to the “pedagogy of collaboration,” in which the child receives the necessary help, becomes its current level (KRAVTSOV; KRATSOVA, 2021, p. 33).

In these formulations, there are indications of elements of the theory to be better investigated, especially its particularities in teaching and learning in Geography. Among these elements are: how is the ZPD configured? How can it be taken individually or collectively? Do all students in the same school class have the same “zone”? Is it possible to work in the classroom with people with ZPD of different dimensions? What does it mean to say that to become actual development, knowledge must already be in the imminent zone? What is the help needed to move from an imminent to a current level of knowledge? These are still unanswered questions, but they mark themes and agendas as possibilities and needs for further research.

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THE SYMBOLIC MEDIATION OF VISUAL MEDIA IN GEOGRAPHY TEACHING

Contributions from the cultural-historical theory

MATEUS MARCHESAN PIRES

School education is an important social practice through which it is possible to develop the human formation of the subjects. In this context, the educational institutions, with their pedagogical/curricular organization, opt for directions to promote their pedagogical practices, which are based on theoretical conceptions from both Pedagogy and Educational Psychology. Among these perspectives, we highlight the cultural-historical theory, with the propositions made by the Russian psychologist Lev Semyonovich Vigotski and collaborators. Regarding this theoretical line, we emphasize that its studies and concepts have been one of the expressive directions in the last decades among those adopted by schools and teachers to implement their teaching systems.

The cultural-historical theory proposed by Vigotski, more intensively between 1928 and 1931, deals with several topics related to human development, which were the basis for the understanding of psychological and learning processes based on his research.

School education that is based on the Vygotskian conceptions has as its premise the social, cultural, and cognitive development of the students. As pointed out by Libâneo (2005), in the cultural-

historical pedagogical theory, learning results from subject-object interaction, and the subject's action on the environment is socially mediated, with significant weight being given to culture and social relations. From these mediations, the development of the higher psychological functions occurs, and "the higher mental functions (language, voluntary attention, memory, abstraction, perception, ability to compare, differentiate, etc.) are internalized actions of something socially mediated, from the constituted culture" (LIBÂNEO, 2005, p. 30).

It is by this orientation that this text aims to present a brief theoretical essay that articulates the assumptions of the cultural-historical theory in relation to visual media – understood as inner signs/symbolic mediators – and their contributions to the teaching of Geography, understood as tools that enhance conceptual thinking. From this point of view, it is considered that visual media (photographs, paintings, drawings, videos etc.) are language, and that, at school, when used as teaching resources, they become part of the set of mediations which teachers use to teach with the intention of enhancing and/or facilitating learning. Thus, this text is organized in two parts, the first one discusses symbolic mediation in the context of the cultural-historical theory; and the second one discusses the role of visual media in the cognitive development of subjects in the teaching of Geography.

In this theoretical conception, according to Vigotski (2009), language is a means of social communication, enunciation and understanding. According to the author, language has two basic functions: communication and generalization. Communication without signs is practically impossible, since in order to communicate a content/knowledge to another person, the use of signs is required. Moreover, communication implies generalization, since "communication necessarily presupposes generalization and development of the meaning of the word, that is, generalization

becomes possible if there is development of communication” (VIGOTSKI, 2009, p. 12).

The teaching of Geography, which is based on the understanding of geographic space through the study of phenomena and the socially and culturally constituted relations that take place in it, requires consideration of how man acts in the world. This world is symbolic and mediated by language, which includes visual media, whether as material or mental representations. Therefore, language and symbolic means enable communication among men, life in society and, consequently, influence the way they structure/use/change the space. Thus, it is understood that the concepts of the cultural-historical theory can guide the educational process which occurs with the use of visual media, as mediations of the look, effective for the cognitive development of the subjects and for the formation of geographic thought, as discussed below.

Man in the World: Symbolic Mediations

Man, just like other animals, is in the world. However, this *being in the world* is different from other species: behavior and actions (to a large extent) are not the same. In order to understand mediation from a cultural-historical perspective, specifically symbolic mediation (in which visual media are situated), it is essential to understand human processes before those of other animals, which place us in a different level.

By analyzing philosophical, psychological and pedagogical theories and approaches during the period in which he produced his work, Vygotsky questioned the production on human intellect that had been carried out until then in psychology. In seeking a new interpretation for Psychology, differently from what was being done by Gestalt in Germany or by American Behaviorism, he and his collaborators proposed other interpretations for human behavior, having social processes as its origin.

Luria (1990), one of Vigotski's working partners, pointed out that scientific psychology had made considerable progress, contributing a lot to the knowledge about mental activity. However, according to the author, "it has almost always ignored the social origin of higher mental processes. The patterns described turn out to be the same for men and animals, for men of different cultures and different historical periods, and for elementary mental processes and complex forms of mental activity" (LURIA, 1990, p. 19).

It is from this scenario that Vigotski and his partners dedicated themselves to bring new contributions to the field of psychology, especially regarding educational psychology and its procedures, exposing a new approach to understanding the higher mental psychological processes of man, differentiating them from other animals.

The study of children's development until 1930, according to Vigotski (2007), was carried out in comparison to botany, as well as associated with the organism's maturation; that is why there is the analogy to the 'Kindergarten'. Later, says the author, from being a prisoner of botany, child psychology became enchanted by zoology; and, thus, many answers to questions of child development were given from experiments carried out in the animal world, being transposed from the experimental laboratories to the "nurseries".

Even recognizing the importance of biological aspects and their role in human development, Vigotski proposed another perspective considering the historical and cultural aspects of individuals, which until then had been neglected. His theoretical bases influenced this direction, and can be divided into two periods of human phylogeny. The first period, as highlighted by Van Der Veer and Valsiner (1999), concerns biological evolution, which had been described by Charles Darwin¹; the second period is linked to

1 It is worth noting that Vygotsky recognized the Darwinian theory on the mechanism of variation and natural selection, although he disagreed in certain aspects.

human history (outlined by Marx and, more fully, by Engels), on which Vigotski will be based. With these bases, the nature of human behavior in Vigotski's theory is explained.

Vigotski's theoretical production, called the reflexological period, occurred, as Nascimento (2014) indicates, during the years 1924 to 1927. In this period, his studies referred to the theory of conditioned reflexes, seeking in reflexology and behavioral psychology, developed mainly by Ivan Pavlov, elements that differentiated human behavior from animals. Pavlov was a Russian physiologist who studied psychological conditioning; he conducted a series of experiments with dogs on conditioned and unconditioned reflexes. It was in connection with these experiments that Vigotski sought to lay a solid foundation for the development of a 'new' Psychology (VAN DER VEER; VALSINER, 1999).

Vigotski stated that all human behavior has its origin in reactions and stimuli from the outside world. According to Van Der Veer and Valsiner (1999), these reactions were until then divided into three parts: 1) stimulus reception, 2) stimulus processing, and 3) stimulus response. Pavlov's great advance, as highlighted by Vigotski, was precisely to realize that the reflexes could be related to external environmental stimuli, thus producing the conditioned reflexes.

So, it is from the analysis of Pavlov's work that Vigotski demonstrates the differences between human and animal behavior. According to Van Der Veer and Valsiner (1999), at the beginning of the development of his scientific reasoning, around 1926, his ideas were not entirely clear, since for him, in this period, animal behavior could be explained from two aspects: 1) innate reactions; and 2) conditioned reflexes. However, as he advanced and developed his ideas further, based on Marxism, he pointed out that human beings differ from animals in that they have a collective social history and do not adapt passively to nature, which is transformed due to the use of instruments in the labor process. Therefore, the aspects of

human behavior for Vigotski would be: 1) innate reactions; 2) conditioned reflexes; plus: 3) historical experience; 4) social experience; 5) experience.

For Vygotsky, although some of the human reactions are similar to those of animals, such as the innate ones (like the baby, when feeding through the sucking reflex) and the conditioned reflexes (which, due to an external stimulus from the environment, can awaken some emotion or sensation, like the bell that rang before the dogs were fed and made them salivate, in Pavlov's experiment), man differs from other animals by his historical/social and cultural experience, which is transmitted and accumulated. Furthermore, he identifies the so-called duplicate experience, which relates internal and external actions:

[...] the organism reacts twice: the first to external events and the second to internal events. The (internal) plan to build a house would be a stimulus for the actual building process, while the plan itself arose as a result of some reaction to an external event. In this way, conscious activities are (1) actually reactions to internal stimuli which (2) arise as reactions to external stimuli. They have, therefore, a dual nature and can be called "duplicate experience" (VAN DER VEER; VALSINER, 1999, p. 65).

Human beings have the ability to plan (think), predicting, in advance, the result of their action consciously (internal action) of what they will do externally (external action). It is possible to illustrate this ability by thinking about the wood from a tree, for example, that will be used to make a chair: the cut is planned in advance, as well as each step of the process to achieve the result. In the same way, work tools, such as a saw, a hammer, among others, were also imagined before being manufactured, having been idealized in thought, foreseeing what their function would be and the result achieved with their use.

Therefore, in his relationship in the world and with others, man changes not only the environment, but himself. Vigotski wrote that "the basic characteristic of human behavior in general is that

men themselves influence their relationship with the environment and, through this environment, personally modify their behavior, bringing it under their control” (VIGOSTKI, 2007, p. 50). In another passage, he considers that “the control of nature and the control of behavior are mutually linked, just as man’s alteration of nature alters man’s own nature” (VIGOSTKI, 2007, p. 55).

Thus, the main difference between humans and other animals and their relationship with the environment would be in the culture, understood in Vygotskian theory as “the central category of a new conception of psychological development of man” (PINO, 2005, p. 35), through a complex process of biological transformation into cultural.

Vygotsky claimed that there were fundamental differences between animals and humans, differences that originated with the onset of human culture. While animals are almost entirely dependent on the inheritance of genetically based traits, human beings can transmit and master the products of culture. By mastering the knowledge and wisdom embodied in human culture, they can take a decisive step toward emancipation from nature. The specifically human traits, therefore, are acquired in the mastery of culture through social interaction with others. Arguing in this way, Vygotsky gives a limited role to biological evolution and the genetic basis of human behavior. Behavior, in his view does indeed have a genetic basis, and this basis originated in biological evolution, but it was restricted to the lower processes. The specifically human higher processes developed in human history and had to be mastered anew by each human child in a process of social interaction (VAN DER VEER; VALSINER, 1999, p. 213).

To develop the higher psychological functions, an essentially human characteristic, the child needs to be inserted in a cultural environment and through interaction and social coexistence with other individuals and the culture in which he/she will progress. Hence the assumption that “the real movement of the process of development of children’s thought does not take place from the individual to the socialized, but from the social to the individual” (VIGOTSKI, 2009, p. 67). Children, therefore, transfer social forms

of collective thought and collaboration (external) to the fields of personal psychological functions (internal), external language thus becomes internal and development occurs from the social to the individual, as Pino (1991) points out:

Psychic development is the result of society's action on individuals to integrate them into the complex network of social and cultural relationships that constitute a social formation. Psychological functions are effect/cause of the social activity of men, the result of a historical process of organization of social activity. To become a "human" being, the child will have to "reconstruct" within himself (not simply reproduce) what is already acquired by the species. This presupposes processes of social interaction and intercommunication that are only possible thanks to highly complex mediation systems produced socially (PINO, 1991, p. 34-35).

The reconstruction of cultural functions constitutes what Vygotsky called the *General Genetic Law of Cultural Development*, where "all functions in child development appear twice: first at the social level, and then at the individual [psychological] level; first *between* people (*interpsychological*); and then *within* the child (*intrapsychological*)" (VIGOTSKI, 2007, p. 57-58, emphasis added).

This process occurs both socially and personally, therefore, the cultural functions that define the human specificity, as Pino (2005) points out, arise thanks to the child's insertion in the social practices of his/her cultural environment, which, with the mediation of the other, will acquire the specific human forms, becoming similar to other men.

As pointed out by Pino (2005), the child has two births: the biological and the cultural, and one does not coincide with the other. The history of the human being implies a new birth, the cultural one, because the biological alone does not account for the emergence of these higher functions that define the human being. In his words, "one development is not the simple direct continuation of another, but there is a change in the type of development itself – from biological to historical-social" (VIGOTSKI, 2009, p. 149).

Pino (2005) set himself the task of presenting at what moment the “second” birth of the child takes place, that is, that of the cultural order. For him, children initially develop the sensory-motor functions, and gradually acquire the symbolic functions. In this way, the cultural birth occurs when the human baby begins to appropriate the semiotic systems created by man, especially language². The child’s insertion into the world of culture goes through a double mediation: that of signs and that of the Other.

Having posed the question of the child’s double birth, the biological and the cultural, we can say that it begins, as shown in the history of the “pointing movement” analyzed by Vygotsky (1997:104), when the child’s first natural acts acquire meaning for the Other. Only then do they become meaningful to him (PINO, 2005, p. 59).

Thus, it is the meaning given by the Other to the actions performed by the child (when he/she points to an object and the adult assigns meaning), throughout his/her first years of life, that marks his/her cultural birth; with this, it is introduced in the communicative, symbolic and semiotic circuit of the adult, as well as the adult is inserted in the communicative and sensory-motor circuit of the child (PINO, 2005).

It is worth noting that this communicative process of symbolic operations, as enunciated by Vigotski (2009), cannot be understood as a simple result or a single discovery by the child, it does not take place in a single stroke, at once. On the contrary, it is configured as a complex movement, with natural roots, which moves to the cultural history of signs, with a series of quantitative, qualitative and functional changes.

2 The child initially expresses itself through his/her sensory and motor skills, such as crying, indicating the need to feed, or crawling movements, which allow him/her to move through space in the first months and years of life. It happens that, progressively, this biological development loses strength to cultural development and the higher psychological functions begin to be constituted.

In this way, it is understood that the entire communicative process of dominion and creation, both of instruments and signs, has allowed and expanded the development of language, taking men to a communicative/cognitive level different from that of other animals. The man lives daily with the instruments, thinks with and through the signs and it is precisely for this reason that he evolved cognitively, having the ability to create and use this symbolic system in the mediated relationship with the world.

Vigotski established the difference between instrument and sign and in the way each one guides human behavior, for him the function of the instrument “is to serve as a conductor of human influence on the object of activity; it is externally oriented, it must necessarily lead to changes in the objects” (VIGOTSKI, 2007, p. 55). Thus, instruments serve to dominate nature.

On the other hand, signs are a form of social interaction, of language, and, unlike instruments, the sign “constitutes a means of internal activity directed to the individual’s own control; the sign is internally oriented” (VIGOTSKI, 2007, p. 55). Therefore, the sign plays the role of communication between people and, also, the role of representation, being in the place of the absent. According to Pino (1991), “human beings have created instruments and sign systems whose use allows them to transform and know the world, communicate their experiences and develop new psychological functions. The mediation of sign systems constitutes what we call “semiotic mediation” (PINO, 1991, p. 33).

Semiotic mediation occurs precisely through culturally created sign systems. A stimulus that can represent another stimulus is seen as a psychological sign, as Vigotski exemplified, and examples of signs can be: words, numbers, works of art, diagrams, images and visual media that perform the function of mediation.

It is in accordance with this system of signs that man understands himself, controls his psyche and behavior, and deals

with the problems of his universe. Man's culture and actions, through symbolic systems, differentiate him from other animals. The brain works from specific conditions; however, it is not only its biology, alone or with the reception of information that comes from the senses that makes it 'work', but culture and life in society contribute directly to the development of psychological/brain functions.

As Oliveira (1992) emphasized, Vigotski's conceptions about the functioning of the human brain are based on the idea that the higher psychological functions are built throughout the social and cultural history of man. This is why Vigotski stated that:

The very essence of human memory lies in the fact that human beings are able to remember actively with the help of signs. It could be said that the basic characteristic of human behavior in general is that men themselves influence their relationship with the environment and, through this environment, personally modify their behavior, putting it under their control (VIGOTSKI, 2007, p. 50).

In this theoretical perspective, Cavalcanti (2012) points out that mental development, the ability to know the world and act in it, is a social construction. Thus, the relationship between the subject and the object of knowledge is mediated by the symbols that make up the representations of the world, the cognitive mediations. "This means that the subject does not relate directly with the things of the world, among them, in the middle of them, are their representations, the symbols they have built" (CAVALCANTI, 2012, p. 159); and the school, in teaching Geography, can intervene, precisely, in these mediations of the subjects through the practices it develops.

For Lenoir (1996), mediation intervenes as an intrinsic dimension of the subject-object relationship. In this way, it is possible to distinguish in the concept of mediation a double dimension in the process of objectification, one external and the other internal to the process itself. From this differentiation in the

objectification proposed by the author, one can indicate: the cognitive (internal) and the didactic (external) mediation.

One can understand then that the mental representation of the object, through the symbolic operations, is the cognitive mediation, in which the subject elaborates internally his representations, his own thoughts. However, it is linked to external mediation, in this case of the educational process, called didactics, which, when performed by the teacher, will support the internal objectification process.

It is worth highlighting the role of language in both dimensions: internal and external. Mediation occurs with language as its basis; it is an internal characteristic, as Lenoir (1996) states, a constituent modality of the object studied. It is also external, when shared socially by the other in an extrinsic way, since it depends on an external action that constitutes a means of intervention in the objectification of the subjects.

Cavalcanti (2005) states that social interaction is fundamental for the construction of knowledge, the reference of the other, through which the different meanings given to the objects of knowledge can be known. This mediation is fundamental for the development of thought, of higher intellectual processes, and of the possibility of concept formation.

Mediation cannot be understood only as the physical presence of the teacher; it occurs through signs, words, symbolic systems, discourse, and visual media used in the teaching and learning process. Therefore, it is understood that visual media, such as images, for example, as signs, external representations to the subject, enable an internal mediation process; therefore, they are linked to cognitive development, and thus become thought material, being effective for learning Geography.

The mediations of visual media in cognitive development

Symbolic mediation participates in the processes and development of higher psychological functions as described above. There are several psychological ‘tools’, that is, signs, which compose or structure thoughts, such as numbers, algebraic symbolism, artistic productions, diagrams, maps, drawings, photographs, etc., that is, different kinds of signs that compose and conduct mental processes.

Interpreting the Vygotskian theory, Nascimento (2015) states that the introduction of the sign in the psychological situation makes it have a mediated character, which will influence the psychological and cultural development of the child. We agree with this proposition, because it is precisely in this proposition that the cognitive function of visual media, such as signs, resides. On this aspect, Vygotski wrote that:

[...] all higher psychic functions have as a common feature the fact that they are mediated processes, or rather, that they incorporate to their structure, as a central part of the whole process, the employment of signs as a fundamental means of orientation and mastery in psychic processes (VIGOTSKI, 2009, p. 161).

The author points to the signs as essential and conditioning in the psychic processes; therefore, they are indispensable in children’s learning. In one of his texts, entitled: *Learning and intellectual development at school age*, Vygotski (2005) examines the relationship between development and learning and, when writing about these processes, he presented an example of teaching based exclusively on visual media.

In one of his investigations, carried out with children considered mentally challenged and with little capacity for abstract thought, Vygotski (2005) described that, in the school work with these children, the institution’s teachers adopted as a guideline to limit all their teaching to visual means only; and, still according to Vygotski, after many experiences the guideline proved to be totally unsatisfactory.

That is why for the author a teaching based only on visual means eliminates the germs of abstract thought in children, warning that: “accentuating the visual aspects is necessary, and carries no risk if it is considered only as a stage in the development of abstract thought, as a means and not as an end in itself” (VIGOTSKI, 2005, p. 38).

That is, it is considered that in the process of school teaching and learning, visual resources are means that contribute to the development of the child and his/her thinking. They participate in the cognitive processes of brain functioning, but are not the only necessary signs, although they have a significant role, since, as Pino (2005) describes, man internally reconstitutes the external world through sensory images. These images, in turn, become objects of consciousness, so “it is through images that man has access to the real world and the imaginary world” (PINO, 2005, p. 144).

It can be stated that, by means of visual perception (usually), images, mental representations of the world, are elaborated. As stated by Arnheim (1976), the senses are by excellence the means for the exercise of intelligence, and, among all the senses, vision is one of those that allows us to better elaborate the notion of three-dimensional space. For the author, vision is one of the means of thought, which can offer information about objects and events in the outside world.

Thus, we would say that images are part of a symbolic system that is fundamental in the relationship between the subject and the object of knowledge: they mediate man’s relationship with reality, allow him to transcend space/time and the limits of the physical world, becoming the material of thought. They are culturally created, not only as a materialized visual representation, but also as mental content in the imagination, for example. Therefore, the visual media are essential in the symbolic mediation of the contents that are taught at school, in school Geography, especially those that

require a higher level of abstraction, of mobilization of the imagination by the students.

Going from this understanding to the field of Geography at school, for example, when the teacher teaches contents related to physical aspects, the configuration of the relief, the big cities, etc., to a student who never had direct contact with that place, that landscape, the images are imperative to help in the elaboration of concept formation, involving abstraction, generalization and internalization.

That said, it is understood that the content taught in Geography at school can be supported by images, which contribute to the students' imagination in the development of their individual mental representations. It is emphasized that highlighting the mediating potential of images does not mean advocating the exclusive use of visual media, as Vigotski mentioned in his experience. However, it is understood that the imagery resources enhance and participate in cognitive processes and should be allied to the whole set of mediations (the word, the text, the teacher's speech, etc.).

In this direction, Nascimento (2015) rightly points out that "visual and verbal media must combine, in the teaching process, as a complex cultural form of perception and knowledge of objects and phenomena, of deep understanding of reality, in the development of psychic functions" (NASCIMENTO, 2015, p. 113). That is, the opposition between imagetic and verbal language should not exist (as many use the well-known saying: "a picture is worth a thousand words", comparing them), but an articulation between them.

However, for visual media to help in cognitive processes, they need to be read, analyzed and interpreted, not just seen, or understood, as mere allegories in Geography classes, decorations or distractions. In fact, "the audiovisual media used in class also require a complementary work of explanation, analysis and

integration, without which the student remains at the level of seeing, without integrating what he saw to his knowledge, to his thoughts” (NASCIMENTO, 2015, p. 97). Therefore, the teacher’s mediation and didactic routing are essential for these resources to fulfill their functions in the educational process, because they “serve to give more precision to abstract thinking and to develop theories” (NASCIMENTO, 2015, p. 113).

Regarding the teaching of Geography and the formation of concepts, Cavalcanti (1998) stated that, in the teaching process, it is necessary to develop certain cognitive and operational skills of students; and Geography, either as a science or as a school subject, has its own language, which is permeated by concepts, to analyze phenomena from its perspective.

It is in the scope of mental activity, in the cognitive operations of the students that the potentiality of the image as a symbolic mediation in the knowledge about the world is understood. Concepts are human elaborations; they can be understood as “cultural tools that mentally represent an object. They are knowledge that generalize experiences, that allow making particular deductions from concrete situations. They are ways of operating thought and, thus, the understanding of the world” (CAVALCANTI, 2012, p. 158).

Couto (2017), when testing in his research the double stimulation method proposed by Vigotski, states that sensory material and the word are indispensable for concept formation. Supported by Vigotski, who used in his experiments wooden blocks of different colors, shapes, heights, and widths, Couto (2017), in his experiment, used images and texts. According to the author, the variety of materials and instruments contributes to the realization of mental operations and, consequently, to efficient learning.

Thus, it is understood that visual resources fulfill a double stimulation. As pointed out by Arnheim (1976), thought influences

what we see and vice-versa. For example, with an image that represents a certain geographic reality (the place, the territory, the urban landscape), the student will have elements that will help in the elaboration of his geographic concepts, and reading the image requires a series of mental operations, which cooperate in the subject's awareness of the concept.

Therefore, when the concept is elaborated by the subject, it will influence the way the individual will look at the image, because this knowledge will be mobilized during the reading of the representation. So, sometimes the visual media can serve by providing elements to elaborate the concept, sometimes the concepts guide the look, directed and articulated to other elements, representations and languages in the reading of the image, being for this reason that the visual media are substantial for Geography and its teaching.

Considerations

In school, visual resources are traditionally used. In the Geography class they range from representations, such as maps, photographs and the different current technological resources, as well as virtual navigation applications with images, etc., being widely used by teachers as teaching resources in the teaching process.

However, it is pointed out that sometimes the function of such imagetic resources is not intelligible to the teachers who insert these resources in their classes. Therefore, it is noteworthy that, beyond being seen as mere props or simply a recreational resource in the classroom, visual media participate in the formation of geographic concepts and the constitution of thought, especially when these require a higher level of abstraction, having the function of semiotic mediation, stimulating and forming the higher mental functions.

The themes, contents and concepts taught in school Geography can be supported by the most different images, which bring

symbolic elements for the development of individual mental representations of students, giving precision to abstract thoughts (NASCIMENTO, 2015).

Thus, it is understood that the cultural-historical theory contributes to the understanding of visual media as symbolic mediations in the teaching and learning process. The images, by this view, can acquire other functions in school, in addition to those traditionally attested, precisely because they mediate the relationship of man with reality, allowing transcend space/time and the limits of the physical world. They thus become material of thought, mobilizing the perception and imagination of the world, the memory that is built of the spatialities by/with Geography, being an elementary resource to teach.

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THE HISTORICAL-CULTURAL THEORY AND THE TEACHING OF GEOGRAPHY IN THE CUBAN BASIC SECONDARY SCHOOL

FREIDY FÉLIX GARCÍA MARTÍNEZ
YARIBEY ALFONSO PÉREZ

The pedagogical challenge for the formation of new generations must consider the concept of education throughout life and for life, from a dialectical perspective of the global, particular and individual, where all the factors that are imbibed in this process contribute efficiently and effectively to this aspiration.

Current pedagogical trends propose placing the student at the center of the integrative formative process, so that he/she can develop his/her potentialities to the fullest, attend, understand and respect diversity, based on the knowledge of science, technology and contemporary culture, in whose essential nucleus is the formation of identity, human and universal values, so that he/she can integrate as an active subject, to the society where he/she lives, in such a way that he/she contributes to its development and improvement, in permanent harmony with the environment.

Education in Cuba has systematically gone through different periods of improvement, according to the achievement of concrete aspirations in the formation of new generations, in correspondence with the economic, socio-cultural development, social needs, the

growing progress of educational processes, so that our pedagogical traditions respond to the purpose of education:

The achievement of the development and integral formation of the personality of the learners with a cultural base in correspondence with the patriotic and humanist ideals of the Cuban socialist society in its prosperous and sustainable development, expressed in the ways of feeling, thinking and acting, according to their particularities and individual interests, in correlation with social needs, which allows them to assume a scientific conception of the world and prepare for life (MINISTRY OF EDUCATION, 2016, p. 9).

To achieve this end, a system of objectives is proposed, which are assumed as achievements to be reached by students once they graduate from general polytechnic and labor education; based on the principle of gradual derivation, those corresponding to the different teachings are elaborated.

This system of objectives contains in its projection and in its essence, the conception of preparation for the life of the students in the conditions and demands demanded by the Cuban society of today and of the future in the context of global, national and local world problems of great complexity.

In the case of Basic Secondary Education, the essential purpose is as follows: The integral formation of the personality of each student from 12 to 15 years of age, with a higher level of strengthening in the systematization and expansion of the contents of the educational process, with a scientific investigative thinking, in correspondence with the patriotic and humanist ideals of Cuban society in its prosperous and sustainable development, expressed in their ways of feeling, thinking, acting, according to their particularities and interests, aspirations, social needs, higher forms of independence and regulation in the active participation before the student tasks that allows them to gradually assume a scientific conception of the world.

In this complex educational panorama, the teaching-learning process of Geography is inserted, which is developed under the foundations of geographic science and educational sciences.

Many researches have generated a wide debate among geographic objects and methods, which has resulted in the division of Geography into two main branches: Physical Geography and Human Geography, which has resulted in a great diversity of theoretical perspectives to understand, analyze and study its object of study, which in our view is very well defined, although different approaches, trends and their influences on the teaching-learning process are observed as logical issues of its development.

Today, the teaching of Geography in the pedagogical and didactic context is recognized for its instructive, developmental and educational value, endorsed by the contributions made in the understanding and solution to the problems of the global relationship of the “Man-Earth” ecosystem, to which we belong and in which we develop.

Likewise, the development of the diversity of approaches has been manifested in the didactic structuring of Geography as a subject, which has been a complex task, due to the composition of didactic points of view arising, essentially, from the development of psychology and its impact on pedagogical sciences.

In this sense, in spite of the complexity and difficulties that are manifested, many of the proposals emphasize more on methodological aspects than on the didactic innovation itself that defends a change based on principles of the epistemology of Geography and learning theories; sometimes pragmatic positions are observed in the didactic modeling of the teaching-learning process of Geography, with substantial repercussions on school learning and on the direction of the process.

In any case: “Geography is based on a millenary tradition, a matter that has contributed to its theoretical-methodological

enrichment adapted to each specific historical moment [...]” according to criteria (ÁLVARES, 2014, p. 38).

In contrast to the traditional conception that learning depends only on the direction of the process, the teacher’s behavior and the methodology used, the importance of the student’s contribution to learning is emphasized: knowledge, values, skills, beliefs, attitudes, feelings, based on his or her self-development.

It is then that the student’s activity appears, in this way, as a mediating element of great importance between the teacher’s behavior and the learning results, the origin of which can be sought in the growing boom of cognitive approaches, which implies a radical change in the way of understanding the teaching-learning process.

For Vygotsky (1981) human activity is socially mediated and historically conditioned, since such activity is born and configured in a social environment that has been and is subject to successive transformations or historical changes. His historical-cultural conception allows understanding learning as a social activity and not isolated as a process of personal and individual realization, in this sense it is understood that knowledge can be assimilated when the student performs sufficient and diverse actions with it.

The originality of his theory is due to the fact that it is able to integrate a theoretical framework coherent with psychology. He called his method instrumental, because he dedicated himself to study and verify how the capacity of resolution of a task by the subject is increased if we make a psychological instrument intervene. These instruments are the tools, the tools with which man actually constructs the external representation that he will later incorporate mentally, that is, he will systematize.

Instrumental mediation would not be possible without social mediation; that is, mediation between two or more students who cooperate in the same learning task, where the path from the object to the child and from the child to the mediator.

The human being learns to think, perceive, memorize, represent through the mediation of other individuals. Based on this idea, the law of the double formation of psychological functions was formulated: “in the cultural development of the child every function appears twice: first at the social level, between people, interpersonal or interpsychological, and then at the individual level, within the child himself, intrapsychological” (VYGOTSKY, 1979, p. 94).

All this is supported by his theory of the cultural-historical approach, where his thesis is manifested in the socialization of higher psychic functions, based on the premise that the student is a social being by nature, a product of society and subject of his/her relationships.

It is clear in his formulation that the child first learns things socially, in contact with others and then internalizes them, i.e., according to this law, functions such as perception, memory, attention, are built first at the interpsychological level and then at the intrapsychological level.

Consciously applying social mediation in the educational context implies giving value to the content, and to the instrumental mediators, i.e., what and with what is taught, but also to the social agents who teach and their characteristics, and for what purpose it is taught. In the case of Geography teaching, it fits this postulate as follows: “the teaching of Geography combines scientific-pedagogical and geographical knowledge with the theory of teaching and education, consequently, it takes into account what is taught, to whom it is taught and what it is taught for [...]” (BARRAQUÉ, 1991, p. 18).

From the teaching-learning process of Geography, what do we teach: the contents with the whole system of components that accompany it, that is, knowledge, skills, modes of action, experiences accumulated in praxis, where the whole system of concepts, laws,

regularities, scientific theories, processes and phenomena of reality in a given historical context and its permanence in time are imbricated.

Who is taught is directed to the whole school community, where differences and diversity are taken into account in all possible directions and guidelines, in close connection with Psychology and Pedagogy, and above all, the selection of methods, means and ways to carry out a developmental teaching-learning process, where the integral formation of the students is guaranteed, in correspondence with the degree and level of aspirations expressed in the educational model.

The purpose of teaching is directed from this perspective to reaffirm the dialectical unity between instruction and education, where the personality to be formed from the teaching process is demanded.

From the subject, the cognitive activity comprises the acquisition of knowledge and skills, the development of their cognitive abilities and interests, which means organizing the process from the activity of the students on the geographical objects of the objective reality, or on the basis of their illustrations through sensation, perception and representation.

All this allows the teacher, with his students, to take advantage of the capacity that Geography has in the systematization of cognitive processes, starting from a concrete reality that allows him/her to conceive his/her learning strategies and to understand the biotic, abiotic and socio-cultural elements of the geographic space, where interdependence relationships are established.

Another valuable contribution of Vygotsky (1981) to education, and from which the actors in the direction of the teaching process of Geography are nourished, is his theory on the “Zone of Proximal Development”. This is defined as the distance between the real-actual level of development reached, where the student demonstrates his/her ability to solve a problem independently, without the help of another individual, and the level of potential development, which is

determined through the resolution of a problem under the guidance of an adult or in collaboration with a more capable partner, in which case different levels of help are put into practice, aimed at achieving this potential development.

However, it is necessary to determine what the student is capable of doing and learning on his/her own, which is the result of his/her level of development and learning schemes, as well as what he/she is capable of doing and learning with the help and assistance of other people, from observation, imitation, by following their instructions or collaborating with them, it is here where the psychopedagogical diagnosis becomes a work strategy for the teacher, since the decisions to be made depend on him/her.

Therefore, it is essential that in the direction of the teaching-learning process of Geography, the teacher assumes some educational implications that are articulated from the theory of the Vygotskyan historical-cultural approach:

- The teacher's mediation should be directed to the zone of proximal development;
- The teacher's role in teaching is that of mediator;
- Support interactions within the classroom, between teacher-student, as well as among the students themselves. The organization of the classroom or school space should facilitate interactions and cooperative work;
- The student's learning potential increases if appropriate resources, ways and didactic support materials are used to stimulate learning, cognitive independence and intellectual development (instrumental mediators).

In this sense, the teaching of Geography in the current Cuban school is based on guiding ideas, which refer to:

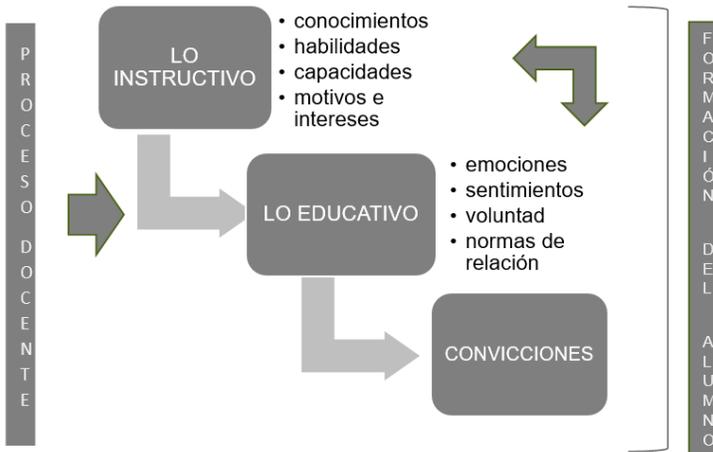
- To favor an updated scientific teaching and a multidisciplinary developmental learning, in

correspondence with the new needs that the country demands in the preparation of its future citizens, with a more active and responsible community impact on the environment.

- The formation of a student who is capable of developing as a conscious citizen in the concrete situations of his or her daily life.
- To provide knowledge about the planet, countries and regions, to stimulate the study of the economic, social and political conditions of humanity.
- To show the relationship of man with his environment, discovering the human adaptation to different environmental conditions and the use of natural resources.
- The knowledge about the Geography of Cuba is present in all teachings, which does not necessarily mean its inclusion as an independent subject in all levels and grades, but its reference in all programs.

The teaching of Geography encourages this possibility from the benefit of the geographic space in which one lives, studies, loves; a local and regional identity is formed from the theoretical approach of the geographic teaching-learning process in middle school, which is based on the historical-cultural approach, from which it can be schematically represented as follows:

Diagram 1 – Geographic teaching-learning process in middle school based on the historical-cultural approach.



Source: Garcia, F and Alfonso, Y (2021).

There are several pedagogical experiences that are applied on a daily basis, from the teaching of Geography, where Vygotsky’s historical-cultural theory, which have been derived from the scientific research of teachers, in the process of continuous training, is the basis and psychological foundations, as a result of master’s theses, doctorates, methodological and subject preparations, which favor the direction by the teacher of the teaching-learning process of this science, by providing them with new tools, ways and didactic means, aimed at the stimulation of school learning and cognitive interests of students.

From the teaching work it is clear that the student as a social being, in his student, socio-cultural and working life, hardly find problems to which he can give solution with a fragmented vision of knowledge, because in life the problems arise from society, nature, in a complex way and man must act accordingly.

It is up to the school, through its plans and programs, to prepare the individual from this systemic and integrating conception,

here then interdisciplinary work is of special importance, in this sense Geography as a subject has the potential and the necessary resources that the teacher must use and thus be able to achieve a developmental learning in the students, from the perspective of the historical moment and the socio-cultural environment.

Point of coincidence with what is expressed by Recio (2011) when he states that:

Geography is a science of integration, like no other, it is in charge of interpreting the spatial distribution of objects, processes and physical, economic, social, geographical phenomena, their development in time and geographical space, making a critical assessment of the causal relationships of their behavior, determining trends and proposing their transformation on the basis of a humanistic conception for considering man the main agent of the nature-society relationship (RECIO, 2011, p. 20).

In this sense, Geography must play a relevant role, for its contribution to the general culture of the individual and in environmental education; it needs then the creative work of teachers and the concerted agreement with all the sciences to achieve this purpose.

It can be inferred that Geography as a subject has four basic functions:

- Informative, localization and characterization of processes, objects and phenomena;
- Instrumental, aimed at seeking solutions to organize, administer and manage space and the environment in a more rational way;
- Transformational, it aims at transforming social reality, conceiving knowledge as a weapon of this process and where the subject appears as the center;
- A cultural function, it propitiates the expansion of a culture, conscience, geographical and environmental

rationality, which will be strengthened in the sustainability of life for the future.

Geography as knowledge allows then, precisely, to know human beings, the world in which we live, analyzing, feeling and understanding the capacity of social and environmental practices to be able to intervene in them from certain ethical, aesthetic and moral convictions.

Hence, the Geography teacher in middle school must design different tools that allow him/her to direct the process in correspondence with the diagnosis of his/her students and thus be able to move from the real state to the desired state, which seen from the historical-cultural approach, is the moment in which the student moves from the zone of current development to the zone of proximal development.

The use of learning strategies can be used by the students as active subjects of their own transformation and by those who direct the teaching process, who are in charge of the orientation and control of their individual and collective work, and thus be able to offer the necessary levels of help that will allow the students to progress to higher levels of development.

A strategy for geographic learning must have essential components: 1. The preparation of the students according to their individual needs. 2. Ordering by the teacher of the actions and operations to be followed. 3. Execution, control and evaluation of the learning process. This must:

- To present a logical model in the development of school learning, which allows the student to move to higher levels, which the teacher controls, offers the levels of help that the students need and evaluates the results;
- Facilitate the self-preparation of students in the development of teaching tasks inside and outside the

classroom, from the perspective of the projection of the subject;

- To favor the organization, planning, execution, control and evaluation of the process;
- To plan the attention to the diversity and individual differences of the students.

It has been expressed from this configuration in different researches that students, under the right guidance of the teacher in Geography classes, are able to advance and reach new stages in their intellectual development, as stated by García, Perdigón, Alfonso (2020), where the student plays a decisive role because:

- Seeks and expands information on the basis of their autonomy;
- Decides the form of work and the organization of resources;
- Identifies his or her learning style;
- Transfers information to a new context;
- Is creative in problem solving;
- Assumes commitment;
- Reflects on his/her learning process and that of the group.

Remedios (1999) contributed from her professional experience in pedagogical research to the activation and stimulation of geographic learning of students in Basic Secondary Education. This Cuban pedagogue experimented in various ways in the search for ways to achieve motivation during the teaching process of Geography, likewise, she emphasized the application of learning strategies, where:

The strategy constitutes a scientific novelty by designing in it, for the first time, a way of proceeding in the direction of the teaching process of Geography where the student, when working with the suggestive and cartographic languages, has the possibility of raising his interests and

feeling satisfaction in the realization of the different actions proposed to define and characterize concepts, as well as to appropriate relational knowledge, which allows him to acquire ways of acting and to reach a leading role in his learning (REMEDIOS, 1999, p. 29).

The author herself points out further on:

The didactic strategy is characterized by the combination of two forms of presentation of geographical knowledge (suggestive language and cartographic language), so that this didactic procedure implies how to teach and how to learn Geography from the need to perfect its learning (REMEDIOS, 1999, p. 15).

It is clear the need to place the student in the center of the process, as stated by the author, where the elements of Vygotsky's sociocultural theory and the zone of proximal development should be concatenated, towards which we should focus the teaching work with the students in order to achieve a significant learning in the teaching of Geography.

Several works provide elements of the teaching-learning process of Geography, related to the purpose of achieving the motivation of students, that of achieving spatial knowledge about the world, and the ways of acting in the work with geographical maps, so that the revelation of the value that knowledge can have, given certain properties, qualities that are granted to it, stimulating the formation of feeling and the process of valuation, is reached.

A concrete example of what has been expressed and that constitutes a basic link in the creative activity of the student from the learning process, is the formation of geographic concepts, which is very close to the direction of the process, so that the teacher, from the preparation of the subject, must organize it taking into account all the necessary aspects in its conduction.

In the teaching of Geography, the construction of the concept can be manifested through sequences, with a progressive degree of contemplation, expressed to the extent that relations that help in its

definition are proposed, which contributes in a relevant way to the systematization of actions and operations by the students.

For Vygotsky (1981), the essence of the process in working with the elaboration of concepts is evidenced as: “the true nature in the process of concept formation must be understood from the genetic, functional or structural point of view with the use of basic means in its assimilation, where the word plays a fundamental role [...]” (VYGOTSKY, 1998, p. 622).

In the assimilation of geographic concepts, problems play a very important role, since they activate students’ attention and thinking, their cognitive activity, so that they can make the generalizations necessary for their appropriation.

In order to successfully develop the learning process of geographic concepts, it is necessary to know both the subject being taught and to know how to detect the students’ learning obstacles; in this sense, Geography teachers have a goal that consists of helping the student to build knowledge, which means knowing how to explain everyday problems from facts and data of the objective reality (GARCÍA, F; GARCÍA, J; ALFONSO, 2019, p. 8).

Consequently, the teacher, as the conductor and mediator of the students’ learning, should guide them towards the assimilation of geographic concepts from the understanding of the set of internal relationships of the objects, processes or phenomena that constitute their essence, that is, working with the necessary means so that the systematization of the concept in question is achieved.

Based on these guidelines, the development of a dynamic geographic learning process is focused, which allows students to face new challenges in their lifelong learning and to face the challenges imposed by an increasingly interconnected global world, in a rational and sustainable way as far as possible, but always making the effort to achieve it.

Geography science education linked to the local context.

The improvement of educational systems in the current stage of social development focuses on achieving quality education for all throughout life, emphasizing the role of science education for its contribution to the formation of competent citizens who act reflexively in a society marked by increasing scientific and technological changes.

Many international organizations, including the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Organization of Ibero-American States (OEI), among others, are working on various programs and projects to promote a new vision of science education that will enable students to better understand the world in which they live and make their own decisions. In particular, the Regional Education Project for Latin America and the Caribbean, sponsored by UNESCO, emphasizes the need to ensure quality science education geared towards sustainable development and recognizes that quality science and technology education for all is a pending challenge as it has not yet been adequately incorporated at all educational levels (UNESCO, 2016, p. 5).

There are numerous studies aimed at improving science education from the teaching-learning process of science in the present time, and which have made significant contributions in this regard. Among them, the incorporation of the socio-cultural-environmental dimension stands out, directed towards the achievement of a contextualized process, humanized and committed to the need to educate future generations in the principles of sustainable development (VESSURI, 2016).

In the studies carried out by the authors on the documents of educational improvement in Cuba, it has been possible to identify as an essential element to achieve the quality of the teaching-learning process of Geography, the development of scientific

education of geographic science from the local context linked to scientific institutions. Therefore, the didactic approach to the orientation of the content by the teacher should be closely linked to the locality for the integral formation of the student, so that in Geography programs the treatment of the study of the locality and its relationship with practical life is emphasized.

Taking into account these studies, other antecedents and the experience of the authors, it is evident to strengthen science education linked to the local context with respect to the Science, Technology and Society Agenda and the improvement of the Cuban Educational System, where the actions of the teacher are key in the process of integral formation of the new generations.

Science education in the present time responds to the new demands imposed by social development, with a new vision, more updated and adjusted to the conditions of modern society, which has been taking shape for several years, from the program for the improvement of science education sponsored by the UNESCO office for Latin America and the Caribbean, where it is considered:

The possibility of visualizing a future scenario where science education can play its main role, means: guaranteeing quality learning to all students; thus ensuring scientifically prepared future generations; awakening a taste for learning science and guiding students' interest towards scientific vocations (MACEDO, 2016, p. 13).

However, science education cannot be seen in isolation from science, in close relationship with the local context where the student develops, since the school community constitutes a valuable educational resource that can be used in the development of school programs, as a way to foster in them the care and protection of the community environment, as well as to strengthen feelings of belonging to the place of origin.

At the national level, the studies of Cuétara, Buenavilla (2018) stand out, which refer to the development of Geography as a science

and its teaching at different levels and types of education, theoretically defining the principles on which this discipline is based. In this sense, the six basic principles of geographic knowledge are addressed, highlighting: location, distribution, generalization, activity, causality and connection, and they add the principle of study of the locality of paramount pedagogical and practical importance, when defining the object of study of this subject.

Bayeux (2020) addresses the treatment of local studies in the Cuban school, as well as its contextualization to the curriculum from the potentialities of the local context. Araya and Cavalcanti (2018) reveal the contribution and transcendence of the development of geographical thinking as a challenge in Geography teacher training. Despite these studies, there is still a lack of basic theoretical-methodological assumptions and they do not address the aspects of science education in the local context.

Subjects such as Geography and History of Cuba are taught in the different courses and, based on their contents, the study of the locality is carried out, with emphasis on the integral analysis of the territory surrounding the school in order to awaken the cognitive interest of the students in relation to the objects, phenomena and geographical and historical processes that are located there as a correct way for the formation of the scientific conception of the world and to achieve that they understand and learn to know their local environment.

Thus, the cultural-historical approach of L. S. Vygotsky cannot be seen in isolation and is closely related to the development of the process of personality formation. Vygotsky cannot be seen in isolation and is closely related to the development of the process of formation of personality, assumes as its theoretical and methodological basis the Marxist philosophy and the interpretation of the social essence of man, the process of internalization of human consciousness, the value that he conferred to the unity of activity and communication in the formation of moral values and how to

achieve the development of these, from the diagnosis of the educational needs of students in a process of social, cooperative, solidary nature that is oriented from the phenomenal to the essential and from the external to the internal where it is essential to achieve the involvement of the subjects.

The link with scientific institutions and the knowledge of the physical geographic components of the locality is also part of the teaching-learning process, therefore it is susceptible to apply the generalizations of didactics with this purpose and at the same time it can be seen from different approaches.

Vygotsky's ideas emerge when referring to learning as a personal, shared, socialized fact, the need for negotiation between students and teachers, focusing on students' experiences and a conscious direction of educational processes.

Therefore, the actions to be designed should consider these and other approaches, within the framework of the historical-cultural approach based on humanism, which emphasizes the importance of total attention to the personality of the students and the maximum development of all their potentialities from the zone of current development to the zone of proximal development. This makes it possible to conceive the link with scientific institutions and the physical-geographical study of the locality as a necessity in the schoolchildren's teaching-learning process.

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VYGOTSKY AND THE CONSTRUCTION OF CONCEPTUAL SYSTEMS

Contributions to school geography

ELIANA MARTA BARBOSA DE MORAIS

Initial remarks

One of the Vygotskian contributions widely discussed in Geography teaching, when dealing with the formation and development of higher psychological processes (consciousness, perception, memory, and thought) concerns the importance of concept formation. In this process, a wide debate is presented around the relationship between everyday concepts and scientific concepts. However, little attention has been given to a theme that permeates this discussion and that, like the others, has a singular importance in the debates involving the teaching and learning process in Basic Education. It is the concept of Conceptual Systems.

Although this terminology – Conceptual Systems – has been more widely used in Geography teaching in recent years, it has not necessarily been accompanied by theoretical and methodological discussions that characterize it and present its origins, formation and structure. Sometimes, although the conception developed externalizes Vygotskian contributions, the terminology used to reference these systems has been different.

For believing that the clarity around the conception and the use of Conceptual Systems can favor the work done in Geography classes in Basic Education, we propose to discuss this theme. The initial assumption of this article is that concept formation, so discussed and indicated for teaching in the classroom, does not occur in an isolated way; “concept by concept”, on the contrary, it involves a “conceptual system”, which, as we have expressed in another moment, is open, dynamic and articulated (MORAIS, 2011).

It is in this perspective that we have presented the possibility of understanding conceptual systems based on their graphical structuring in the perspective of conceiving them as “[...] a model to organize and represent knowledge, that is, a graphical representation of thought in the process of concept construction through a set of concepts built in such a way that the relationships between them are evident” (MORAIS, 2011, p. 165-166).

In this dimension, we have oriented works in the post-graduation that seek to externalize the concept of physical-natural components in Geography and the conceptual systems that involve the teaching of specific themes, as in the works of Otto (2020), Mendes (2017) and Jesus (2017). These works seek to highlight important concepts to be mobilized in the construction of conceptual systems when working with drainage systems, soils, and relief, respectively.

In this perspective, we consider that discussing Conceptual Systems in School Geography requires an understanding of the formation of concepts, as well as the knowledge and skills that one wants to build, in order to promote the development of thinking, in this specific case, geographic thinking. This discussion is based on the perspective that learning and development are interrelated and that good learning, according to Vygotsky (2008), is the one that advances development.

To conduct this discussion we have structured this text in two parts. In the first part, we highlight the dialogues that involve conceptual systems in the context of method and concept formation. In the second, we discuss key concepts that permeate the conceptual systems about the physical-natural components in Basic Education, with the intention that they may favor analyses related to the geographic space favorable to the students' citizen formation.

Conceptual systems in the context of method and concept formation

The understanding around the concept of Conceptual Systems highlights the need to discuss the method and the formation of concepts, since they externalize the way we conceive the construction of knowledge. In this sense, we present some questions to guide the debate: what theoretical and methodological foundations support Vygotsky's theory and, consequently, the concept of Conceptual Systems? What are concepts and how are they formed? How to relate concepts to the formation of conceptual systems? We asked these questions so that they can help us discuss conceptual systems and their construction in the teaching and learning process of Geography at school, more specifically when dealing with physical-natural components in Basic Education, a theme discussed in the second topic of this article.

The methodological conception presented by Vygotsky highlights the need to understand that scientific research begins with the search and elaboration of the method and goes through other stages of the work, such as the way data is presented and analyzed. Therefore, the method is circumscribed to the central element that permeates the research as premise and product, tool and result of the investigation. Considering that the reflections presented by this author about conceptual systems are built in accordance with the method of analysis adopted by him, we can see that they need to be analyzed together with the historical-dialectical materialism.

Based on this method, Vygotsky considers that no natural nexus could explain the adaptation of society to nature. Only human social nature makes it understandable. By acting on external nature through this movement, by modifying it, man simultaneously modifies his own nature.

Therefore, it is society and not nature that must figure first as the determining factor in human conduct. Society has created an apparatus of signals, a system of artificial conditioned stimuli with the help of which it creates artificial connections and provokes the necessary reactions of the organism. Thus, from the symbolic systems there is mediation between the human being and the world. The psychic process of the human being is understood as a part of the general process of the historical development of humanity.

Therefore, psychic development occurs from the outside in, in which culture plays a central role. Cultural forms of behavior do not emerge merely as external habits, but become an inseparable part of the personality itself, incorporating new relations and creating a completely new system.

The fundamental of the method is that it promotes the meaning of the whole; the whole has particular properties and determines the properties and functions of the parts that make it up; the elements are considered from the point of view of interrelation. In this way, the perspective that the sum of the parts forms the whole is overcome.

As characteristics that make up Vygotsky's methodological identity, we highlight the materialist approach to nature, society and the human being; the unity between theory and practice; the conception of psychological development from a historical, cultural and social point of view; the integral and dialectical approach; the explanation of the nature of the object of study of the particular science from the point of view of scientific construction.

It is based on these foundations that Vygotsky brought together in a single explanatory model the mechanisms of psychological functioning and the development of the human being throughout a social and historical process (OLIVEIRA, 1997). In this sense, the relations between learning and development gain strength, in the perspective that learning promotes development. These elements emphasize the concept that learning occurs from the intrapersonal to the interpersonal, from the perspective that the construction of knowledge takes place in the relationship with the other, from the social interaction with adults and peers, from the interaction between the environment and the individual, highlighting that learning is mediated.

To reflect on this theme, Vygotsky (2008, p. 103) poses the following question: “What is the relationship between the assimilation of information and the internal development of a scientific concept in the child’s consciousness? Vygotsky, from analyses around psychology, evidenced that the answers to this questioning follow two directions. The first, called the definition method, states that concepts are absorbed ready by understanding and assimilation, not going through developmental processes. This method deals with the mere reproduction of verbal knowledge, with ready-made definitions provided from the outside. Contrary to such a perspective, Vygotsky points out that the concept does not concern connections made by memory to the mental habitus, and cannot be taught through training. For him, “the direct teaching of concepts always proves impossible and pedagogically sterile” (VYGOTSKY, 2001, p.247). By focusing on the word, on reproduction, this method disregards the importance of perception and mental elaboration of sensory material for concept formation. The second answer covers the methods used in the study of abstraction, referring to the psychic processes that lead to the formation of concepts. In this case, the neglect is directed to the role of the word and the symbol in the formation of concepts.

The cultural forms of human behavior do not appear only as simple external habits, but become an inseparable part of the personality itself, incorporating new relations and creating a completely new system. Based on this perspective, the method presented by Vygotsky puts these two parts in interaction, presenting valuable contributions to the understanding of concept formation and, consequently, to the teaching and learning process.

Vygotsky argues that culture is integrated to the human being by brain activity, through social interaction and mediation activities. Therefore, collective work and the role of the teacher as a mediator in the teaching and learning process are highlighted.

For the author, the formation of concepts begins in the earliest stage of childhood and matures, configures and develops at puberty, with sensory material and words as indispensable elements in its formation (VYGOTSKY, 2005). For the formation of concepts there is, therefore, a long path, whose process is gradual, mediated and interrelated. For him, there are three basic stages for concept formation: disorganized aggregation, thinking by complexes, and conceptual thinking.

It is in this process of concept formation that learning develops a primordial role. In dealing with the development of thought associated with the learning process, Vygotsky points out that the role of school is the mental development of the child that takes place as a function of learning. Therefore, learning goes ahead of development. For him, the analysis on the relationship between school learning and the child's mental development was carried out in different ways. One of them was that developmental processes are independent from learning, arguing that learning is considered exclusively external and that developmental cycles precede learning cycles, just as maturation cycles precede learning cycles. A second perspective argued that learning is development, occurring simultaneously. For Vygotsky, in another perspective, learning usually precedes development.

Understanding the conception that involves conceptual systems means entering Vygotsky's main ideas, since there is interaction and intertwining among the concepts presented in this theory. Concepts such as interaction, mediation, internalization, Zone of Immediate Development – ZID (VYGOTSKY, 2004) – are important references for the understanding of concept formation.

For Vygotsky, the concept is part of consciousness when it forms a conceptual system. In order to deepen this dialogue, he seeks to reflect on the relationship between concepts, as expressed below:

Because concepts do not appear in the child's mind like peas scattered in a bag. They do not sit next to each other or on top of each other, out of any connection and without any relations. Otherwise any intellectual operation requiring the correlation of concepts would be impossible, a child's world view would be impossible, in short, the whole complex life of his thought would be impossible. Moreover, without any definite relation to other concepts, even the coexistence of each particular concept would be impossible, since the very essence of the concept and generalization presupposes, despite the doctrine of formal logic, not the impoverishment but the enrichment of the reality represented in the concept in comparison with the sensory and indirect perception and contemplation of that reality. But if generalization enriches the immediate perception of reality, it is clear that this cannot occur by any other psychological route than by the route of the establishment of complex links, of dependencies and relations between the objects represented in the concept and the remaining reality. Thus, the very nature of each particular concept already presupposes the existence of a certain system of concepts, outside of which it cannot exist. (VYGOTSKY, 2001, p. 359).

This quote reinforces the idea that concepts are integrated from conceptual systems; therefore, this perspective also needs to be favored when we forward the teaching and learning process in Basic Education. For him, the absence of a system is the main psychological difference that differentiates everyday concepts from scientific concepts (VYGOTSKY, 2005). Thus, in the scientific

concepts that the child learns at school, the relationship is mediated from the beginning by other concepts.

We believe that working with concept formation from the perspective of conceptual systems helps students to construct knowledge autonomously, since we believe that concepts are not ready, defined, and finished, and that they are part of a context, so we need to mobilize different concepts to explain them.

Thus, concepts cannot be given, they have to be constructed. This means understanding that conceptual systems are arrangements that indicate relationships between concepts and/or words that we use to represent concepts. Conceptual systems do not present a hierarchical organization, nor do they classify; their purpose is to articulate concepts, showing interrelationships among them. In other words, the conceptual system, when presented in a graphic form, is configured as a model to organize and represent knowledge, that is, a graphic representation of thought in the process of concept construction through a set of concepts built in such a way that the relationships between them are evident, express a totality, and are dynamic and complex at the same time.

Based on the considerations presented here about conceptual systems, we ask ourselves: how can we guide the teaching and learning process in Geography, considering the formation of concepts from the perspective of conceptual systems? How can we teach from this perspective when the concept of physical-natural components is at the center of this formation? What concepts dialogue – can dialogue – with this conception? These are the themes discussed in the next section.

Conceptual systems and physical-natural components of geographic space – a necessary construction

As explained above, Vygotsky presented several contributions that are directly related to the teaching of Geography, with emphasis, at this point, on the work done on conceptual systems. We emphasize that, in order to consider conceptual systems in Geography teaching, it is necessary to work with concept formation from the perspective that they are not isolated; there is a relationship between different concepts, so that learning can take place and knowledge can be internalized. Working with concept formation, in turn, implies considering the knowledge that students already possess, the role of interaction, the role of the teacher as a learning mediator, the relationship between everyday and scientific knowledge, internalization, as well as the ZID, from the perspective of a dialog between actual and potential knowledge. In this sense, when working with concept formation, our focus is on the formation of this conceptual system, which makes it possible to advance towards the processes of generalization and internalization of knowledge.

In previous work (MORAIS; ROQUE ASCENSÃO, 2021), we presented the understanding that the work with the physical-natural components of the geographic space considers the understanding around nature for the geographic science, the understanding around its dual character as well as the conception and the object of this science. At this point, we want to strengthen the idea that the initial question posed in this perspective is that Geography is, by essence, a social science. To make this assertion, we rely on Fernández (2000) when he asserts that, to a greater or lesser extent, elements such as relief, climate, water circulation, vegetation and soils change, but what varies, above all, is the appreciation that society has made of these elements both in the past and in the present, transforming and humanizing them.

Understanding Geography from a social perspective implies considering the physical-natural components of geographic space

(relief, soil, rock, water, etc.) as dynamic and participants in the production of space. This means understanding them in parallel with the use that society makes of this space, whose understanding allows us to say, for example, what factors point to the constitution of a given area as being at risk for a certain portion of the population. This joint analysis also allows us to understand that it is the way society is organized regarding the real possibilities of land use and occupation that causes the impacts resulting from this use to be potentiated and society to be unequally affected.

When we talk about school Geography we are not referring to a specific field of knowledge, but to a discipline of the curriculum that aims to contribute to the education of students to exercise their citizenship. And school Geography, through the work developed by teachers, will fulfill this goal by enabling students to understand/interpret the reality in which they are inserted.

For this to happen, Geography must be taught at school as a whole and not considering its specialties or subfields individually. Therefore, the teacher, mobilizing his teaching knowledge, must provide the student with the construction of knowledge with reference to the relationships established between nature and society from the perspective of geographic space.

For the analysis of the physical-natural components to be carried out and contribute to the formation of the student, it is necessary to understand that, although the internal dynamics of the physical-natural components exist to a lesser or greater extent, society modifies it. This happens directly or indirectly, based on the transformations of the social values of a time or a class, which shows the influence of unequal economic, political and social factors, generated within a production mode.

Thus, it is necessary to interpret components such as relief, soil, rocks, hydrography, and vegetation, in addition to identifying, locating, and classifying these elements and verifying to what

extent they, as a whole, conform the spatiality of a place, which constitutes the uniqueness of a given area. These elements have different meanings according to the value society attributes to them in each sociocultural context.

For this reason, we propose the concepts of nature and environment as structuring axes for the teaching of physical-natural components of geographic space, so that students are “enabled” to analyze reality from a perspective of analysis and understanding of geographic space, and so that teachers overcome the teaching of Geography based on a positivist view.

The concepts of nature and environment are proposed not only as a diagnosis, but also as a theoretical framework to be approached along with the studies of the physical-natural components of the geographic space in Basic Education. As nature is conceived beyond the physical-natural components, as the environment involves more than the physical-natural surroundings, also incorporating a social perspective, it is possible to advance in the understanding of the reality in which the students live.

For teaching about these components to be forwarded in school, the teacher needs to have as a reference the didactic knowledge of the content (SHULMAN, 2005). This, in turn, requires a good initial and continuing education in which the contents of the specific education and the pedagogical-didactic education go hand in hand, and it is not possible to define the limits of one or the other.

Seeking to overcome a teaching based on memorization, fragmentation of knowledge and ignorance of processes, we emphasize the importance of taking into consideration the following aspects of the physical-natural components of space in school Geography for the composition of the conceptual system of physical-natural components:

1. *The object of study of geographic science* – As the knowledge addressed by Geography is not exclusive to this area of

knowledge, we must forward its studies based on the analysis of geographic space, so that physical-natural and social components are seen from their interaction.

2. *The inseparability between the dynamics of nature and the dynamics of society* – When teaching this subject, we must start from the assumption that the analysis is based on the nature-society relationship in a perspective of understanding the geographic space.
3. *The changing concept of natural* – This term cannot have the same meaning that was given to it in the past, that of untouched, in a first nature equivalence. Today we must consider the vision that society's action, direct or indirect, is part of the world's reality.
4. *The concepts of nature and environment as structuring axis for the teaching of physical-natural components* – The teaching of physical-natural components in the classroom is favored when a critical perspective is adopted, because the concepts of nature and environment go beyond the meaning of physical-natural components. Therefore, the concept of nature should incorporate society, while the environment should also refer to a social environment.
5. *The dynamics of the physical-natural components* – Although societies have interfered with greater or lesser intensity in the physical-natural components, therefore in their dynamics, their evolution continues to happen based on internal and external dynamics. It is important to understand, for example, the evolution of the relief based on its process.
6. *Appropriation and interference in the dynamics of physical-natural components by society* – The incorporation of the appropriation concept in the teaching of these components helps us understand that the way the society-nature

relationship is established is conflictive, since the population's purchasing power legitimizes uses and occupations of different areas to distinct stratified segments of society.

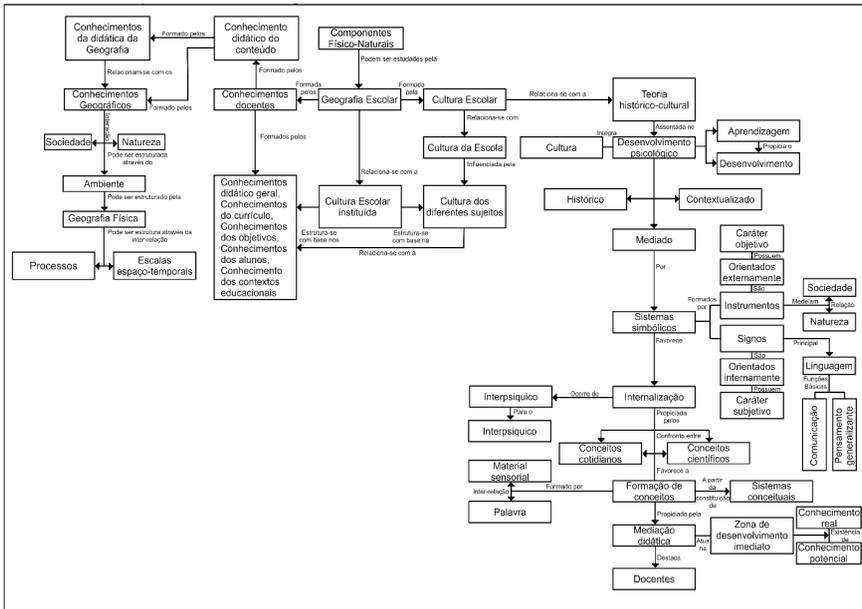
7. *The physical-natural components in space and time* – The study of the physical-natural components must aim at understanding the reality in which the students are inserted. Therefore, starting by approaching problems of their daily life, it is possible to relate them to a geological and historical time that enables students to correlate the different dynamics that conformed certain landscapes. In this way, we will contribute to the understanding that forms change over time and that the notion of the scope of a phenomenon shows that relief forms change by changing the scale of representation.
8. *The contextualization of the physical-natural components based on the processes acting in the present and those responsible for their origin* – It is necessary to overcome teaching based only on terminologies or typologies derived from classification and localization. Therefore, when studying one of the physical-natural components, it is necessary to understand what produces it, how it produces it, how it evolves, and how this structure helps us interpret the different spaces.
9. *The actions that have been developed to minimize the problems presented* – It is fundamental to preserve the functionality and integration of the physical-natural components as well as their relations with the social ones in order to situate the discussions in the context of their origins and not only in the techniques for overcoming vulnerabilities to risk.

10. The ways in which this knowledge can favor a citizen formation – It is necessary to be clear that the knowledge related to the natural-physical components in the classroom can help students in their formation and performance as critical, autonomous and conscious citizens, who in the near future will be responsible for decisions involving a society that until now is extremely unequal, making significant portions of society live below the poverty line.

Based on the elements presented here, we ratify the need to reconsider the teaching of physical-natural components in Geography at school, in a way that contemplates the construction of knowledge supported by didactic knowledge of the content and the formation of concepts, in the Vygotskian perspective. This analysis becomes qualitatively better when we understand that the intervention of social actions in the environment occurs at different levels, depending on how society is structured and the level of participation and power that each subject or institution has in each social class. However, for this analysis to be fruitful, we must also highlight the importance that knowledge of the processes related to the origin and evolution of physical-natural components has for the understanding of geographic space.

Based on these considerations, in an attempt to understand how to approach the physical-natural components of the geographic space in Geography teaching, for the formation of concepts by the students, we present below the conceptual system about these components starting from school Geography.

Image – Conceptual system – physical-natural components in school Geography



Source: Adapted from Morais (2011).

We seek, from this conceptual system, to show that the way we forward the teaching and learning process in School Geography is related to our conception of world, of Geographic knowledge and of cognitive development. Therefore, the teaching of the natural-physical components in the classroom, directed from School Geography, is carried out having as reference the school culture, the school culture and the different subjects that make up the school community. Thinking about school Geography also requires a dialogue with the established School Geography.

To understand teaching from the process of knowledge construction based on a pedagogically treated knowledge, as Libâneo (2002) points out, requires the understanding around the necessary knowledge for teaching (SHULMAN, 2005), within which we highlight the didactic knowledge of the content, and

specifically, the knowledge of the Didactics of Geography in interaction with geographic knowledge.

Working on the physical-natural components also requires understanding the geographic space from the society/nature relation, having the environment (physical-natural and social) as a key concept. It means, above all, to analyze it beyond typologies and classifications, in order to understand its processes in different spatial-temporal scales.

To approach this understanding as the composition of a conceptual system means to advance in the understanding that concepts are not isolated, but interrelated, that they are not static, but dynamic, that they are not about verbalizing, but above all about constructing. As dynamic, they involve the knowledge that students already have, the everyday knowledge, confronted with the scientific, systematized knowledge, from which, in the perspective that psychological development is historical and contextualized, learning is forwarded, providing advances in development.

However, for learning to be favored, the teacher's role as a mediator, intervening in the relationship between the student and the objects of knowledge, becomes more important. And it is in this sense that he/she makes conscious and intentional interventions aimed at the construction of knowledge by the students themselves, as critical, autonomous and active subjects in their knowledge construction process. To form concepts means, therefore, to strengthen the development of conceptual systems, which designates advances in problem solving and the development of mental capabilities.

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HUMAN THOUGHT IN VIGOTSKI

*Elements for the approach to school geography*¹

KARLA ANNYELLY TEIXEIRA DE OLIVEIRA

School Geography is understood as the content of teaching that from the actions of the subjects, especially teachers, also involves methodologies and objectives of geographic analysis itself.

In the context of theories of school knowledge, there are positivist and critical readings in which the teacher can assume the positions of reproducer or author in the process of elaboration of this knowledge (OLIVEIRA, 2019). The teaching performance in this process will be enhanced, significant and autonomous to the extent that these subjects appropriate these theories and develop a conceptual thinking.

The argument is that the Geography teacher should be able to understand, appropriate, and act in the production of school knowledge, being aware of his/her action in this process. That is, that the teacher can operate conceptually with school Geography. Therefore, the expression school Geography is taken as a structuring concept of the teaching thought.

1 The text is based on the study conducted for Oliveira's doctoral thesis (2015).

It is understood that one of the main goals of teaching Geography at school is to form subjects capable of understanding and acting as citizens in the world, from the geographic point of view. Thus, the teaching action to achieve this end requires a type of theoretical and conceptual thinking that enables the development of students to think geographically about reality.

The teaching focused on the transmission of information and isolated contents present in textbooks made by a transmitter/applicator teacher does not enable the formation of conceptual thinking of spatial and geographical character by students (GONZÁLEZ, 2015; CASTELLAR; JULIASZ, 2017; CAVALCANTI, 2019).

Developmental teaching, on the other hand, focusing on didactic mediation, according to Davidov's (1988) principles, has high potential for the development of conceptual thinking in students and also teachers. Here, teaching is a process of student knowledge, mediated by the teacher, who provides the means for students to develop a geographic way of thinking about reality.

Therefore, both subjects are protagonists in the elaboration of their knowledge, in the teaching-learning process, having reality as a reference. It is a dynamic process of school knowledge elaboration, in which information, data, content, theories, scientific concepts, etc., are appropriated as instruments of analysis and not simply as an end in themselves. For this task, teachers mobilize a conceptual thinking of school Geography, which involves the articulation of a set of knowledge about Geography, students, school, methodologies and their own way of reasoning of didactic action (OLIVEIRA, 2015).

The relevance of teachers' theoretical-conceptual thinking to teach Geography is also highlighted by Castellar (2019), through the defense of the intellectual dimension and the conscious appropriation of the categories and principles of analysis of this science by teachers, with a view to the development of geographic reasoning.

Is it possible to develop in teachers a geographical conceptual thinking? Can school Geography be conceived as a concept? To what extent can Vigotski's theoretical formulations contribute to this analysis? The aim of this paper is to present some elements of Vigotski's theory that allow us to understand the development of teachers' conceptual thinking, with emphasis on higher psychic functions and the formation of concepts.

Human thought in Vigotski

Lev Vigotski does not deal with the thinking of teachers. However, his theory on the formation of the human psyche and especially on conceptual thinking is widely used to understand the processes of learning and development of children in teaching situations. Therefore, the question is to what extent it can also contribute to the analysis of teachers' conceptual thinking. The need for this analysis is based on the challenge posed by Shulman (1989), for whom the complexity of studies on students' cognition is absent in studies of teachers' cognition.

Vigotski's² scientific-intellectual production made school – the “Russian School of Psychology/Vigotski/Troika School” – with the active collaboration of Alexander Luria and Alexei Leontiev, instituting a revolution in Psychology. Under the foundations of historical-dialectical materialism, he conceived that human psychological processes are sociocultural and result from the man-environment relationship mediated by language (REGO, 2002; LIBÂNEO, 2008, OLIVEIRA; REGO, 2010).

Human psychological processes are based on social relations, developed within the culture. For Vygotsky (2000), the development of this psychism begins in phylogenesis and continues in

2 In the text two spellings are used to refer to the Russian author: Vigotski (2009) and Vygotski (2000). They refer, respectively, to the Portuguese and Spanish spellings used by the referred books.

ontogenesis, not only in the sense of forming the structures and functions of the nervous system, but also in the sense of elaborating language, speech, which is the key to this framework. According to Braga (2010), Vigotski and his collaborators consider in human phylogenesis, on the one hand, the biological evolution of the species proposed by Darwin and, on the other hand, human history according to Marx and Engels. In ontogenesis, in turn, man develops as an individual in the course of his life, by appropriating the meanings already produced by previous generations within their culture.

Thus, human psychic processes are formed and analyzed through the society-nature relationship, because at the same time that man transforms nature through his work, he also transforms himself, through his psychic processes. In this way, human intelligence grows in the same proportion as man learns to transform nature. Vygotski (2000, p. 86) in this sense makes affirmations and uses the reference to Engels:

But no natural nexus can explain the active adaptation to nature, the transformations introduced into it by man. Only man's social nature makes this understandable. Otherwise we would be back to the naturalistic assertion that it is only nature that acts upon man: 'Up to now both the natural sciences and philosophy,' said Engels, 'have completely disregarded the influence that man's activity exerts upon his thought, and have known nature alone on the one hand, and thought alone on the other. But the most essential and closest foundation of human thought is, precisely, the transformation of nature by man and not nature by itself, nature as such; human intelligence has grown in proportion as man has learned to transform nature. (ENGELS apud VYGOTSKI, 2000, p. 86, emphasis added, our translation).

Traditional psychology analyzed the formation of human psychic functions based on the stimulus-response method in a direct way as motor reactions to stimuli. Thus, language was conceived as a sensorial stimulus that produced changes in consciousness, and thought as a spiritual act independent of

language. Vygotski (2000) proposes the insertion of an intermediary/mediator element between stimulus and response, the stimulus means or signs created by man himself, so that he can actively participate in this stimulus-response connection and create mechanisms to dominate his own behavior. Here, language is conceived as a sign/instrument of thought.

Therefore, in contrast to the traditional psychology of descriptive character, which prioritizes the analysis of the object instead of the process, which conceives the whole as the sum of the parts and analyzes the complex reactions in their dead (finished/final) form, Vygotski (2000) proposes the structural analysis of the higher psychic functions in three moments: the analysis of the process rather than the object; the explanatory analysis in place of the descriptive; and the genetic analysis that seeks the genesis of all developmental processes of a form of the higher psychic processes that is currently presented as a fossil. These elements of analysis permeate Vygotsky's entire theory, whose focus is to explain the genesis, formation, and development of essentially human psychological processes, which constitute man as such and distinguish him from animals, such as conceptual thinking.

In this sense, the study of the teacher's thought about school Geography can be deepened through the use of Vygotski's propositions about the Higher Psychic Functions (HPS) with a focus on its social character, mediated by signs and related to language. This study also allows us to investigate the formation of concepts based on the stages of development as well as on the role of the social environment and school education for the development of these concepts.

Higher psychic functions: the potentiality of signs and tools

The higher psychic functions are configured as the central object of Vygotsky's analysis, when dealing with primitive and higher structures in human development. The primitive structures

or elementary psychic functions have their origin in the biological evolution of the psyche, in which the subject's reactions to all stimuli are on the same plane and belong to the same dynamic complex. The higher structures or Higher Psychic Functions (HPF) are born during sociocultural development and represent a genetically more complex and superior form of behavior (VYGOTSKI, 2000).

The author's focus turns to the HPF, due to the fact that his analysis is dynamic and considers the movement, the relation that exists between primitive and higher structures. For Vigotski, primitive structures are part of the content of higher structures, moreover, there is a transitory/dynamic character in higher structures, in which a higher form converts itself into a lower form after being overcome by another one at a certain stage of its development. Thus, "every higher form of conduct is impossible without the lower ones, but the existence of the lower or accessory ones does not exhaust the essence of the higher one" (VYGOTSKI, 2000, p. 119, our translation).

The essence of HPF lies in its social genesis, since "the psychic nature of man is a set of social relations transferred to the interior and converted into personality function and forms of its structure" (VYGOTSKI, 2000, p. 151, our translation). Therefore, the formation of voluntary attention, logical memory, conceptual thinking, will, in short, of all HPFs, is based on the general genetic law that supposes that every function in the subject's cultural development appears on the scene twice and on two levels. First on the social plane, in social relations, as an intersychic category, and finally on the psychological plane, within the subject, as an intrapsychic category.

The process of internalization of social relations as psychic relations, of conversion of an intersychic relation into intrapsychic by the subject is mediated by signs: "[...] the sign, at first, is always a means of social relation, a means of influence over others and only later becomes a means of influence over oneself" (VYGOTSKI,

2000, p. 146, our translation). In this sense, HPFs are differentiated/qualified by the fact that they enable the domination, the self-control by the subject, of the behavior process itself, that is, of his or her conduct.

The example of the use of language by the child, presented by Vygotski (2000, p. 128), clarifies the process of internalization, as well as the domain of conduct provided by HPFs. Language is characterized as a HPF in the child when he/she stops using language in a direct relation to the object and starts using it to exert its influence on another person (communicative speech), because at this moment the child starts using in relation to him/herself the forms of behavior that adults often use in relation to him/her.

The function of the sign is to modify something in man's own conduct, providing a new orientation or restructuring of the psychic operation. Thus, every stimulus artificially created by man with the intention of dominating behavior – one's own or that of others – is a sign. In social life, human beings have created and developed complex systems of signs that are indispensable for work and all social life.

The sign performs the function of a medium stimulus in the psychological operation, which qualifies it as an instrument of human activity, that is, the sign has an instrumental function. Due to the proximity between the sign and the tool, the relationship between them is conceived by Vygotski (2000) based on three points: similarity, divergence, and the actual psychological relationship between them. The similarity is based on the common mediating function in both. The divergence lies in the purpose of each. The tool is directed outward, with the intention of modifying the object, nature, by means of work. The sign, on the other hand, is oriented inward, with the intention of influencing the cognition and conduct of a subject, as well as the conduct of other subjects. The actual psychological relationship between the sign and the tool concerns the nexus of the development of both in phylogenesis and

in ontogenesis, for the mastery of nature and the mastery of conduct are reciprocally related, the transformation of nature by man implies also the transformation of his own nature.

Therefore, the relationship of man with nature, with society, and with himself is not immediate, but mediated by the use of signs and tools. In the process of social regulation of behavior, the use of signs stands out, from the most elementary ones, which evoke specific psychic functions such as memorizing, choosing, counting, to the most general sign of all, which is language.

Among the rudimentary external signs in mediating behavior, we highlight as examples the act of tying a ribbon on the finger or on sticks to remember an appointment, the use of toothpicks to draw lots and make decisions, and the use of fingers to do math. These are external signs, since they are auxiliary means constructed externally by the subject with the intention of enhancing his cognitive action (memorizing, electing, and counting) and controlling his behavior. When, for example, one ties a ribbon on his finger with the intention of remembering an appointment, what is actually done is to create a process of remembrance, that is, an external object to remember something (VYGOTSKI, 2000). Given these examples, it is important to emphasize, according to Braga (2010, p. 25), that the use of the sign “is not limited to the personal experience of each individual, but refers to the incorporation of the previous experience of a particular social group.

Language, in this context, is the most general and important sign of all, because it is the basic symbolic system of all human groups and enables the incorporation of previous experience. For Vygotski (2000), language is the key to the whole complex system of signs created by man. This key, therefore, makes it possible to dominate the brain’s activity from the outside and to direct behavior. The development of the subject’s behavior goes through four stages: primitive structures, higher structures, intellectual

reactions, and a fourth stage in which the formation of concepts occurs and in which all the natural forms of behavior are socialized.

Concept formation: the potentiality of ZID and teacher performance

Concept formation, according to Vigotskian theory, supposes a way of thinking from the functional use of the sign/word to take control of its psychological operations with the intention of solving problems.

Concept formation is a specific and original means of thinking, whose immediate factor that determines it is the functional employment of the sign or word as a means to subordinate to its power its own psychological operations and guide its activity in the direction of solving the problems it faces. (VIGOSTKI, 2009, p. 168).

The concept is an act of generalization, which evolves with the meaning of words, and the essence of its development is the transition from one generalization structure to another that culminates in the process of scientific concept formation. Vigotski (2009) considers three stages in the development of concepts – “syncretic heaping,” “thinking by complexes,” and “thinking by concepts” – each of which is divided into several stages.

At the stage of syncretic heaping, the syncretic image in the child is equivalent to adult concepts, because the word meaning of both subjects intersect on the same concrete object, which is sufficient for child and adult to understand each other. However, although the meaning of the word assigned by the child to the object may in appearance resemble the meaning assigned by the adult to the word, the thought process of each of these subjects is different. This stage is composed of three stages: formation of the syncretic image; spatial arrangement of the figures; and the syncretic image equivalent to the concept.

In the stage of thinking by complexes, the child partly overcomes egocentrism. It is a stage of coherent and objective thinking that has variable characteristics in functional, structural and genetic terms. The generalizations created by this mode of thought represent complexes of particular concrete objects unified by means of objective links that actually exist between such objects. In the elaboration of the meaning of words, the naming of families is based on the concrete and factual link, rather than the logical/abstract one. Thus, objects are grouped in the same family based on the identification of physical characteristics and not on the logical structure of the same genesis. The complex phase develops in five stages – associative; collection; chain; diffuse; and pseudoconcept –, among which the last one plays a relevant role in the formation of the subjects' conceptual thinking.

Complexes are constructed with the same functional meaning as concepts, yet their laws of thought are different. The generalization or unification of concrete heterogeneous objects, for example, is present in both the complex and the concept. However, while the link that builds this generalization in the complex can be of a more varied type (any link can lead to the inclusion of an element in the complex), in the concept the links are of the same, identical type. This is because in the complex the objects are generalized by the most diverse factual foundations, whereas in the concept the objects are generalized by a trait.

The development of the stage of thinking by concepts takes place in three stages: abstraction, potential concepts, and concepts. In the first, which is very close to the pseudoconcept, the child makes an abstraction of a set of features from the different features that the object has, so that the abstracted common features are in the center of attention and the others are on the periphery. In the stage of potential concepts the child destroys the concrete situation used in the selection of objects, the concrete attachment of attributes, and begins to select objects with the aid of at least one

attribute abstracted from the concrete group of attributes to which it is actually attached. In the third stage, true concepts, “the concept appears when a series of abstracted attributes becomes systematized, and when the abstract synthesis thus obtained becomes the basic form of thought with which the child perceives and learns about the reality around him” (VIGOTSKI, 2009, p. 226).

In conceptual thinking, the word symbolizes the concept and operationalizes it, because the word is a sign that enables conceptual thinking. However, it should be noted that having conceptual thought and action does not necessarily mean presenting the verbal definition of the meaning of the concept, because the verbal definition of the concept is difficult and the existence of the concept may arise before its consciousness, as Vigotski (2009, p. 229) explains:

[...] the profound discrepancy [...], in the experiment, manifests itself between the formation of the concept and its verbal definition. This discrepancy remains in force not only in the thought of the adolescent but also in the adult, even in a sometimes highly evolved thought. The existence of a concept and the awareness of this concept do not coincide as to the moment of their emergence, nor as to their functioning. The former can arise before and act independently of the latter.

The conclusion of the third stage of the formation of thought by concepts occurs in adolescence; however, adolescence does not mean the conclusion of this development, because even after reaching the stage of concepts, thought does not abandon its most elementary forms, such as, for example, complexes. Due to this characteristic, it is common for adolescents and adults to operate daily with thoughts at the level of pseudo-concepts. In this context, it can be said that the formation of conceptual thinking is open and in a continuous formative process. In this perspective, the reading proposed by Vigotski can also be used to analyze the thinking of adults, for example, the thinking of teachers.

In the process of thought formation by concepts, the motivation of the social environment and the teaching-learning

process play a fundamental role, because the formation of this thought does not occur spontaneously.

[...] where the environment does not create the corresponding problems, does not present new demands, does not motivate or stimulate with new objectives the development of the intellect, the adolescent's thought does not develop all the potentialities it effectively contains, does not reach the higher forms or reaches them with extreme delay. (VIGOSTKI, 2009, p. 171).

School learning is the source of development. Therefore, learning and development is the center of the analysis of the origin and formation of concepts. (VIGOSTKI, 2009, p. 337).

The social environment is the source of motivation for the formation of conceptual thinking, because motivation is not located within, but outside the subject. The development of conceptual thinking requires the stimuli from the environment. When these stimuli (problems, material and immaterial objects, social demands and conditions) are not present, thought may not develop to its full potential, does not reach the higher forms or reaches them with delay.

Therefore, the formation of conceptual thinking requires a systematized learning process. For Vygotski (2009), school learning is the source of development, therefore it constitutes the center of the analysis on the origin and formation of concepts. In relation to learning, the author argues that it is ahead of development, since good learning is that which goes beyond development and leads it. He also emphasizes that good learning does not occur in an individualized way, because it requires the co-participation of more capable subjects. According to the concept of Zone of Immediate Development (ZID), the subject can go from a zone of real knowledge in which he/she is able to solve problems by him/herself to another zone of greater development, based on the intervention and/or help from a more capable subject in his/her zone of immediate development. Based on this concept, the author emphasizes the role of the teacher in the teaching-learning process.

Final considerations

Vygotsky's theoretical and methodological propositions about the Higher Psychic Functions (HPF) and the formation of concepts provide a basis for the identification of three major contributions of this author in the analysis of the Geography teacher's thinking.

The first contribution concerns the identification that the genesis of the teacher's thought is social and that the way the teacher operates with this thought at work is also social. Following the author's propositions, it is necessary to move from the conception in which the subject's development led to the production of socialization, when individual behavior was constituted as the basis for the deduction of the social, to the conception that socialization is what leads to development.

In the second contribution, taking Vigotski's propositions as a reference, it is possible to conceive school Geography as a tool/sign of the teacher's thought.

It is a tool, because it is constituted as an instrument of the teaching work aimed at modifying the cognitive structure of the student, enabling him/her to have a geographic thinking. It is a tool of thought that is different from others, such as the book, the board, the computer and the pencil, because it is a conception of the world, of knowledge and of teaching that comes from the teacher's thought to guide the teaching, including the use of other tools.

The school Geography is also presented as a sign of teaching thought, because its focus is to influence the cognition and conduct of the teacher and also the conduct of other subjects, such as students. However, it is necessary to emphasize the social genesis of this sign, because before the teacher assumed his/her conception of school Geography to control his/her cognitive conduct and also the students' in a teaching context, this conception presented itself as a social conception present in the environment. The social character

of the teaching work is also highlighted in the dynamic genesis of the conception of school Geography. This is because, when the teacher teaches under the use of a particular conception of school Geography, he/she transforms the students and does so using his/her cognitive structure about this transformed conception, because learning in experience is constant.

Finally, given the understanding that conceptual thinking occurs through the functional employment of the sign by the subject with the intention of controlling his/her cognition and solving the problems in front of him/her, it is possible to conceive of school Geography as a concept of teacher thinking. However, it is necessary to clarify that the formation of conceptual thinking is not spontaneous, since it is subordinated to the conditions of the social environment and formal learning, thus emphasizing the role of the social conditions of the profession, work and teacher training in this process.

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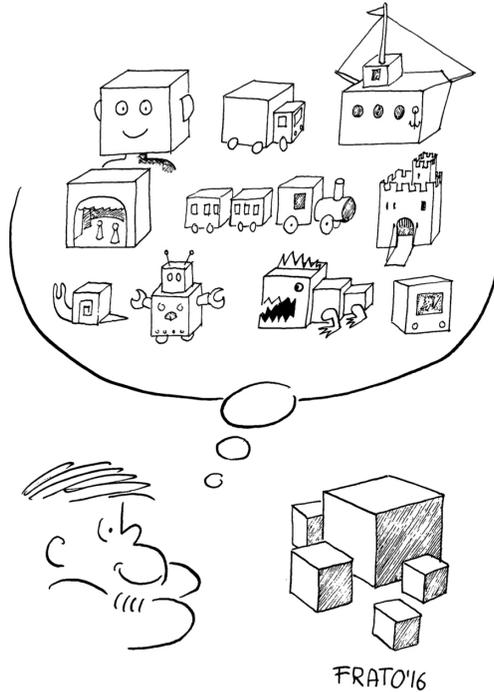
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THEORETICAL DIALOGUES II

THE EDUCATION OF GEOGRAPHY TEACHERS

CONCEPTUAL PROBLEMS FOR THE DEVELOPMENT OF GEOGRAPHIC THINKING

An approach from Vigotski's cultural-historical perspective

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In the historical-cultural perspective, an important goal of the teaching work is the formation of concepts, since it is a fundamental skill for daily life; concepts are important symbolic instruments to mediate people's relationship with reality. Vigotski, an outstanding representative of this theoretical perspective, contributes to the analysis of learning and the development of higher psychological functions. Concepts are generalizations elaborated on that reality. They are cultural tools that mentally represent an object. They are formulated by successive processes of generalization in thought, and at the same time, once formed in the mind of the subject, they become knowledge that generalizes his experiences.

For the construction of concepts, Vigotski's cultural-historical psychology offers an adequate theoretical support for the purposes of this paper. This author proposes that school knowledge is constructed by the confrontation between everyday concepts and scientific concepts. According to Vigotski (2000), everyday concepts

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are linked to the immediate encounter with empirical objects. Scientific concepts, on the contrary, start from an abstraction.

The development of geographic thinking is one of the most relevant topics in the didactics of Geography today. According to the scientific literature, this topic is key to the formation of geographically informed citizens. However, there is a lack of empirical studies related to the development of geographic thinking during teaching. The objective of this chapter is to present the results of a research conducted as a case study, the purpose of which was to investigate the conceptual issues for the development of geographical thinking from Vigotski's historical-cultural perspective. We worked with a sample of 15 History, Geography and Social Sciences teachers located in each of the 15 communes of the Coquimbo Region, Chile. Methodologically, a content analysis of the interviews conducted with the teachers was carried out. Among the main results, it can be seen that teachers identify several conceptual problems that hinder the development of geographic thinking in the school environment.

The paper is organized in four sections. The first section presents some ideas on the formation of concepts for the development of geographic thinking from Vigotski's cultural-historical perspective. In the second section, the methodological framework is developed, describing the problem and research question, the objectives, the type of study carried out and the specific procedures of the research process. In the third section, the results and discussion of the study are described and finally the conclusions are presented. Through this work, it is expected to contribute to the purpose of relating the development of geographical thinking with the contributions of Vigotski's cultural-historical perspective.

The formation of concepts for the development of geographic thinking

Currently, there are several demands for the work of teachers in the teaching of Geography. One of them is the process of forming a geographic thinking, which allows students to understand the world in which they are inserted. Students often fail to form a geographic thinking, necessary for their active participation in society. They do not understand the importance of geographic content for their lives. Therefore, a series of questions arise: Why is the development of geographic thinking important? What does this development consist of? How is it processed in the different levels and series of teaching? How to deal with geography contents in such a way as to allow this development?

The answer to these questions could help to overcome the dominant formalism in teaching, to the extent that it allows the teacher to conceive in a more effective way his teaching activity and his competences to promote pedagogical help to the students in the construction of their own reasoning, to go beyond the mere transmission of the contents stipulated in the didactic books and study programs.

The teaching process seeks the development of certain cognitive abilities through the formation of concepts on the subject studied. Therefore, it requires the mastery of specific concepts of that discipline and its own language. According to Cavalcanti, Geography develops a language, a conceptual body that eventually becomes a geographical language. This language is permeated by concepts that are prerequisites for the analysis of phenomena from a geographical point of view (CAVALCANTI, 2014).

Through the formation of concepts, both scientific knowledge and school knowledge contribute to the formation of geographic thinking. In this sense, following Shulman (1993) and Bolívar (2005), didactic knowledge of the content, as a base concept, favors

the integration of both types of knowledge and also contributes to the development of geographical thinking. The selected concepts compose a broader conceptual system in the structuring of geographical thinking that should be considered in their interrelationships (SOUTO, 2013).

Didactic procedures for the construction of concepts

In the case of Geography teaching, one of the specific processes that teachers must internalize corresponds to the development of geographic thinking (Miranda, 2016). To this end, the link between geographic concepts (content knowledge) and the way of teaching these concepts (didactic knowledge of the content) is relevant, with the purpose of promoting among students the ability to reason and think geographically (Cavalcanti, 2019). To achieve this goal, it is necessary to know and use didactic strategies that promote this process in an intentional and systematic way.

Didactic strategies for the development of geographic thinking.

According to Campos (2011), Vigotski proposes didactic procedures for the construction of concepts. Among them, the following stand out:

1. Problematization of the practices and spatial knowledge of the students (a questioning, a task to be solved);
2. Method of double stimulation in which two sets of stimuli are presented to the subject, one as the object of his activity and the other as signs (words, maps, texts, etc.);
3. Directing the pedagogical action on the zone of proximal development;
4. To create challenges that will be difficult and at the same time possible for the students and that such difficulties

will only be overcome through the learning of new contents;

5. To develop a hierarchical system of inter-relationships that characterize scientific concepts, a process by which the concept of space, for example, can be converted into territory, place, landscape, etc.

Vigotski inspires such procedures in his research, specifically, on the process of concept formation, in which he works on the way in which the reasoning and the content of children's thinking are transformed. From the point of view of psychological processes, the concept is a generalization, insofar as it embodies the articulation of the moments of universality with that of singularity, passing through particularity. For Vigotski, the construction of knowledge is an essentially social and historical process, and has its explanation in the complex relationship between thought and language, which must be understood in its phylogenetic and ontogenetic roots (VIGOTSKI, 2000).²

When a person wishes to learn a new concept, this presupposes the development of many intellectual functions: deliberate attention, logical memory, abstraction, ability to compare and differentiate. Therefore, according to Vigotski, direct teaching of concepts is impossible. What needs to be done in education is to create opportunities for new concepts to be developed. The idea is that first the concepts are used in the construction of certain reasoning and in the problematization of the social practices of the students, and then they are defined.

In the case of geographic education, concept formation is related to didactic strategies that allow the construction of geographic knowledge in a real context, in a situated practice, in the way Geography specialists or geographers do it. In the words of Gersmelh

2 See especially Chapter No. 4: The genetic roots of thought and language, pp. 111-150.

and Gersmelh (2007), geographic thinking corresponds to the set of skills used by geographers to analyze spatial relationships.

An adequate didactic strategy to develop geographic thinking consists of deepening the ability to describe and explain the functioning of a territory, considering the spatial dimensions of an event or problem that affects society (MIRANDA, 2016). Developing this skill (and other skills associated with geographic reasoning) would allow, according to Stuart (2013) and Miranda (2016), to have a repertoire of spatial concepts, representation tools and spatial reasoning processes, which, mobilized together, would allow not only the understanding of space, but, in turn, the resolution of spatial problems and the development of spatial awareness.

In this paper, the five procedures proposed by Vigotski and cited by Campos (2011) will be categorized in order to verify their presence or absence in the teachers' narratives. It will be understood that learning Geography, in an active way, means acquiring and developing skills related to geographic thinking, which should allow people to solve spatial problems in a geographic context, understanding the functioning of a territory and acquiring awareness of their responsibility in the geographic space.

Methodological aspects of the research

From the point of view of extrinsic purposes, it corresponds to an exploratory research of applied type. It intends to contribute to the understanding of the conceptual problems detected in the teaching-learning process of Geography in 15 educational establishments of the Coquimbo Region/Chile. On the other hand, from the point of view of intrinsic purposes, this research is descriptive in nature, since it gathers and systematizes the information related to the problem, describing the results and establishing specific recommendations.

Research procedures

First, the following research problem was formulated: what are the conceptual problems identified by teachers in the teaching-learning process of Geography, in the context of the educational institutions in which they develop their daily practice?

In order to operationalize this problem, the following general and specific research objectives were defined. General objective: to understand the conceptual problems detected in the teaching-learning process of Geography in 15 educational establishments of the Coquimbo Region. Specific objectives: To identify conceptual problems in the teaching-learning of Geography; to analyze the conceptual problems detected by teachers and to promote the scientific investigation of one of them through learning communities.

Second, the research design was defined. The research used a non-experimental research design. One of the characteristics of the non-experimental design is that the subjects are not randomly assigned to groups, nor are they paired; rather, these groups were already formed before the experiment, they are intact groups (HERNÁNDEZ, 2010). This design was used to organize the research process according to each of its phases and stages. It made it possible to systematize the inquiry and to gather and interpret the qualitative information that emerged as the research process unfolded.

Thirdly, the sample was specified. Considering that the sample contains the characteristics of the population and in accordance with the objectives of the research, a non-probabilistic intentional sample was selected. In the case of the present research, the population corresponds to the condition of History, Geography and Social Sciences teachers of educational establishments in the Coquimbo Region. The non-probabilistic sample, on the other hand, corresponds to teachers from 15 schools, one in each commune of the Coquimbo Region. For the development of the research, 15 public educational establishments with a high index of

educational vulnerability were identified, belonging to each of the communes of the Coquimbo Region (La Higuera, Paihuano, Vicuña, La Serena, Coquimbo, Andacollo, Ovalle, Rio Hurtado, Monte Patria, Combarbalá, Punitaqui, Canela, Los Vilos, Illapel and Salamanca).

Fourth, the data collection instruments were defined and applied to the selected sample. It should be noted that, since the initial project was larger and more extensive, three data collection instruments were applied (semi-structured questionnaire, focus group and analysis of didactic works). In the present work, in order to achieve a greater thematic focus, only the analysis of the categories of the semi-structured questionnaire elaborated by the teachers has been considered.

The categories, nodes and sub-nodes presented in Table No. 1 were used to prepare the semi-structured questionnaire:

Table 1 – Categories, nodes and sub-nodes

Categories	Nodes	Sub-nodes
CONCEPTUAL ISSUES	KNOWLEDGE OF THE SPECIALTY: Corresponds to the handling of the specific knowledge of the discipline of Geography.	<p>Knowledge as a form of legitimization before students.</p> <p>Primacy of knowledge over other learning.</p> <p>Perception of lack of preparation in initial training and assessment of disciplinary updating.</p> <p>Pragmatic and utilitarian knowledge of Geography.</p>
	PRESCRIBED CURRICULUM AND LEARNED CURRICULUM: Corresponds to the gap identified between the curriculum prescribed by the Ministry of Education and the knowledge situated and contextualized by the teacher.	<p>Curricular instability due to continuous reforms and demands for standardized tests.</p> <p>Curricular appropriation of ministerial innovations.</p> <p>Adaptation of the curriculum to the characteristics of the students.</p> <p>Curricular knowledge lacking geographic specialty.</p>
	ATTRACTIVE CONTENT FOR TEACHING: Corresponds to content that the teacher likes or enjoys teaching.	<p>Citizenship education.</p> <p>Regional geography.</p> <p>Social geography.</p>
	ATTRACTIVE CONTENT FOR LEARNING: Corresponds to content that motivates the student to learn.	<p>Nearby environment.</p> <p>Social movements.</p> <p>Field trips.</p>

Source: Elaborated by the author.

For the analysis of the conceptual issues identified by teachers in the semi-structured questionnaire, the procedures proposed by

Vygotsky (cited by Campos, 2011) were considered. The categories defined were the following: problematization of the teachers' spatial practices and knowledge; method of dupla stimulation; pedagogical action on the zone of proximal development; difficult and possible challenges to be met by teachers and development of a hierarchical system of inter-relationships that characterize scientific concepts.

Finally, a digital matrix was used to analyze the teachers' responses to the semi-structured questionnaire. This information was subjected to a content analysis, which allowed the elaboration of homogeneous texts that showed the identification of the categories proposed by the teachers. The following section presents, by way of example, some of the teachers' responses and their relationship with the selected categories.

Analysis of the work according to the didactic procedures for the construction of concepts proposed by Vigotski.

Table No. 2 shows, as an example, the information from the teachers' answers related to the didactic procedures that Vigotski considers relevant for the construction of concepts (CAMPOS, 2011).

Table 2 – Didactic procedures for the construction of concepts, according to Vigotsky

Didactic procedures according to Vigotski	Evidence from the responses of History, Geography and Social Sciences teachers.
<p>Problematization of teachers' spatial practices and knowledge (e.g. a question, a task to be solved).</p>	<p>Teacher 1 "Maybe (eh) maybe their lack of vocabulary, I think it is essential to always work on the conceptual part. For example, if I give a title to the class, I immediately start working on the concepts that make up that title, because otherwise they will not understand, they will not understand what I want them to learn and they generally tend to confuse but (eh) "what is our turn" they say "History or Geography?" or as we also have some differentiated plans, then they get everything mixed up. And the other thing I have noticed is that our students have a hard time with temporal and spatial location. This is a struggle, and we always have to work on it, reinforce it every year, so we have to introduce them to each class and remind them again where we are, that we are studying (eh) and (eh), it is not true (eh) to locate them in space, on the map and also in time".</p> <p>Teacher 2. "What works for me in my classes is to play videos, maybe that is closer to didactic, but it is what brings me closer to their language. Let's talk about the Russian revolution, and as I get them interested in this, then I look for a song, I don't know, from the Spokesman and I play what he understands as revolution, then I would be talking to them in their language and this would be what would make them give their opinion and provoke a rapprochement. [...] It depends a lot on how one treats the contents".</p>

Didactic procedures according to Vigotski	Evidence from the responses of History, Geography and Social Sciences teachers.
<p>Method of double stimulation in which two sets of stimuli are presented to the subject, one as the object of his activity and the other as signs (e.g. words, maps, books, etc.).</p>	<p>Professor 1. "Well, I always try to go from the theoretical to the practical, always. I think we have also left Geography aside a lot nowadays (laughs), unfortunately, because I personally love it. But I think that the student (eh) learns better by doing, so perhaps the class that used to be led almost exclusively by the teacher bores him. So... I think that (eh) the ideal, according to my experience, is to (eh) try to (eh) do it in such a way that (eh) the theory is accompanied with something practical, with something tangible, with something perhaps real, perhaps with some experience, with things that are close to them".</p> <p>Teacher 2. "Well, the children like geography very much because it has to do with the specialties po, mining, right? geology... building they also like very much... geography has to do with where I am going to build a house, what are the characteristics of the land, right? they also like very much what has to do with the second grade program, which is the origin of life, American settlement, right? first civilizations of America and Chile (eeh) Discovery and Conquest of Columbus and Independence. Also in the third year, the topic of radical governments, right? mainly that, and well, in the fourth year, everything that has to do with citizenship education as well. (They like geography because of its relation with the solution of concrete aspects of daily life. For example, building a house. For example, building a house)".</p>

Didactic procedures according to Vigotski	Evidence from the responses of History, Geography and Social Sciences teachers.
<p>To direct the pedagogical action on the proximal unfolding zone.</p>	<p>Teacher 1. "The possibility of talking about politics, they have the possibility of talking about anthropological or cultural topics with the students, and precisely that information can be gathered from their own reality. What is true is that [...] not being prepared, precisely, can reduce the possibility of, I don't know, the possibility of generating learning, discussions, etc. [...] what I consider to be a good Geography class is to be more or less clear about the characteristics of the students to whom you are delivering, in this case, the learning. Although there are curricula, programs, etc., I believe that the key is to have a good Geography class. I believe that the key is to understand the context in which you are working and from those keys to be able to gather information and work that information and convert it, in this case, into learning, thus ensuring that the children pay attention to you, but also that they make use of the learning".</p> <p>Teacher 2. "The children were telling me "in Chepiquilla, the place that is near the mine, the trees are drying up from top to bottom "why?"... "because the pollution, the contamination from above" and then what can I rescue from that, how can I do it, guided questions for them and that maybe it will provoke an impact "what can we do? "I can't think of anything at the moment because I am only listening to you, "professor, we can make brochures, we can make campaigns, we can make, I don't know, triptychs, go to inform each one of the courses, we can also meet with the people from the mining company, call them here, have them come and tell them how the mining company is... affected".</p>

Didactic procedures according to Vigotski	Evidence from the responses of History, Geography and Social Sciences teachers.
<p>Create challenges that will be difficult and at the same time possible to be accomplished by the students and that such difficulties will only be overcome through learning new content.</p>	<p>Teacher 1. "As a teacher, sometimes you have some affinity with some of the areas or contents you present, therefore, that also affects how you present it to the students... But if I like and am attracted to the subject and it calls me to do it, you transmit it in different ways, and, obviously, if you have more knowledge, the student also understands this. If you have a good command of the subject and know where to take the whole thing from, obviously you are going to be able to deliver the content better, to deliver the knowledge to them better. There are subjects that I don't like and I have a hard time passing them and I have a hard time delivering them, obviously one does it and everything, but there are other subjects that one realizes and can spend two hours talking about the content and the children understand that... that it is a content that we could say, that it is applicable, that it will be useful to them, that they will be able to do something with it."</p> <p>Teacher 2. "I think they are interested if they are issues close to what we could define as their own experiences because that gives them the ability to give their opinion. [...] What they like is to be able to give their opinion and well, that is what one also longed for in History class, but it also goes in how you treat it and how you show it so that it is open to opinion. [...] But in general, what is most current is what attracts their attention the most."</p>

Didactic procedures according to Vigotski	Evidence from the responses of History, Geography and Social Sciences teachers.
<p>To develop a hierarchical system of inter-relationships that characterize scientific concepts, a process by which the concept of space, for example, can be converted into territory, place, landscape, etc.</p>	<p>Teacher 1. "I remember a class with the students when we were working on the time of the discoveries, I told them "this group will be the Spanish, you will be the indigenous people, what did the Spanish have to do to reach the indigenous people, and what did the Spanish crown want, what did the Spanish crown want with the second voyage of Christopher Columbus, they wanted to evangelize, and how did they want to evangelize? They wanted to evangelize, and how did they want to evangelize? what did they have to do first? to dominate them...first to know their language, the language after eh...to work with them, to explain to them that evangelization here, because they were polytheists, we are monotheists" then...an endless number of things to be able to take them to reality and that the children form an outline of what I want to teach".</p> <p>Teacher 2. "I believe that they are interested in their world, the world they live in at the family level or at the neighborhood level or at the population level, that is where the most important topic for them is, what is closest to them, and sometimes they open up to the possibility of knowing their world, eeh and that is very rich, because from there one can begin to create History, and can begin to explain the changes that humanity is experiencing (...) the origin and formation of cities, inevitably we go to the local topic".</p>

Source: Elaborated by the author.

According to Table N° 2 and according to the teachers' answers, the existence of some conceptual problems for the development of concepts for the development of geographic thinking can be appreciated. This is evident when comparing the answers with Vigotski's proposal cited by Campos (2011).

Problematization of the students' spatial practices and knowledge: conceptual problems related to the following focuses were identified: Teacher 1 detects a shortage of students' vocabulary and a lack of development of temporal and spatial location. Teacher 2 points out a very weak relationship in the use of broad and restricted codes in the use of language by his students.

Method of double stimulation: conceptual problems related to the following focuses were identified: Teacher 1 detects the abandonment of Geography as an important discipline in the school curriculum at the national level. Teacher 2 points out a lack of linkage between theory and practice in the development of classes.

Pedagogical action on the zone of proximal development: conceptual problems related to the following focuses were identified: Teacher 1 detects an excessive generalization of knowledge. Teacher 2 points out a lack of consideration of students' ideas for the realization of conceptual deepening works.

Challenges that are difficult and possible to be carried out by the students: conceptual problems were identified related to the following focuses: Teacher 1 detects biases in the teaching contents in relation to the affinities and personal tastes of each of the teachers. Teacher 2 points out a lack of incentive for participation through student opinions.

Development of a hierarchical system of inter-relationships that characterize scientific concepts: conceptual problems related to the following focuses were identified: Teacher 1 detects the relevance of teachers' interest, motivation and enthusiasm for concept formation in the development of their classes. Teacher 2 points out a lack of linkage between concept formation and the environment in which the students are located.

Research Findings

Through the informants' accounts, it was possible to identify conceptual issues for the development of geographic thinking.

First, among the most recurrent conceptual problems is the tendency to generalize content. In this regard, and in agreement with Shulman (2005), it is possible to establish that most teachers need to emphasize and, at the same time, develop more strongly a "knowledge base" of teaching that allows them to have solid knowledge of their discipline in order to vindicate teaching as a profession. This finding shows little depth in the teachers' approach to specific contents, specifically for the development of geographic thinking, which hinders the mastery of the disciplinary language and the formation of concepts.

Secondly, teachers state that they have to coexist with a prescribed curriculum that is too broad, compulsory, and poorly contextualized to local realities in terms of geographic education. However, a large number of teachers demonstrate their ability to adapt the curriculum to the needs of their students and the contingencies of the regional reality, using, for example, as pedagogical resources, elements of the natural and cultural environment of their local territories (mostly rural). A certain ethical dilemma is evident in them, related to having to comply, on the one hand, with the norm (prescribed curriculum) or to deal with local content that responds to the daily interests and needs of their school and students. These ideas can be related to the work of Darling-Hammond (2001), who emphasizes that when curricula are more open, teachers value them more, because they open margins for creativity and flexibility in the classroom. On the other hand, when they are more closed, teachers feel uncomfortable.

Third, a conceptual problem corresponds to the difficulty in verifying the integral development of thinking skills in their students. That is, the existence of conceptual, social and attitudinal

skills. In this regard, both teachers and students value positively the fact that the discipline they teach provides the opportunity to think more broadly about the world, addressing dimensions that other subjects or disciplines do not do so evidently. Among the teachers' concerns are, for example, civic responsibility, respect for the territory and the environment, the challenges of multiculturalism, among others.

Finally, according to the perspective of the teachers themselves, the problem of low motivation on the part of their students towards the study and learning of History, Geography and Social Sciences is evident. This aspect is related to their own perceptions about the low level of pedagogical innovation that they present in various teaching activities, a perception based on the belief that their students represent them as routine teachers, rather than as innovative teachers. Salinas, Arenas and Margalef (2016) contribute to this discussion when they highlight that the involvement of teachers with the teaching of geography also implies certain initiatives of innovation and commitment to the community in which they work, in addition to the knowledge they demonstrate to have of geographic subjects, from their experience, this allows them to generate adequate conditions for the formation of geographic thinking.

Conclusions

Considering the research problem, what are the conceptual problems identified by teachers in the teaching-learning process of Geography, in the context of the educational institutions in which they develop their daily practice? It is possible to point out, preliminarily, that teachers identify several conceptual problems that hinder the development of geographic thinking in the school environment. Teachers make an effort to use different didactic strategies for the construction of concepts and for the development of geographic thinking. However, they do not visualize an

intentional, long-term process for the development of spatial reasoning modalities that would allow the development of higher skills in geographical thinking.

The concept of geographical thinking is complex and multidimensional. On the one hand, it is related to the cognitive aspects of the human being and, on the other, to the social and cultural aspects that allow the development of higher thinking skills. The value given by teachers to the formation of concepts for the development of geographic thinking is appreciated. However, there is no specific evidence to sustain that there is a defined methodology with which this thinking can be developed in a precise and consistent manner according to Vigotski's historical-cultural perspective.

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HISTORICAL-CULTURAL APPROACH

Theoretical-methodological unity for geography teaching

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This production is related to decades of professional experience, both in basic education and in higher education, which historically constituted us as teachers in theoretical references based on the empirical/positivist conception of knowledge and of the teaching-learning process based on stimulus versus response. The dissatisfactions – related to teacher training and/or student learning – were fundamental for us to find ways to overcome them. In this sense, we highlight the contributions of theoreticians affiliated to Marx's conception of historical and dialectical materialism, Vygotsky's cultural-historical theory, Leontiev's activity theory, and also Milton Santos and Ruy Moreira's Critical Geography. More specifically, we delve into Geography teaching with Lana de Souza Cavalcanti, who has sought a unity between the epistemological and conceptual aspects of Geography and didactics for the development of a dialectical teaching proposal.

Thus, this chapter aims to discuss the importance of understanding the cultural-historical and activity theories, both in teacher education and in the teaching-learning process of students, especially of the Geography curricular component, since research has pointed to 'fragile' learning of students in both levels of school

education. This points to the importance of investing in studies and research that can contribute to the recreation of the pedagogical-didactic process, especially in a scenario in which educational institutions usually disregard the cultural history of the subjects' constitution. This can compromise the development of creativity and critical thinking.

For this study, we used bibliographic research, which “[...] seeks to explain a problem based on theoretical references published in documents [...] seeks to know and analyze existing cultural or scientific contributions from the past on a given subject, theme or problem” (CERVO; BERVIAN, 1983, p. 55).

Therefore, the bibliographical research contributes to the study of theoretical-philosophical concepts necessary for the development of pedagogical-didactic issues present in the school context.

Thus, in this production, we approached, initially, concepts of historical and dialectical materialism to understand important concepts for school education and, in the sequence, the cultural-historical theory and the psychological theory of activity to, finally, explain about a proposal of Geography teaching based on these theories.

Reflections on concepts that underlie the cultural-historical theory

Lev Semenovitch Vygotsky sought in historical and dialectical materialism the foundations for the creation of a psychological theory that would differ from the behaviorist – represented by authors such as the Russian Pavlov and the Americans Watson and Skinner, who considered the human mind as an empty receptacle that needed empirical experience to be filled – and the inatist – for whom the subject is born with previously defined knowledge and, therefore, with few possibilities of being influenced by the external world, including the school. These psychological theories are based,

respectively, on the empiricist/positivist conception and on the idealism/rationalism that, over the centuries, have influenced the production of scientific knowledge and the teaching-learning process.

The disagreement between these theories led Vygotsky to build a psychology that considered the constitution of the subject in its historical process. This way of thinking has its origin in Karl Marx's historical and dialectical materialism, which brings basic concepts to the cultural-historical theory. Among them we highlight the conception of materialism itself, which consists of matter as "[...] an objective reality that exists by itself, independently of consciousness [...]" (KOPNIN, 1978, p. 60); the historical, which refers to the process of change of the object; and, finally, the dialectic, which involves the conflicts and contradictions between the "old" and the "new ideas" so that both can be overcome in the process of thesis – antithesis – synthesis. Thus, dialectics is the method of intellectual reproduction of reality, that is, the "[...] method of development and explicitness of cultural phenomena starting from the objective practical activity of historical man" (KOSIK, 2002, p. 39).

In this process, the production of theoretical knowledge does not occur immediately in thought, but in a dialectical movement that involves the whole and the parts to reach the multiple determinations, requiring the reading of the internal connections regarding the totality as "[...] a structured, dialectical whole, in which or from which any fact [...] can be rationally understood" (KOSIK, 2002, p. 44). This movement demands an active role from the subject to abstract not the appearance of the object, but its essence/genesis, manifested in the phenomenon and revealed in the path that is neither passive nor inert. This movement is characterized in the ascent from the abstract to the concrete thought. Thus,

The progress from abstractness to concreteness is, therefore, in general a movement from part to whole and whole to part; from phenomenon to essence and essence to phenomenon; from totality to contradiction and

contradiction to totality; from object to subject and subject to object (KOSIK, 2002, p. 36-37).

From this perspective, the reproduction of concreteness requires that thought performs abstractions in the movement from the abstract/empirical to the concrete thought in order to learn the essence of the phenomenon and the development of theoretical thought necessary for scientific generalizations. To do this, it is indispensable to describe the initial general relationship that characterizes a series of interconnected facts that appear in specific problems.

Thus, it is in this process that thinking reproduces the real history of objectivity, complexity and contrariness of the object under study. This requires the development of thinking that “[...] leads to the replacement of one cognitive image by another, to the transition from ignorance to knowledge, from superficial and unilateral knowledge of the object to deep and multilateral knowledge” (KOPNIN, 1978, p. 127). With this, the development of thought becomes indispensable for the understanding of the totality of objects. Hence

[...] the idea of process is equivalent to the idea of historical genesis of the researched fact. It is in the study of this genesis that we ascertain the nature and the meaning of this fact. This is equivalent to saying that the methodological procedure is historical-genetic, since the process of genesis of a human fact constitutes the history of this fact (PINO, 2005, p. 179).

Marxist assumptions bring the understanding that the activity-labor category – introduced in contemporary science by dialectical logic – allows one to examine “[...] the universal structure and universal schemes of activity and, most importantly, its historical development in the processes of reflection and transformation by man of nature and himself” (DAVÍDOV, 1988, p. 21). When used in the philosophical-pedagogical area,

[...] the notion of activity is understood as the process in which reality is transformed by the creative efforts of men. Work is the original form of this transformation. All types of mental and material human activity are derived from work and retain its main characteristic that is the transformation of reality and people as action (DAVIDOV, 1999, p. 2).

It is through work that instruments are created to satisfy the material and cognitive needs of men, which, when met, generate new needs and the production of new instruments, which are mediators between subject and object. In this work relationship, men create history, transform nature and, at the same time, transform and humanize themselves, leading to the modification of thought.

These theoretical and philosophical foundations guided the creation of the cultural-historical theory by Vygotsky (1991, 2001, 2004, 2005), which emphasizes the mediation performed by the signs/language/word for the understanding of mental development and the development of consciousness. Thus, “[...] the internalization of culturally produced sign systems causes behavioral transformations and establishes a link [...] between early and late forms of individual development” (COLE; SCRIBNER, 1991, p. 8).

Thus, the cultural-historical theory seeks to understand the relationship between subject and object and identify the conditions of origin of human consciousness that, according to Vygotsky (2004), is constituted by signs, which are instrumental stimuli of a social nature that, through social coexistence, become important for the formation of the human being. In this sense, the sign is constituted by “[...] any conventional symbol that has a determined meaning. The universal sign is the word” (VYGOTSKY, 2004, p. 465). In view of this, the signs act on the subject and are closely related to its capacity for creation and imagination, which, in turn, manifest themselves equally in all aspects of cultural life. Through the internalization of signs occurs the development of higher psychic functions, typically human, which differ from the elementary functions, of biological origin, present in humans and animals.

The development of the higher function, according to Pino (2005), is of symbolic nature and occurs thanks to the mediation of the Other – holder of cultural meaning. With that, the “[...] access to the universe of meaning necessarily implies the appropriation of the means of access to this universe, that is, the semiotic systems created by men throughout their history, especially language in its various forms” (PINO, 2005, p. 59).

When considering that the cultural development lacks the mediation of the Other, it is necessary that someone more experienced gives meaning to the historically created behaviors and objects. This mediation process helps in the development of the human psyche, as the subject acquires the meaning of the cultural heritage of his or her social group and of humanity. By internalizing cultural experiences, the subject reconstructs the modes of action performed externally and learns to organize his mental processes. For Vygotsky (1991, p. 64), all functions in the development of the subject appear twice:

[...] first at the social level and then at the individual level; first between people (interpsychological), and then within the child (intrapsychological). This applies equally to voluntary attention, logical memory, and the formation of concepts. All higher functions originate in real relations between human individuals.

For the author, all people are capable of learning and developing their higher functions. For this, the subjects’ interactions with their social group and with the objects of culture are decisive in the ways that govern both behavior and the development of thought.

Thus, the appropriation and internalization of these historical productions come from concepts that Vygotsky (2004) called everyday and scientific: the first are formed in personal experience, through contact established with certain goals, facts and phenomena of which one is not yet scientifically aware. That is, the “[...] spontaneous concepts are learned mainly through conversation,

going from sensory experience to generalization” (NUÑEZ; PACHECO, 1998, p. 93). Unlike everyday concepts, scientific concepts unveil what is hidden and apparently imperceptible, in a continuous and dynamic process. Therefore, the formation of scientific concepts, which has its roots in educational activity, demands mental operation from the subject, that is, development of cognitive procedures that require attention in order to identify the essential aspects to perform syntheses and make more complex generalizations. With this understanding, “teaching is only valid when it precedes development” (VYGOTSKY, 2004, p. 463).

This shows the importance of pedagogical-didactic actions in the learning and development process in order to intervene in the zone of proximal development (ZPD), which “[...] characterizes mental development prospectively” (VYGOTSKY, 1991, p. 97). From this perspective, the zone of proximal development refers to the

[...] the distance between the level of actual development, which is usually determined through independent problem solving, and the level of potential development, determined through problems under adult guidance or in collaboration with more capable companions (VYGOTSKY, 1991, p. 97).

In this way, the ZPD allows us to delineate the immediate state of development and can be stimulated by didactic mediation¹, which assists in the development of higher functions, so that the subject learns something that he or she could not yet do on his or her own. This process is necessary, since: “[...] properly organized learning results in mental development and sets in motion various developmental processes that would otherwise be impossible to happen” (VYGOTSKY,

1 The studies of Cristina d'Ávila (2001) bring discussions of Yves Lenoir in relation to the concept of mediation: the cognitive mediation occurs between subject and object of knowledge and the didactic mediation is capable of making desirable and assimilable the object of knowledge. In other words, it is a didactic knowledge that mediates cognitive mediation.

1991, p. 101). This brings us to the value of school in relation to the teaching of concepts, since formal logic considers

[...] the concept as a set of features of the object removed from the group, as a set of general features. Therefore the concept would arise as a result of the paralysis of our knowledge about the object. Dialectical logic showed that the concept is not such a formal scheme, a set of abstracted traces of the object, but offers a much richer and more complete knowledge of it (VYGOTSKY, 2004, p. 120).

In this sense, it is up to teachers to develop a solid conceptual basis for students to internalize the material and intellectual production historically constituted to understand and intervene in the world in which they are inserted.

Psychological theory of activity

Alexei Nikolaevitch Leontiev was one of Vygotsky's main collaborators; he systematized the psychological theory of activity and continued his research until 1979, when he died. In the words of Núñez (2009), Leontiev makes a critical analysis of some points of Vygotsky's theory that led him to emphasize the contributions of the psychological activity of the subject for the development of consciousness rather than communication by signs. Thus, for Leontiev, consciousness consists of the subjective result of men's relations with each other and with objects. In this way, activity is the foundation of consciousness. In this sense, "[...] the analysis of the Activity Theory [...] enables a better understanding of the processes of abstraction of scientific concepts in the school context, in a perspective that integrates, in a dialectical way, the ideas of L. S. Vygotsky" (NÚÑEZ, 2009, p. 63).

Thus, one of the fundamental points of Leontiev's theoretical construction is the distinction between activity and action: the activity concerns the processes "[...] psychologically characterized by what the process, as a whole, is directed to (its object), always

coinciding with the objective that stimulates the subject to perform this activity, that is, the motive” (LEONTIEV, 2010, p. 68). Therefore, the reason is what drives an activity, because it articulates a need to an object, that is, the object of the activity is its real reason. As motive and object coincide in the activity, it is in the activity that man attributes personal meaning to the social meanings that exist initially, independently of the subjects, since it is a social phenomenon. In this sense, activity mediates the relationship between human beings and the reality to be transformed in a dialectical unity, in which object and subject transform each other. In this way, it is through external activity that internal activity is constituted and, consequently, the development of human capabilities is potentiated.

Action, in a different way, occurs when there is no coincidence between motive (object) and objective, because “[...] an act or action is a process whose motive does not coincide with its objective (that is, with what it is directed to), but resides in the activity of which it is part” (LEONTIEV, 2010, p. 69). From this perspective, actions depend on the goals and are directed by operations, means or procedures necessary to accomplish them. Operations, in turn, are related to both material and spiritual conditions. Thus, for Leontiev (2010), activity is constituted by need, motive (object), objective, conditions, and tasks for its realization.

To better understand the activity, we exemplify with a situation that is part of the school context: suppose that the school adopts a concept of quantitative assessment, whose purpose is only to classify students to approve or fail them. At a certain moment, the pedagogical coordinator, during continuing education, proposes the study of a formative evaluation perspective, in which the results would serve as a diagnosis to evaluate the students’ learning and, if necessary, replan the pedagogical-didactic practices. Let’s consider that, in the historical process, the school changes its management and starts to have a coordination that

defends a conception of quantitative assessment, based on tests and examinations that quantify the punctual results achieved by the students.

In this case, different situations may occur: one, that certain teachers do not allow themselves to be influenced by the evaluation concept defended by the new pedagogical coordinator and resist the proposal that emphasizes only results; another, that teachers promptly abandon the formative evaluation proposal and start to perform and adhere, without resistance, to the proposal of applying evaluation by quantifiable results.

Therefore, we can say that, in the first situation, teachers were motivated and started to evaluate from the formative conception because they understood that it contributes significantly to the students' learning process. At this moment, we are facing an activity, because the motive is directly related to the goal, that is, the learning and development of students.

Differently from this, in the second situation, improving the quality of learning was not a reason for the teachers to do it, since they were only complying with the pedagogical coordination. Therefore, it did not focus on an activity, but on an act or action in which the reason does not coincide with its objective, but "[...] resides in the activity of which it is part" (LEONTIEV, 2010, p. 69).

This implies that the fact of performing an activity does not mean that it has actually constituted itself into a conscious act, to the point of transforming the human being in such a way that it becomes the reason to perform it. In this sense, Libâneo (2004) explains that the entire process of internalization of an external activity begins with the need to drive the motives and culminates with the concrete conditions that determine the actions and operations required to satisfy it.

Activity arises from needs, which drive motives oriented toward an object. The cycle from needs to objects is consummated when the need is

satisfied, and the object of the need or motive is both material and ideal. For these goals to be achieved, actions are required. The goal must always be in accordance with the general motive of the activity, but it is the concrete conditions of the activity that will determine the operations linked to each action (LIBÂNEO, 2004, p. 119).

From this perspective, the objectives are subordinated to the motives, i.e., the activity depends on the meaning placed by the subjects in their actions. In the example of the evaluation proposal, it is the need to humanize the evaluation process and turn teaching practice to the learning and development of students, however, some teachers were not yet fully aware of this.

Understanding the psychological structure of the activity constitutes important contributions to school education, as it is understood that it is through activity that the subject learns and develops. In this sense, the school, as a space for socialization and teaching of knowledge – cultural heritage produced by humanity – needs to move forward in order to overcome the mere empirical transmission of knowledge considering only the product and neglecting the historical process.

Teaching geography: contributions from cultural-historical and activity theories

In the last decades, the production of geographic knowledge/ thinking, influenced by geographers affiliated to historical and dialectical materialism, has contributed to the formation of a theoretical/epistemological framework to outline what is called Critical Geography.

This history has as its main scenario the French regional Geography led by Ives Lacoste, who, in face of the crisis that hit the theoretical/quantitative Geography and inspired by the work of Élisée Réclus, started to make harsh criticisms of this science in the journal *Heródoto* and, especially, in the book *La Géographie ça sert d'abord à faire la guerre* (Geography: this is first of all for making

war), published in France in 1976. In this work, Lacoste (1988) places Geography in two extremely antagonistic levels. The first represented by the school Geography, constituted by abundant information and, mainly, by statistical data to be memorized, without any concern with the students' critical formation; the second is formed by the privileged knowledge of information that favored the State not only at the level of military operations, but also in the organization of territories to keep society under control. Thus,

geography, as a methodological description of spaces, as much under the aspects that were conventionally called "physical", as under their economic, social, demographic, and political characteristics (to refer to a certain cut of knowledge), must absolutely be repositioned, as practice and as power, within the framework of the functions exercised by the State apparatus, for the control and organization of the men that populate its territory [...] (LACOSTE, 1988, p. 10).

Two years after Yves Lacoste's work, Milton Santos wrote the book *Por uma Geografia Nova: da crítica da geografia a uma geografia crítica* (For a New Geography), paired with Yves Lacoste, David Harvey and Paul Claval, also making blunt criticisms of the theoretic Geography of neopositivist mathematical bases. In the author's words,

[the] "theoretical geography", or "geographical theory," attributes itself a new paradigm, the "locational" study, and, enthusiastically, uses new theoretical approaches such as systems analysis and its correspondent, the elaboration of models; but also the concerns of forecasting, fruit of its engagement with planning (SANTOS, 2004, p. 71).

The mentioned author also refers to the control of territory as a fundamental aspect of the Geography of the second half of the 20th century. However, his work is linked to the epistemological perspective and, supported by Henri Lefebvre, reorganizes the geographic thought by conceiving space as a social construction, a geographic space in which processes are fundamental to read and explain the forms. Moreover, it lays the foundations for the

development of critical Geography and, mainly, for a dialectical view driven by the critique of this science. For the author, “[...] the notion of paradigm cannot be derived from the particular history of a science or from the happy discovery of a whimsical and genius scientist. The notion of paradigm belongs to history and imposes itself at the same em as the background historical movements” (SANTOS, 2004, p. 199).

Another important contribution of Santos was to bring a dialectical alternative to a basic problem in the formation of geographic thought that had dragged on since Vidal de La Blache – the resolution of the dichotomy between general and regional Geography. By proposing the dialectical method of analysis, he developed the concept of totality in a perspective of analysis that unites the global and the local, that is, the regional and the global:

Total space and local space are aspects of one and the same reality, the total reality – in the image of the universal and the particulars. Global society and global space are transformed through time, in a movement that, while equally interesting to the various fractions of society and space, is the result of the interaction between global society and global space and their various fractions (SANTOS, 2004, p. 208).

Thus, Milton Santos pointed the way to an epistemology of Geography, at least with regard to the conception of science, which takes the dialectical method as a reference.

Ruy Moreira (2007), who also contributed to this perspective of Geography, makes a criticism similar to Milton Santos’s in one of his main works, entitled *Para onde vai o pensamento geográfico? Por uma epistemologia crítica* (Where does geographic thinking go? For a critical epistemology). In it, the author calls attention to epistemological aspects of science, pointing to one of Milton Santos’ readings of Hegel and Marx regarding the movement of the object from its birth to its development. In the most recent context of his work, at the beginning of the 21st century, at the height of the neoliberal onslaught, of biotechnology, and of profound changes in

the mode of production and in production relations, the lens and focus of observation of geographic phenomena are changed. Thus, Moreira shows new directions for geographic science, even though in essence he maintains Santos' teachings. In other words, he maintains his critical stance towards the way the State and the market impose themselves and, especially, he follows Santos in the dialectical conception of the production of geographic thought.

At the beginning of this century, a new reality, no longer based on the old forms of man's relations with space and nature, but on those that express the new contents of the globalized world, brings with it an enormous renewal in the forms of geographic organization of society. Faced with this new reality, old concepts appear in a new form and new concepts appear renewing old concepts (MOREIRA, 2007, p. 56).

This implies that reference productions in the thought of this science that succeeded Milton Santos' contribution have maintained their matrix, at least in terms of essence, and the academic results have been quite satisfactory, even if the categories for interpreting reality have changed.

Addressing the epistemological and conceptual development of Geography, regarding the teaching of this science in basic education, Cavalcanti (2019) signals a significant advance in research, but stating that, in relation to school education, empirical teaching is maintained in most of the teachers' practices. From this perspective, "[...] the activities that reduce the intellectual exercise of students remain, this being that of basically repeating information, schematic explanations, definitions/classifications about the topics that are presented to them" (CAVALCANTI, 2019, p. 48).

In view of this, the author raises a questioning that seems essential to us: "Are teacher educators, especially those who invest in the pedagogical training of future teachers, deficient in their performance?" (CAVALCANTI, 2019, p. 48). As an answer, the author states that "[...] this challenge instigates the demand to carry out teacher training courses with greater articulation between the

so-called content subjects and the pedagogical ones” (CAVALCANTI, 2019, p. 59).

Libâneo (2015) makes a similar proposition when signaling the existence of a certain fragmentation in teacher education, both in undergraduate degrees that train specialists in the subjects, and in pedagogy courses, specialized in generalist training for all subjects. In the author’s words:

[what] occurs in formative conceptions and curricula, with consequence in the professional conduct of teachers, is the belief that one thing is the disciplinary knowledge with its logic, its structure and its own modes of investigation and another thing is the pedagogical knowledge, understood as a domain of procedures and teaching resources with no link to the content and research methods of the taught discipline (LIBÂNEO, 2015, p. 631).

Given this dichotomy present in teacher education and, consequently, in the teaching of Geography in basic education, and taking the cultural-historical and activity theory as a parameter, we present a proposal for theoretical-methodological development for teacher education with repercussions in the teaching of Geography in basic education, having as a reference the teaching of city.

Image 1 – Theoretical-methodological uniqueness in teacher education



SOURCE: Elaborated by Israel Domingos Cardoso de Moraes, 2020.

This model is based on the proposal by Cavalcanti (2019), in which he presents a path for the development of geographic thinking in a perspective that integrates concepts/contents and didactic-methodological procedures. That is, it is a possibility of overcoming the dichotomy present in proposals that unlink this knowledge, as if they existed on different planes, as an allegory, a belief that first one develops knowledge about the object, here the geographic thought, then one elaborates a strategy on how to teach them. Wouldn't didactics be present in content analysis? The author's formulation seeks to answer this question: "Rather than teaching the content available in the textbooks, it was advocated that one should teach through the content" (idem, *ibidem*, p. 38).

According to the author, this thought is also present in the theoretical construction of Shulman (2015), who discusses the knowledge needed by teachers, more specifically the pedagogical content knowledge (PCK). Although we agree that Shulman contributes to the teaching-learning process with the theory of pedagogical content knowledge, what the author presents does not contemplate a uniqueness for dealing only with the perspective of knowledge for the teacher to teach, and not with the reasons and conditions for students to learn and develop.

In this sense, we can say that an amalgam of knowledge does not necessarily constitute a oneness. In this way, we prefer an approximation of Cavalcanti's (2019) thought with the cultural-historical theory, by Vygotsky, and with the activity theory, by Leontiev and contemporaries, i.e., of psychology and didactics focused on the analysis of content and students' motives. According to Cavalcanti (2019, p. 150), "[...] the students' lack of motivation for studies, especially in the Geography subject, is a reality pointed out very often by the students themselves. However, it is fundamental the understanding that it is the teacher's role to guide and intervene in this motivation".

In this sense, the author emphasizes that teaching should be through the content, privileging the epistemic character of the student in the procedures. In other words, the proposal is to form an intersection between content and procedures, so that the objectives of the activities reverberate in the students' motives for learning.

In this same direction, Libâneo (2004) teaches that there is a unity between the formation of scientific concepts and the formation of thinking through problem solving. Similarly, Cavalcanti (2019) emphasizes that the starting point for the development of geographic thinking is problematization. Moreover, he states that problematization should not be an "ornament" for the beginning of classes, but it should evolve as the student engages with the concepts/ contents (scientific knowledge), in a dialectical movement between these and their social/spatial practices (everyday knowledge).

Thus, by defending this conception of teaching-learning, we do not intend to impose a final idea, but to add elements to the debate about the need for unity in the theoretical-methodological organization of teacher education courses to compose the teaching-learning process, besides putting on the agenda of discussions relevant aspects about studies in the area of didactics and Geography teaching.

Final remarks

In the last decades, as mentioned in the beginning, we have dedicated ourselves to research in order to build a theoretical basis about the teaching-learning process, both for teacher education and for the curricular components, more specifically Geography, in basic education. These studies, based on the historical-dialectical materialism and on the cultural-historical and activity theories, have been fundamental for us to understand the cognitive development and the formation of the subjects' theoretical thinking.

These references, when internalized by teachers, may gather the conditions to overcome the conception that disciplinary and

didactic knowledge are enough to organize and mediate teaching, because the unity to which we are referring to surpasses these theories, even the one that refers to the didactic knowledge of the content. Thus, without disregarding these three elements and, at the same time, agreeing with the importance they represent for teaching, there is one element missing, which constitutes the core of this whole teaching-learning process, that is, the reason that triggers the learning and development of the subjects, in their different phases of life and circumstances of existence.

We believe that this has been one of the conditions for Geography teachers and pedagogues who work in teacher education and in the early years of elementary school to reference teaching in the analysis of contents/concepts and in the students' reasons for learning. We know that these theoretical propositions are complex and still underdeveloped in teacher education; however, we believe that this chapter is a catalyst for debates and research about teaching, more specifically Geography, from a dialectical materialist perspective.

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THE SEARCH FOR SENSES AND MEANINGS IN THE GEOGRAPHY TEACHING PROFESSION

MAFALDA NESI FRANCISCHETT

Writing about senses and meanings in the profession of Geography teacher leads me to look at my own reality, constituted by the experience of over 20 years in teaching, from basic education – early years, elementary school, high school – to higher education, where I remain as a teacher and researcher, working in geographic education, teaching, research, extension and, especially, in teacher training. This experience was permeated by studies and a lot of research, with a focus on the cultural-historical perspective, based on the theoretical studies of Vygotsky¹ and Bakhtin².

I approach, in this text, some aspects related to the meaning and significance of the teacher's speech, in its importance, mainly as a didactic indication for the formation of the Geography teacher, once orality brings a speech loaded with meanings. I deal with the theme as a habit, regarding the formation in the learning process, even if in a simple way, without deepening, as a dialectic materialist alternative, which Vygotsky developed as an improvement of complex habits. These take place differently in the natural line of

1 I have spelled Vygotski and Vygotsky as they appear in the cited, referenced sources.

2 Because it presents the possibility of dialogic work in the school context.

development, in which a more complex psychic system is transformed as a result of the operation with signs.

The discourse is considered as an attribute resulting from studies connected with the reality of being a teacher and working in teacher education. The mention is of a constant search to theorize, in practice, the Vigotskian conception of thought that is verbalized daily, and, even more so in this context, now strongly experienced as a result of Covid-19, a “hard” period, marked by the obstacles of the Pandemic. In Brazil, at this moment, with more than 570 thousand deaths and many other sequels to the health of the population. The problems have been accentuated in education, even with remote teaching and its consequences. There is no way to ignore that this crisis has affected everyone, with greater or lesser intensity, depending on the sum of several factors, which I will not address here.

In this crisis of meaning and significance of the teaching career, which comes from an inheritance prior to the pandemic, marked by the discrediting of education, the teacher’s training follows upstream from the course of life. In this context, what I am talking about is also an invitation to think with me about the choices and the parallel paths that permeate the education professional: the teacher, his complaints and his hopes.

I hear a lot about teacher autonomy, or protagonist students, but little about the actions that materialize such facts. Both carry meanings that require understanding and meaning. In this respect, the field of speech alone is not enough. It is necessary that speech actually explains thought, in its concrete sense. Something complex, but necessary to advance in the field of knowledge, to go from the level of simple opinion to scientific thinking, brought about and not betrayed by the words spoken, although both transit through the paths of the pedagogical process.

In this context, we recall that, for Vygotsky (1996), pedagogical mechanisms are based on and considered in each subject's culture. He explained that the transformation of psychological, elementary processes occurs in complex processes in history. Through his theory, he left the record that the historical-social process plays an important role in language and subject development. In this process, the main issue is the acquisition of knowledge, effected by mediation between subjects, obtained mainly in the acts of communication.

In this amplitude, Vygotsky (1996) brought the perspective of looking at the subject, with an approach oriented to the processes of its development, with emphasis on the cultural-historical dimension. That is, placing emphasis on the exchange with the other, in the social space, characterized by the typically human aspects of behavior, with characteristics that are formed throughout history and the constitution of subject.

Vygotsky et al (1988) believed that characteristics, even individual attitudes, are imbued with exchanges in the collective. That is, even what is individual in a human being was built from his or her relationship in the social with others. Therefore, the relationship between development and learning is linked to the fact that human beings live in a social environment. His development is promoted by coexistence, by the socialization process, beyond organic maturation, and learning depends on this, as the processes occur.

Is the teacher's job to teach?

Yes. The answer is easy, it is the understanding of the teacher's function that is complex. The internalization of concepts, especially those planned and taught in the school environment, is promoted by social learning, which brings and becomes learning to the human being, which promotes his development. This internalization also depends on the experiences, to which the subjects are exposed and able to link with their actions, in relation to the representation

of the world. All this constitutes culture. The school, constituted and “remodeled” in time, is one of these spaces where this process is experienced and where teaching and learning are involved and developed in the mediated exchange between subjects.

Understanding the socialization role of school in this way also means believing that the teacher’s role is one of exchange. When teaching concepts, he passes through the possibility of promoting learning. This function is mediated by activities and educational resources, which allow evidencing the experiences between subjects, in the discussion of concepts, and in the socialization of knowledge about the world. This happens in this collective of relationships with others, in a dialectic of possible conditions, to build the psychological structures that allow the development of each one and of the whole.

Learning and development take place in a cultural context, with the basic biological apparatus necessary for this, in which the subject develops driven by learning mechanisms, provoked by mediators. Hence, the importance of the teacher understanding the implications of this relationship in the educational process of teaching and learning.

When acting, the teacher usually focuses on what the subject is learning from the concept itself, in the act of teaching or in the school year. But the notion of development is linked to a continuum of evolution, not always perceptible at this point in the development process. Knowledge takes place in various fields of existence such as: the affective, the cognitive, the cultural, and the social.

In saying this, I indicate where I am speaking from, that is, from what I believe to be the perspective of study of human development, in the theoretical line of developmental psychology, in Vigotski’s cultural-historical approach. In other words, I defend the idea that human development occurs in exchange relationships, between social partners, through mediations.

The process of mediation, in the educational action, happens through various paths and procedures, involving the method and the methodologies that each researcher or teacher defines as conducive in their practice. In this text, I will focus specifically on spoken language, as a pedagogical resource distinct from the teaching work. Therefore, being the initial action of communication, expression and understanding; the teacher's speech is closely combined with thinking, or at least it should be, detailing aspects of meaning and significance.

Communication is a kind of basic function, because it allows social interaction and, at the same time, organizes thought. For Vigotski (1998), language acquisition goes through three phases: 1) social language, the first language that emerges; 2) egocentric language; and 3) inner language, closely linked to thought. I approach language in the text as the processing of thought that represents the transition from communicative to intellectual function.

Thought does not coincide exactly with the meanings of words; likewise the meaning of words may not coincide exactly with the meaning of one's thought. Thought goes further, because it captures the relationships between words in a more complex and complete way than grammar does, in written and spoken language. For the verbal expression of thought, it sometimes takes great effort to concentrate all the content of a thought into a sentence or a speech.

To exemplify this process, I question who has ever been faced with the following question, "Teacher, I didn't come to the last class. Did I miss anything?" *Oxalá!* Does anyone dare to answer? Yes or no? This question demands an analysis beyond grammar. It is a discourse loaded with meaning and significance. After all, if the absence in a class allows us to punctuate what was missed with precision, what meaning and significance does the class have? Is the class a mere exposition of content? If so, then one can punctuate what has been lost: the exposed content. However, it is known that the class is more than this exposition of content.

Thus, I invite a dialog about the relevance of analyzing how discourse or speech are significant resources in the subject's formative process.

Another example in the pretext of this dialog: a complaint by a teacher about the difficulties of his profession, about its negative aspects, without any argument that brings the perspective of difficulties and possibilities. Faced with this, I ask: what meaning is given to the message in this speech? Taking the message as a reference, what sense and meaning does the profession have for this professional's life?

Regarding the relationship between these processes, Vygotsky (1998) understands that thought is not reflected in the word, but is realized in it. Insofar as it is language that allows the transmission of one's thoughts to the other person, this is not the last analyzable level of language. The motivation of thought encompasses inclinations, needs, interests and impulses, affections and emotions. All this will reflect immensely on speech and thought.

If the development of the subject happens through the relationship with the other and with the world, through the symbolic mediation of instruments, symbols and signs, what can be said about a relationship in which the exchanges are discouraging, worn out by the performance of the profession itself? The professional teacher needs to understand that he can influence his students in relation to the teaching and learning process at school, by his own example, even if this is not his will or purpose. In a different way, the teacher can influence his students about the classroom, with an analysis that considers the contradiction in the processes. Contradiction is a category of analysis that allows us to understand, also, what is not successful in the educational process. By demonstrating, with his speech, the contradiction in the school, the teacher can help his students understand that the classroom is an imaginary place for dreams and real for perspectives involved by contradictions. But it cannot be ignored as a formative space,

which is also a place that can be and is undermined by uncertainties and discontent.

The classroom is the main redoubt of the movement of pedagogical practices. It is there where many of the difficulties of the teaching profession become evident, from its understanding, to the complexity of the analysis of its foundations and theories. It is also where the objectives and principles, which underlie the pedagogical practices, become evident according to the adopted theoretical perspective, understood or not. From the perspective of totality, as a synthesis of multiple contradictions, or nothing but content said and repeated, without meaning beyond it.

In fact, teaching activities are responses to the configurations arising from pedagogical practices and, when there is no method or theory to support them, they appear disconnected from the totality, often without the foundation that gives them sense and meaning. By historicizing pedagogical practices, the intention is to create links with the profession and with the teacher's area or field of knowledge.

Pedagogical practices and the meanings for preaching in education

Education is a human social practice; it is a historical process, unfinished, that emerges from the dialectic between man, the world, history, and circumstances. Being a historical process, education is experienced through practices that consider the specificities of the subjects. For this reason, it creates resistance, because it produces impositions by making room for dialogue and participation.

According to Franco (2005), pedagogical practices are intentionally organized to meet certain educational expectations, requested and required by a given social community and in a given field of scientific knowledge. Therefore, they are always under construction, because their representativeness and value come from social pacts, negotiations, and deliberations of a collective.

Pedagogical practices are organized and developed by adherence, by agreements, or even by imposition. And the ways in which these practices are put into practice produce different faces for the scientific perspective and for the performance in teaching.

Thus, following the same author, as a class or an educational meeting becomes pedagogical practice, it is organized around objectives, as well as in the construction of practices that give meaning to the intentionalities. It will be pedagogical practice when it incorporates continuous and collective reflection, in order to ensure that the proposed intentionality is available to all; it will be pedagogical as it seeks the construction of practices that ensure that the directions proposed by the intentionalities can be carried out.

Therefore, a pedagogical practice, in its sense of praxis, is configured as a conscious and participatory action, which emerges from the experiences of the educational act. It is common to consider pedagogical practices and educational practices as synonymous terms and, therefore, univocal. However, when we talk about educational practices, we refer to the practices that occur for the concretization of educational processes, while pedagogical practices refer to social practices that are exercised with the purpose of concretizing pedagogical processes (FRANCO, 2005).

The teacher who trains teachers encounters numerous difficulties in mediating and enhancing their practices and transforming them into pedagogical processes. To train a teacher goes beyond initiating their insertion in the desired or chosen area of knowledge. It means to incorporate selected and necessary knowledge into school practices in order to work pedagogically from them.

From a critical perspective, pedagogical practice is dialectical, it is carried out and becomes effective in a continuous dialog between subjects, in concrete circumstances that allow them the capacity for knowledge. In this dialogue, there are speeches that,

although they seem to be increasingly empty, based on meaningless speeches, when they are loaded with claims, that contribute nothing to the formation, they unveil the possible context of those who have not properly chosen the profession of being a teacher. And, therefore, the professional who issues these speeches believes that the blame lies on the other, on the system, and on the documents that guide the educational process. In fact, I understand that there are many problems and limits in the way education is treated in the political environment and even in some official documents. However, I emphasize here that the authorship of the class belongs to the teacher. Otherwise, the class is a representation of the action, and not an action in fact. In this case, according to Vygotsky (1998), the meaning, isolated from the sonorous aspect of the word, will become a mere representation.

The statement that the teacher is the subject of his class is based on the fact that his function is in the subjectivity of the individual, according to Vigotski (2004). This subjectivity is objectively constructed in the concrete conditions in which the existence of the subjects, students and teachers, takes place. The theoretical and methodological foundation of the cultural-historical theory is based on the dialectical materialist method. In this perspective, the teaching process, according to its assumptions, has the intentionality of joining the ways of understanding of the human being, in the development of the higher psychological functions, by means of which each student will be able to act consciously, critically and freely in his or her environment.

According to each time, man is full of possibilities, realized or not. It is up to the teacher to believe in the development of these possibilities, to seek qualitative ways of teaching, learning, relating and acting socially and culturally.

The relationship between man and the world goes through the mediation of discourse, through the formation of ideas and thoughts, by means of which he understands the world and acts in

it. When launching into the cultural-historical theory, it is believed that the sign, as an external medium, similar to a working instrument, mediates the relationship between man and the object and with another man. Through the signs, which Vigotski (2004) sees as a kind of “social organs”, the subject learns and his behavior, initially the external and then the internal, continues to develop his higher psychic functions.

Returning to the pedagogical practices approach, another example can be cited, that of the Political Pedagogical Projects and their elaboration. In this sense, we experienced some that were organized by a very small number of participants, one or two components, as well as others that were planned collectively, with a significant number of subjects. Clearly, it is possible to agree that the second mode is ideal. However, in relation to both modes of elaboration of PPPs, the question may be asked: who has not experienced the fact that the document, by itself, did not nourish the very context in which it was produced, bringing no result or change and even fell into oblivion? Meanwhile, the pedagogical practice of the teacher continued and continues. Because pedagogical practice by itself is not fed if it is not by the teacher’s action; on the contrary, it does not resist.

Although theorized in the guiding documents, the teacher’s practices do not change, are plastered and remain the same. Always criticized, but kept in their essence. The sphere of reflection, dialogue and criticism seems to be increasingly absent in contemporary educational practices.

For those who believe that method is a path of possibilities, reasoning has meaning and significance, without the emptiness of the exhaustion of knowledge. Thus, I understand that subject and object are at the same level of importance, in continuous formation, in dialectic, evolving by internal contradiction, by mediation in the social, through practice. This understanding means to say that “knowledge is given in reflection and in work”, with the

understanding that with the realization of actions, work is fulfilled and becomes concrete with a view to transforming the social.

It is up to each one, in the formation that he or she acts, to conduct his or her pedagogical practice and decide which direction to take. This gives the teacher authorship, in the sense of the autonomy that I believe is desired. Thus, human formation is valued in the sense of the conditions for overcoming oppression, submission and alienation, from the historical, cultural or political point of view. The authorship occurs when the proposal considered is from professionals organizing the pedagogical sphere of the school, who start from a theoretical perspective to conduct the formative process, without getting lost in the void of criticism for criticism's sake, with nothing to say, do or change.

Vygotsky (1996) saw the learning process, the formation of concepts as a system, which he considered, in his theory, a central point in the historicity of the development of subjects. In concept formation, spontaneous and scientific concepts are interconnected by complex internal links. This is what gives systematization to the learning process and allows us to perceive its different stages as integrating a single process.

As mentioned, the teaching practice is configured as formative pedagogical practice when it is inserted in the intentionality of the action. When the teacher knows what the direction of his class is, in view of the formation of the subject. He knows how his class integrates meaning in the formation with the meaning of his action. Thus, he is a teacher who has a differentiated pedagogical performance, because he dialogues with the students' needs, insists on learning, accompanies their development and believes that it is important for his students. He understands that his actions and attitudes, in front of knowledge, produce learning and value the teaching profession, because it is specific and rare.

For approximately 20 years researching the practices and about them, the methodologies, the teacher training and the teaching and learning process, in the public school, I try to understand the meaning that the teacher attributes to his practice, in the Geography teacher training, mainly. Based on this research, it is possible to state that the teacher who is imbued in a web of complaints indicates that, himself, seems to be embedded in a practice without repercussions, which is not linked to the object of science, of which he studies and works. These are complaints about official documents, the system, and others, as justification for school failure, which compromises both the education and the curriculum of the school.

In the cultural-historical perspective, the teacher knows that he or she needs to insist on the search for dialogue, even if there are not many institutional conditions for this. He has a purpose to achieve, a proposal to develop, a conception about what he teaches. Well, this is a teaching practice that elaborates the meaning of pedagogical practice. It is a practice exercised with purpose, planning, monitoring, critical vigilance and social responsibility.

I think that, along this path, resistance is built by work. This is realized when the teacher produces classroom teaching, works with contradiction, and historicizes the contents of the science being worked on, with the visibility that the student is learning. This reality produces interaction, interest and dialog between the subjects involved.

Pedagogical knowledge can only be constituted from the subject, who is formed as someone capable of building and mobilizing knowledge. The great difficulty regarding teacher training is that, if we want to have good teachers, we have to train them as subjects capable of producing knowledge, actions, and knowledge about their practice. It is not enough to teach a class; we need to know why that class developed in that way and under those conditions: in other words, we need to understand and read praxis.

When a teacher is trained in a non-reflective, non-dialogical way, unaware of the mechanisms and movements of praxis, he will not know how to enhance the circumstances that are put into practice. He will give up and replicate deeds. However, I highlight, without going deeper into the topic, that the appropriation of habits, which in Vigotski theory is a significant topic, a factor of mental activity and conduct formation, can become, as Nascimento (2016) mentions, habits learned behavior patterns and, when maintained, remain in performance, and can be good or bad in their motives.

As long as the teacher disregards the specificities of pedagogical processes and treats education as a product and results, in a naive conception of reality, the pedagogical will not settle, because in these processes in which life and existence are submitted, there is no room for the unpredictable, for the emergent, for cultural interferences or to the new.

Pedagogical practices are structured in parallel and divergent mechanisms of ruptures and conservation. While public policy guidelines consider the pedagogical practice as a mere reproduction of external actions and practices, they get lost and many ask themselves: why can't we change the practice? The practice does not change by decrees or by impositions; it can change if there is a critical and reflective involvement of the subjects of the practice (FRANCO, 2005).

Knowledge, on the contrary, requires a curious presence of the subject facing the world. It requires his transforming action on reality. It demands a constant search. It implies invention and reinvention. It calls for critical reflection by each one on the very act of knowing, through which one recognizes oneself as knowing and, by recognizing oneself, perceives one's own knowing and the conditioning to which one's act is subjected.

Education, as a social and historical practice, transforms and is transformed by the action of men and produces changes in those who participate in it. Thus, it is fundamental that the teacher is sensitized to recognize that, besides the observable characteristics of the phenomenon, there is a process of subjective transformation, which not only modifies the representations of those involved, but also produces a re-signification in the interpretation of the phenomenon experienced, which will produce a reorientation in future actions. That is why it is important that the teacher can understand the transformations of the students, of the practices, of the circumstances, and, thus, can also transform himself.

I emphasize the need to consider the dialectical character of pedagogical practices, in the sense that subjectivity constructs reality, which is modified through collective interpretation. Education always allows polysemy in its semiotic function, that is, there is never a direct relationship between the observable signifier and the signified. Thus, pedagogical practices will be, at every moment, an expression of the current moment and circumstances, and syntheses that are organized in the teaching process.

Educational situations, according to Franco (2016), are always subject to unforeseen, unplanned circumstances and, in this way, the unforeseen ones end up redirecting the process and, often, allowing a reconfiguration of the educational situation. Therefore, the pedagogical work requires space for action and analysis of the unplanned, the unforeseen, and the apparent disorder; and this presupposes collective, dialogical, and emancipatory action among the subjects.

Every educational action carries in its doing a load of intentionality that integrates and organizes its praxis, converging, in a dynamic and historical way, both the characteristics of the sociocultural context and the needs and possibilities of the moment, in addition to the theoretical conceptions and the awareness of daily actions. All this occurs in a combination that does not allow a part to

be analyzed without reference to the whole, nor without the whole being seen as a synthesis of the circumstances of the moment.

Then, when the speech content of the speech remains the same, according to Luria (1981), a type of mechanism occurs that can allow a process of habituation, which loses the novelty and does not require special mobility from the organism. Thus, for Vigotski (2003), education is defined as the organization of acquired habits, behavioral tendencies. The author also mentions that an insignificant act can become a habit.

Final considerations

The reason for the complaints of teacher educators in Geography do not fall only on initial or continuing education; they are general. Although it is common to hear teachers indicate that there is no relationship between training and practice, many repeat discourses of nostalgic practices, carried out by imitation, even by repetition of habits. For example, I refer to teachers' statements about their admiration for a certain teacher who, for one reason or another, has marked their school life and who, for this reason, reproduces their practice. Even if more than two decades have passed, their practice remains faithful to the "idol". Even if he no longer knows if this practice contributes or not to the learning process. In this case, is there any point in changing the course's Political and Pedagogical Project?

In this line of thought, what matters is the doing, not the doing for what or for whom. This reveals the fact that the critical conception in Geography is far from the teacher's formative conception.

The lack of content and methodology, guided by theory, present themselves as the greatest difficulties in developing the teaching work in Geography, especially in the undergraduate course, in the initial training of teachers. It is important that the educational content achieves greater significance; and this occurs

when the teacher recognizes the value of teaching the reality of which his students are a part. From the knowledge of the reality, related to teaching it, there will be a better adequacy of the methodological path to be followed.

Another aspect is the work with the textbook, because it brings information that is distant from the lived reality that is not always made possible, in the initial training, to demystify it. Thus, this resource needs to be considered and worked on as a secondary source, and not as the teacher's primary source.

There are discrepancies between the epistemological orientations of the pedagogical practices of the courses and those registered in the Political Pedagogical Projects. The theoretical and methodological training to teach Geography goes through the epistemology of the science itself. But the training of teachers to teach Geography is still very tenuous, and does not receive the same degree of importance as that of those who do research; and this also occurs in higher education.

Pedagogical practices require planning and systematization, from the dynamics of the learning processes to the walk as a means and process of development of actions, which occur beyond learning, as a way to ensure the teaching of contents and activities considered fundamental for the teacher's initial and continuing education stage.

In this process, it becomes necessary to create mechanisms for mobilizing and promoting knowledge that is also built in other educational spaces. The teacher, in his pedagogically structured practice, needs to recognize sources of teaching, to incorporate them in the quality of his teaching process and in the expansion of what is considered necessary for the student's pedagogical moment.

Two issues are fundamental in the organization of pedagogical practices. The articulation with the group's expectations and the existence of a collective. Pedagogical practices can only be

understood from the perspective of totality, that is, these practices and the teaching practices are structured in dialectical relations, based on mediations and on the totality of the process, as an expression of a given moment and in a historicized space, permeated by cultural and social relations. Thus, as a social practice, pedagogical practice produces a social dynamic. This means that pedagogical practices function as spaces of dialog, in the mediations between society and the classroom.

According to the critical-historical conception, the whole is composed of parts, laws, and logics mediated among themselves that, when disconnected, produce disarticulations that damage their original meaning. Thus, from this perspective, the teaching practices are not disconnected, even if it is in a smaller group, if it is not possible for the whole group to come together. Even because those who do not identify themselves in this theoretical perspective will hardly join the context. In any case, the foundation of the pedagogical practices that give them sense and meaning are permeated by clear theoretical conceptions, whatever they may be, but they need to be understood in order to be effective methodological paths; otherwise, the practices produce voids that are difficult to be territorialized.

The pedagogical practices need to be reorganized and recreated, according to each emerging need, to account for the initial education of the teacher. The daily practice of the teacher is transmuting as life, everyday life, and existence invade the professional. Knowing their practices means reconsidering them. Thus, it is fundamental to understand the educational practices in this dialectical, changing, contradictory and renovating movement. Otherwise, the complaints and the lack of prospects for progress remain, causing hopelessness.

In this analysis of the phenomenon of discursive speech, from the perspective of the cultural-historical conception, the main issue is that it is one of the units that cannot be decomposed the properties, because of its characteristic of totality, and that it is a

formative phenomenon. Therefore, it needs to be considered in its content, in its meaning and significance. Especially because of the implications of speech in the context of academic training and when it comes to teacher training.

When the search is for senses and meanings in the geography teaching profession, what is possible to find is a sample, a unit of the total, represented. This means that when it is disconnected from the totality, this unit is meaningless to those who teach and study in it. It is also possible to find, and this does exist, a historicized unit composed of agents who believe that the meaning and significance of the profession of Geography teacher goes through the knowledge of Science. This knowledge changes the actions of the subject and transforms itself, with conditions to territorialize the studied and lived spaces, being this unit a composition of the whole, in its specificities and contradictions.

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GEOGRAPHIC CONCEPT FORMATION, A MEXICAN EXPERIENCE AT THE HIGH SCHOOL LEVEL

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This text is a proposal to contribute to improve geography teaching practices, emphasizing that students not only learn a subject, but also the reason for the teaching of that subject in their education.

One of the problems related to the way geography is taught is that the student relates mechanically with the contents learned, as a mere formality in order to satisfactorily cover the course. In this context, in general, formal roles are fulfilled, which brings about a mechanical teaching and, considered, not very useful.

On the other hand, there is little intervention of the student population at the high school level in matters of citizen participation, so it is necessary to promote the active role that geography contributes to the formation of the student.

For this reason, the general objective of this article is to analyze the implementation of a didactic proposal at the high school level at UNAM, through the formation of geographic concepts, from the critical aspect of Geography and the historical-cultural theory. The intention is to achieve a significant learning of the teaching of this discipline, which contributes to form rational

citizens, not only for their ability to know, but also to be formed as citizens with values, and committed to their community.

It is based on the premise that the teaching and learning process is a social act, where students imitate, elaborate their own conclusions and rely on conceptual thinking in order to explain their daily reality. As Vygotsky (2010, p. 100) points out: “human learning presupposes a specific social nature and a process through which children penetrate the intellectual life of those around them”.

In this section, an experience of implementation of this proposal at the high school level is developed, as well as some of the results obtained.

The teaching of geography and the formation of concepts

The baccalaureate is one of the subsystems into which Higher Secondary Education in Mexico is divided. Within this subsystem is the National Preparatory School (ENP – *Escuela Nacional Preparatoria*) of the National Autonomous University of Mexico, where Geography is taught in the fourth year to students whose average age is 15 years old. The implementation of the strategy was carried out at the beginning of unit 1¹, during the 2018-1 and 2019-1 school years, with fourth year groups from Campus 8, “Miguel E. Schulz”.

In the area of Geography, it is necessary for the teacher to plan which strategies will be appropriate to address the thematic content of the course. In this context, it is part of the premise that, in the teaching-learning process, students do not meet directly with the thematic content, between them there are symbols, according to Cavalcanti (2015, p. 159):

1 The geography curriculum (ENP, 2016) is composed of five units 1. Geographic space, 2. Population in a diverse and unequal world, 3. Availability of natural resources and their formation processes, 4. Spatiality of the economic process and inequality and 5. Political organization, power and conflicts in the territory.

Mental development, the ability to know the world and act in it, is a social construction that depends on the relationships that man establishes with the environment. There is, in this sense, a relationship between subject and object of knowledge, dialectical and contradictory, mediated by symbols [...].

In this sense, the mediating role of the teacher intervenes between the contents of the discipline and the student, in addition to culture (symbols), which has repercussions on the meaning that society has given to the object of knowledge, and which mediates its interpretation.

Theoretical and methodological considerations

The methodology² consists of the following six steps: 1. Reading the case study; 2. Problematization; 3. Research on the problem; 4. Socialization of the information; 5. Geographical concepts; 6. Results.

1 Reading the case study. We worked on the case study called “*Agua de cobre*”, whose author is the Chilean colleague, Camila Saavedra Solis, which refers to the river pollution that occurred in Mexico in 2014, by the *Buenvista del Cobre* mining company of Grupo Mexico, which caused severe environmental and social damage in the area. As described in the following news item: “The toxic spill of the Buenvista del Cobre mine, in Sonora, is considered the biggest mining disaster in Mexico: it affected more than 20,000 people and extended over 250 kilometers [...]” (BARRAGÁN, A., 2020).

At the beginning of each school year, the student and the teacher are getting to know each other for the first time, and, prior to unit 1 Geographic space, they start with the reading of the case study. This makes it possible to break the formality of the course and facilitates the implementation of the new didactic strategy.

2 It is necessary to mention that the design of these steps is self-authored and adapted according to the experience with each group.

At first, the student will recover his previous ideas related to the subject, since, even before attending school, he has acquired sufficient knowledge about the world around him, through daily coexistence with his friends and family. According to Vigotsky (2010, p. 94): “[...] children’s learning begins long before they attend school. Any learning situation with which they are confronted at school always has a prior history”.

In this regard, each student perceives and interprets geographic knowledge in a particular way, and generates relationships with his or her previous knowledge, that is, between the everyday concepts he or she has formed and the scientific concepts of the discipline.

On the other hand, one of the essential postulates of Vigotsky’s theory are the levels of development. The author defines the three levels as follows:

[...] level of actual development, [i.e.], the level of development of the child’s mental functions established as a result of certain developmental cycles already completed [...], zone of proximal development. It is the distance between the actual level of development, which is usually determined through independent problem solving, and the level of potential development, determined through problem solving under adult guidance or in collaboration with more capable peers (VIGOTSKY, 2010, p. 95-97).

When they share their impressions of the case and their reflections on the problem, we are dealing with their actual knowledge, that is, they are at their actual level of development. On the other hand, when the teacher processes the information in the classroom, we are dealing with the level of potential development.

In this sense, learning is understood as a dynamic process, not as a static fact; the student constantly gathers new information and internalizes it. New knowledge acquires meaning in the zone of proximal development, moving to a new level, in Vigotsky’s words:

The level of actual development characterizes mental development retrospectively, while the zone of proximal development characterizes mental development prospectively [...] that which is the zone of proximal development today will be the level of actual development tomorrow [...] (VIGOTSKY, 2010, p. 98).

We could say that, as the learning process continues, the zones of development will take the place of each other. Likewise, within the learning process, living together with their peers helps them to develop new cognitive functions:

[...] learning awakens various internal developmental processes, which are able to operate only when the child interacts with people in his environment and in cooperation with his peers. [In this sense,] the developmental process progresses more slowly and behind the learning process; from this sequence result, then, the zones of proximal development (VIGOTSKY, 2010, p. 103-104).

Vygotsky highlights the idea that the biological development of the student does not necessarily coincide with the level of learning, since, as we have seen, the interaction with peers in the school environment and outside it, generates diverse learning and cultural meanings unique to each student.

At the same time, in everyday coexistence, the exchange of words plays a very important role in learning, since words change meaning, enriching knowledge within the classroom. In this regard Cavalcanti (2016, p. 160) points out, "Dialogue [...] can only occur through words and their meaning. [...] the meanings of words [...] are constantly altering, changing also the relationship between word and thought".

In school, it is essential to establish a dialogue with the student at all times, leaving behind the formal figure of the teacher, without losing sight of the clarity of the objectives of the class. Finally, dialogue will allow the flow of ideas, the clarification of doubts, and, in general, to express oneself on any subject.

2 Problematization. At the end of the analysis of the case study (point 1), in order to problematize it is suggested to pose the following guiding questions: 1. What is the problem that arises? 2. List the main characters, 3. Argue why. These three questions allow you to discuss the problem posed by the case study.

A characteristic of case studies is that they pose a dilemma at the end of the story, which invites the student to “put themselves in the other person’s shoes” and reflect on the problem they face. The dialogue about the characteristics of the main characters referred to in the case study gives an idea of the complex reality that other adolescents may experience, since the main character is also an adolescent.

Knowing how the characters feel and experience a problem invites the student to propose a possible solution. As Vigotsky (2001, p. 237) says: “The formation of concepts always arises in the process of solving some problem that is posed for the adolescent’s thinking”. In the formation of geographical concepts the student uses new concepts with a view to approaching a problem and posing a solution.

In plenary, students can exchange views with their peers and express their opinions. It is necessary to point out that simple group activity or working in collaborative teams does not guarantee that the student will reach the zone of proximal development. According to Cavalcanti (2016, p. 153):

[...] it is not enough to propose a group activity, for example, for this teaching action to be guaranteed, it is necessary that such activities [...], be closely monitored by the teacher to preserve their potentiality to exercise intellectual operations and build knowledge.

In addition, it is important at all times that the teacher as mediator favors the exchange of ideas, invites the students to express their opinions about the problem, establishing and maintaining a dialogue with them.

3 Research on the problem. Once the problem has been defined (point 2), individually, the student conducts a research, focusing on the following topics: 1. Country of origin of the mining company, 2. Who are the owners of the mining company?, 3. What minerals do they process?, and 4 What state of the Mexican Republic are they located in? Subsequently, writing a text that synthesizes the problem, identifying the scale of analysis involved: local, state, national, international and/or global, and explaining why they consider it so.

In plenary, the new information they researched is added. As the concrete data is added, the problem is contextualized with the new information and the information they know; the spatial scales involved are identified; deducing whether it is a rural or urban landscape, the copper production and commercialization networks, as well as the places and actors involved.

The above allows recovering information about the student's notion of basic concepts³, since knowing how the student handles geographic concepts makes it possible to make the necessary adjustments to the didactic strategy and, based on this previous knowledge, to form the new concepts.

4. Socialization of information. The answers given to the questions in points two and three are socialized in the classroom, using them as a brainstorming session. The teacher can enrich the research by mentioning data, corroborating dates, names and citing examples of places that have been affected by a similar problem.

Question three (if you were the main character, what would you decide? would you go or would you stay?), creates an environment of understanding of the problem, since it promotes empathy, sharing and arguing why encourages student participation

3 It is worth mentioning that students in the fourth year have previously studied one year of geography in their secondary education. Secondary education in Mexico lasts three years and precedes the baccalaureate level.

and the exchange of ideas, opinions and reasoning, in an atmosphere of respect, where the teacher is the didactic mediator, as suggested by Cavalcanti (2005, p. 198-199):

[...] the mediation of the teacher's work is to favor/promote the interrelation (encounter/confrontation) between the subject (student) and the object of his knowledge (school content); in this mediation, the student's knowledge is an important dimension of his knowledge process (teaching-learning process).

That is, the student's knowledge and the information he/she shares is part of his/her knowledge process. In this mediation, the teacher does not impose definitions of concepts, nor his own reasoning, but shares his own knowledge and experiences. The teacher should not expect correct answers, but motivate the student to express his or her own points of view. According to Castorina et al (2004, p. 20):

The understanding of the meanings of things in the world, of the people with whom we relate and of ourselves, is built from situations shared and experienced with other subjects, in the construction of affections and knowledge, in the confrontation of points of view and in the discovery and creation of new meanings.

Thus, in order to confront the different points of view, it is necessary to constantly establish channels of communication with the students. Reiterating the role of didactic mediation in the teaching-learning process, the actions, resources and didactic materials on which the teacher relies will favor the rapprochement between the student and the thematic content. In this regard, Castorina et al (2004, p. 22) mention: “[...] men created systems of cultural signals that regulate the action of man with other men and with the environment [...]”.

Human activity includes the use of external mediators, in this sense, starting from the fact that learning is a social construction, in the way the student and the teacher conceive the

world, there are cultural systems that imprint a particular stamp on each perception. Thus, the artifacts on which the teacher relies (didactic strategies, didactic materials and technological resources) also operate as mediators between the subject and the object of knowledge. Vygotsky supports his theory in the existence of two types of external mediators:

The function of the instrument is to serve as a conductor of human influence on the object of activity; which is externally oriented; it must necessarily lead to changes in the objects. [...]. The sign, on the other hand, in no way modifies the object of the psychological operation [...]; the sign is internally oriented (VIGOTSKY, 2010, p. 55).

Moreover, didactic strategies serve as mediators in the teaching-learning process; in addition, elaborating lesson plans for both materials and classes provides the teacher with ideas for presenting the subject and optimally guiding the information, according to the content of the subject. According to Castorina et al. (2004, p. 27):

The teacher can and should act as a mediator, providing areas that generate zones of proximal development through educational planning, in such a way as to promote progress in learning [...]. The emphasis given by Vygotsky [lies] in seeing if the interaction and the environment in which this interaction takes place strengthen [...].

Likewise, the teacher can constantly monitor whether the use of these mediators is adequate, and will make the appropriate adjustments in order to create a classroom environment that favors progress in the teaching and learning process.

5. Geographic concepts. When the student already knows the problem posed by the case study, the actors involved and the places affected, the characteristics of four integrating geographic concepts are presented. These geographic concepts will allow them to have a spatial understanding of the problem, as they are tools

that allow them to understand the social reality. These are: geographic space, territory, landscape and social actors.

Conceptual thinking as a higher psychic function, acts as a higher psychological operation, for this, the formation of the concept requires the fulfillment of a cognitive process. According to Vigotsky, concept formation consists of three stages:

The first stage of concept formation, [...], is the formation of an uninformed and unordered plurality, the discrimination of a heap of various objects [...] at the moment when this child is faced with a problem that we adults solve by integrating a new concept. The second stage [...] is thinking by complexes [where] the child begins to unify homogeneous objects in a common group, to complex them according to the laws of objective links that he discovers in such objects. [...] In the second stage [the same thing is] conceived in a different way, by another means and with the help of other intellectual operations. [The third stage develops] decomposition, analysis and abstraction [...] The second phase [...] is that which could be called the stage of potential concepts [...] The potential concept is a pre-intellectual formation that arises very early in the history of the evolution of thought (VIGOTSKY, 2001, p. 174-222).

Thus, it is essential that there be an optimal scenario for concept formation, since it is not just a matter of the student memorizing words, but of developing a complex system, both intrapersonal and interpersonal. In the second stage we are dealing with the formation of a *pseudo-concept*, because a concept is formed, but the meaning it acquires corresponds to previous experiences and knowledge. Here, the teacher must mediate and guide the daily concept towards the formation of the scientific concept, that is, to reach the last stage, which is the formation of the concept.

Presenting characteristics and key words of the four concepts allows the student to draw his own conclusions, as Vigotsky states: "The adolescent forms the concept, uses it correctly in a concrete situation, but as soon as the verbal definition of that concept enters into the pattern, his thinking collides with exceptional difficulties [...]" (VIGOTSKY, 2001, p. 230). While dictating only definitions of

concepts limits his ability to reflect and, above all, to construct his own concepts.

It is suggested to begin the implementation with the concept of geographic space, as it is the most generalized, since, according to Cavalcanti (2005, p. 201): “Some concepts are more general and elementary to geographic reasoning [...], several others are essential for a way of thinking that is an instrument for analyzing reality from a spatial point of view [...]”. The important thing is that the concepts allow highlighting the intellectual usefulness of geographical knowledge, as tools that contribute to generalize everyday reality within conceptual thinking.

The generalization and abstraction of the concept makes it possible to frame the scientific concept in a system of everyday concepts, and gives it meaning within the information already possessed by the student. According to Vigotsky: “[...] the generalization of a concept leads to the localization of that concept in a certain system of relations of generality, which are the most important and most natural fundamental links between concepts (VIGOTSKY, 2001, p. 292)”. Indeed, generalizing allows us to explain and name processes of everyday reality, in order to understand their causes and consequences, as well as the various connections between phenomena.

In addition, the concept of geographic space is the most abstract and most general, and is directly related to the learner, since, as Cavalcanti (2015, p. 163) says: “[...] the student will have a conviction that learning elements of space is important to understand the world, because it is a constitutive dimension of reality [...]”. Therefore, it is fundamental to make evident that the student is a constituent part of reality, and, therefore, an active citizen in decision making, for example, through the answer he/she gives to the dilemma of the case study, but also, participating in the issues concerning the place he/she lives in.

For its part, the territory has visible and non-visible borders that are not necessarily controlled by the State, but by different social actors: “For young people and some teachers, the territory refers to the space delimited by physical borders and/or as that space controlled by the State” (ALEJO, S., 2017, p. 22). This is a limited conception of the concept, which will be an opportunity for the new concept of territory to be formed.

Territory can also be appropriated by political actors and political power is expressed in it: according to Moraes and da Costa (1993, apud GUREVICH, 2005, p. 47), territory is “a category that contemplates the geographical space appropriated (...), used or in reserve, placed in value and in it the conditions of an exercise of political power are observed, a summary of the historical relations between society and nature”. This concept is characterized by the exercise of power; the use of power exercised by the actors in the different scales of analysis gives life to the concept and influences its organization.

On the other hand, the concept of landscape is regularly characterized by adjectives that have to do with aesthetics:

[The landscape] is mainly considered with the attributes of beautiful and natural, hence the need for the teacher to present the existence of other “ugly” landscapes, but that can be read and that show the different moments, lacks and needs of societies in a certain time (ALEJO, S., 2017, p. 103).

In a previous research (ALEJO, 2017), it was mentioned that when talking about landscape it rains ideas that have with the beautiful. Generally, the student excludes from his conception of landscape those places considered “ugly” or “unpleasant”, it is here where the scientific concept can occupy the everyday concept and give a new meaning. Making it explicit that this concept makes it possible to understand the reason for the interweaving and organization of the different places:

The reading of a landscape, and not only its contemplation, can lead students to reflect on the organization of space, through the following guiding questions that help them to develop their thinking on this subject: why is the landscape like this and not otherwise?, what temporality does it encompass?, what social actors have influenced that organization?, prompting the student to draw on their conceptual learning to come to formulate answers to these and other questions (ALEJO, S., 2017, p. 8).

Thus, the landscape promotes a more critical look at their journeys from home to school, by identifying details, material and cultural, in the urban infrastructure, giving different meanings to the places.

Now, social actors have an active participation in each concept, give life to the landscape, influence the territory, and, therefore, through decision-making, influence the geographic space: “[...] social actors are the protagonists in the construction of space, territory, landscape and other geographic categories (region, environment, place). [Their] decisions define the course of spatial organization and appropriation” (ALEJO, S., 2017, p. 8). They are the ones who organize space in each historical moment.

Therefore, social actors are a key concept, since students are generally unaware that their participation in decision making can contribute to generate changes, however, it is a quality that they discover as characteristics are presented, as well as examples of social actors at different spatial scales.

On the other hand, the scale of analysis is another characteristic that distinguishes the concepts. Thus, for example, the concept of geographic space is the most global concept, as are the social actors, who interact at all scales to different degrees and intensities, as Gurevich states: “Each geographic scale corresponds to a different conceptual cut-out: local, regional, national, world, global. Each of these scales is associated with a different level of action and social, political, cultural and economic actors” (GUREVICH, 2005, p. 63).

In summary, the function of geographic concepts is to mediate to understand the world from a geographic perspective, in this regard, Cavalcanti (2015, p. 163) points out: “[...] to mediate the cognitive activity of students so that they can, by assimilating the contents, form geographic concepts, understood as the most elaborated, generic forms of thinking of this science”. It could be said that geographical concepts are a conceptual tool whose usefulness is to interpret social reality.

6. Results. The five points of the methodology made it possible to recover the student’s previous ideas, which changed with the implementation of the didactic strategy. At the end of the didactic sequence, in a plenary session in the classroom, feedback was given on the final questionnaire, and the students were able to express their doubts about the topic.

The final questionnaire, which incorporated the problem with the geographic concepts, consisted of the following approaches: 1. Explain what geographic space is; 2. In the case of the contamination of the Sonora River with copper, in what way does the production of copper in Sonora influence the organization of the territory?, 3. Explain how copper mining in Sonora transformed the landscape near the mine; and 4. List three social actors whose decisions influenced the contamination of the Sonora River. The following is an example of the answers given by some students during the implementation:

1. “The geographic space is the result of a series of transformations that took place previously in the environment and serves to satisfy needs.
2. “They influence the organization of the territory since the territory of the settlers has been modified due to the fact that the water is polluted and the land is also polluted and this causes some people to move to other places”.
3. “The landscape has been transformed from a natural landscape to a toxic landscape in which it is no longer possible to live due to the high level of contamination.

4. “Grupo Mexico, German Larrea, Mexican government”.

In this regard, at the beginning of the implementation, the students had ambiguous conceptions about the four concepts. At the end, it is possible to mention that the student places key words in the concepts, for example: “transformation” (in answer 1), “organization of the territory” (2), “natural landscape”, “toxic landscape” (3), and clearly identifies social and political actors (4).

In question 5 (Based on the case study, choose the textual quote that exemplifies each concept), students answered:

A) Landscape: “The river is getting sadder and sadder, it was bringing less water and its speech was fading and the water was coppery yellow”.

B) Territory: “We took advantage of the hike to walk the footprint of the Sonora River”.

C) Geographic space: “That our food, which came from the land, was also contaminated because when you damage the water, you damage the land”.

The responses show how the student assimilated the geographic concepts. In his answers, the student chose adjectives that qualify the landscape, such as “sad”, “his speech was fading” and “coppery yellow”, words that have to do with characteristics of a polluted landscape. In territory, the student explained that the footprint of the Sonora River referred to the space occupied by the body of the river, therefore, in this case, a territory delimited by a physical feature. Finally, in the geographic space, the student considered that obtaining food from the land is a basic need, therefore, it has a global impact, since food is also a human right.

In question 6 (explain how these concepts are immersed in your daily life: in your school, in your community or in your neighborhood), a student answered: “In the community the landscape is urban, the territory is Mexico and it is part of a geographic space that is the American continent”. This question

allowed the concepts to be grounded in the daily life of the students; the student refers to Mexico as his territory, however, he can exemplify the territory from his classroom, his home or some other representative place for him. The intention of this question was to make explicit the role of the student as a constituent part of reality.

In the exercise of identifying the scale of analysis involved (local, state, national, international and/or global), most of the students mentioned that it was a local, state and national scale, since the problem impacted the affected community, the state of Sonora and Mexico. Others explained that it affected on an international scale, due to the commercial networks of Grupo Mexico with Latin American countries, while others argued that it impacted on a global scale, as the Sonora River was severely polluted and, being a body of water, it was part of the water cycle and affected its function, having repercussions on a global scale.

This shows that the students reasoned about the scope of the problem. In general, the answers to these questions made it possible to corroborate whether the formation of the scientific concept took place in the classroom, since the students openly expressed their reflections on the case study.

Final Remarks

Based on the implementation of the didactic proposal, in the school cycles 2018-1 and 2019-1, at Campus 8, “Miguel E. Schulz”, by way of conclusion, it can be said that the general objective was achieved. It refers to the attempt to achieve significant learning in the teaching of this discipline, because, by changing the way of approaching the thematic contents of the discipline, based on a disciplinary and pedagogical framework, consequently, it had an impact on how the student considers Geography, since the student recognized his ability to participate in decision making in his daily life, both in the classroom and in his community.

Regarding the formation of concepts, in the exercises solved, the students integrated fundamental characteristics of the four concepts, which they continued to handle during the school year, adapting them to the thematic contents, which was useful to reinforce their knowledge.

In addition to this, the teacher's role should always be that of mediator, between the subject and the object of knowledge. Since teaching represents a mediating activity between the cognitive relationship of the student and the objects of knowledge. In this sense, the teaching work acquires a very important role in the teaching-learning process, since the teacher is not the protagonist, but the didactic mediator of cognitive mediation, thus facilitating independence and self-directed learning.

The analysis of the case study, the problematization and the research on the problem made it possible to see changes in the student's conceptual thinking. It was possible to recover information on the levels of development proposed by Vigotsky. Specifically, the didactic sequence was planned considering the three zones: the Zone of Real Development, based on the previous knowledge recovered with the guiding questions in point 1 (Reading the case study).

The Zone of Proximal Development, consisted of the survey of the student's previous knowledge and the recognition of erroneous information in the mastery of the concepts, through the socialization of ideas among peers with the teacher, helped to identify strengths and weaknesses; and, the Zone of Proximal Development the scope of the objective of the didactic proposal, which was ascertained with the application of the final questionnaire.

The implementation of this didactic proposal contributed to present a way of teaching geography, which is necessary if we talk about constructivist proposals. Working with the case study allowed to identify a significant problem for the student: approaching from the familiarity of the characters, analyzing a real problem and

assuming himself as a social actor. The case study captured a problem that was close to the student, as it had a context, since it affected, and continues to affect, a community in Mexico.

The teacher, committed to teaching Geography, not only masters the contents of the syllabus, but also plans strategies that contribute to develop in the student a conceptual thinking to analyze their spatial reality. That is, he knows the formative purpose of teaching Geography, according to Cavalcanti (2015, p. 156): “[...] it is essential that the teacher masters more than the contents of the different specialties of the area, it is necessary that he has a comprehensive and deep concept of Geography and its formative purposes [...]”.

The central idea is that the teacher of geography at the high school level does not lose sight of its formative purpose, making explicit to the student the knowledge useful for his life. Finally, this didactic proposal is not finished, it is perfectible in its implementation, according to the objectives that the geography teacher aspires to achieve.

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GEOGRAPHICAL THINKING IN THE CONTEXT OF INITIAL TRAINING OF GEOGRAPHY TEACHERS

An analysis from the cultural-historical theory

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In recent decades, there has been a growing concern, in different spheres, with initial training and the professionalization of teachers. It is believed that this fact is closely linked to the social role of the teacher in educational processes. Aware of this, this article aims to reflect on the initial training of Geography teachers and to express concern about the expansion of knowledge about Geography and teaching in the subject, based on a reading of the Vigotskian theory. This interest arises from observations of the devaluation of the profession (GATTI; BARRETO, 2009; SANTOS, 2020), but also from observations made as teachers of Geography didactics and supervised internship.

The discussion is based on the understanding that in the initial training in Geography it is necessary to take into account that undergraduates come to the university with some geographical knowledge and some conceptions about what it is and how to be a teacher. Therefore, during the degree, it is essential to give the student the opportunity to expand the learning of geographic knowledge and the specificities of the teaching profession. This understanding is supported by the propositions of Vigotski (2003) when he points out that the teaching-learning process requires

considering the elements to be constituted by the subject, i.e., thinking about the new level of knowledge that is intended to reach, from a knowledge already formed. This movement is understood as a knowledge construction process on the basis of concept formation, which, in dialogue with this theorist, points out that the construction of geographic concepts subsidizes mental operations for thought formation, in this case, the geographic one.

For Vigotski (2000), the thought construction process begins in childhood, through the use of words that reach children with ready-made meanings. Nevertheless, the maturation of elementary functions and the formation of concepts requires structural and genetic maturation. Therefore, during the first years of life, with the development of language, the long process of conceptual thought formation begins, that is, at this moment the referred thought is developing. However, although the embryonic forms of intellectual activities are already constituted in the child, they are only embryos that will be developed over the years and the acquisition of maturity. In the same sense, the concept is not constituted only from the first signification of the word. It can be a process inherent to any educational formative dimension, including in the university, in teacher training. Concept formation, in this perspective, cannot be considered as a stable, immutable and isolated structure, but rather as an action structure of thought, resulting from the relationship between the subject and the object in the context in which it is presented. We emphasize that in this process the concept is a cognitive operation, situated in the dynamics of the elementary and higher psychological functions that culminate in the word (VIGOTSKI, 2000, 2000a), resulting from mediated processes.

We are based on the propositions of the cultural-historical theory to infer that the undergraduate, in his process of conceptual-theoretical formation, needs to access mediations that constitute a way of professional teaching development and expand his ability to think geographically.

The conception of mediation in the initial training of Geography teachers is associated with the Vigotskian construct related to the structuring of higher psychological functions that constitute the central core of Vigotski's system (2000a) based on the historical-dialectical thinking. These should be understood as symbolic activity composed of its outer forms (language, reading, writing, etc.) and inner forms (attention, memory, thinking) and constitute a new psychic formation that appears after other elementary processes and never ends.

At the base of the higher psychic functions are the labor activity and with it the mediating activities, which include the use of instruments and signs in their action over reality and over themselves. In this form of conduct, the signs and instruments are products of the development of human culture in which Vigotski evaluated language and its meanings as a determining mechanism in all forms of human activity. Vigotski (2000, 2000a) considers language to be the most privileged of the mediating systems of thought. As a symbolic instrument, language regulates psychological relations functionally integrated to action by converting them into an instrument of thought dedicated to the pursuit of cognitive and practical tasks. It is in the context of these tasks that the meaning of mediations in the process of knowledge construction in the training of Geography teachers is highlighted.

There are several possible mediations in this construct. Here we highlight the differences and correlations between cognitive mediation and didactic mediation. The first concerns the psychological devices that each individual has when establishing a relationship with knowledge and with daily actions. The second refers to the mediating action of the teacher promoting cognitive mediation. In this perspective, D'Ávila (2008, p. 31) points out

The relationship with knowledge is, therefore, dually mediated: a mediation of cognitive order (where the desired desire is recognized by the other) and another of didactic nature that makes knowledge desirable

to the subject. It is here that the pedagogical and didactic conditions gain contours, in the sense of guaranteeing the possibilities of access to knowledge by the learner-educator.

Libâneo, in turn, points out

It is because of these demands that didactics needs to incorporate the most recent research on ways of learning and teaching and on the mediating role of the teacher in preparing students to think. More precisely, it will be fundamental to understand that knowledge implies the development of thinking and that developing thinking implies methodology and systematic procedures of thinking. In this case, the most prominent feature of the teacher's work is the teaching mediation by which he or she stands between the student and knowledge to enable the conditions and means of learning, that is, the cognitive mediations (2004, p. 6).

Therefore, it is up to the initial training in Geography to mediate the processes of knowledge for the acquisition of a repertoire of specific and educational concepts by the undergraduates that support the development of a proper reading of the geographic science and, consequently, for the maturation of a geographic teaching identity.

Taking into account these considerations, this article is based on the following question: what indications can be perceived that the primary conceptions about Geography and teaching in this area are overcome during initial training through the expansion of concepts? Other underlying questions permeate the analysis: what understanding of Geography do undergraduates have in the final years of their initial training? Is there a conceptual formation process that leads to Geographical Thinking by future Geography teachers during their initial formation? What influence do the experiences with Geography have on future teachers?

Following an analytical path for the construction of this reflection, in order to get as close as possible to an assertive answer regarding the conceptions of the undergraduates about the geographic science and teaching in Geography, it was used for this

article research data extracted from the thesis “*Pensamento geográfico: o desafio da formação inicial em Geografia*” (Geographical Thinking: the challenge of the initial training in Geography) (SANTOS, 2020).

Considerations about the research subjects

It is understood that it is necessary to know, even within the limitations of the methodological proposal of Santos’ research (2020), the basis for this article, the investigated subjects¹ and their perceptions. They are between 20 and 30 years old, eight males and seven females. They are students enrolled in 2014 and 2015 and are expected to finish the course between 2019 and 2021. Most of them live in the city of Jataí, southwest of Goiás, with three students who commute daily from neighboring cities. All participants work or have worked in various professional activities, which explains their interest in taking an evening course. Considering this characterization of the subjects, we sought to identify the perceptions of the students regarding their experiences with school Geography as students, their understanding of the geographic science from their training in higher education, and their conceptions about the teaching profession in Geography.

We started from an understanding of the elements that constitute the formation of the professional teaching identity expressed by Cavalcanti (2013), which points out three groups of teaching knowledge that make up the training and teaching action: disciplinary, pedagogical-didactic and practical experience. Such knowledge is the main references that teachers have to compose the knowledge that guides their practices. Within the interest of this article, it is worth pointing out the relevance of the knowledge of

1 In order to protect the identities of the 15 subjects of Santos’ (2020) investigation, they will be referred to throughout the text as undergraduates, followed by a randomly assigned numeral.

practical experience and life history, which, according to its reading, is always present in the daily professional performance, consciously or not. It is noteworthy that this knowledge is extremely important and that it is not restricted only to the years of teaching, since it is built from the time one experiences school as a student and in everyday life outside it.

Knowing that, from a Vigotskian perspective, the construction of knowledge derives from the subject's cognitive actions and that these actions are composed of complex thought processes, it is understood that this, in turn, will be more consistent when it is motivated by the relationship that is established between scientific knowledge and the world conceptions present in the subject's daily practices. This means that the development of thought will be more solid if the knowledge has meaning so that the subject is interested in the social, natural, political, economic, and cultural phenomena that occur in our society.

That said, it is reiterated, for this analysis, the interest in establishing an approximation of the undergraduates' experiences, in order to verify how they possibly influence the formation of concepts and, consequently, the constitution of Geographical Thinking. Based on Vigotski, we must consider the places of the undergraduates' experiences as a starting point for the construction of critical learning. Vigotski (2003, p. 67) states that "education takes place through the student's own experience, which is entirely determined by the environment, and in this process the role of the teacher is to organize and regulate the environment".

Thus, we aimed to understand some of the undergraduates' experiences with Geography both as basic education and higher education students. Through their answers, we tried to ponder the model of Geography experienced by them in both levels, in order to verify to what extent we can judge their influence on the theoretical and conceptual formation of these future teachers.

Initial experiences and everyday concepts of Geography

In this section we tried to get to know the experiences that these future teachers had with Geography while they were students and to identify the conceptual basis formulated in this course. Among the participants, ten said they liked Geography. Of these, seven explained that this liking was related to the diversity of themes covered, and three because of having good teachers, ease of assimilation of the contents, and family influence. The others said they didn't like the subject because they considered it too descriptive, a subject with no use for life, and with teachers who had bad pedagogical practices.

The students were asked to make statements about their experience with basic schooling, in order to understand their first conceptions of teaching in Geography. From the analysis of the data collected, it was possible to state that the initial (everyday) concepts of teaching in Geography formulated by future teachers contemplate a descriptive Geography, given as a traditional practice.

It was verified that the formation of teachers and the formulation of their identity are to some extent influenced by school experiences. However, it was evident the relevance of initial training for the development of the theoretical-conceptual thinking of the teacher. It is a moment of conceptual construction, an opportunity for graduates to rise from primary concepts to scientific ones, and, consequently, to operate with them, reaching the overcoming of perceptions and conceptions of the teaching profession and of school Geography that were built during their life trajectory that included the years of basic education. This is perhaps the greatest purpose and, also, the greatest challenge of initial training.

With this preliminary analysis, we seek to reflect on the participants' understandings about academic and school Geography and their perceptions about the teacher's formative process at the interface of these dimensions. Based on the experiences that the

undergraduates had with Geography during basic education, we analyzed which conceptions they had of Geography based on the learning acquired in higher education. To this end, we categorized the answers to the questions into two central themes: perception of the Geography course and its specificity; understandings about school Geography and its objectives.

The so-called everyday concepts come from concrete experience; in the theory proposed by Vygotsky, it is in childhood that individuals possess embryonic structures that will allow them to operate – unconsciously and without a scientific epistemological theoretical basis – such concepts were elaborated by human experience and culturally permeated throughout the years, serving as instruments for the subjects' mental action.

The everyday concepts, which build generalizations from the concrete, as explained by Vigotski (2000), start from concrete experiences and rise to the abstract. In this case, the subject operates with concepts in everyday life, is aware of the object and of what it represents, but not of the concept itself, so when he/she needs to operate it, at an abstract level, or in an analogous situation that requires arbitrariness and awareness, he/she faces difficulties.

It is possible to exemplify that, in the generalization structure of everyday geographic concepts, the link refers to the knowledge of experiences. The subject generalizes that place is a location, because this concept is used daily to designate indiscriminate places. This generalization is not incorrect, but it has not gone through the sieve of the theoretical formulation that mobilizes knowledge, ascertaining its specificities, historical constructions, and particularities. As for scientific concepts, the subject necessarily goes through the conceptual dimensions described; in this sense, the individual becomes capable of performing abstractions from the higher functions. Therefore, the constitution of everyday and scientific concepts occurs in different ways.

It was observed that among the undergraduate students 11 considered the undergraduate course in Geography good, three considered it bad and one did not answer. The justifications of those who considered the course good were centered on three aspects: **critical training; citizen training; and training for reading the space.**

The main justifications given and noted in the speech of most undergraduate students allude to general points of education and do not legitimize the uniqueness of Geography. This is a science that is capable of developing cognitive skills, centered on a conceptual base, which validates the reading of the world – which can be in a critical perspective – based on the geographic space.

Those who consider the course bad, say that it does not prepare them to work in basic education and that there is a fragmentation of the course into areas. This perception about the Geography course allows an approximation with Callai (2013) regarding how the undergraduates think the initial training should be. According to the author, students express interest in being trained to teach, which is why there are recurring complaints that higher education deals with broad topics, with readings that are difficult to understand instead of teaching school contents and the handling of the textbook. One may ask: have the undergraduate courses in Geography worked to train teachers in the subject or only professionals in Geography? Has teaching as a future profession for undergraduates been considered in the mediation of geographic contents?

Although the idea that the course trains professionals capable of performing the analysis of the geographic space does not appear expressively in the students' answers, when asked about the object of analysis of this science, the geographic space is pointed out by 13 students as being the object of investigation of Geography. The other two participants did not answer. In the answers, this statement always appears objectively, without expressing any other reflection or relationship with epistemological principles and bases. When asked about the objectives of the geographic science, eleven students

indicated the understanding of the man-nature relationship that takes place in space, and four of them related it to different concepts.

It can be observed that there is a certain predominance among the undergraduate students in the statement that the geographic space and the understanding of the man-nature relationship are the object and the objective of Geography. This predominance of answers had already been hypothetically considered in the research of the reference thesis for this article. This hypothesis was mediated by the awareness that these definitions surround the discourse of most of the studies about geography. They are present in everything from academic texts to reports without scientific support. Therefore, it was thought possible that undergraduate students would reproduce such discourses. Aiming to overcome this reproduction and, to some extent, capture the mental operation of the subjects, another question was prepared in order to mobilize the understanding of the same theme. The participants were asked whether the geographic science differs from other sciences in its way of analyzing phenomena, and they were asked to give examples of their answers.

Of all the participants, only one said that Geography does not differ from other sciences; the others understood that Geography has unique characteristics. For eight undergraduates, the differential of Geography is in the scope of topics studied by this science; this is the case of a student: “*its differential is in the presence of various areas of knowledge, building a science of synthesis*” (STUDENT 6, 2017). When trying to concretely exemplify the specificity of science in the approach of phenomena, he describes: “*in the process of occupation of a given space, the [geography] study will take into account human, social, cultural, economic and natural aspects, embracing various aspects*”.

From an epistemological point of view, Gomes (2009) addresses the idea of a Geography of synthesis, which began to be questioned since the mid-1950s. Such a perspective was used as a

subterfuge to justify that Geography, being an entirely empirical science, there is no effort to elaborate theories and general explanations. When this situation was pointed out as an epistemological problem, among the answers was the understanding that Geography was a synthesis of the other sciences. We agree with the author that every science needs to offer some contribution and build knowledge and, for this, it is necessary to define its own field of investigation. By being defined as a synthesis of other sciences, Geography is exempted from this function. Moreover, “the idea that Geography was a science characterized by the interrelationship of several fields cannot be sustained, because all sciences are themselves nourished by interrelations between various fields” (GOMES, 2009, p. 20). What can be observed is that the idea put forward by the eight undergraduates is very close to the concept of synthesis science, an aspect that needs to be problematized.

It is also worth mentioning that four of these students had already mentioned that they liked the Geography classes in basic education because they approached varied themes. This reinforces the indication that the students have not yet completely broken with the perceptions formulated from basic education about the geographic science, and, possibly, are not yet able to structure in a discerned way the theoretical core of Geography from the analysis of spatiality.

Two undergraduates resumed the idea of critical training, discussed earlier, to explain the differential of Geography. Only three remaining subjects pointed to the analysis of geographic space as the aspect that differentiates Geography from other sciences. Bringing this important understanding, a certification was sought that the response of these students was not a reproduction of ready-made discourses, and therefore they were asked to exemplify this differential. One undergraduate was unable to exemplify. Two graduates did not construct an example of analysis, however, they brought relevant arguments: “*An example of this*

differentiation with other sciences is in the fact that Geography encompasses several biases of analysis such as social, environmental, economic to understand the geographical space” (STUDENT 5, 2017). *“One example that differs the science of geography from others is how things can be seen differently by a geographer if compared to someone who has no geographic knowledge. The very conception of what space is changes when it is approached by different sciences”* (STUDENT 9, 2017). It can be seen that the arguments reaffirm the differential of Geography by the analysis of geographic space. However, the objective of the question² was that the undergraduates operate with this differential in the analysis of a phenomenon, which did not happen.

From the point of view of thought structuring, assuming that the students understood what was requested, we looked for explanatory hypotheses that are supported by studies based on the work of Vigotski (2000) on the formation of concepts, a more specific act of thought. According to this author, there is a concept when “a series of abstracted attributes – an everyday concept – is synthesized, and when the abstract synthesis obtained becomes the basic form of thought with which the individual perceives and learns about the reality that surrounds him” (VIGOTSKI, 2000, p. 226). By intentionally directing his attention to the attributes, synthesizing and symbolizing them, the true scientific concept (abstract and theoretical) emerges.

Based on this theory, it is possible to infer that the construction of geographic concepts, capable of acting on the conception that students have of Geography and its teaching through the structuring of Geographical Thinking, begins in basic education, but is not restricted to it. The formation of geographic concepts is not constituted only from the first meaning of the word, being necessary

2 The question was formulated as follows: If you think that the science of geography differs from other sciences, please give examples:

a constant expansion of generalizations leading to the maturation of concepts.

The maturation process of concepts was divided by Vigotski (2000) into three main stages: syncretic, complex, and concept. Between syncretic thinking and thinking by complexes, the so-called everyday concepts are developed, which start from concrete experiences and rise to the abstract. It has already been mentioned that this transit from the concrete to the abstract, from the empirical to the conceptual, is a process that subjects face many difficulties. Scientific concepts, on the other hand, establish generalizations from the generalizations previously constructed. Its weakness consists in the fact that the individual often cannot operate with it in the concrete. The constitution of spontaneous and scientific concepts occurs in different ways, but they establish a dialectical relationship. The scientific ones rely on the maturation of the spontaneous ones for their development, and when constituting themselves, they change the structures previously established.

In this interpretative horizon, considering that the process of thought constitution is not linear and goes through different stages, when analyzing the content of the answers of these two participants (8 and 9), the first hypothesis that arises is that, probably, they still have a general notion, that is, thoughts by complexes, of what geographic space is, and not the concept itself. For this reason they were not able to operate with the concept in the formulation of their examples. The second hypothesis is that despite having formulated the concept of geographic space by learning in higher education, they are still unable to operate with it in practical examples of its analysis, because they have not achieved the dialectical movement that goes from the abstract to the concrete and vice versa.

In any case, it is worth considering that, regardless of the confirmation of the hypotheses based on the Vigotskian theory, it is possible to state that of the 15 undergraduate students, only 8 and

9 presented answers with content that make it possible to infer more assertively that they understand the specificity of Geography.

The appreciation of this data promotes yet another reflection on the initial training of Geography teachers. Learning the specific knowledge of Geography is what allows undergraduates to develop their conceptual thinking, according to the Cultural-Historical Theory. This thinking, in turn, leads them to be able to operate with geographical concepts in the mediation of contents and analysis of phenomena, reaffirming the identity of this science. The participants do not show signs of this cognitive ability, a fact that directs attention to the following question: to what extent has the learning of specific knowledge happened effectively in the initial training? It is not the purpose of this article to direct the debate to this issue, but it is worth pointing out this question as a point that deserves attention in the reflections about the theme.

School geography and teaching in Geography

After verifying the conceptions that undergraduate students have about Geography, some dimensions were also sought regarding the existing relationship between science, school Geography and the teaching profession in Geography. It was identified that the most frequent perceptions are of school Geography as a simplification of the geographic science, arising from their experiences while they were still basic education students. Such data suggests that for them it is not yet understood, not even in the theoretical dimension, the real relationship established between the two.

Cavalcanti (2019, p. 85) points out that there is a link between the meanings given to both. For the author, the role of Geography in teaching “is closely linked to the meaning given to the geographic science, although this link does not authorize placing the two as equivalent, nor to understand Geography in school as an application or simplified version of its reference science”. Thus, Geography is a

set of knowledge formulated by research geographers with references in their different theoretical and epistemological matrices. As far as school Geography is concerned, it is a set of knowledge already structured with the objective of forming students so that they are able to think the world they live in.

Only four participants are close to this understanding. They emphasize the relationship established between science and school discipline, highlighting the former as the scientific basis of the latter. The understanding of these subjects is in line with the need for the teacher to build an epistemological basis that takes into account the theoretical formulations, concepts, and methodological principles, so that in the professional performance they are able to approach the contents respecting the specificity of this science.

Regarding the objectives of school Geography, 13 undergraduate students pointed out the critical and/or citizenship formation of basic education students. Of these, five make reference to the application of this training in the understanding of everyday realities. Two students manage to express the idea of the analysis of the geographic space.

The recognition that this critical and citizen formation, which is the function of education in its different disciplines, should guide the lived reality, in the perception of the environment in which one lives, in the reading of the world, in the relationships that occur around the subjects, is a relevant aspect. This data, despite being very fragile, gives indications that the undergraduates, to some extent, know that geographic knowledge subsidizes the interpretation of human-nature relations that materialize in space and in its different transformations.

Finally, knowing the participants' understanding of school Geography, we tried to show what they considered essential to become a Geography teacher and if they recognized specificities for teaching in the subject. It was observed that the answers are divided

into four categories: totality view, practice, didactics domain and geographic content domain (theoretical basis). The first two categories were indicated by two participants. The mastery of didactics was mentioned by eleven undergraduates and the mastery of content by nine participants. Another element that reaffirms the appreciation of the theoretical basis of science as essential for the Geography teacher refers to the understanding that geographic knowledge is relevant for teaching practice in Geography.

From an analysis as a whole, it is observed that the construction of a solid theoretical basis, which allows the mastery of the content, is an essential demand recognized by the undergraduates and as a differential mark of teaching in Geography. However, it is noteworthy the fact that the number of students who indicate the mastery of content (theoretical basis) as essential for the formation of the Geography teacher (9) is higher than the number of people who understand this same variable as a specificity of the professional in Geography. Moreover, the questioning/critical practice, which is not indicated as essential for training, is presented by five students as a differential of Geography teachers. There is, therefore, a confusion of understandings.

Thinking about the specific training in Geography, the perceptions of the subjects reveal that they adopted the discourse of the relevance of a theoretical basis in teacher training. However, when they try to define the specificity of the teacher of this discipline, they are based on aspects that do not dialog with the true identity of the geographic science. The mastery of geographic knowledge is indicated by six undergraduates, while the sum of those who believe that the specificity lies in the questioning attitude, the critical view, and the comprehensiveness of knowledge is seven. This explains that they, for the most part, still do not understand the founding dimensions of a conceptual base that culminates in thinking.

It is noteworthy that the questioning attitude, the critical view, and the comprehensiveness of knowledge are extremely important and need to be contemplated in education, even because they are announced as an unfolding of the formation of Geographical Thinking. However, unlike what was stated by most undergraduates, these cannot be given as the identity mark of Geography, nor as the differential of the Geography teacher. We reaffirm that we do not intend to deny the need for critical and citizen training, but it is necessary to emphasize that this training in Geography is constituted from the development of Geographical Thought and, therefore, is based on the epistemological basis of this science. In this way, the critical performance and the citizenship practice of individuals will be supported by geographic knowledge.

Based on the above, it can be seen that, when asked to reflect on teaching in Geography, the undergraduates once again gave incipient answers regarding the indications of the specificity and identity of this science, reaffirming the hypothesis already raised that the system of geographical concepts has not yet been developed by them. According to Vigotski (2000), only scientific concepts are authentic. In these concepts, generalizations are established from those previously constructed. Their weakness consists in the fact that the individual often cannot operate with them in the concrete.

Considering that the process of thought constitution is not linear and goes through different stages, it is correct to state that there is a concept only when “a series of abstracted attributes – an everyday concept – becomes synthesized, and when the abstract synthesis obtained becomes the basic form of thought with which the individual perceives and learns about the reality that surrounds him” (VIGOTSKI, 2000, p. 226). By intentionally directing his attention to the attributes, synthesizing and symbolizing them, the true scientific concept (abstract and theoretical) emerges.

In this process, formal education as a promoter of learning assumes a fundamental role, since its main function is to lead the

individual to become aware and arbitrary of the non internalized concepts – the everyday ones – raising them to the level of higher concepts – scientific – so that one can operate with them when facing the challenges posed by life. Thus, it can be concluded that learning and development are fundamental elements for the formation of concepts, since learning precedes development, and both always occur in an interpersonal relationship that, when internalized, becomes intrapersonal. Concept awareness only occurs when they exist previously, that is, one only becomes aware of concepts that had already been formulated and with which one already operated in practice (syncretic and complex generalizations). In this way, Vigotski (2000) emphasizes that this process is based on the generalization of the psychic processes themselves, resulting in their apprehension.

In view of what is presented, it is noted that students still have a strong reference of the conception of Geography that they built as schoolchildren, by their perceptions, not overcoming, therefore, their initial notions (everyday concepts). According to Vigotski's theory (2000, p. 360), "if each concept is a generalization, it is evident that the relationship between one concept and another is a relationship of generality". Thus, one must ask: What is the relationship between the concepts? The author explains that "the very nature of each particular concept already presupposes the existence of a certain system of concepts, outside of which it cannot exist.

Thus, agreeing with Cavalcanti (2019) and thinking more specifically about initial training, it is stated that the reference of Geography and its disciplinary nature necessarily needs to be (re) constructed throughout the course, going beyond the level of speculation. This process is based on learning the epistemological basis of this science, including its own concepts and methods, so that it is possible to develop Geographical Thinking.

Final considerations

Taking into account the perceptions of the subjects regarding their experiences with school Geography, their understanding of Geography during their higher education and their conceptions of the Geography teaching profession, we expose that some considerations, although they do not end the problematizations presented, are relevant indicators for the understanding of the relationship between the experience with school Geography, initial training and the constitution of a geographic teaching identity centered on theoretical and conceptual Geographical Thought.

It was observed in the reflections that the undergraduates presented fragile indications of aspects related to Geography and their teaching and expressed incipient understanding of what is geography, signaling a lack of a conceptual system of science. This situation contributes to the preservation and/or constitution of epistemological inconsistencies and, consequently, to the devaluation of the specificity of this science regarding the analysis of phenomena and the approach to school contents.

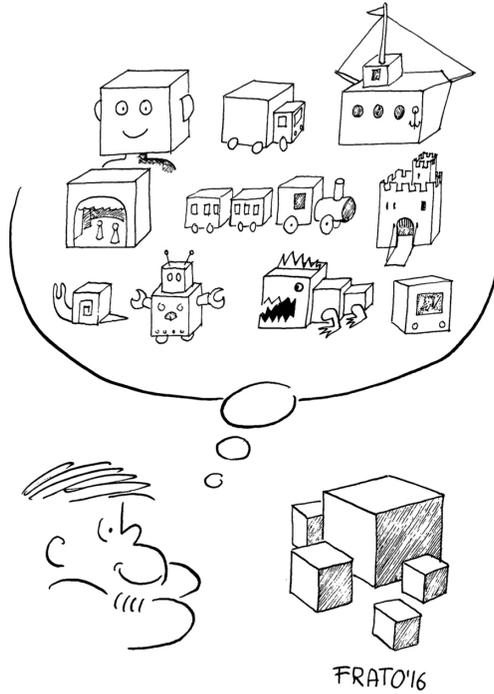
It is understood that it is necessary to reaffirm the graduation in Geography as an important moment for the elaboration and expansion of generalizations about teaching and the development of Geographical Thinking of future teachers. For this to happen, it is necessary to overcome the notions formulated as schoolchildren and to build a system of geographic concepts. This system becomes more consistent as the individual accesses specific knowledge of Geography and understands its epistemological basis, being able, through a process of internalization, to theoretically appropriate its structure of thought. Similarly, this formative period is responsible for the reconstruction of ideas that center the teacher's practice in the transmission of knowledge.

It is argued that in the initial training it is essential that there is a problematization/reconstruction of everyday concepts about

Geography, built in basic education, based on the theoretical and conceptual foundations of the science. The lack of knowledge about this disciplinary singularity has been used as ammunition to question the relevance of Geography in basic education and in higher education teacher training courses. There is, therefore, a challenge to reconstruct the students' perceptions of Geography, school Geography and teaching practice, favoring the development of Geographical Thinking and, consequently, a geographical teaching identity.

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THEORETICAL DIALOGUES III

RESEARCH WITH THE BASIC SCHOOL

“TO FIND SOME HIDDEN PLACE”

*Spatial experiences and Cartography
with children or announcing the new¹*

ANDRESSA MOREIRA TAGLIATE

JADER JANER MOREIRA LOPES

Some hidden place

The task is not so much to see what nobody has seen, but to think what nobody has yet thought about what everybody sees (SCHOPENHAUER).

The initial part that makes up the title of this text are the words of Marina (field note, 2018), a 07-year-old girl, a child from a neighborhood in the municipality of Juiz de Fora, a city in Minas Gerais. In her words is her argument about why maps are important and why they were created. Along with Marina, there were other boys and girls, because the space was a state public school, located in the same territory already mentioned. All the other children also brought their narratives and their assumptions about the theme that was under reflection: Cartography. Let's see their enunciations: “We use maps when we are lost in a forest” (João Pedro, 7 years old); “Map is what pirates use to find treasures” (Davi, 7 years old); “There is map on the cell phone, Google Maps” (Emanuelly, 7 years

¹ The present text is part of Tagliate's (2018) final paper for her degree. All the children's speeches transcribed here are part of this material. We thank the children and the pedagogical team of the Ali Halfeld State School that made this research possible.

old); “Cars also have maps, my father uses it when we go to the beach” (Mirella, 7 years old); “When we are lost, you can use a map” (Lohan, 7 years old); “To find some hidden place” (Marina, 7 years old); “To go to grandpa and grandma’s house” (Marina, 7 years old); “There is also a world map, the one that shows the countries” (Arthur Luiz, 8 years old) – [Field notes recorded on 04/20/2018]²

Maps, like texts and other cultural artifacts, are part of babies’ and children’s lives long before they arrive at school. They are elements created throughout human life, in many different spaces and times, and expressed at the social level in many forms of enunciation³. In this sense, every birth of a new life already takes place in a sociogenesis, from where its development, its ontogenesis, starts, as the postulates of Lev S. Vigotski⁴ (VYGOTSKY; LURIA, 1996) point out when they bequeath us the development as an inseparable unit between philogenesis, sociogenesis and ontogenesis.

This text is dedicated to these interfaces: Cartography as a social enunciation, the authorial conditions of children with the

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- 2 The children involved in this research, who attend the Ali Halfeld State School, located in the Nossa Senhora de Lourdes neighborhood, in the city of Juiz de Fora, in the state of Minas Gerais, were between 6 and 7 years old at the time of the study. We received help and support from the class teacher, a 32 year old woman, with a degree in Education and Pedagogy, and a post-graduate degree in Psychopedagogy, who has worked in the area for over seven years. The meetings were held in the classroom. All moments were mediated and oriented with the class teacher and with the full approval of the children and the school board. In this research, we used audio recordings and photographs throughout the activities and a field diary. All the ethical procedures were followed, from the signature of the free and informed consent by the family members among others, which today are part of the principles present in the Field of Childhood Studies and are beyond the traditional documents required by the ethics committees.
- 3 In this text we use the word enunciation in the sense expressed by Bakhtin (2011) who differentiate between sentence, in the more traditional sense present in language studies, and this term. For him, the enunciation is the living language, always in dialogue, in response to a preexistent world, therefore, loaded with the essence of existing in meaning.
- 4 We will use the spelling of this author’s name according to the most recent translations into Portuguese (see PRESTES, 2012), except in those cited texts that have a different register.

historical and geographical elements and phenomena of the world in which they live and the announcement of the new as an educational and transforming act. To do so, we will dedicate ourselves to dialogue with the cultural-historical theory, forged by Vigotski and other people of his time (and others), which, in dialogues, has pointed to new ways of conceiving human life and the humanization process itself. For our arguments, we will mobilize some key concepts of this author, such as experience, the social situation of development, neoformation, imitation and the zone of imminent development, recognizing the impossibility of knowing his theory without establishing the epistemic totality he sought to create. To these concepts we will add others, such as those of child logics and authorship (LOPES; MELLO, 2017a) and that of spatial experience (LOPES, 2018; 2021), besides, of course, drawing on the debates surrounding the work with Cartography as knowledge of school space.

Our desire is to raise the indications that involve the genetically embryonic forms of the processes of experiences of cartographic artifacts present in the social level and the genesis of the authorial cartographic activity, which are made in higher forms of creation and authorship. This has been the quest of our research in these years of working with babies and young children: the recognition of looking at topogenesis (LOPES, 2018; 2021) as one of the fundamental dimensions of existence, as the formation of my relationship with myself and with the world (in all its extension).

It is in this recognition that is the announcement of the new, the transformations that are made from the social to the cultural and that promote the renewals in existence, not in a linear history, in evolutions in search of redemption, but in a chronotopia (BAKHTIN, 2002) that is spread in many diversities, differences, and in the singularities that mark each existence. We desire the hidden announced by Marina and, with her, think about what Arthur Schopenhauer, German philosopher of the 19th century,

pointed out in the epigraph we chose to open this text. It is in this stealth that the words of this girl meet the words of this philosopher, both thinkers of their times.

A map for not getting lost in the forest

As a boy I used to stretch rivers. / He walked slowly and dark – half formed in silence. / He wanted to be the voice in which a stone speaks. / Landscapes roamed in his mind's eye. / His corners were full of springs. / He preached things like scents. (MANUEL DE BARROS)

The debates about Cartography in the school space involve some terms, which, since its origin, have been present in Brazilian productions and those from other countries. These are reflections that cover not only the foundations and contents of this field, but also the diversity of spatial records, the terminologies used to refer to this spatial language, the schooling processes and others, such as, for example, the very term cartographic literacy. Although it is not the intention of this text to dedicate itself to this issue, since there would not be enough space for such an endeavor, we are not denying the importance of this debate.

We point out, in other material, part of our assumptions about these issues (see LOPES; VIEIRA de PAULA, 2019), such as, for example, the importance of bringing the issues of school Cartography closer to the field involving the studies of teaching-learning of the alphabetic writing system, a consolidated area with a large production already accumulated. Debates therein are extremely significant to ours. How to deny, as a further example, the prevailing considerations in Zaccur (2010) about the tensions involving the terms *alphabetization and literacy* when it comes to thinking about Paulo Freire's contributions involving the dimensions of popular literacy and its political⁵ character?

5 We could bring here the note of Gadotti who, when prefacing the cited work, comments that the appropriation of the term literacy in Brazil "[...] is, unfortunately, an attempt to

Thus, even recognizing that this is a necessary debate, here we will dedicate to think the presence of Cartography in the social level, in the children's life level and in the school level. We will use as reference the conception that every process of spatial experience is a process of interspatial experience (LOPES, 2020; 2021). This will be our map so we don't get lost in the forest, as João Pedro, in his 07 years old age, told us.

To begin with, we came, by means of some postulates of Vigotski (various works), to understand that the presence of the geographical context is fundamental in the development of our condition as humans, even if this does not appear explicitly in his writings. The author, criticizing the absolute dimension of the environment/geographic context, states that it should be approached from its relative dimension (LOPES, 2012), since, for him, the environment, in the most immediate sense of this word, changes for each age group of the child. Vigotski (See PRESTES; TUNES, 2018) establishes, thus, the concept of experience, as a precursor unit of the human, with its own and unique condition at each moment of these children.

We understand, then, that there is a geographic environment/context that changes with each age group of the child and that, in these different moments, there is also a child that meets this geographic environment/context. This meeting does not happen in a process of mechanical interaction, in which each one is placed in a side, but in a unit, because "the child is not in space, is not in the territory, is not in the place, is not in the landscape; she is the space, she is the territory, she is the place, she is the landscape, she is a living unit" (LOPES, 2007, p. 86).

empty the political character of education and literacy, a trap that many educators today are falling into, attracted by an argument that, at first sight, seems consistent" (GADOTTI, 2010, p. 12). In his view, this would be to deny the entire legacy of Paulo Freire to the process of literacy as a reading of the world.

Here, therefore, two important notions of the cultural-historical theory are introduced, that of experience (VIGOTSKI, 2018) and that of the social situation of development (VIGOTSKI, 2006). With them, we also place the notion of relation as the center of the living process, the unit that puts in dialogue (enunciation in the sense already expressed by Bakhtin – idem) the social level and the individual level, hence our defense of spatial experience as interspatial experience (LOPES, 2021).

From this perspective, having as a reference the concept of unity, of experience, and of the social situation of development, we have the challenge of making Cartography with children, because what is in this relationship is the child's interpretation of the phenomena of the world, marked by its presence in the social sphere.

For this, there is a need to recognize maps as language and that "Cartography" also carries within itself the dimension of gender. For this recognition, we take into consideration that human consciousness is born from the relationship of the word of the self to the word of the other. Mello and Lopes (2017a) defend and explain that a map (Cartography) is recognized as a language produced throughout human phylogenesis:

Thus understood, maps are concrete statements that occur in a genre. The entire history of cartography can be perceived as human language, as discursive genres that carry a historical past that constitutes it and a future to become. More than that, as a being-event, each child who comes into contact with the world through this discursive genre, incompletes the worldview that cartography carries, opening the senses to new and never before experienced possibilities (LOPES; MELLO, 2017a, p. 76).

When we show to children the maps, we have to take as essential that that is not just a piece of paper painted or drawn and, yes, "guarantees of the child's entry in the culture and in him/herself" (LOPES; MELLO, 2017a, p. 76). In this sense, we not only believe, but also advocate that Cartography with children can lead

them beyond themselves, not only as social instruments, but also as historical-geographical artifacts that allow to go beyond the dual conditions of interactionist logic. Maps are not only records of a territory, a landscape, a region (or any other geographic unit), since to it converge all human histories and geographies, which are made in this present text.

When children have the opportunity to deal, to know and put themselves in relation with the maps, it creates the imminence⁶ of transformation and opening for another axiological position in front of the language that forges the world in which we live. In this relationship, in the imitation movement, here understood in the sense bequeathed by Vikotski (2006), which would not be a mechanical act, meaningless, but revolutionary, children are constituted as cultural beings, because they re-elaborate the new.

This is the essence of the concept of experience and, in this case, the genesis of the authorial cartographic activity: in order to produce the new, it is necessary, initially, the children take possession of the social, appropriating the cartographic language present in this social. This is because, whether in its school dimension or in everyday life, there is a creative re-elaboration, which allows the inventive activity of children and makes Cartography renewed. Thus,

[...] infant logics are not (pre)words, (pre)consciousness, (pre)cognition. They are conditions of *ur-wir*, of creative re-elaboration, social forces that allow the emergence of the human and human culture. Maps for young children are not experienced as extensions, as motricities, as location and as orientation, but as intensity, they are one of the guarantees of the child's entry into culture and into him/herself (LOPES; MELLO, 2017, p. 76).

6 This is why the concept of the Zone of Imminent Development materialized by Vygotsky, in many of his works, has a power force for us.

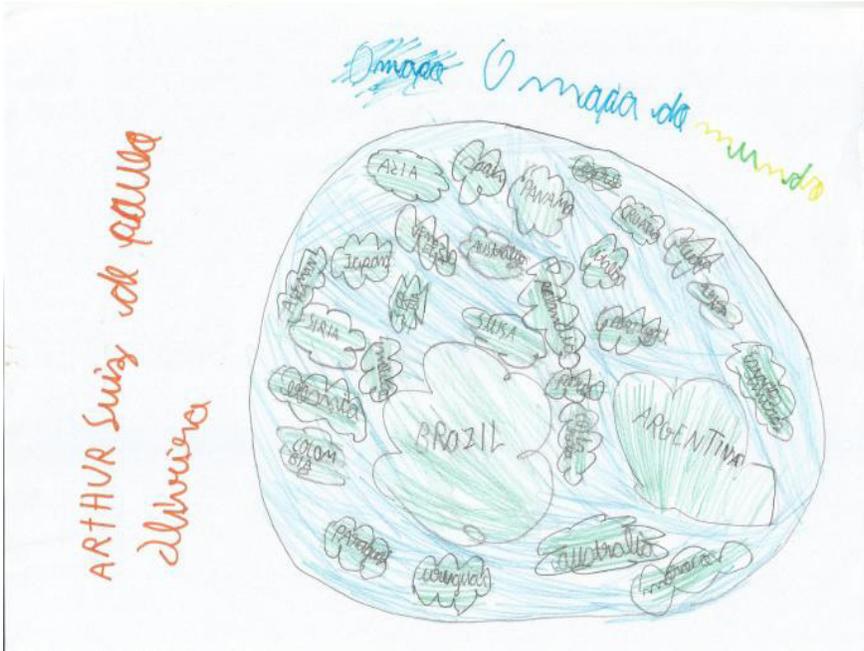
Facing the principles cited, we have the challenge of seeking not only to map the world experienced by children, but also their logics of registration and experience of space, i.e., a cartography that not only privileges the adult-centric perspectives of knowledge, but also that always tries to take into account the children's view and their spatial references. With this, we can contribute to the re-signification of these children of being and being in the world, provoking in them new ways of reading and rereading the world in which they live.

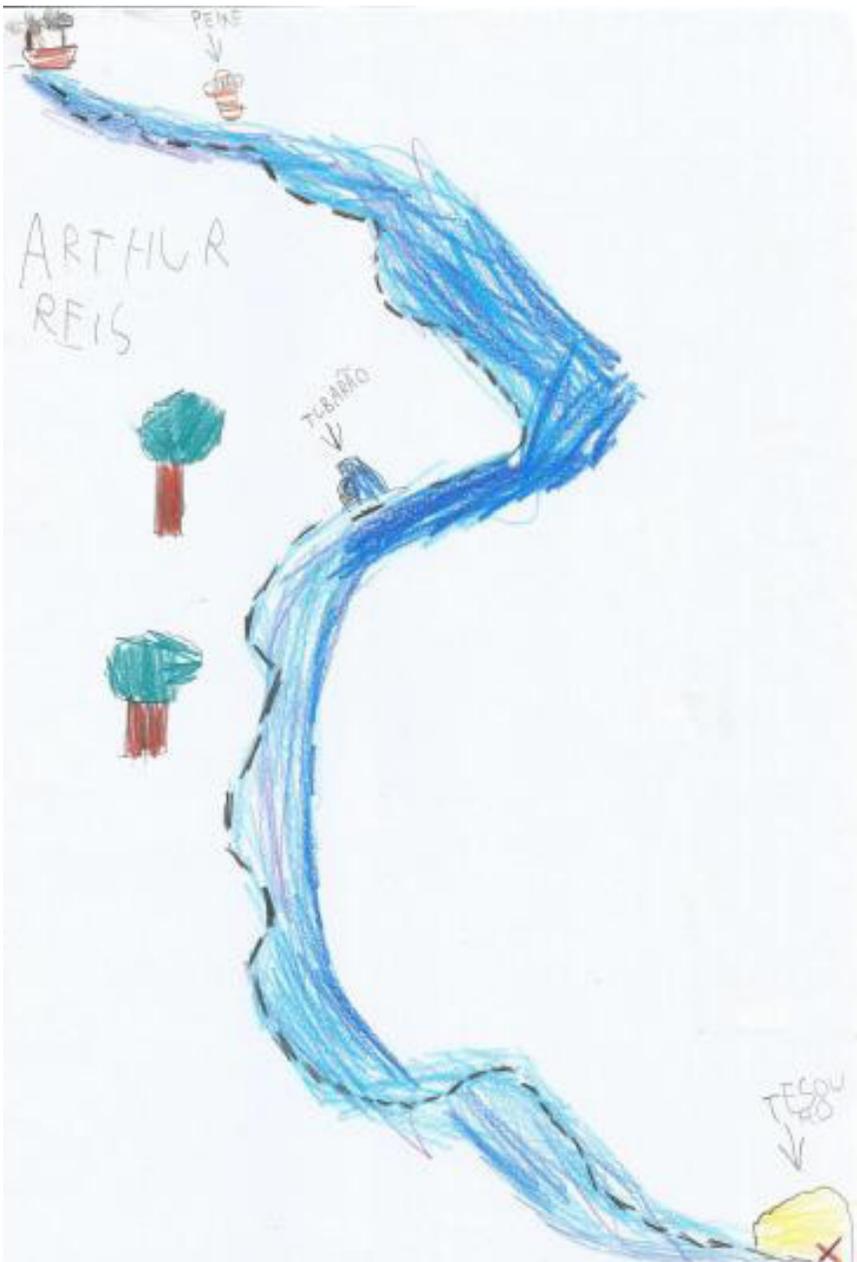
This is how we got involved with the children, whose narratives open this text. Placing ourselves in enunciative horizons, we set out to know their knowledge about cartography as a social element. The map, as an artifact existing in a world, which is present in many forms of languages and text carriers, was narrated to us. Moreover, we resorted to literary language as one of our intentionalities to be incorporated into the social situation that was being created⁷ there.

The children's narratives were accompanied by records of their spaces, of places of their experiences. Individual maps and a collective production of the classroom space were produced. For this activity, we resorted to the teacher who, as a scribe, wrote down on the board the items that the children considered should appear on the map. In the end, these were: "Board, Cabinet, Fan, Chairs, Window, Curtain, Door, Teacher's desk, Trashcan, Socket, Bin, Alphabet, Calendar, and Lamp" – [Field note, 2018]. After all the items listed, we handed them a sheet of paper to copy the items on the board that would be taken up in the next lesson. Some examples of the productions:

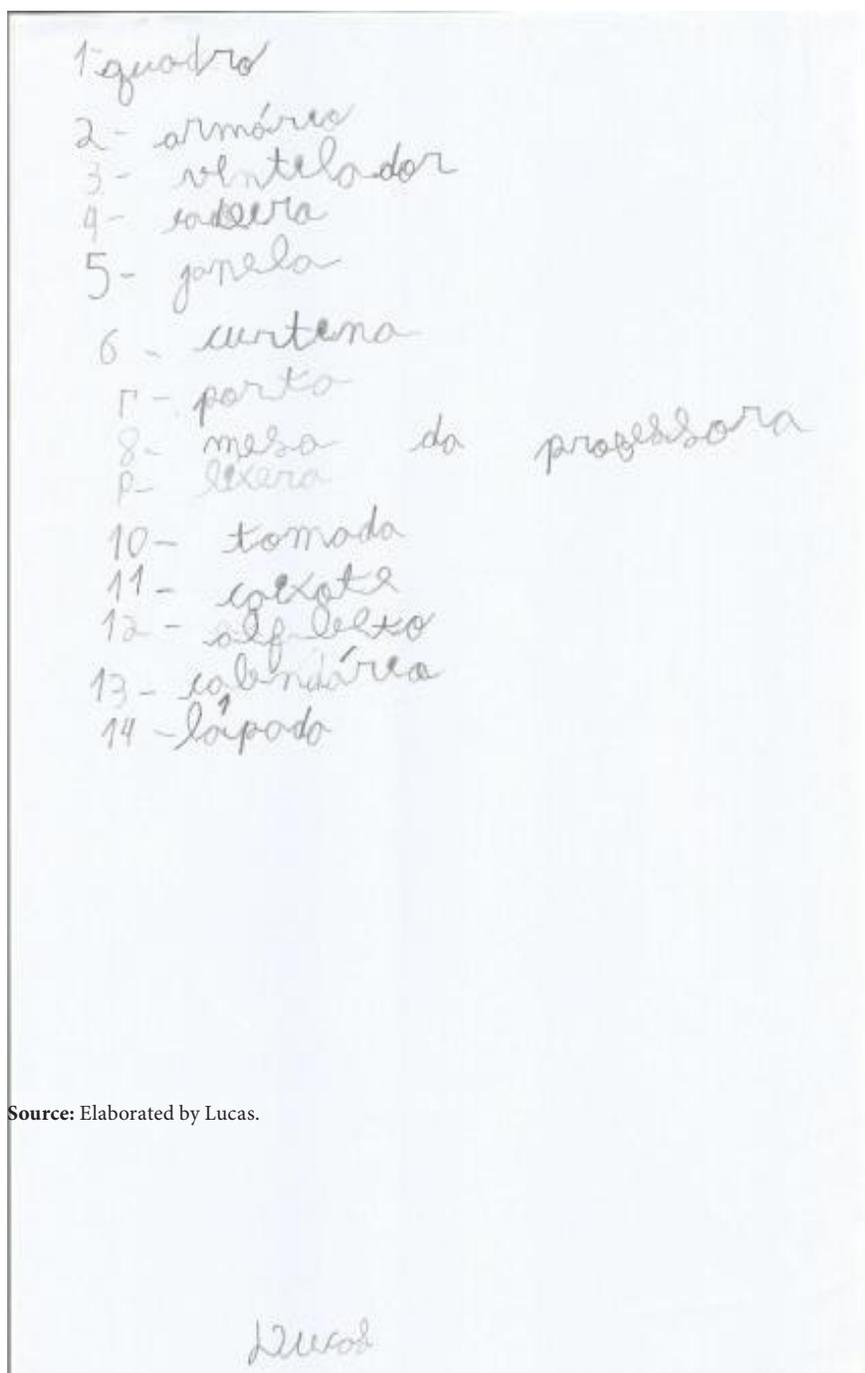
7 For this we have chosen the British book "The Map Room". This book, written by Jennifer Boothroyd, tells the story of a boy who went on a trip with his family and needed someone to take care of his hamster. The person chosen was his neighbor Josh. To guide Josh in the care of his little animal, the boy decides to make a map of his room so that Josh can find the items needed for care: the hamster's bed, food, and a ball. So, after listing the items, the child draws them on the map, always using previously chosen symbols to record the listed items. As the work was in another language, the story was told by the researchers and the pages were highlighted for the children's sight.

Illustrations 1, 2, 3, 4, 5 – Individual maps and object lists



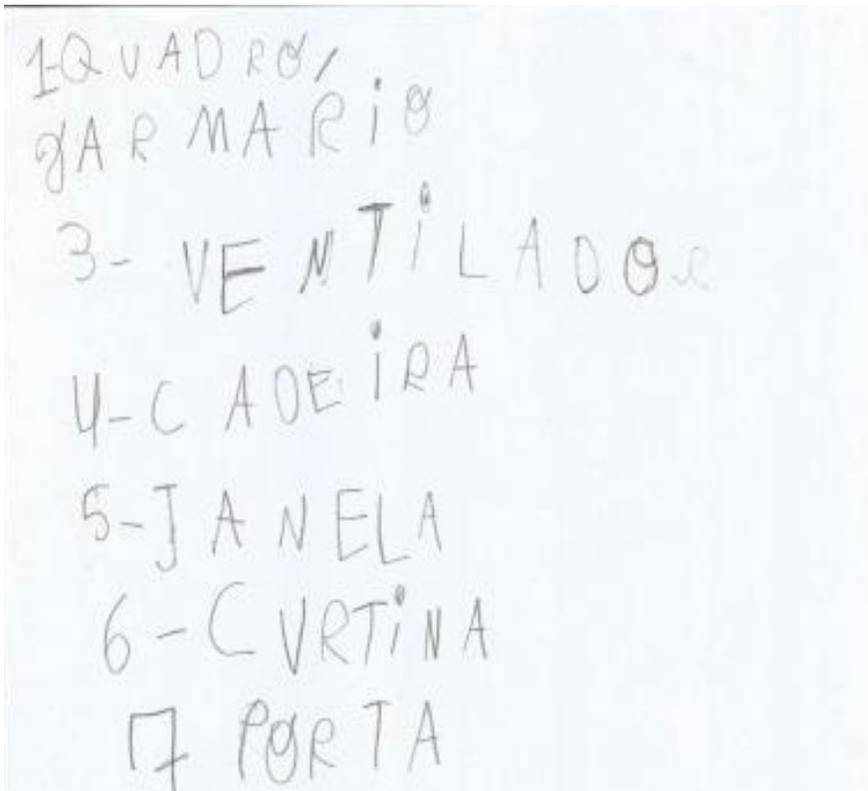






Source: Elaborated by Lucas.

Lucas



Source: Elaborated by Janessen.

It is important to point out that these activities occurred on different days, over the course of a few weeks. To make the collective map, we decided that it would be necessary to reduce the number of elements, because there were too many to be represented. With the children, a new choice was made. Thus, we decided that our new chart would be composed by removing some elements, based on: 1. little used objects, 2. objects too close to others, and 3. objects difficult to draw. In the end we were left with six elements: “Board, Cabinet, Teacher’s desk, Trashcan, Chairs, Door” [Field note, 2018].

The choice of these elements was followed by the choice and creation of symbols that would represent them on the map. Together, we chose a horizontal rectangle to represent the painting. The cabinet, on the other hand, would be a vertical rectangle. For the

teacher's desk, we chose a circle, and for the trashcan, a moon. To finish, we remembered the space to represent the classroom door, for which we chose an open space, and the students' chairs were represented by stars. The next step was the production in groups.

Pictures 1, 2 and 3 – Children performing the activities



Source: Research collection.

Among the classroom maps produced, we present some of them below.

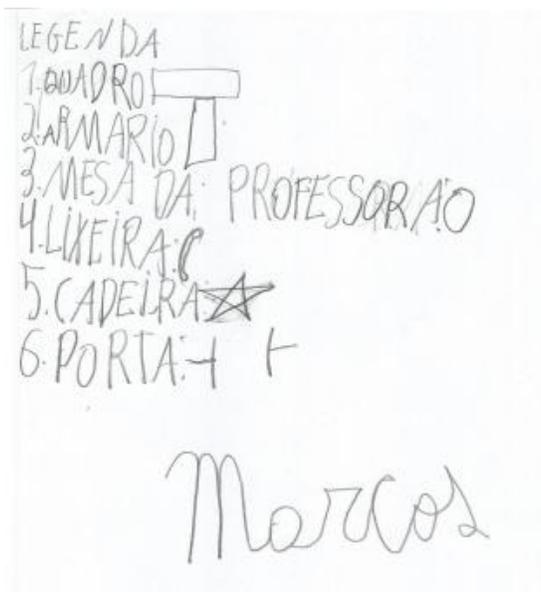
Illustrations 6 and 7 – Classroom maps



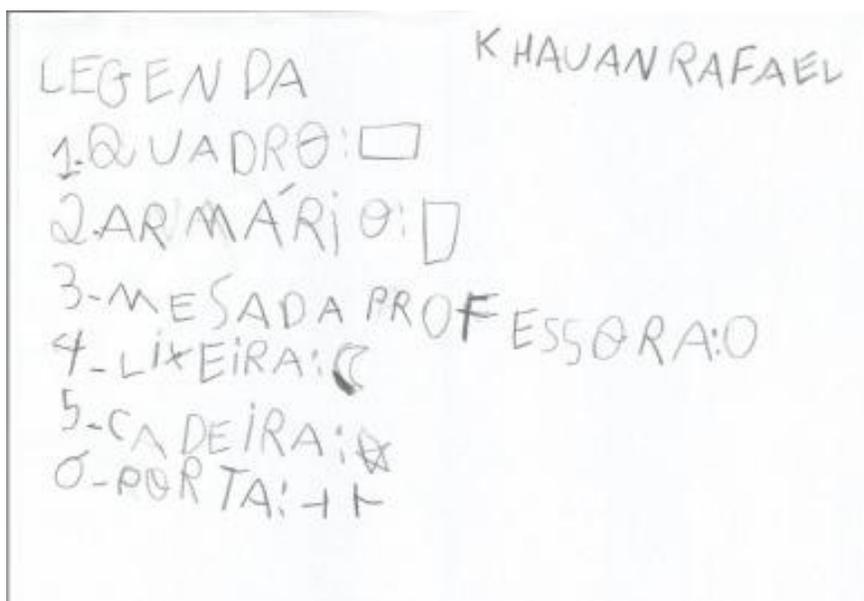
Source: Elaborated by the children.

This work ended with the children writing down, in legend form, the symbols created and the meaning of each one. Again, the teacher acted as scribe and wrote on the board the names that were being copied by the children.

Illustrations 8 and 9 – Legends copies



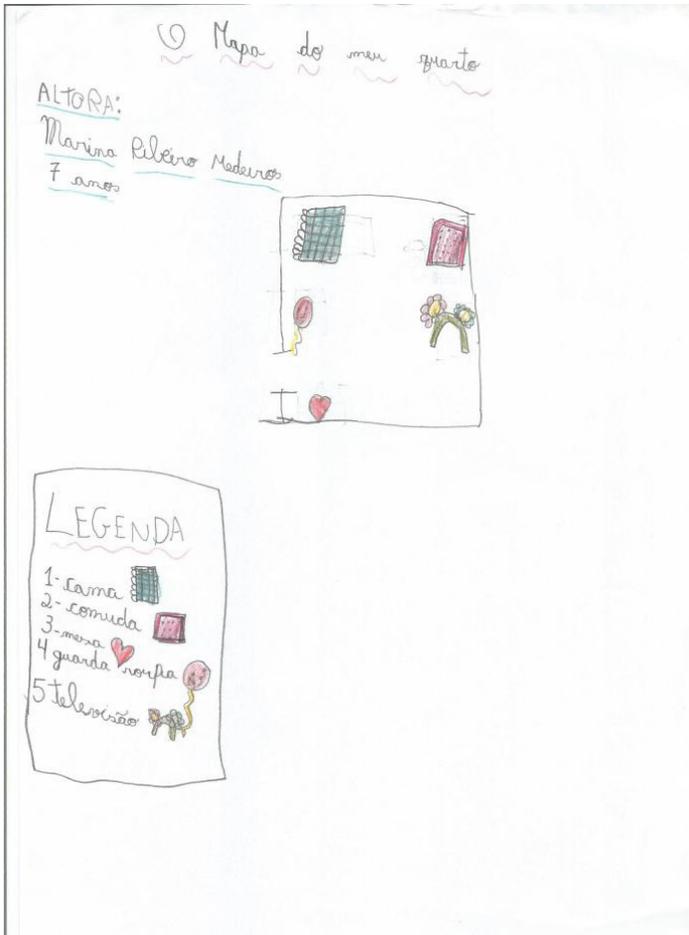
source: Elaborated by Marcos.

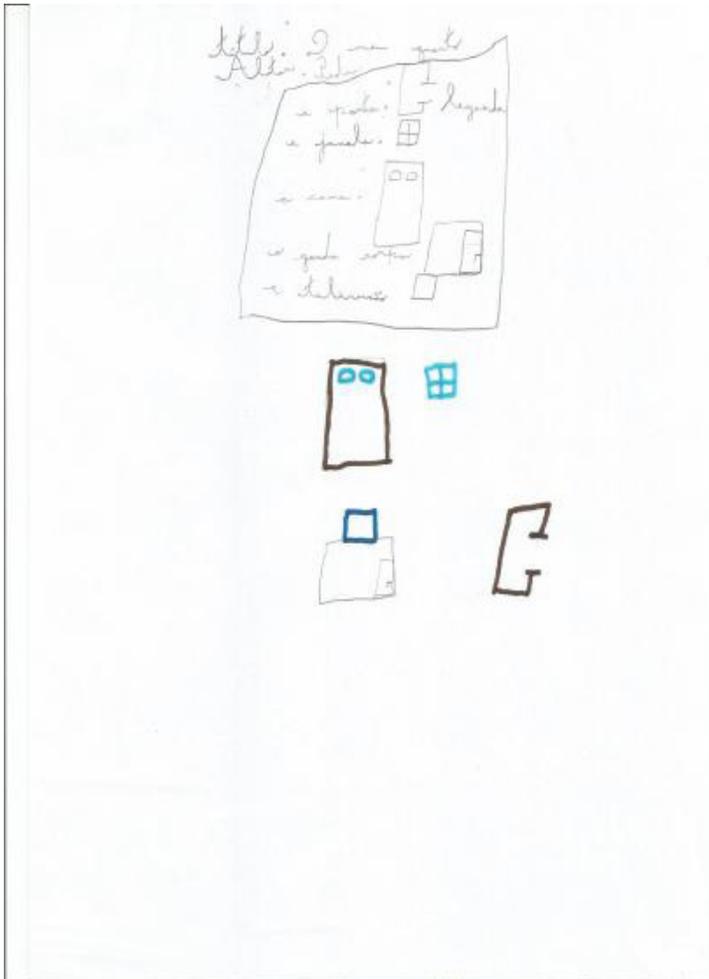


The work ended with another invitation: the children should

make a map of their rooms. Thus, experiencing their authorship, they could create cartographies of their lived spaces, new formations, neoformations (VIGOTSKI, 2006) that promote development and revolutionize our relations not only with the world, but with ourselves. This is about the larger meaning of the pedagogical process and our intentions in the act of educating.

Illustrations 10 and 11 – Maps of the rooms





Maps for finding treasure

What counts in life is not the starting point, but the journey. Walking and seeding, in the end you will have what to harvest. (CORA CORALINA)

We need closure. The pages that have been assigned to us are over, but we would like to bring a few final words. They will be few, because we believe that we have already presented the arguments

that we would like to share. However, we do not want to stop talking about the condition of treasure that maps carry. This was told to us by 7-year-old Davi.

Bakhtin (2002) and other authors of his circle (such as Volóchinov and Medviédev) talk about language as a treasure, as a human force that institutes the very process of humanization. The circle

proposes the discussion of language as a founding act of historical humanity, in its geographical coeternity and as a treasure[...] accessible to all enunciating human beings in culture, as well as the discussion of the contextual conditions of language teaching in the initial years of school socialization, discussing the role of the school institution and its professionals, in the literacy process of children (LOPES; MELLO, 2017b, p. 16).

And Cartography, as a language, a field of knowledge systematized in many historical times and many geographic spaces, is not outside this condition expressed by these authors. It is also a treasure that, when it meets the human being, understood in his condition of author-speaker (and there are the children), may have, in the school space, the great possibility of transformation, marked by its inter-spatial dimension, as we pointed out before, because,

for most of us, authorship is an activity of expression of an inner world that accumulates as a repertoire, hence the cumulative conceptions of knowledge already so denounced by Paulo Freire and many others. It is difficult for us to understand that the treasure of historical humanity is not in us, but among us, outside, before us and after our lives: in culture as rest (Derrida), as living materiality (it only exists if it is part of the living practices in culture, that is, if it is present in the speech acts of a given human community). The word, language is also a living materiality: this is already clear in the first Bakhtinian writings accessible to us (Marxism and the Philosophy of Language). As part of the world, language carries the meanings that clash within it. As more or less stabilized genres, the ways of saying carry the forms of its architecture. It is a treasure insofar as two human beings enunciate and, thus, access the meanings and forms available in the very material used in the enunciation (LOPES; MELLO, 2017b, p. 23).

To take on Cartography in this view is to take on Davi’s saying: “Map is what pirates [and we] use to find treasures” (cited work). Treasures in the form of languages and enunciations.

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**“HERE IN THIS PLACE I SEE THE WORLD
FROM ANOTHER ANGLE¹”**

*Assumptions of the cultural-historical theory experienced
with children and Geography in the early years²*

DENISE WILDNER THEVES

**“Here in this place I see the world from another angle³”: some
considerations about children’s spatiality and teaching**

Children, as members of society, inherit culture from adults and are socialized into it through interactions with members of their family/parental and social groups. This assumption highlights the recognition of children as subjects of/in history and culture, besides being influenced by them.

With this assumption and inserted in their sociocultural contexts, children, through their interactions with the world, with things and with others, create and produce their own cultures. Thus, children participate and intervene in the events of the environment in which they are inserted and through their actions

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- 1 Comment by a child during activities proposed in Geography classes, in 5th grade of elementary school.
 - 2 Some excerpts of this text are part of the research that makes up the doctoral thesis entitled: *Pelos labirintos da docência com os fios de Ariadne: geografia e existência que (trans)formam a mim e meus alunos.*
 - 3 Excerpt of a child's comment during activities proposed in Geography classes, in 5th grade of elementary school.

they rework and recreate the world in their own way, also producing their own histories and geographies.

In this process, the cultures of childhood, together with the society in which they are inserted, reference the children's life world and constitute their actions. The highlight to these considerations emphasizes that children are historical and geographical subjects and "marked, therefore, by the contradictions of the societies in which they are inserted" (KRAMER, 2007, p. 15).

Embracing these assumptions in teaching with children requires considering that:

children move and act in a complex way in the world, and in their possible wanderings they will appropriate the names, qualities, senses, concepts of things, relationships and places, and will form a repertoire of knowledge [...], which are accessed every time they encounter the world that calls them to act, not as a mere repetition, but with innovation and creation, where fragments of a past converge with the impulse of a history that is processed [...] (LOPES; MELLO; BOGOSSIAN, 2013, p. 79-80).

Children live their spatiality, and it is necessary to recognize that in their daily lives they establish their own ways of reading, explaining and acting in space and, in their interactions, they create and produce knowledge in a dialogical relationship with others and with the world.

It highlights the importance of seeking to know the spatiality of children by observing them and, in conversations with them, listening, seeing and feeling what they have to say / show from their multiple languages, because "dance, movement, music, word, image, drawing, play and gesture are all ways of saying, ways of thinking, ways of acting children" (LOPES; MELLO; BOGOSSIAN, 2013, p. 80).

In an investigative path (THEVES, 2018), in the mediation based on the dialogue with children, from didactic proposals that

stimulated the expression of their worlds in different languages, it was reaffirmed the importance of knowledge that emerge from the spatiality experienced by children, linked to the school Geography in the early years of elementary school.

Based on the reflective perspective, it is emphasized that the pedagogical practice developed at school expresses the ways of understanding the relations between epistemological conceptions and children's participation. These conceptions are grounded on theoretical assumptions, which support, explain, and inspire the teaching action. In view of this, it is considered that the theories support pedagogical conceptions, offer support and grounding that nourish the proposals developed with school Geography.

In this sense, it is in line with the theoretical foundations brought by the Soviet psychologist Lev Semionowitch Vigotski⁴ (1896-1934), whose works were based on the demonstration of the historical and social character of the human mind and the possibilities of its development. About the author's studies, Prestes, a researcher who revised and translated the originals⁵ written in Russian, says: "[...] despite the time, his work remains current and is the basis for research in various fields of knowledge" (2014, p. 5).

Thus, we present assumptions of the studies of Vigotski and his collaborators, relating them to the processes of teaching and learning Geography in the early years of elementary school.

4 When referring to Vigotski throughout the text, this spelling will be used because it is considered more faithful "to the transliteration of the Russian alphabet to Portuguese" (PRESTES, 2010, p. 90-91).

5 Originally, Vigotski's works were written in Russian and translated into several languages, mainly English, Spanish and, most of the time from these translations already made, into Portuguese. The researcher Zoia Ribeiro Prestes (2010) analyzed the translations, pointing out inconsistencies and presenting alternatives. Thus, in this work, Zoia Ribeiro Prestes will be referenced several times, considering that her translation can bring more rigorously the assumptions developed, because it comes from the originals written in Russian by Vigotski himself.

“I see the world from another angle⁶”: some inferences from Vigotskian studies

The assumptions developed by Vigotski and a group of scholars of that time, especially Luria and Leontiev (PRESTES, 2010), were constituted from the perspective of historical-dialectical materialism, influenced by the historical context in which they lived – in the newly formed Soviet Union, after the socialist revolution of 1917. It is noteworthy that “as well as numerous Soviet scientists in the 1920s and early 1930s, Vigotski deepened studies [...] that grounded his conceptions of human development” (TUNES; PRESTES, 2018, p. 15). It is important to emphasize that the historical moment experienced by these scholars contributed to define the theoretical basis that proposed to explain the brain mechanisms underlying psychological functioning, such as the development of the individual and the human species, along a socio-historical process (OLIVEIRA, 1993).

History and culture are articulating elements in these studies, which deal with a man who is historical because he is in constant transformation in his relationship with culture. In this sense, cultural instruments transform and develop human beings; likewise, human beings are relational, for they need each other to become human. This permanent historical transformation is experienced in the historical process of development, through the relationship with the cultural instruments created by humanity. Development, in turn, is not the result of isolated factors that mature, nor is it only the result of the action of environmental factors controlling human behavior. The biological and social aspects are in a reciprocal relationship, because human beings, since birth, are constituted in their social interactions with the environment, transforming and being transformed in the relationships produced in the culture. In this process of life, man,

6 Trecho do comentário de uma criança durante atividades propostas nas aulas do 5º ano.

through activity, develops consciousness de that is constituted by reflecting social existence in its relationship with nature and submitting this nature to itself and its needs, i.e., man creates, seeks to exercise his freedom and creates new forms of existence.

In his studies, Vigotski uses speech studies in several moments of his work to develop the general law of human development, according to which all psychic phenomena emerge in human development through two moments: first in the collective, inter-relational field; then on the individual level, which is the internal level.

Human development happens since the initial periods of life, in the stage considered elementary of the psychic structure, through involuntary processes in the biological perspective (elementary perception, attention, memory, attention and will); and in contact with the elements of culture it transforms, mediated by the practical activity of man, which results in transformations in the psychic activities, originating the higher psychological functions, which are mental functions and characterize the conscious behavior (logical memory, perception, voluntary attention, thinking, formation of concepts). It is on these that the interest lies, considering the study and research with school children in the early years of elementary school. It is noteworthy that the so-called "inferior" functions do not disappear, but are restructured by the human being. In relation to this issue, it is stated:

[...] neuropsychological processes, as they develop and transform themselves, begin to construct themselves according to an entirely new system. From natural processes, they become complex processes, constituted as a result of cultural influence and as an effect of a series of conditions – first of all, as a result of active interaction with the environment. [...] natural behavior becomes cultural behavior; external techniques and cultural signs learned in social life become internal processes (VIGOTSKI; LURIA, 1996, p. 219).

Therefore, when referring to the human psychological functions, as proposed by the cultural-historical theory, it can be

said that they are culturally mediated, historically developed, and emerge from practical activity. And human knowledge is not an end, but a means to development. This understanding is important to question those who consider, for example, that a good teacher is one who transmits a lot of content!

For the Soviet thinker, there are no universal human behaviors, and it also does not structure rigid age groups by age, but differentiates development processes by the activities performed and called guiding activities, a sentence translated from the Russian expression “*veduchaia deiatelnost*” (PRESTES, 2010, p. 161). From guide activities – that is, the processes that emerge from/in the activities, in which are constituted new psychological formations (neoformations) of this succession – the (psychic) development of the child takes place.

New formation (neoformation) takes place in the social situation of development through contradictions between the child’s current capacities (which manifest themselves in the truly developed psychological functions), the child’s needs, desires, and the possibilities of the environment. In trying to overcome these contradictions to be able to perform the activity, the child engages in different tasks and interactions, which may result in the formation of new functions or the enrichment of already existing functions.

In the assumptions of cultural-historical theory, guide activities are constituted and linked to broad stages of development: first year, early childhood, preschool age, school age, early adolescence, and adolescence (ABRANTES, 2012; LOPES, 2018), whose contents depend on the historical conditions in which the child’s development occurs (PRESTES, 2010).

The concept of guide activity was first proposed by Vigotski and then by Leontiev and Elkonin (PRESTES, 2010, p. 162), being the concept used to refer to those activities that are fundamental in the child’s psychic changes. It is defined by Leontiev (1981 *apud*

PRESTES, 2010, p. 162)⁷ as "[...]an activity in which particular psychic processes are formed or restructured [...]. For example, [...], in teaching, abstract thought processes. [...]"

It is pondered that the interest falls on the school age, for being related to students in the early years. Thus, the importance of the educational work developed at school is highlighted, in which, in a collective interaction with others and through the stimulus and guidance to actions, the creation of new learning and the contribution to the process of humanization can be made viable and potentialized. It is also pointed out that the teacher's role is fundamental as an articulator and as the one who follows the course with his or her students.

By way of these considerations, another concept that stands out in Vigotskian assumptions, being present in several of his texts, is named by the Russian expression "*zona blijaichego razvitia*" (PRESTES, 2010, p. 168), whose translation is "zone of imminent development" (PRESTES, 2010, p. 173). This concept is closely pertinent to the relationships that exist between development, instruction⁸, and the collaborative action of other people.

The *zone blijaichego razvitia* is the distance between the level of the child's current development, which is defined with the help of issues that the child solves alone, and the level of the child's possible development, which is defined with the help of problems that the child solves under the guidance of adults and in collaboration with peers. [...] The *zone blijaichego razvitia* defines the functions that have not yet matured, but are in the process of maturing, the functions that will mature tomorrow, that are today in an embryonic state (VIGOTSKI, 2004 *apud* PRESTES, 2012, p. 205).

7 I reiterate the need to use Prestes' translation of Leontiev's concept, since the original is written in Russian.

8 The use of the term "instruction" by Vigotski (1933) does not have the same connotation, often negative, that it assumed in Brazil, as something related to simple transmission, with the person playing a passive role. It is also emphasized that this issue will not be further explored in this text.

The activities performed by children in collaboration with peers and the teacher⁹ create possibilities for development, and “[...] nothing is predetermined in the child, there are many aspects involved for the internal processes to be awakened to life through the guiding activities” (PRESTES, 2010, p. 174). Similarly, what the child does without the help of the adult is characterized as the current level of development and is part of consciousness, which not only reveals the matured functions, but also relates to the functions that are maturing. Therefore, “what the child does alone is the current or actual development zone” (PRESTES, 2010, p. 170). And, when teaching, in the search for identifying the current development zone, it is necessary to know what the child already does alone and what he already knows, that is, his previous knowledge and conceptions. From then on, through intentional activities mediated by the teacher, we try to mobilize the students’ interactions with what we intend to teach. Once again we see the importance of what is proposed by the teacher, that is, clarity of intentionality and planning are fundamental.

From the Vigotskian studies, the concepts of environment (*sedrá*, in Russian) and from this, the concept of experience, translated from the Russian word “*perejivanie*” (VIGOTSKI, 2010, p. 683) are still relevant to the reflections presented in this text. According to the author, in a dialectical process of interaction with the environment (natural, social and psychic), human beings develop activities which result in the creation of new images or actions. Thus, children create from their relationships with the world, with people, with events, in which there is the unity of the child’s uniqueness with elements that constitute the environment, that is, the experience, as Vigotski explains:

The experience is a unity in which, on the one hand, in an indivisible way, the environment, what is experienced is represented – the experience

9 [Empty footnote]

is always connected to that which is located outside the person – and, on the other hand, it is represented how I experience it, that is, all the particularities of the personality and all the particularities of the environment are presented in the experience, both what is taken from the environment, all the elements that have a relationship with a given personality, and what is taken from the personality, all its character traits, constitutive traits that have a relationship with a given event. Thus, in the experience, we always deal with the indivisible union of the particularities of the personality and the particularities of the situation represented in the experience (VIGOTSKI, 2010, p. 686).

Thus, the environment relates to the children, and in this relationship with the experience, the unity between the environment and the subject is constituted, through which the participation of the environment in development is evidenced, without, however, disregarding the particularities of the child. Thus, there is no supremacy of the environment over the child, nor of the child over the environment; where the unity that is established in the individual/environment relationship is preponderant.

It is also noteworthy that this relationship with the environment is not homogeneous, because the events experienced will influence those involved in a different and unique way through the experience, which is particular. Lopes and Paula characterize it as “[...] a totality of the moment experienced and how it was experienced by that unique subject” (2020, p. 9). In this perspective, it is a dynamic movement of experiences in which occurs “[...] a creative re-elaboration of experienced impressions. It is a combination of these impressions and, based on them, the construction of a new reality, which responds to the child’s aspirations and longings” (VIGOTSKI, 2018, p. 18).

Lopes (2020a, n. p.), when referring to Vigotski’s conceptions, highlights that the “experience would be something that involves the various dimensions of the human being, such as emotions, affections, feelings, bodily and intellectual functions, among others”.

It is essential to add to the considerations made about the experiences, another aspect that strengthens them even more: it is not necessary to directly experience some situation or event for the experience of it to constitute those involved, because the imagination (or creative activity) is “[...] guided by the experience of others, acting as if guided by it” (VIGOSTKI, 2009, p. 24-25). This is possible and occurs, “because we are beings of languages and, as such, able and prepared to have experiences from the language of other people, from other situations existing in our daily routines” (LOPES, 2020a, n. p.). Thus, “[...] the narratives, the words of others are forged in us” (LOPES, 2020b, n. p.).

In this perspective, the alien and social experiences with the children at school, as in other places and situations, give life to scenarios and plots, and not only those situations of present/direct physical character are considered in the experiences. Therefore, different proposals, possibilities and resources can be used in the opening to dialogue, to attentive and sensitive listening between the subjects that are and are in school, in which the various aesthetic languages can shape the school activities (MELLO, 2017), enhancing the authorship and the creative activity of children, because, according to Lopes and Paula, they:

They [...] constantly create situations before us. Even if they have had previous contact with the elements they use in their creations, opportunities to observe or experience them, by reworking and combining them, they create a new arrangement, something unique and singular. They combine these old elements into new constructions, into new narratives. This ability, already present in childhood, is the basis of creation (LOPES; PAULA, 2020, p. 8).

Children invite and call to create and develop didactic proposals that emanate from the plurality of knowledge and experiences constituted by individual and collective histories and geographies. Children’s authorship and logic inspire and move the teaching of Geography in the early years!

Teaching Geography in the early years: from that place with children, to see the world from many angles

Geography is made by human beings, there is nothing new about that. After all, the process of humanization throughout the history of our species has materialized in space – which is geographic precisely because of the human history that produced it and has not dispensed with it. It is a continuous and dynamic process:

The new generations at birth encounter a history of humanity from the spaces erected on the earth’s surface, they are among the first mediation processes. The “forms” erected (understood here in its material and symbolic character) are fruits of human history, but at the same time are places from which human history constantly begins; it is end, it is beginning, it is genesis, they form human spatial relations, they are not empty (LOPES, 2013, p. 130).

The humanization and the production of geographic space are inseparable and, “if the geographic space is produced and produces history, it also constitutes the human” (LOPES, 2013, p. 130).

In this perspective, it is understood that children are born in an existing geographical space, where different generations have acted and act, with the development of the individual within the species (ontogenesis), modifying according to the culture and society (sociogenesis). Moreover, in this process, each phenomenon of development has its singularity (microgenesis), constituting unique and singular experiences from the collective context (LOPES, 2009).

In view of this, being in space constitutes belonging and identity, that is, the “geographics of existence” (KAERCHER, 2014, p. 22), assumptions that highlight the importance of Geography and its teaching, and challenge to, from it, discuss ontology. It is a Geography that does not merely present facts and concepts through the mere transmission of isolated information, but they establish ways of understanding life, space. In this direction Kaercher (2007) invites:

Thinking about the importance and influence of space, the physicality of things, and the geography of our existence is one of the great contributions that geography can make. Geography is a pretext to think about existence, a way to philosophically “read-think” about things and the relations and influences they have in our daily lives, because “looking at things” implies thinking about what human beings think about them (KAERCHER, 2007, p. 16).

Reading the landscape, reading the world of life, thinking about existence, interacting with others, with things from/in the world are challenges and commitments of the school and the teaching of Geography that

[...] is guided by the dialectical relationship between teacher, student and Geography, and the teacher’s role is to provide the cognitive mediation of the student, that is, the interrelationship between subject (student) and object (content) of knowledge, through a didactic mediation work (CAVALCANTI, 2017, p. 109).

It is reaffirmed that the mediation of human activity is social because performed in the collective, but assumes an individual configuration when elaborated internally by individuals. In the school context, this process has been named by “pedagogical mediation, teacher mediation, didactic mediation” (CAVALCANTI, 2017, p. 111), in which the role of the teacher is fundamental.

In this purpose, new practices with school Geography can be created and others recreated. In them, the programmatic contents are not forgotten, but take on other purposes, such as seeking to answer the questions that are asked, the problems that are raised, the solutions that are found and, if possible, put into practice.

The contents are means that also constitute this process, and they are many, new or old, but always allowing different views and readings. To the teacher, in his didactic mediation, they provoke to rethink the objectives, the methodology, the didactics, and invite to (re)create the practice that proposes:

[...] to establish a dialogue with the different ways of living and conceiving the space, with the daily experiences of the students from their life contexts, their histories and individual and collective geographies to then build the geography present in the school environment (LOPES, 2008, p. 191).

In this path, it is believed in the possibilities outlined in the classes, which provide opportunities to create space-time in which the students "can exercise and rehearse their own ways of being and being in the world" (COLINVAUX, 2009, p. 61).

To the teachers, it is necessary to investigate how – in school situations – this spatiality can be revealed and taken into consideration in the didactic proposals. Those that are developed with the intention of provoking the creative activity, as suggested by Vigotski (2009), or even, to go in the direction of extended thinking as invited by Kaercher and Tonini (2017), seeking to expand the students' worldviews. In this search, in movements of reflection-action-reflection, the didactic mediation of the teacher assumes an essential role.

The reflection-action on teaching with children teaches that taking their knowledge into consideration is important for education, since by using it to understand the different forms of human development, possibilities are created in the school educational processes to contribute to the formation of authentically reflective and critical people, that is, to self-development. And this development can make teachers and students happier human beings, more supportive and, who knows, more active in the construction of new (better) ways of being and being in the world.

But human development cannot be in the realm of the predictable and controllable. Who thinks so, annihilates the Other with his deterministic look, based, no doubt, on a biologizing view (PRESTES, 2015). Therefore, it is essential to understand that there are tasks of a social, cultural, and historical nature, that is, of the pedagogical field, that can be solved at school from the pedagogical

responsibilities of the teaching and learning process. After all, knowledge is not an end, but a means to human development.

It is necessary to understand children and oneself in the multiplicity of trajectories that (geo)graph the being in the world; to reflect and create with teaching that is open to the unexpected, to dialogue, to life. The children experience theoretical assumptions and point out paths to be walked with them through places where one sees and feels the world from other angles.

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NEIGHBORHOOD-LIVING

Finding children, drawings, and Lev Vigotski in the Geographies of a Juiz de Fora-MG neighborhood

CARLA CRISTIANE NUNES NASCIMENTO

The drawing, as a language, is able to communicate about human experiences on and with space and awaken us to rethink traditional concepts in Geography, such as neighborhood, thus highlighting the need for its review in this science.

Considering the potential of drawing, the research from which this article is derived was developed¹ together with twenty children, between eight and twelve years old, who live in the Dom Bosco neighborhood, in the city of Juiz de Fora, state of Minas Gerais, also with their drawings and their speeches.

Being with these children, walking with them, and being guided by them during the doctoral period was a pleasant experience, which can possibly be better understood by those who respectfully choose and welcome children as subjects of their academic research.

1 Doctoral thesis defended by the author in 2017, under the title "*Geografia da Infância e Bairro-Vivência das Crianças Moradoras do Bairro Dom Bosco em Juiz de Fora/MG, na Aurora do Século XXI*". We count on the guidance of Professor Júlio César Suzuki, to whom we would like to register, also here, our gratitude for welcoming our research in the Post-Graduation Program in Human Geography at the University of São Paulo.

During this period with the children, we rediscovered Vigotski's works, came across the concept of *Living* and glimpsed the possible approximations between the thought of this theorist and his collaborators with Geography, resulting in what we came to call *Neighborhood-Living*. With this, we align ourselves theoretically and methodologically to a field of studies with an ascendant movement in Brazil that is becoming known as Geography of Childhood.

To deal with this theme, in this article² we will use a resource that we will call "three encounters" as a textual organization strategy, since these encounters overlap, form a unity, being impossible to isolate them from each other. The text aims to highlight the theoretical and methodological alignment of our research with Vigotski's thought and with the Geography of Childhood, which occurred from the encounter with the children, their drawings and their geographies.

2 Part of the material exposed here had already been presented to the public in previous moments, with different focuses and in other formats, in academic events and articles, and can be checked in Nascimento and Suzuki (2016; 2019; 2020).

The encounter with the children

Photograph 1 – “...a child shall lead them”³



Photo: Carla Cristiane Nunes Nascimento. July 2015.
Source: Personal archive.

According to the Director Plan in Juiz de Fora and to the municipal urban planning⁴ bodies, the Dom Bosco neighborhood is located in the Regional Planning known as a Central region.

One of the versions about the origin of the neighborhood places it in the first quarter of the twentieth century, linked to the large contingent of black people who headed towards the city, after the decline of coffee production in the city. As Oliveira (2000)

3 "A child shall lead them" or "a little child shall lead them" is a passage from the biblical book of Isaiah, whose authorship is credited to the Hebrew prophet who lived in the second half of the 8th century BC, in a very violent context of wars, domination, loss of territory and lives – according to the book's own narrative and comments in Carson et al (2009).

4 Like the Secretariat of Social Development (SDS) and the Secretariat of Planning and Management (SEPLAG)

points out, “true islands were formed around the central area. Neighborhoods such as São Benedito (formerly Arado) and Dom Bosco (Serrinha), among others, emerged; without, however, having the minimum urban infrastructure, such as access to water and sewage systems, public lighting, etc.” (OLIVEIRA, 2000, p. 65).⁵

Over time, many public and private urban facilities were installed around the neighborhood. Among them, we highlight a few: the Federal University of Juiz de Fora⁶ (UFJF), the Brazilian Livestock and Supply Company (*Embrapa Gado de Leite*), the headquarters of Social Service for Industry (SESI), the Mount Sinai Hospital (part of which is shown in Photo 1) and the Independência Shopping Mall.

Despite so many investments in the region, the population living in Dom Bosco remained on the fringes of the benefits, needing to increasingly take the so-called Alto Dom Bosco, where “there is an occurrence of occupations on very steep slopes, which constitute risk areas” (JUIZ DE FORA, 2006, p. 60). The Director Plan for Development of Juiz de Fora points out that the Dom Bosco neighborhood is an Area of Special Social Interest (AEIS). “These areas are characterized by the existence of subnormal settlements lacking the minimum standards of infrastructure (water, electricity, sewage, accessibility and habitability), which places them in a condition of social segregation” (JUIZ DE FORA, 2004, p. 90).

5 There are other versions, some contradictory and others complementary. One of them says that Dom Bosco, before becoming a neighborhood of the city, sheltered black people recently freed from slavery who stayed in the place after the bankruptcy of a farm that existed there. This is close to what Mariosa (2009) says. Another version was told us in an interview by Maria Inéz Beghelli, granddaughter of Vicente Beghelli and resident of the Dom Bosco neighborhood. She informed us that her grandfather, an Italian immigrant settled in Juiz de Fora, was the one who started to subdivide the neighborhood and sell the lots at affordable prices. According to the informant, workers employed mainly in the textile industry were the majority of the buyers.

6 The arrival of UFJF, in the 1960s, among other things, led to the construction of Independência Avenue, one of the city's longest and most important. This avenue recently had its name changed to Itamar Franco Avenue.

In this context, where are the children? Everywhere! In the mall and in the shacks. In the university and in the alleyways. Finding children in the Dom Bosco neighborhood would not be a difficult task even for the most inexperienced of researchers. And, faced with this reality, we did not seek out the research subjects in any institution they attended, be it school⁷ or non-governmental and religious institutions, the latter being very present in the neighborhood. The meetings took place in the streets of the neighborhood and, sometimes, in the children's homes⁸. But they also happened where we didn't imagine we would find them, as can be seen in photograph 1.⁹

Especially on weekends, the streets were always full of children, always in groups, involved in some game or street play, rain or shine, literally. Games and plays sometimes coexisted, sometimes took turns, depending on the space demanded. Soccer

7 Most of the research involving children in Brazil takes place in the educational institutions they attend. Perhaps because of the strong association already established between children and schools. Although these are very interesting and important works for re-thinking the school institution, we think that there is a need for more research with children outside these school spaces. School can be one of the important spaces for children, but not necessarily the most important one, nor the one where they spend the most time. Studies that focus on other spaces and other relationships are fundamental for the advancement of the understanding of the child-space relationship.

8 We understood that the children needed to say whether or not they wanted to participate in the research. However, we defend that parents, as the ones responsible and protective, a priori, of the children need to be the ones who authorize or not the contact and the execution of the research in face of their expressed desire. Even if the authorship is the children's, we understand that the authorization is from their parents or another legal guardian. On this subject, see also what Kramer (2002) says.

9 The photograph shows a boy from the Dom Bosco neighborhood entering the facilities of the Monte Sinai Hospital Complex. We were at the hospital at the time of the incident. How did the boy manage to get around hospital security? We needed to identify ourselves to get in, besides showing a guide for an exam. Besides taking pictures, we watched the boy leave. Nobody else saw him. On his way out, holding a can with thread wrapped around the outside, we questioned him. He talked to us quickly because his friends were waiting for him at the top of the hill, where they were flying kites at the moment. He said that a kite had fallen into the hospital and he had gone to fetch it. We asked him if the search had been successful, he said no, pointed to his house on the hill, and ran off to meet his friends.

was predominant. The well-known '*Rua do Campinho*' was always dominated by groups, usually playing soccer, always with an audience, children and adults¹⁰. The streets still have this meaning of encounter in the Dom Bosco neighborhood and this emerges very strongly (CARLOS, 2007).

The first encounter, however, was on another street, *Rua Borda da Mata*. There, with our eyes, we saw a very steep and narrow street, dead-end, with a lot of garbage accumulated at its end – where there is a hole caused by a landslide that has become a recreational area appropriate by children, named by them as “Buracão” (Hole). With the children’s eyes, we saw more. It is part of their everyday life to fly kites in this street, and this can be seen in the tangles of threads and traces of kites on the electric wires. They also climb down the “Buracão” to look for a lost kite, climb up, using the branches to hold on. And if there is someone watching, then they are watched too, and the adventures in the “Hurricane” gain more intensity.

It was there, on Borda da Mata Street, that key events for the research took place. The first meeting was set with Emílio, a 10-year-old boy who was always there on the street with his friends. We intended to pilot-test the research only with him, aiming to fine-tune a semi-structured interview that would take place with one child at a time. We even started with just him. But soon the tiny room in his house was filled with other children. His 8-year-old sister, Laura, gave her opinion about Emílio’s drawing: “Dom Bosco is not like that”. Laura also began to draw. In turn, little friends of Emílio and Laura, who were already there, also asked us for sheets of paper and began to take over the space in the room. Desperation for the unexpected. As Martins Filho (2011, p. 83-84) states:

10 Officially, the name registered at the Juiz de Fora City Hall is João Beghelli Street. Several residents of the Dom Bosco neighborhood, of different age groups, told us about *Rua do Campinho* or *Rua do Conjunto*, where the Santo Agostinho housing complex is located. Its use is like a real playground, as a space to play.

In Brazil, it is very new among researchers the concern to develop research methodologies that lead the adult to listen to the children's point of view, or that consider children as informants and competent interlocutors to talk about themselves during the data collection. If, traditionally, developing research on children already generated confrontations and many challenges to the researcher, what about the purpose of developing methodological research practices with children from an early age? [...] In fact, the decision to develop methodological practices that take children as the protagonists of the process is not something simple. Contrary to popular belief, even though we are facing a research movement that includes children as participating subjects in the methodological process, the development of methodologies and research procedures with children is still an incipient field (MARTINS FILHO, 2011, p. 83-84).

Frustrated, we admitted our loss of control, we decided to accept that our research paths were being questioned from the very first meeting. Being together was a fundamental element. We even tried to separate the children in this first meeting, but we soon realized that this would be fabricating a context. The streets, in all our fieldwork, were always full of children, always in groups. Very steep streets were turned into soccer fields and enjoyed collectively. The houses we visited, in the same way, were always full of people, family members and household members, who freely passed through the rooms. Strange for us and familiar for them.

The encounter with drawings

In addition to the children's way of organizing themselves being different from what we had predicted, their drawings were also different. The drawings showed us that Dom Bosco was another neighborhood, elements that, for us, were certainly part of other neighborhoods appeared as close, intimate spaces for the children.

Collectivity and the strength of the neighborhood leapt out from the drawings. Seabra (2001) calls attention to the fact that "gated communities" on the one hand, and "low-income housing projects" on the other, are multiplying in medium-sized cities and

metropolises, opposing the idea of collectivity and neighborhood. In opposition to this, then, is the Dom Bosco neighborhood. It was from the children's drawings that we began to glimpse both the existence of various Dom Bosco, various territorialities – understood as forms of appropriation of the neighborhood, and also to visualize that all these neighborhoods are linked to group livings.

It was in this encounter with the drawings that we could see, for example, that the idea of the Dom Bosco neighborhood for the 10-year-old Emílio included the landscape that he sees of his street: an “other neighborhood” and a blue school. This is very interesting. Who among us, geographers and geography teachers, would think that in a study of a given neighborhood, a landscape that can be seen in the distance would appear as an answer to that initial question of what it is like to live in the neighborhood?

And speaking of the initial question, we realized that an answer, to the question we didn't ask, was beginning to emerge in the drawings. Beyond what it is like **to live** in the neighborhood from the children's perspective, **what is** the neighborhood for those children emerged very strongly in the drawings and in their speeches. This encounter with the drawings thus changes our research question that would guide the entire research.

As we have narrated a little of our meeting with Emílio and Laura, we will bring here their drawings, produced in the context of that meeting. We will also bring Fabiana's drawing, a resident of Pirapora Street who, besides the drawing, gave us a lot of talk about her living in group, at home, on the street and in her neighborhood.



Source: ... [The “blue school” in the Santa Cecilia neighborhood.]

Emílio started the production of his drawing with some hills and, on one of these hills, he drew a construction that he soon made a point of explaining. He told us **“Don’t worry, don’t worry”**, dropping the drawing and calling us to the outside of the house. Then he continued: **“That’s the landscape I see from here”**; and he showed us a school located in the Santa Cecilia neighborhood, which he later painted all in a darker blue, contrasting with the lighter blue he painted the hills with.

Laura was there lurking the whole time. As we said, she was the first to give her opinion about her brother’s drawing, saying **“Dom Bosco is not like that”**. She took the papers and pencils and soon she was drawing her Dom Bosco.



Source: ...

[We pointed to where there was a drawing of a girl in a red dress and asked who it was. Laura answered that it was her in her swimming pool: **"It doesn't exist, but I'll get her as a present from my mother".**]

Drawing 3 – DOM BOSCO, by FABIANA – 9 years old



Source: ...

“I drew my aunt’s house, my mother’s house, my grandmother’s house, my other aunt’s house, the neighbor’s house...”

How many people do you live with in your house, Fabiana?
[we ask].

“Ih!... You can’t even count [she started counting on her fingers]... My mother, five brothers, two nephews, with me eight.... There are three rooms there”.

“I drew Pirapora Street.”

“I drew those stars and that sun, because the sky looks beautiful!”

“My dream was to live in another place, where there is a seesaw, slide and swimming pool.”

“I wish I had a pool here on the lot. I would call everyone. The pool will belong to everyone.

“The University is good too. There are plum trees there. We eat prunes. We fish there until the guard shows up.

“That lake is dangerous, you know, right?” [we intervened].

“My brother swims there. It was in the newspaper. My brother, the boys from Chapadão. Valdiney went swimming there and came home without his clothes on. One day, Valdiney drowned, the boys from Chapadão helped him [...]. His mother hit him.”

Perhaps Valdiney’s mother was the last to know about the adventures that took place at the UFJF lake. It had been a while since we had met many children there on a summer afternoon.

Photograph 2 – Hot afternoon? It’s “pool” day



Photo: Clériston Nascimento. 2012. Field work.

Source: Author’s archive.

When working with drawings, we had as a starting point that the child, a concrete, historically, geographically and culturally produced and producing subject, was the one who created and thus should talk about his drawing. Thus, drawing and speech cannot be taken separately in this work. There was a whole material context that already said many things, the shapes marked in space were very forceful. However, what we are stressing is that without the children's speech, we are not left guessing or deducing what the drawings could or seemed to mean. Sarmiento (2011) can make a dense contribution here:

In fact, child drawing is interpreted within a perspective that [...] generally ignores the social and cultural condition of insertion of children, promoting an abstract and essentialist view of childhood. Disconnected from the analysis of its sociocultural conditions of production, children's drawing is predominantly analyzed as the mark of an individual that typifies the condition of the child and "allows" to read the developmental characteristic in each concrete stage of life. This generalizing abstraction obscures the social and cultural conditions in which the production of child drawing takes place (SARMENTO, 2011, p. 35).

From the considerations of Sarmiento (2011) was also that we understand drawing as:

a symbolic production of a generational type social group – childhood –, which has a specific status in society, and that, although it shares with the other generational groups the multiple and complex cultural forms socially present, it also presents cultural elements not reducible to these forms, but dependent on the child condition (SARMENTO, 2011, p. 29).

From this second meeting on, we began to consider the drawings of the participating children both as a production of children from the Dom Bosco neighborhood and as a production of childhood.

The encounter with lev Vigotski

Both in Sociology and Anthropology, researchers had already awakened to the fact that if children are protagonists and participants of life in society, they should also be considered in research (MARTINS, 1993; MARTINS, 2009; FERNANDES, 2004; PINTO, 1999; SARMENTO, 2005; SARMENTO; FERNANDES; TOMÁS, 2007; QVORTRUP 2010a, 2010b, 2011). We need to point out that our encounter took place first with the Sociology and Anthropology of Childhood and later with the thought of Lev Vigotski via a research group in Geography of Childhood¹¹ at a crossroads in our research.

The most recent works on the Geography of Childhood in Brazil have established a fruitful and intense dialogue with the Cultural-Historical Theory of Lev Vigotski and his collaborators¹². Brazilian scholars have been addressing the legacy of this intellectual, revisiting it (DUARTE, 2001; PRESTES, 2010); and researchers in the Geography of Childhood are also in this movement, deepening the study of children and childhoods, given that, for some time now, the challenge of understanding their spatialities/geographies are evident.

In this space, plastic boxes become cars, passages to other worlds are opened, pot lids become maps, legs get lost in the grass. It is a space that allows us to find the human story, its culture, its own history, and the uniqueness of each one of us. Therefore, if we speak of the child and his historical condition, we cannot deny the child and his geographical condition [...]

11 The *Geography of Childhood* began its consolidation process in Brazil, as a research field and object of study groups, at the beginning of this century. Jader Janer Moreira Lopes, who contributed greatly to our research, coordinates *Grupegi* – Research Group on Geography of Childhood, currently at the School of Education of the Federal University of Juiz de Fora.

12 Especially, Aleksandr Romanovitch Luria e Aleksei Nikolaievitch Leontiev.

The work we have been doing for a few years shows that children live the space in its geographical fullness, they are present in the landscapes, leaving their marks, and build/destroy their shapes, establish places and territories, live their affections, their desires, their powers, authorships and heteronomies. They invent them, architect and de-architect them, accept them, deny them, whether in the field of perception or representation. If the geographic science unfolds the space as strategies for understanding and interpretation, in the child all these dimensions meet, creating the geographic condition of their existence.

Just look at the maps, the drawings of the world, of the places, of the places made by the children, they are the totalities they try to represent, they are “graphs” of the “geos” they occupy and live. The cartographies conceive the movements, things that insist on hiding are made explicit, like the feet of the tables, which, seen from above, tend to run away, but the children insist on saying that they are there, and they make them open, spilling over the edges. If not even the movement can be left out, why would the feet or the wheels of cars be left out when seen from above, in the so-called map view? (LOPES, 2009, p. 127-129).

For the Geography of Childhood, Vigotski’s concept of Living has gained centrality. Living is a translation of the Russian word *Perejivanie*, used by Vigotski (DELARI JR, 2009) – and possibly the best translation to express the unity between the child and the environment (PRESTES, 2010). According to Toassa (2009; 2014) and Toassa et al (2010), this concept was transforming and gaining density in Vigotski and became key in his thinking to express the unity of analysis child / environment – differentiated from an analysis of tight elements: child and environment.

In Vigotski’s words, in 1933 and 1934:

We can point out [...] the unity for the study of the personality and the medium. [...] The child’s experience is that simple unit about which it is difficult to say that it represents the influence of the environment on the child or a peculiarity of the child himself. The experience constitutes the unity of the personality and the environment as it appears in the development. Therefore, in development, the unity of personal and environmental elements is realized in a series of diverse experiences of the child. The experience must be understood as the inner relationship of

the child as a human being, with one and another moment of reality. Every experience is an experience of something. There are no experiences without a reason, just as there is no conscious act that is not an act of consciousness of something. However, every experience is personal [...].

The experience has a biosocial orientation, it is something intermediate between the personality and the environment, which means the relationship of the personality with the environment reveals what the given moment of the environment means for the personality. The experience determines how the child's development is influenced by one or another aspect of the environment [...].

If we were to formulate a formal thesis, somewhat generalized, it would be correct to say that the environment determines the child's development through the experience of that environment [...] (VIGOTSKI, 2006, p. 383).

Vigotski (2006) pointed out that the individualized study of the parties involved, namely the environment and the child, and then the establishment of mutual relations and affections, between the two, would be less complex and would bring fewer difficult questions to address. We would probably have quicker answers to the questions about how the environment influences or determines the child and how the child, in turn, influences or determines the environment, but Vigotski insists on the challenge of unity.

This unity is translated into the concept of Living and comes to encompass the child with its development and the environment offered and also the child's interpretation of this environment. The Geography of Childhood begins to understand that if the environment, including the geographical environment, influences the human being, the latter, in turn, exerts an action on the environment, creating a new environment for his existence.

For Vigotski (2010), the child roots the offered environment, but also responds to the environment with something, interpreting it with new combinations, creating on preexistent bases, because he is also a historical subject.

The drawings have awakened us to think more closely about a child/spatiality relationship that includes concrete historical-

cultural artifacts and also imaginaries. Imaginaries that, however, have their concrete existence, are not delusional, and are brought to the surface in new recombinations in imaginative and creative activity, as Vigotski (2009) considers.

We sought to better understand the imagination present in drawings with Mèredieu (1978) and Derdyk (1989), and over time, with this new encounter, we assumed as a major premise that drawing is a creative reworking and not a copy of the surrounding reality (VIGOTSKI, 2009).

This encounter with Vigotski and the approach to the concept of Living as a child/environment unveiled new Dom Bosco neighborhoods for us. The *Neighborhood-Living* was the concept we built and that we understood to respond to what the Dom Bosco neighborhood is for the children who inhabit it. We consider that the *Neighborhood-Living* is also a strategy, a way of using space where space is lacking. Going beyond the administrative neighborhood, where one lives, one experiences much more! The neighborhood that is offered, the one that is often considered the neighborhood of absence, meets the neighborhood appropriated by children full of life and their logic of defining the neighborhood. This is the *Neighborhood-Living*!

The neighborhood that is only possible in the child/environment unity, when the neighborhood is the children and the children are the neighborhood, one producing the other dialectically, continuously, this is the *Neighborhood-Living*.

Vigotski speaks of a concrete environment when elaborating his concept of Living. With *Neighborhood-Living* we understand that Geography has a contribution, non-transferable, to the historical-cultural studies of Vigotski and his collaborators. We understand that the concept of Living has an undeniable spatiality. One more possibility of dialogue is opened at this moment that

Geography, and not only School Geography, starts to incorporate Vigotski's studies to its researches.

Final Remarks

Many years ago, in our wanderings, we had our curiosity piqued about what it was like to live in Dom Bosco from the point of view of children living in this neighborhood – a neighborhood with so many peculiarities, extremely impoverished and surrounded, literally, by high-cost developments. But if the research was with children, we had to hear and accept that their neighborhood was another, or others, and differed from ours, both in boundaries and in the inclusion of imaginary artifacts.

The children of the Dom Bosco neighborhood, with whom we met, are situated in a moment of intense discoveries and new developments in the studies of childhood in the world and of this they are also protagonists, which can be demonstrated in the very fact of assuming the preposition *with* and not *about*. Far beyond a substitution of prepositions, it was necessary to recognize that we were researching with people who think and talk, who have voices and opinions, who agree or disagree, contradict themselves, have defense mechanisms, laugh, make choices, have peculiarities of their generational condition, have their codes that only the group understands, in short, that they are complete human beings.

The *Neighborhood-Living* has shown that children are, in fact, also society, not a becoming. They are with the neighborhood and the neighborhood is with them. They take over spaces not designed for them, not theirs, and make them their neighborhood. This undeniable action with space, this geographical protagonism was evident. *Neighborhood-Living* is a possible answer to what the neighborhood is with the children.

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TEACHING GEOGRAPHY TO CHILDREN IN THE EARLY YEARS OF ELEMENTARY SCHOOL

*Reflections on didactic mediation based on the assumptions
of the cultural-historical theory¹*

FABIANA RODRIGUES OLIVEIRA QUEIROZ

Opening words

The issues related to the act of teaching, and teaching Geography, have accompanied us since the beginning of our teaching activity, when we were faced with numerous variables, such as the need to think the teaching-learning relationship with children and adolescents, because we understand that Education, especially Geography Education, occupies an important place in the processes of humanization and a possible reading of the world.

These factors led us to conduct an investigation based on the relationship of children with the school space and the use of media and technologies (QUEIROZ, 2015). Preliminary readings in the area gave us indications that there was a lack of studies related to Geography taught and learned with children. We emphasize that being a child is interpreted by us as a condition that goes beyond

1 This paper is an excerpt of the doctoral research entitled *A paisagem do Cerrado cabe em um desenho? Uma proposta metodológica do conceito paisagem-lugar para a mediação didática da Geografia dos anos iniciais*, defended in 2020 in the Graduate Program in Geography at the Federal University of Goiás (UFG), under the guidance of Professor Adriana Olívia Alves.

the age demarcation, which translates into the idea that in the initial or final years of elementary school it is possible to have students who identify themselves as children or not, which also justifies the need to conduct research with them.

Thus, during the doctorate, didactic mediation emerged as an analytical category that, from the point of view of school education, best responds to the premise that the relationships that mark the schooling process need to be based on reciprocity between the teacher's teaching and the student's learning, because the mediation processes that take place in the pedagogical sphere, as well as the appropriation of geographic knowledge, always imply a mode of participation and appropriation of the elements present in culture and history.

These initial considerations direct us to two important points. The first is the bet on the relevance of Geography as a powerful way to perform a critical and reflective reading of reality, by providing specific ways of thinking and reasoning about spatiality, but that still needs to advance in investigations in the Early Years of schooling. The second is that the geographic teaching exercise with children goes through different mediations, being the didactic mediation, in the Vygotskian perspective, one of the most important to be considered.

In this direction, the reflections we propose to develop in this text walk between the need to think about Geography teaching with children in the Early Years and the bet on the category of didactic mediation, linked to the use of geographic drawing² and the landscape of place. To this end, the assumptions of the cultural-historical theory are an important theoretical reference that guides this process. Thus, the structure that constitutes this text is subdivided in the following way: a) Contextualization of the

2 It is configured as a graphic type language present in the context of geographic science and school Geography, and is conventionally called geographic drawing.

investigative scenario about didactic mediation in Geography in the Initial Years; b) Theoretical constitution of the concept of didactic and cognitive mediation; c) Ponderings about the possibility of teaching Geography with children, having didactic mediation as reference.

Didactic Mediation in Geography in the Early Years of Elementary School: a brief contextualization of the scenario

As previously explained, the category of didactic mediation is one of the references to think the teaching of Geography with children. However, knowing what has already been produced academically, in relation to the theme is essential for us to point out reflections and that these result in advances. For this, we established an investigation reviewing theses and dissertations defended between the years 1970 and 2019 in the field of Geography Teaching, with scope in works related to the studies of Geography of Childhood³.

With this, we sought to contextualize the scenario of productions about didactic mediation in the Early Years, revealing the conceptualization of didactic mediations and the unfolding of these mediations with children. With this purpose, we proceeded to the production of a “state of knowledge”. This procedure allowed us to perform a critical analysis of the current conditions of the knowledge produced on the subject.

In this initial survey, using as search words the descriptors presented in Chart 1, we identified 78 works selected from the search for the descriptors in the titles of the works. In this survey, mediation was the main term, being selected the material related to didactic, pedagogical or cognitive mediation, as well as those linked to the teaching of Geography, early years, and the Geography of childhood.

3 The studies in this strand consider the relationship of children with their spatialities and promote the understanding of children's logics through a spatial bias.

Chart 1 – Search descriptors revolving around concepts that marked the doctoral research

Major Field: Geography	
Sub-Area: Geography Teaching	
Axis 1 – Geography Teaching and Early Years	Axis 2 – Geography of Childhood
Mediation / ¹ didactic / pedagogical / cognitive	Mediation / ¹ didactic / ¹ pedagogical / cognitive
Early Years / Elementary I	Early Years / Elementary I
Pedagogue – Geography ²	Pedagogue – Geography ²
Landscape / Place	Landscape / Place
Drawing	Drawing
Childhood(s) / Child(ren)	School / Schooling

¹ The / (sidebar) indicates that the search was made using the terms both individually and jointly.

² Indicates that the search included works about the teaching activity, in Geography, of the pedagogical teacher.

Source and organization: Queiroz, 2020.

Subsequently, we read the abstracts, the summaries of the works and occasionally the introduction and chapters of the researches that presented more specific discussions about didactic mediation, children, the use of drawing and landscape in the Early Years, discarding those that went in another direction. As a result, we have for the reflections of this text 13 works (Chart 2), affiliated to different theoretical lines.

Chart 2 – Display of theses and dissertations on didactic mediation, children, and the use of drawing and landscape in the Early Years

Year	Title- Post-graduation/Area	Author	D T	Institution
2005	O lugar do desenho e o desenho do lugar no ensino de geografia: contribuição para uma geografia escolar crítica. PhD in Geography.	Sergio Luiz Miranda	T	UNESP/Rio Claro
2008	Construindo sentidos para a inclusão das crianças de seis anos de idade no ensino fundamental de nove anos: um diálogo com os professores. Master in Education.	Rita de Cássia Barros de Freitas Araújo	D	UFJF
2011	O desenho e a trilha interpretativa como instrumentos de percepção e interpretação da paisagem urbana no Ensino de Geografia. Master in Geography.	Debora Lopes Francisco	D	UNESP/Rio Claro
2013	A mediação didática na construção do conhecimento geográfico: Uma análise do processo de ensino e aprendizagem de jovens do Ensino Médio e da potencialidade do lugar. PhD in Geography	Izabella Peracini Bento	T	UFG
2015	“Aqui não é lugar de entrar no Facebook, aqui é a escola! ”: Crianças, seus espaços vivenciais e usos das mídias e novas tecnologias no contexto educativo. Master in Education.	Fabiana Rodrigues Oliveira Queiroz	D	UFMT
2015	A Educação Geográfica com crianças nos Anos Iniciais do Ensino Fundamental: As bases conceituais humanistas no Estudo do Lugar. Master in Geography.	Maria do Socorro Pereira de Souza Andrade	D	UFPI

2016	Geografia Escolar: crianças e infâncias no primeiro ano do Ensino Fundamental em Juiz de Fora (MG). PhD in Geography	Bruno Muniz Figueiredo Costa	T	USP
2016	O Ensino de Geografia e a mobilização de conceitos nos Anos Iniciais: uma leitura da paisagem a partir dos conteúdos Relevo-Solo-Rocha. Master in Geography.	Malu Itala Araújo de Souza	D	UFG
2017	O estudo do Meio nos Anos Iniciais do Ensino Fundamental como possibilidade de entrelaçar a Geografia e a Educação Ambiental. Master in Environmental Education.	Ana Paula Borges Ramos	D	FURG
2017	A mediação didática no ensino de geografia: a construção do conceito território em sala de aula. Master in Geography.	Juliana Gomes da Silva de Melo	D	UFG
2019	A construção do conhecimento geográfico com alunos surdos nos Anos Iniciais do Ensino Fundamental. PhD in Education.	Thabata Fonseca de Oliveira	T	UFRJ
2019	Linguagem cartográfica e histórias infantis: a construção dos saberes geográficos nos Anos Iniciais do Ensino Fundamental. Master in Geography.	Luana Maria Xavier Silva	D	UFG
2019	A construção do pensamento geográfico nos Anos Iniciais a partir do conceito de lugar. Master in Teaching Basic Education.	Maria do Carmo Godoi	D	UFG

Source: Queiroz, 2020.

Organization: Queiroz, 2021.

For the analysis of the 13 productions, we based ourselves on the discursive theory of Mikhail Bakhtin (2006) to undertake “[...] a critical reading that involves both what is written, as the ability to

grasp the context in which such writing took place [...] it is an interpretation of writing and what is not written, made by the one who does the reading” (CAVALCANTI, 2016, p. 401).

As a cut of the results found, we have here the presentation of a qualitative analysis organized in chart 3 below, in which we systematize the works in four (04) thematic axes of discussion⁴.

Chart 3 – Qualitative analysis of the selected papers.

Thematic axes	Notes related to the selected works
1. Didactic mediation in Geography	We identified two (02) works (BENTO, 2013; MELO, 2017), which developed discussions about didactic mediation from the cultural-historical theory and highlighted the relevance of this process to the constitution of geographic knowledge. The first research focused on young high school students, and the second, on adolescents in the final years of elementary school II;
2. Children, school, Geography and teaching	Six (06) works were identified in this thematic line (ARAÚJO, 2008; QUEIROZ, 2015; ANDRADE, 2015; COSTA, 2016; RAMOS, 2017; OLIVEIRA, 2019), which consider the school dimension as integral to the processes of knowledge construction, linked to relationships and perceptions that children establish with and in the geographic space. The works are characterized by presenting diverse discussions, such as the insertion of children in the 1st year of schooling; teaching with deaf children, children in relation to media, technologies and school space; children and Environmental Education; and Geographic Literacy.

4 We point out that there are papers associated with more than one axis, because they present a centrality in more than one theme.

<p>3. Languages and teaching of Geography</p>	<p>We found four (04) works (MIRANDA, 2005; FRANCISCO, 2011; QUEIROZ, 2015; SILVA, 2019), whose investigations covered the languages present and/or necessary to the educational context of the Early Years of Primary School I. Among these languages, the cartographic, literary, and drawing languages stand out, in addition to the media and digital ones. An exception in this group is the work of Francisco (2011), which was dedicated to the Elementary School II, but brings contributions related to the language of drawing based on the reading of the landscape. These are works that, to some extent, seek to think the different languages as a possibility of enriching the teaching of Geography.</p>
<p>4. Geographical concepts, knowledge, thinking and/or reasoning in the teaching of Geography</p>	<p>In this last thematic line, eight (08) works (MIRANDA, 2005; FRANCISCO, 2011; BENTO, 2013; ANDRADE, 2015; SOUZA, 2016; MELO, 2017; GODOI, 2019; SILVA, 2019), which invested investigative efforts in the analysis of one or more concepts of Geography in the constitution of geographic knowledge or understanding. There are also works that highlight the dimension of the construction of geographic thinking and/or reasoning through the teaching of Geography. Place is the most underlined concept in the researches, followed by the concepts of territory and landscape.</p>

Source: Queiroz, 2020.

Organization: Queiroz, 2021.

From the analysis of these works, we see the relevance and the theoretical and methodological contribution that the studies about Geography in the Early Years can give to this follow-up of the Elementary School. However, it is evident the gap regarding the understanding of the dimension of didactic mediation with children and about the language of drawing, with only three (03) that involved discussions on the theme of drawing (MIRANDA, 2005; FRANCISCO, 2011) or dealt with the landscape as a relevant concept to mediations with children (SOUZA, 2016).

Moreover, this data, added to the fact that the survey conducted located only 13 researches, indicates the small representativeness that the theme of childhood has in Brazilian academic research in Geography. Such situation may be related to the fact that Geography has looked and worried about the Geographies present and practiced in childhood only in recent years – last 15 years (COSTA, 2016; LOPES; COSTA, 2017). Moreover, although Geography and its teaching are still present in Early Years of Primary Education, would other sciences, such as Pedagogy, have been more concerned with studies in this field than Geography itself? Regardless of the answers, we believe that it needs to be the object of concern, and that more attention should be directed to children in the Early Years of schooling in research in geographic education.

On the other hand, Cavalcanti (2016) points out that, despite its growth in the last three decades, with many investigations in Geography Teaching developed in graduate programs in Education and in Geography, the field is still configured as a little explored area. This helps us to improve our understanding of the initial character of research in the context of didactic mediation with children. And, from this scenario, indications emerge that allow us to understand that:

a) Research related to didactic mediation in Geography with children did not exist or were not identified. However, it was observed that there are works that deal with pedagogical practices in the teaching of Geography in the Early Years;

b) The views that Geography, as a science, has directed to children are still initial, and, within it, the Teaching of Geography tries to forward the discussions about the Early Years of Elementary School;

c) The language of drawing, articulated to the landscape of the place, is not yet a significant discussion in the composition of the mediations practiced at school, and it does not even show itself

as means that favor the teaching-learning process of Geography in an integrated way to the mediation processes.

Thus, we understand the responsibility to contribute to the advancement in this field. Based on this understanding, we continue the debate on the theme in the next topic, taking the existing production on mediation and didactic mediation.

Didactic mediation: the theoretical constitution of the concept from the cultural-historical theory

To reflect on didactic mediation, it is necessary to establish an understanding of the theoretical construction of this concept, as well as of the concept of cognitive mediation. This effort is made through its links to the cultural-historical theory, which has in the Belarusian professor and researcher Lev Semionovitch Vigotski (1896-1934⁵) its basic reference.

Given the above, and to continue this discussion, we emphasize that the mediation principle is, for Vigotski, the theoretical and methodological framework of his psychology (MOLON, 2010). Vigotski does not dwell on mediation, specifically, in a pedagogical sense, but in a broad sense. However, its development in the pedagogical field is shown as fundamental to contribute to the teaching processes proposed as Vygotskian ones (NASCIMENTO, 2014).

In this line, Bento (2013) emphasizes the place of relevance that the theoretical contributions of the Vygotskian conception have assumed nowadays and, in particular, in the didactics of Geography. The didactic approaches that favor the teaching-learning processes in Geography, taking into account its principles, are not based on historically systematized knowledge transfer

5 Vigotski's early death, at the age of 37, interrupted the production process of his work, delegating to his collaborators the role of continuity, development, and expansion of this theory.

mechanisms, but in a consciousness-creating process that involves a conscious and intentional planning of the teaching process (VIGOTSKI, 1991).

Therefore, mediation “refers to reciprocal actions, means what is between the two parties and establishes a relationship between them” (D’ÁVILA, 2008, p. 25). Mediation is characterized as an act of intentional interference that has by nature a political-social configuration. The operationalization of this process, in human life, occurs through the dialectical relationship established between man and the environment, especially, made possible by internal and external mediations (VIGOTSKI, 1991, 2001).

Thus, man acts on the world mediated by signs and/or instruments that have a connotation of intentionality for himself, unlike the function it has for animals. This conception is based on the idea of activity or theory of movement, in which internal and external stimuli are responded to by the joint activity of the psyche and the environment (NASCIMENTO, 2014). It is the existence of a unique, heterogeneous and complexly organized human system, which Vigotski’s psychology sought to study.

In other words, the human relationship with the real world happens in a mediated way by symbolic systems and potentiated through participation in socially and historically constituted culture. The concept of mediation, therefore, can contemplate, etymologically, at least two aspects. Let’s see:

[...] one that comes from the Greek root *mésos* and the other from the Latin *mediatio*. In the first meaning, Greek, *mésos* means what is placed in the middle, the midpoint. It also designates the sign of equality between two proportions. *To meson*, means the middle term and also the middle between several objects, the center of something. From the Latin root *mediatio*, the concept of mediation means intercession or intermediary; it refers to the reciprocal actions that interact between two parts of a whole, between the poles of a totality. In other words, it means what is between two parts and establishes a relationship between them (D’ÁVILA, 2008, p. 25).

From the point of view of everyday aspects of human life, we identify that there is a network of relationships made possible by the mediations of the human and his environment. In this aspect, Pino (2005) states that children, when born, go through a double birth: the biological and the cultural, and to access the world of culture they go through the mediation of signs, which has internal mediation functions (for the child itself), and through the mediation of the “other”, whose functions are external and are based on the word and on instruments. The latter, in turn, also makes up the network of mediating relationships that are part of the child’s experience and enable his/her birth into the world that was offered to him/her.

The “Other” (human) behaves, in this process, as the most experienced person in the handling of instruments and in the knowledge of the culture’s sign elements, setting up an important link between the child and the cultural universe, as illustrated in the representation proposed by Pino (2005): Child – Other – Cultural Universe.

Therefore, the social insertion in the world, unknown to the child until then, is operated through interpersonal processes that are later transformed into intrapersonal (internally within the subject). This movement is allied to the complex network of mediations, responsible for the transformation and development of higher psychological processes, such as thinking, communication, language, reasoning, among others (D’ÁVILA, 2008). This can also reveal a flexible and moldable face of biological development, mediated by the social and cultural environment.

In this way, the child develops not only biologically, but also socially and culturally throughout life. He/she builds his/her individuality and autonomy relying on a series of mediations that establish his/her relationship with the world and with other people (VIGOTSKI, 2000, 2018). Mediation, therefore, in its embodied dimension, feeds the internal devices that each individual possesses

(knowledge, practice, experience) to appropriate external reality (BENTO, 2013, p. 74).

Vigotski's general genetic law of cultural development brings the necessary assumptions to the understanding of the above, especially when it highlights the role of symbolic mediations and the environment in the development of psychological functions that enable the maintenance of the child's life since the first days of birth. Moreover, the issue of higher psychic functions is central to the theory formulated by Vigotski (1991, 2000, 2001, 2018).

Within the discussion on cultural development, then, it is necessary to think about the relationship between biological, social, cultural, and psychological processes, especially in two important dimensions: one linked to the development of natural or elementary (essentially biological) psychological functions; and the other, to the movement of the child's insertion in the social and cultural world that, in turn, provide the development of higher psychological functions (exclusively human), through mediated relations (BEATÓN, 2005).

The genesis of the process of social and cultural initiation of the child in the world is, by essence, mediated and expressed in the relationship that he/she establishes, first with his/her mother, and later, with the other members of his/her family circle, being expanded in the course of his/her existence. This understanding contributes to the unveiling of the elements that mediate our being in the world, as well as leads to the understanding that the historical, social, cultural, and geographical dimensions are, in a powerful but not decisive way, influencing and shaping human subjectivity through experiences and mediations.

Thus, different contexts (cultural, institutional, geographic) can favor the process of appropriation of knowledge in different areas, but, above all, it is the school context that presents itself as a privileged place for this purpose, whose bases are established in the

work with content historically produced and systematized by humanity (ASBAHR, 2017). Therefore, the mediations necessary for the development of higher psychological functions, in these spaces, can and need to be enhanced and guided by logics that are not mechanical and simplifying.

From there, then, emerges the theoretical constitution of the concept of didactic mediation, to be deepened, together with the concept of cognitive mediation, in the next item.

Didactic mediation and cognitive mediation: definitions and possibilities of teaching Geography to children

The didactic mediations, in the cultural-historical perspective, have as a premise to favor consciously and intentionally the learning of children in order to contribute to the development of higher psychic functions through the promotion of theoretical thinking (MARTINS, 2017; ASBAHR, 2017). Thus, didactic mediation is a specific act of pedagogical practice, which is established when the relationship between the student and the objects of knowledge is consciously and intentionally enhanced by the teacher. It is not, therefore, a synonym of pedagogical practice, but rather a direction, which may or may not be implemented by the teacher.

However, it should be noted that such mediation should not be restricted purely to actions aimed at the domain of knowledge necessary for teaching, but can and must be extended to allow access to the knowledge worked in a pleasurable way and according to the constitution of a sensitive knowledge, in which the “teacher should be able to create, competently and sensitively, their teaching-learning strategies” (D’ÁVILA, 2008, p. 45).

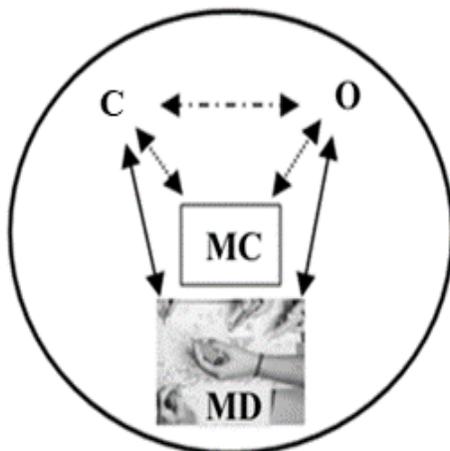
In this way, we understand that the mediations that, besides the specific knowledge of Geography, mobilize the free imagination and the knowledge of playful and artistic nature of the children (as in the creation of geographic drawings), enable a greater and better

appropriation of specific knowledge, either from the point of view of the internalization of these, the development of theoretical thinking or the perspective of subjective and human formation of the child.

With this, it is necessary to emphasize an important characteristic of didactic mediation: that of constituting itself as mediation of cognitive mediation, whose function resides in the dialectic action capable of making the object of knowledge desirable to the child, in the relation that he establishes with the referred object (C-----O). In other words, didactic and cognitive mediation are, by nature, inseparable, although they are structurally distinct, they present, in the appropriation and internalization of cultural knowledge, their main objective.

Image 1 brings a representation of this process, in which didactic mediation occurs by means of the geographic drawing, which, on its part, may favor cognitive mediation, which is proper to each child. We ponder only the substitution of “S” for “C” in the representation inspired by D’Ávila (2008), because the author brings this discussion in the perspective of Subject and Object of knowledge (S-----O), but here we bring it in the prism of the Child and the Object of knowledge (C-----O).

Image 1 – Representation of mediation by geographical design.



Adaptation: Queiroz, 2020, from D'Ávila, 2008.

We advocate, then, the possibility of mediation through geographic drawing within a psychopedagogical and didactic mediation that is associated with the artistic, playful and authorial dimension of children. It is a way to awaken the enchantment for the object of knowledge, as well as a means to mobilize the motivations that may lead them to the appropriation and individual assimilation of knowledge. In this regard, Asbahr (2017) argues that the quality of pedagogical mediations plays a key role in the process of mobilizing motives for learning.

The research developed by Bento (2013), when reflecting on didactic mediation in Geography, highlights the relevant role of the teacher and the mobilization of the motives of the students in the active process of teaching-learning. It is he (the teacher) who can mediate more directly the child's relationship with knowledge, in order to favor the expansion of their cognitive abilities and contribute to the promotion of autonomous thinking.

About this process, in the context of Geography Teaching, we highlight the contributions of Cavalcanti (2019), who suggests the

importance of geographic science as a school teaching subject. According to the author, it acts in the development of a geographic way of thinking, through mental actions operationalized through concepts proper to this science. Thus, her notes indicate the necessary concern about the quality of the mediations that involve the teaching-learning processes.

Thus, considering the theoretical connection between the mediation processes, which involve human life, and the didactic and cognitive mediation of the school sphere, some reflections about the possibilities of operationalizing these processes with children in educational contexts are valid. And, to this end, we have in image 3, a representation elaborated by two children from a 4th grade class, held in 2018, which express part of the results obtained with the didactic mediation process carried out with them, about the Cerrado theme.

In this process, the children, organized in small groups, needed to point out the name of some Cerrado landscapes and bring their characteristics. In image 3, therefore, we have the representation of Cerradão, Veredas, and Cerrado *Sensu Stricto*, through a geographical drawing. This was the option adopted by a pair of children, as an alternative, understood by them as viable, to meet the proposal of the requested activity.

Image 3 – Cerrado landscape



Source: Field research, 2018.

Organization: Queiroz, 2020.

Initially, the analysis of the drawing reveals that the presence of the *buritis* (a species commonly known by children as palm trees) in the center of the drawing, and of water became a reference for the children when differentiating the Veredas landscape from the others. The Cerradão, characterized by the recurrence of vegetation with a forested aspect, is presented with a distribution that differs from the Cerrado *Sensu Stricto* landscape, which has more arboreal characteristics and a spaced distribution, traits that show a form of register that involves body and thought. The drawings show a cognitive movement that went from observation, through imagination, abstraction, to a type of synthesis produced by the children, and this is because when we draw, there is:

[...] a cognitive and corporal relation with the elements/objects of the space through the look-see, the gesture, the stroke, the attention to the whole and to the details, in a movement of the body and of the thought, between the observation and the apprehension of a whole in its general lines forming a structure, the abstraction and the analysis, through the isolation of selected elements, and the elaboration of a synthesis in the composition of the whole through the tracing on paper (MIRANDA, 2005, p. 56).

It is also evident the dynamics that permeate this process, from the participation of each child in the culture of its time, in this case, the school culture, to the most immediate aspects of the space and

that were meant and represented by the child. This representation is not, however, restricted to the immediate, but involves a process of observation, abstraction, analysis, and synthesis of what she observed and recorded/represented. This movement involved both the didactic mediation promoted by the teacher's action, in correlation with the other children, and the cognitive (intrapersonal) mediation done internally by the children themselves.

Final Considerations

In view of the above, we must return to the point that justifies the choice of mediation, and, particularly, the bet on didactic mediation in the teaching of Geography in the Early Elementary School. We reaffirm that it is the category that best answers, from the point of view of school education, the premise that the relations that mark the school course need to occur from the viewpoint of reciprocity between the teacher's teaching and the child's learning, which are in a mutual and continuous process of teaching-learning.

These considerations are important to broaden the understanding about the processes that can favor children's school learning. But on the other hand, it reveals the necessary understanding that the child is not only a rational being and must be understood in its sensitive dimensions, being the mediation by the geographic drawing and the landscape a powerful possibility for the establishment of a more realistic, respectful, and altered relationship with the children.

Finally, we emphasize that didactic mediation, understood as mediation of cognitive mediation, is responsible for favoring the meeting relation between the child and the knowledge, an element that marks and is marked by historical, cultural and geographical contexts. Discussing this mediation points to the great responsibility of teachers in the processes of teaching-learning Geography with children to enable the development of mental operations related to the knowledge of the science itself, because our relations with the

world are not direct, but mediated. In the school context, didactic mediation can and needs to be a powerful instrument for the teaching profession.

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GEOGRAPHICAL REASONING DEMANDS MANY THINGS, SEEING IS NOT ONE OF THEM

*Geography teaching, geographical reasoning,
and congenital blindness*

FLÁVIA GABRIELA DOMINGOS SILVA

MIRIAM APARECIDA BUENO

Initial notes: let yourself be guided!

Geographic space is a complex social (re)production, which manifests itself diversely and involves different dimensions. Understanding such complexity requires specific knowledge, content and concepts that must be mobilized in order to develop geographic thinking and reasoning. Based on this assumption, two reflections are relevant.

The first is related to the subjects' cognitive processes. The reasoning and thinking resulting from Geography presuppose the mobilization of geographical and spatial signs and enable the actions and relations of the subjects in/with/about the spaces to be consciously carried out. It is necessary, therefore, to understand cognition!

The second reflection is articulated to the first and has a particularly important function. In understanding cognitive processes, and specifically geographic cognition, it is fundamental to reflect on how to mediate it didactically and what its potentiality is, i. e., it is necessary to shed light on the teaching of Geography and its contributions to the cognitive development of subjects.

We recognize the challenges of making such discussions and, therefore, we will dedicate ourselves here to a modest aspect of this whole. We aim to privilege the cognitive specificities of students with congenital blindness, from which the teaching of Geography will be problematized, pondering, in particular, the mobilization of geographic reasoning.

Vygotsky (1997) states that the absence of sight promotes a resizing in the cognitive activities of the subjects, who apprehend and signify reality through the remaining sensorial perceptions. However, this resizing does not make it impossible or restrict the mobilization of thoughts and reasoning. We question, then: how to didactically mediate the mobilization of geographic reasoning to students with congenital blindness?

Such questioning makes it important to recognize that education has been established under the influence of the inclusive conception, which establishes that regular schools should develop values and practices that eliminate or, at least, minimize (as much as possible) physical, pedagogical and communication barriers (UNESCO, 1994). To put it another way, it is inconceivable that the teaching and learning process is inaccessible to students with blindness, as well as to any other student.

Taking into account the inclusive educational context, we highlight the teaching of Geography and the elaboration of geographic reasoning, emphasizing its potential in enabling the mobilization of knowledge, content and concepts related to geographic space and, thus, qualifying the social and spatial practices of congenitally blind students.

The reflections proposed here consist of a theoretical cut in the discussions and analysis addressed in the thesis published in the book *“Não é preciso ver para compreender: mediação semiótica e elaboração de raciocínios geográficos por alunos cegos congênitos”* (SILVA, 2020). This cutout refers mainly to the literature review on

the themes: geographical reasoning; cognition of the student with congenital blindness, and elaboration of geographical reasoning by congenitally blind students.

In addition to the introduction, this text presents four topics. In the first one we briefly discuss geographic thoughts and reasoning. The second topic is constituted by reflections on cognitive specificities in the context of congenital blindness. In the third topic we address the possibilities of didactically mediating geographic reasoning to congenitally blind students. And, finally, we present our final considerations.

Geographical cognition: thinking and reasoning reality through Geography

When we ponder the evolution of *homo sapiens sapiens*, it is evident that the development of its cognition has become its main competitive advantage over other species. We understand cognition as “a sophisticated set of internal and external information processing mechanisms that together form a complex organized system” (SOUZA, 2004, p. 67).

In a prominent place in the cognitive functions and, influencing the conscious control of behaviors, is the thought. This is established as a complex activity, supported by verbal language, which enables the internal organization of experiences and generalized reflection on reality (VYGOTSKY, 2009).

The elaboration of thought is crossed by semiotic mediation, since the different signs, socially created and shared, allow the subjects to mean and represent the world, consciously elaborating stimuli-means for their thoughts and behaviors (PINO, 2005).

Among the various sign systems, Vygotsky (1993; 2009) privileged the verbal language (linguistic sign), highlighting its adequacy and potentiality to represent reality and make it communicable. Thus, depending on the object and on how the

linguistic sign is meant and is internalized, it is possible the elaboration of different modes of thought such as, for example, mathematical, spatial, geographic, etc.

The development of thinking is associated with the mobilization of logical procedures, that is, reasoning. For Lipman (1997) reasoning “has nothing to do with the acquisition of knowledge, but rather with its coordination, extension, and justification” (p. 48). Thus, reasoning makes it possible to mobilize and operate, in a logical way, the founding aspects of thought, allowing subjects to reflect, discuss, argue, etc. coherently within a certain way of thinking.

We intend to emphasize geographic thinking, as well as the reasoning that is proper to this cognition. Geographical space has long been established as a fundamental concept to Geography, influencing its scientific identity in relation to the other sciences and its social function at school. The development of geographic thought goes through the geographic analysis of reality. About this, Cavalcanti (2019) proposes:

[...] we teach Geography so that the student learns to think geographically. Therefore, I start from the assumption that geographic thinking is the general ability to perform the geographic analysis of facts or phenomena. In this perspective, I have been establishing the concept that geographic reasoning is a way of operating with this thought (p. 64).

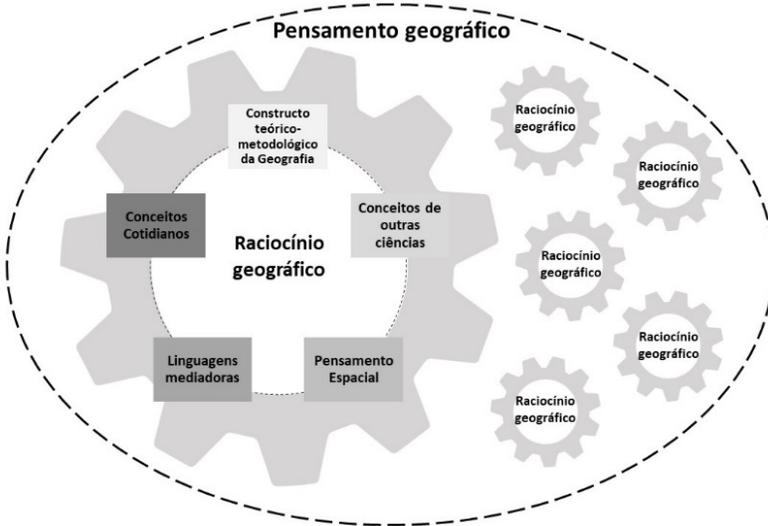
The geographic space is influenced and influences the (re) production of lifestyles in society, structuring itself, according to Santos (2000), as an inseparable set of systems of objects and systems of actions. When qualifying space as geographical, it is necessary to consider different dimensions: material, social, political, economic, cultural, physical-natural, etc., which manifest themselves in a multiscale manner: local, regional, national, and global.

Considering the link between thinking and reasoning, Golledge (2002 *apud* DUARTE, 2016) explains that geographic

reasonings “provide the basis for understanding – or rationalizing – about why spatial effects exist, not just figuring out what they are” (p. 79). This geographer indicated that mental actions related to: changes of scale; hierarchical relations and frames of reference; spatial associations; regionalization; locations and places; spatial forms and patterns; spatial delimitation, among others are ways of reasoning geographically (GOLLEDGE, 2002 *apud* DUARTE, 2016).

We argue that geographic reasoning are mental operations, performed from the mobilization of a specific theoretical and methodological body of Geography, which should be articulated to other scientific fields (emphasis on spatial thinking); to the mediating languages (emphasis on Cartography) and to the sensitive apprehension of everyday life and lived spatial experiences (Image 1).

Image 1 – Representation of the geographic reasoning and thinking



Source: Adapted from Silva (2020).

Among the cognitive elaborations that drive the development of reasoning and thinking, Vygotsky (1993; 2009) explained conceptual formation, which involves processes of perception,

signification and internalization and is also based on the mediating capacity of verbal language.

In the conceptual scope, geographic reasoning and thinking obviously involve the specific concepts of Geography, among which we highlight place, region, territory and landscape, which are powerful mediators for the understanding of geographic space in its different dimensions (absolute, relative and relational).

The approach to geographic cognition, more specifically geographic reasoning, will be addressed in this text by considering a specific subject, the student with congenital blindness. To this end, the cognitive specificities of this student were problematized below, using Vygotsky's theory.

The cognition of the congenitally blind student in the light of the cultural-historical theory

Congenital blindness is determined when the process of visual loss is completed by the age of five. Besides the restriction of vision, such deficiency causes the absence of visual memory. This can be defined as the mental elaboration of images from the perception/recall of visual data, therefore, there is no reference to vision in the cognitive process of congenitally blind subjects (VIVEIROS; CAMARGO, 2010).

The first and most important aspect to be highlighted when addressing the cognition of these subjects is that cognitive development, although scaled, is not prevented by the direct and mental absence of sight. Language performs in the congenitally blind, as well as in the sighted, the communicative and cognitive functions and, thus, the symbolic (semiotic) dimension is fully and completely established, making the process of elaboration of thoughts and reasoning effective in the context of congenital blindness (VYGOTSKY, 1997).

It is also important to emphasize that the direct and mental absence of vision does not prevent the elaboration of everyday and scientific concepts. About this discussion, Nunes and Lomônaco (2008) warn that the “conceptual delays in blind people are not due to the absence of vision, but to the lack of experiences that enable this development” (p. 122).

The most significant limitation caused by congenital blindness (as well as acquired blindness) focuses on the understanding of space and the actions, relationships, and activities resulting from such knowledge. “In the blind there is in the first place the limitation of freedom of movement in relation to space” (VYGOTSKY, 1997, position 2.275 of 7.891, our translation).

This difficulty is called spatial impotence by Vygotsky (1997). Sight, being a totalizing sense, grasps, almost instantaneously, information and spatial organizations, and none of the perceptual systems of the subject with congenital blindness enables an understanding similar to this one.

The extension and diversity are the main difficulties of spatial perception by the congenitally blind, who need to make a great effort to explore the spaces through the remaining senses and associate this information on a mental level. The fragility of the spatial understanding makes the abilities of orientation and mobility present considerable restrictions, which, in order to be minimized, require knowledge and specific techniques, such as, for instance, the use of the cane.

When discussing the adaptive processes of the congenitally blind, from the cultural-historical perspective, it is important to consider that the absence of vision is not replaced by another ultrasensitive sense, and there is not an automatic and natural exchange between perceptions. A complex restructuring of

physiological, psychological, and cognitive activities occurs in these subjects, called social-psychological compensation¹.

For Vygotsky (1997), it is fundamental not to reduce the compensatory process to the idea of organic correction of the deficiency; on the contrary, it must be understood that such process is associated with the cognitive development of everyone. In this sense, we understand as social-psychological compensation the processes of physiological, psychological and cognitive restructuring which lead to the (re)creation of psychic activities, this restructuring being driven by the organization, accessibility and adequacy of society to the demands of the subject with disability.

Therefore, the coadunation between the restructured psychic activities and the inclusive social context opens new paths for the development of cognition. According to Vygotsky and Luria (1996), the compensatory cultural behavior overrides the organic difficulties of disability. Regarding the congenitally blind, Vygotsky (1997) proposes that:

Blindness as an organic insufficiency gives impetus to compensatory processes, which lead to the formation of a series of particularities in the psychology of the blind and which restructure all the singular and particular functions (VYGOTSKY, 1997, position 2,348 of 7,891, our translation).

We recognize that spatial impotence, defined by Vygotsky (1997), involves mainly the material dimension of space and elementary spatial actions, for example, locomotion. However, when problematizing this concept in the context of Geography teaching, it is essential to consider other aspects besides materiality, once geographic space has absolute, relative and relational dimensions,

1 Currently, the concept of socio-psychological compensation has been addressed by different authors, especially when reflecting on the education of students with disabilities (DAINEZ, 2014).

whose lack of knowledge limits the spatial comprehensions and appropriations of students, congenitally blind or not.

That said, we argue that geographic cognition expands and qualifies the socio-psychological compensation of spatial impotence, by grounding comprehensions about several elements and dynamics of the geographic space. The teaching of Geography enables reasoning that goes beyond the immediate concrete, makes more complex analysis of spatial and geographical phenomena effective and enables students with congenital blindness to take ownership of their living spaces in a more conscious way.

Next, we seek to discuss this teaching, with emphasis on didactic mediation, orienting it to the student with congenital blindness and aiming at the elaboration of geographic reasoning, under the educational perspective of inclusion.

Possibilities for didactic mediation of geographic reasoning: the congenitally blind student and the inclusive teaching of Geography

The goal of education for students with congenital blindness is the same as that assigned to others, to form intellectually, emotionally, physically and aesthetically critical and aware citizens of their actions and relationships in/with the world. However, it is not possible to ignore that, from the perspective of Inclusive Education², the equivalence of the goal demands different educational processes, since the needs are varied and specific.

As mentioned, reasoning is a logical procedure mobilized in the context of a given thought. In the field of Geography, geographic

2 The inclusive educational concept has as its principles the guarantee of education for all and equal opportunities in the teaching process. The regular school becomes, then, the locus of formal education for all students, and it is up to this institution to adopt attitudes of respect and appreciation to diversity and develop values and practices that eliminate or minimize, as much as possible, physical, educational and communication barriers (MANTOAN, 2003).

reasoning enables more than the identification of spatialities, allowing, above all, to problematize them critically (GOLLEDGE, 2002 *apud* DUARTE, 2016).

Returning to the previous image, we argue that geographic reasoning is mobilized by: 1) theoretical-methodological construct of Geography; 2) knowledge and concepts from related sciences; 3) elements of spatial thinking; 4) mediating languages; and 5) everyday knowledge and concepts.

Before going deeper into the discussion, we clarify that we do not intend to offer a script to the teaching of Geography oriented to congenitally blind students; the aspects addressed below are not intended to be established as rules to teachers, but are actually reflections that seek, to some extent, to inspire and contribute to the teaching and learning process.

Conceptual elaboration is an indispensable aspect in the mobilization of reasoning and thinking, since it collaborates with the mastery of psychological operations, allows the generalization and classification of reality and the resolution of tasks through the functional use of the linguistic sign. For Vygotsky (2009) the concept is:

More than the sum of certain associative links formed by memory, it is more than a simple mental habit; it is a real and complex act of thought [...] at any level of its development, the concept is, in psychological terms, an act of generalization (p. 246).

Among the geographic concepts we highlight the potentiality of the place, from the perspective of Critical Geography. The place is a privileged scale of space, because it contemplates the materiality lived, felt, and experienced by the subjects, sheltering the individual and collective daily life. The deep articulation between life and place does not mean its simplification, this spatiality drives the elaboration of affectivities and is constituted in the complex relationship between local and global (CARLOS, 2007).

It is important that the materiality of the living spaces, one of the dimensions of the concept of place, be explored, problematized and understood in a systematic way by students with congenital blindness. For, in the same way that it is inconceivable to limit the place to the immediate concrete, it is also inconsistent to emphasize its other conceptual instances when the congenitally blind student cannot even explore his living space with autonomy.

The concept of place also allows the awareness of the affective and identification relations established with the space. Recognizing that spatial impotence can cause feelings of insecurity, fear and discomfort, by making the students understand the potential of places in their memories, stimulating the subjects' well-being and spatial familiarity, one can collaborate with the process of social-psychological compensation.

We also highlight the dimension of multi-scalarity, which makes the place an indispensable concept to the teaching of Geography. To understand the space in which one lives, understanding that local aspects coexist, absorb, resize and/or resist aspects from other scalar instances, is the basis for the criticality of socio-spatial actions and analyses.

Multi-scalarity is placed, in this sense, as a foundation for geographic reasoning, expanding and qualifying the possibilities of socio-psychological compensation for spatial impotence. After all, the lack of understanding of the local and/or global logics that govern the organization of a place ends up limiting the activities and relationships that subjects establish in/with/about it.

Although the concept of place was emphasized, we evidenced that the other geographic concepts enable the overcoming of thoughts and reasoning restricted to the immediate concrete, improving the socio-spatial practices of congenitally blind students. Such cognitive elaborations qualify basic skills, such as orientation

and mobility, and contribute to the elaboration of complex geographic reasoning about space.

Knowing that the concepts of Geography, at school, are accessed and contextualized by the contents, it is very important that these are approached providing the opportunity to reflect on the social-spatial practices and daily concepts that students with congenital blindness have of near and distant spaces.

Sight is the most used sense in everyday life, being also the main means of apprehension of spatial and geographic information. Therefore, to evoke the way blind students mean spatial information through auditory, kinesthetic and tactile perceptions diversifies the classroom discussion and, above all, creates opportunities for such students to confirm/enlarge/reconstruct their everyday knowledge, which ultimately cooperates with the development of scientific concepts and geographic reasoning.

It is known that Geography analyses are influenced by other fields of knowledge. In the context of the discussion proposed here, we highlight Orientation and Mobility³ (OM), which enables, even from the technical point of view, systematic learning about spatial materiality and elementary spatial actions. That is, the knowledge in this field significantly helps the socio-psychological compensation of spatial impotence, as described by Vygotsky (1997).

The understanding of materiality and elementary spatialities directly impacts the use and appropriation that the student with congenital blindness makes of/in/about the place, influencing the ways he/she thinks and feels the space in which he/she lives. We argue that the autonomy generated by the understanding of the material dimension boosts the spatial identification, since this

3 Orientation and Mobility (OM) is an area that enables "the blind student the conditions to situate himself in the physical environment where he lives, move freely, explore the objects that surround him, acquire autonomy and social independence" (FARIAS, 2016, p. 37).

subject is given the possibility to feel for (and in) his spatial actions/relations more than insecurity, anxiety or fear of disorientation.

The work done by OM is articulated in the elaboration of geographic reasoning, since it enables the student with congenital blindness to systematically understand the materiality of places, giving him knowledge and tools to experience them with more autonomy. This prepares the student to understand other spatial instances that are addressed by Geography and to reason about them.

OM also contributes to the elaboration of spatial thinking, being such cognition another aspect involved in the mobilization of geographic reasoning. About spatial thinking the document of the National Research Council of the United States (2006) recognizes the visual importance to its development, however, it explains that spatial thinking is not conditioned nor limited to sight. "For visually impaired people, tactile, kinesthetic, and auditory systems enable spatial thinking [...] [which] is not restricted to the visual modality: it is multimodal" (NRC, 2006, p. 36).

About the development of spatial thinking by congenitally blind people, it is fundamental the systematic work with elementary spatialities, such as: body space (awareness of positions, directions and distances of the body itself); space of action (execution of movements safely) and space of objects (position of objects regarding direction and distance) (BRASIL, 2003).

The understanding of the spaces mentioned above encompasses mainly thoughts in and about space, which subsidizes the elaboration of thoughts with it and, consequently, the internalization of more complex conceptual systems, in the sense that they are not articulated to concrete, everyday situations, requiring greater abstraction.

With sighted students, spatialities may not need much clarification, as they are built by visual perception and memory, with congenitally blind students; on the other hand, an explanatory

exploration of objects, places and spatial organizations is needed, in order to subsidize the understanding of geometric and abstract spaces.

Besides the elementary spatialities, it is assumed that, in order to elaborate thoughts with space, spatial information is represented in different ways, such as, for example, through diagrams, conceptual maps, graphs, etc. This aspect makes it essential that such representation modalities are adequate and accessible to the congenitally blind student's perceptions. This leads us to the next component aspect of the geographic reasoning, the mediating languages, and highlights the importance of reflecting on their adequacy.

Regarding such languages, besides, of course, the necessary adequacy of writing to the Braille system and the accessibility of images through audiodescription⁴, we will address more specifically the Tactile Cartography, which is essential to the teaching of Geography to students with congenital blindness.

Tactile Cartography is understood as "the science, art and technique of transposing a visual information in such a way that the result is a document that can be used by people with visual impairment" (CARMO, 2009, p. 46-47). It is essential, previously, to explain that the products of Tactile Cartography may be used by all students/subjects, not restricted to those with visual impairment. This is because its elaborations are based on the visual and tactile graphic language.

All the decisions made during the process of making the tactile maps aim at representing geographic information attending to the specificities of the tactile sense, which presents a lower resolution and field of exploration than vision. The process of

4 Audio description is a resource of communicational accessibility which broadens the understanding of people with visual impairment [...] by means of sound information. It transforms the visual into verbal, opening greater possibilities for access to culture and information" (MOTTA, 2016, p. 2)

making Tactile Cartography results in varied types of representations, three-dimensional and two-dimensional, appropriate and significant for the analysis of contents and concepts of Geography, as well as knowledge of OM.

In addition to reading and interpreting ready-made cartographic products, Tactile Cartography enables the student with congenital blindness to prepare his own representations, such as, for example, tactile mental maps. This becomes important when considering that, in general, the practice of drawing is not usually encouraged with children with blindness.

We emphasize that, in the same way that visually impaired students can understand cartographic representations as they are made accessible, the preparation of mental maps becomes possible through the use of appropriate resources, and there are several instruments that can be used, among which we highlight the Braille paper and the reel (embosser).

Ventorini (2012) proposes a reflection about tactile drawings, which can be associated with tactile mental maps. According to the author, in addition to the representation process, that is, the preparation and production of tactile graphic signs, the drawings make it possible to have access to the meaning that the visually impaired students make of such signs and of their understanding about the represented object (VENTORINI, 2012).

Peirce (2015) states that the sign appropriation enhances the process of understanding the object. To this assumption is added the idea that different languages enable different forms of reasoning about the object studied. Thus, what a map enables to reason about spatial and geographical phenomena is proper and particular to the way the cartographic language means and represents them.

For Simielli (2007), the relevance of Cartography for the teaching of Geography is in the fact that this language has protagonism in the representation of objects and phenomena

through spatiality. Several of the geographic reasoning defined by Golledge (2002 *apud* DUARTE, 2006) acquire mobilization power when cartographic readings, interpretations and productions are mediated. We argue, therefore, that Cartography contributes to the elaboration of reasoning about the geographic space and its dynamics by all students.

The last aspect linked to geographic reasoning is the everyday knowledge and concepts. The perception of space dissociated from the visual sense, although it may cause some restrictions, enables an authentic way of meaning spatial and geographical information, since elements that, in general, are ignored by visuals gain importance and start to constitute the necessary understanding for the appropriation of places.

The development of everyday concepts begins in the sphere of the concrete, with essences being formed from the observation, manipulation, and direct experience of the subject. Thus, “the spontaneous concept must necessarily be unconscious, because the attention contained in it is always directed toward the object represented in it and not toward the act of thinking itself” (VYGOTSKY, 2009, p. 290). The strength of this concept lies in the richness of its empirical content and its application in concrete situations.

Everyday geographic concepts arise from social-spatial practices. The daily actions/relations of subjects are articulated to the social (re)production of spaces, which results in information and knowledge. Sometimes, some of these everyday concepts can be imprecise in the context of congenital blindness, as well as it is possible to identify conceptualizations that differ from those developed by sighted people.

As already mentioned, evoking such understandings in Geography teaching demonstrates the different possibilities of apprehension of the geographic space, enriching and expanding classroom discussions. It is essential to make it possible for students

with congenital blindness to express their spatial and geographic understandings in a diversified way and, above all, to mediate the problematization of such concepts based on the scientific contents and concepts of Geography. In this way, everyday knowledge does not remain stuck in the empirical treatment, being inserted in the mobilization of geographic reasoning.

Final notes: what to take from the path (and from the guide)?

The relevance of Geography teaching in school goes through the fact that it provides an opportunity for the development of a specific cognition that influences the spatial practices and relationships established on a daily basis. For Geography to reach its full potential, it is necessary that its teaching be developed with a view to the elaboration of geographic cognition.

Therefore, it is not possible to consider the teaching of Geography ignoring the subjects' cognitive processes. At this juncture, the Vigotskian studies that, among other elaborations, explain the processes of cognition marking the sociocultural influence, collaborate with the reflections and teaching practices.

In this text, we prioritize the student with congenital blindness, his/her cognition and the teaching of Geography. The first possible defense, through the discussion of these aspects, is that the direct and mental absence of vision does not preclude the elaboration of thoughts and reasoning. Not even geographic thinking and reasoning, for which visual information has significant importance.

Vygotsky (1997) offers a particularly valuable contribution to the teaching of Geography by making spatial impotence explicit as the main restriction caused by visual impairment. This, while providing challenges to this teaching, since the congenitally blind student does indeed have a difficulty in perceiving and understanding the space, marks the importance of geographic cognition to the development of this subject.

Another aspect that needs to be recognized is that spatial impotence, in the context of Geography teaching, gains other connotations beyond the immediate materiality. After all, the lack of understanding of the relative and relational dynamics that govern the organization of places also limits the spatial actions/relationships of the subjects.

Therefore, when we see that geographic thinking and reasoning, although influenced by other fields, cannot be developed outside Geography, we highlight its relevance in the compensatory process, and it is imperative and urgent that geographic teaching is established in an inclusive way and for all.

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TEACHING GEOGRAPHY TO DEAF STUDENTS

Bilingualism as a learning possibility

CÉLIA FERREIRA DOS REIS

ADRIANY DE ÁVILA MELO SAMPAIO

Teaching Geography in the classroom has proved to be a challenge, for being a discipline and a science that by excellence focuses on spatial understanding through the interaction between society and nature, enabling a reading of the world from different perspectives, which aims to develop critical thinking on the part of children, young people and adults. Therefore, understanding the space where we are implies realizing that there is an interrelationship between the subjects inserted there, which is one of the goals of School Geography.

Thus, this text aims to contribute with dialogues about the teaching of Geography in schools for deaf students, based on the cultural-historical theory of Vygotsky and bilingualism, as possibilities in the process of teaching and learning¹.

1 These dialogues are parts of the master's thesis: "Teaching Geography in a school for deaf students: challenges and perspectives for learning", defended in 2017, when classroom observations, interviews and questionnaires were conducted with deaf students in early childhood education, elementary school in early and final years, and, for this text, we will only address the first two instruments of research.

The Geography that is taught in the classroom needs to be within the student's understanding, valuing their knowledge in the pedagogical practices. So, the question arises: why study Geography at all? If the answer to this question is not clear for both students and teachers, the effort to understand the teaching and learning processes by the teacher will be of little use, and the student will have little interest in learning this subject. In this sense, Vesentini (2009) clarifies that it is necessary to know the world we live in, clearly and intelligently, and that this knowledge should address:

[...] its real geoeconomic, geopolitical, cultural and environmental problems. A knowledge that should not be restricted to the assimilation of content, concepts and information, but, above all, that implies the development of skills and habits appropriate to active citizenship and democratic society [...]. (VESENTINI, 2009, p. 79).

Reis (2013), in turn, reports that the teaching of Geography can collaborate with the cognitive and social development of students, in addition to establishing a link between scientific knowledge and their experiences, enabling children and young people to understand the meaning and importance of human action in the constitution of the places where they live.

The exercise of looking allows not only perceive the landscape and the things around, but understand them as parts inserted in the spatial organization; by doing this reflection, the mind works the basic concepts acquired in the classroom correlating them to concrete facts (REIS, 2013, p. 21).

Thinking Geography in a bilingual perspective is even more challenging, because the planning of teaching, in addition to meeting the curriculum, also needs to take into account the linguistic specificities of deaf students, making clear the important role of this subject in learning. Such clarification can lead the student to reflect and read the geographic space that makes up the cities, states, the country and its intrinsic relationships, raising this

understanding to the broader spheres. Reinforcing the argument, Callai (2001) explains that:

[...] what is wanted today, and what society demands from the school, is an education that develops logical reasoning, criticality, instrumentalization to use knowledge coherently, the ability to think and especially to be able to build thought with self-authorship (CALLAI, 2001, p. 135).

Currently, it is a great challenge of Geography as a curricular component to enable ways to establish bridges between everyday and school knowledge, providing new insights and reflections in the social formation of the individual. In this sense, it is understood that the deaf student, when communicating through his/her natural language, can better understand the issues addressed, clarifying his/her doubts about Geography and being at ease to question and interact with peers, because he/she is signaling the same language. Therefore:

The teaching-learning of geography in school should, then, contemplate its key concepts and the representations that students bring of them and construct daily in the contemporary world, using the same means that they do, in order to provide them with the possibility to reflect so that they can intervene in the reality that surrounds them (SANTOS; COSTA; KINN, 2010, p. 45-46).

Thus, establishing the teaching of Libras in school since early childhood education, enables the deaf child to define a language in which he/she will have security and means to communicate, not only with other deaf children, but also with listeners who share the same language. It is understood that a deaf student being in a school for the deaf will have the opportunity to use the same form of communication inside and outside the classroom, providing social interaction among all members of the institution.

Therefore, this text seeks to present reflections on the teaching of Geography to deaf students, dialoguing with the cultural-historical theory of Vygotsky, realizing the importance of language

development and social interactions, and to what extent they can contribute to the learning of the child.

It is necessary to reflect on what has been adopted by society in relation to deaf education, and what has actually changed so that the social inclusion of these students occurs. Has the deaf student learned and felt welcomed in school spaces, both in schools for the deaf and in schools of common classes?

Language development from Vygotsky's perspective

Children's learning and development has always been a major concern among theorists and thinkers in education, psychology, neuroscience, and other areas of knowledge. As for school learning, Vygotsky (2007) explains that it is a broader process than the simple passive assimilation of some knowledge, but it is about producing something new in the child's development. For learning to occur, its relationship with the student's mental development must be considered, understanding that effective learning can "advance" his intellectual development.

Therefore, the planning of teaching activities needs to be objective, to propose challenges and problem situations that the student will encounter in order to make him/her progress in his/her learning and development.

By conducting studies focused on the dimension of school learning, Vygotsky launches a hypothesis about a new concept he identified as: Zone of Proximal Development (ZPD). For him, there are two important levels in development and he points out that the first is the "Real Development Level", which is related to the level of mental functions of the child that have already been completed. It is about what the child can solve independently, that is, by him/herself. The second is the "Zone of Potential Development", which is related to what the child can solve with the collaboration of

others. For Vygotsky, this level makes it possible to understand the mental processes that are still in formation and maturation.

In these theoretical formulations, it is clear the important role attributed to the social interactions that involve children in this learning process. According to Vygotsky (2007, p. 102), “good learning is only that which advances development. Thus, learning will direct and drive development, which may move more slowly in these processes.

Thus, school learning provides conditions for children to develop their cognitive functions, therefore, making the necessary interactions correlating scientific content to their daily lives.

As Stieler (2012) points out, cognitive functions can be understood as: “perception, attention, memory, language and executive functions” (STILIER, 2012, p. 4). They are important for the intellectual development of the child and learning plays an important role in this process. It is precisely the development of these functions that allows the acquisition of language, which is fundamental for communication between beings. From language the child then moves to the stage of construction of meaning and concepts, in the interrelation between thought and speech.

Vygotsky (1991) considers that the total development of subjects evolves as follows: the primary function of speech, both in children and adults, is communication, social contact. In his texts, Vygotsky shows disagreement with the studies presented by Piaget on the development of logic in children, as a direct function of socialized speech, when egocentric speech tends to disappear. Differently, he points out that egocentric speech has a specific function in the development of language and thought, and emerges when the child transfers social and cooperative forms of behavior to the spheres of inner, personal psychic functions.

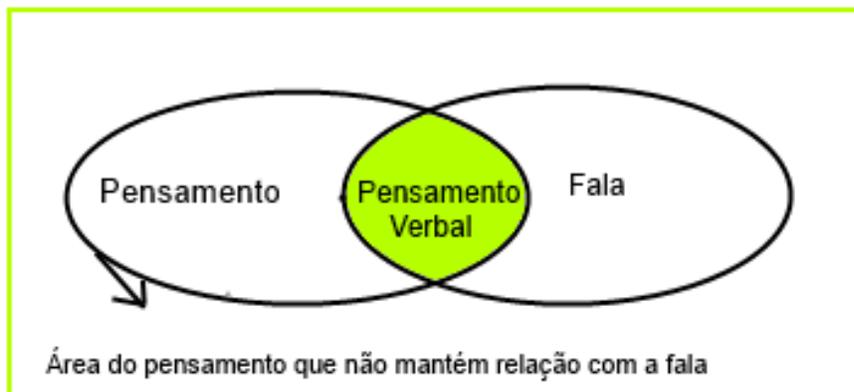
The social and historical context where the child is inserted is also an important factor for his/her development, since he/she will

receive stimuli and will be in contact with other people who will present him/her with symbolic instruments whose meaning he/she will learn for his/her socialization process.

The experience in his/her context will provide problem situations that will lead to the organization of thought in order to solve them. Vygotsky (2008, p. 62) concludes that: “[...] the development of thought is determined by language, that is, by the linguistic instruments of thought and by the child’s sociocultural experience.”

In the case of the deaf child, the offspring of deaf parents, Quadros (2008) argues that in research conducted in American Sign Language (ASL) on language acquisition, it was considered that the process of LS acquisition is analogous to that of spoken languages, explaining that studies have shown that children go through stages of acquisition among them: “[...] the pre-linguistic period, one-word stage, stage of the first combinations and stage of multiple combinations” (QUADROS, 2008, p. 70).

Vygotsky (2008) clarified that the development of language processes is complex and that thought and such processes are not necessarily linked, they may coincide in some parts producing what he called verbal thought. However, according to the author, verbal thinking does not encompass all forms of thought or speech. As shown in Image 1 below:

Image 1 – Representative scheme of Verbal Thinking.

Source: VYGOTSKY, L. S. Thought and Language (2008, p. 58).

Organization: REIS, C. F. (2017).

As Vygotsky points out, “it is in the meaning of the word that thought and speech unite in verbal thought” (VYGOTSKY, 2008, p. 5). For him, meaning is an integral part of the word; with that, it belongs to both the realm of thought and language in an interrelationship.

The word, therefore, becomes the medium that makes concept formation possible. For Vygotsky (2008), concept formation is a complex activity in which all basic intellectual functions take part. The author reports that along with the functions is the use of the sign, or word, conducting the mental operations.

Deaf children to receive the first stimuli and with the learning of Libras come into contact with different learning situations. This contact helps in mental operations to be performed, such as associations, perception, assimilation and attention, which are very important for the psychological and social development of children, in addition to enabling the acquisition of language in a timely manner.

Reflecting on the results of research with a class of Early Childhood Education – Children from 0 to 5 years (School for the Deaf Dulce de Oliveira, Uberaba/MG)

Next, we will report the results of the research that was developed in a school for the deaf, in Uberaba/MG, during my master's degree, which involved activities of class observation, document analysis and application of a questionnaire to students and teachers of that school, in order to understand the development of learning of these students. According to the classroom observations and the analysis of the students' entry profile to the Kindergarten class of the Dulce de Oliveira School for the Deaf, located in Uberaba/MG, it can be stated that the group was multigrade, and the contents were worked in a common way, changing only the degree of activity among them. The more specific contents were dealt with separately for the students in the same grade.

The class was composed of six students: two girls aged 2 and 5, four boys, two of them aged 5, one aged 3, and one aged 6. The latter still remained in Kindergarten because he was not able to be admitted to the Elementary School in the early years, as he was an autistic child, and his development time was respected. Among the students mentioned, some did not attend school, being the first year in the Dulce de Oliveira School for the Deaf, which led to the variation in age and learning level reached by the students.

The planned activities for students from 0 to 3 years old consisted in working with a learning environment (Pedagogical Table), stimulation of motor coordination, spatial notion, games, and puzzles. Besides these activities, there were also movie presentations and storytelling, encouraging students to explain what they understood from the stories in order to help perception, attention, and memory, organizing thoughts and developing coherence in their answers. Below is a picture of the classroom and the pedagogical table.

Image 2 – Image of the 0 to 3 years old classroom and Pedagogical Table at the Dulce de Oliveira School for the Deaf, Uberaba-MG, 2016



Source: REIS, C. F., 2016.

The pedagogical table is a technological resource that assists the teacher, providing differentiated lessons, in which students learn by playing. They can handle objects such as the mobile alphabet, as well as interact with digital technology, building words according to the themes presented on the table's monitor, which enables the stimulation of perception, visual and sound, motor coordination, and socialization.

The bilingual teacher, who participated in the research, also created learning situations through differentiated objects, teaching the sign of the colors, leading the student to perceive the shapes, textures, and organization of the environment. Routine activities were also performed, such as eating breakfast, lunch, and snacks. In this way, the students started to relate the activities to the notion of time and later developed autonomy.

Among the students who were enrolled in kindergarten, comprising the age range between 4 and 5 years, learning was very

diverse according to the cognitive development of each deaf student, and it was possible to see how each one reacted to the proposed activity. It was noted that some could perform all the steps of the activity proposed by the teacher, and others did not complete it, which would be natural according to the age group and the very development of mental and cognitive activities of the child, remembering also the biological and social factors that interfere with development.

Image 3 – Image of activities proposed to students between 4 and 5 years of the Dulce de Oliveira School for the Deaf, Uberaba-MG, 2016



Student: A13 (5 years old);

Student: A12 (5 years old)

Source: Activities carried out by student A13 (5 years old) and Student A12 (5 years old) of the School for the Deaf Dulce de Oliveira, Uberaba-MG, 2016.

Organization: REIS, C. F., 2017.

The images in Image 3 represent the activities of two deaf children who are in the same age group, but it was possible to notice through observation in the classroom that the student “A13”, had

another focus in mind, ignoring part of the commands of the questions, since initially he tried to perform. To finish the activity soon, he colored it very quickly, his attention at this moment was the interaction with his classmates. The student “A12” showed more interest when performing the activities, making an effort to color them according to what was requested in the activity.

The analysis in question does not intend to compare the activities, but to realize that the maturation and development of mental functions occur at their own time, and may vary from child to child due to internal and external factors. This fact can possibly explain student “A13’s” lack of interest in what is being asked of him. At that moment, perhaps the student had not yet understood the need to perform such activities.

The student “A12” (5 years old), after finishing the activities asked the teacher if she could stop playing with the games, putting together a “puzzle” with the image of a princess. At that moment, there was an invitation from the deaf student so that the researcher could see what she had managed to do by herself. Below is an image of the mentioned activity:

Image 4 – Puzzle

Source: Activity performed by student A12 (5 years old) from Dulce de Oliveira School for the Deaf, Uberaba-MG, 2016. **Org.:** REIS, C. F., 2017.

The jigsaw puzzle game can be seen as an example of the stages of learning that the child can achieve, previously addressed in Vygotsky's theory, being what he/she can do alone (Zone of Real Development) and what he/she can solve with the collaboration of other people (Zone of Proximal Development), i.e., the mental processes in formation. By performing the activity and assembling the puzzle by free choice, the student demonstrated that she had already overcome the first phase of learning and that she had memorized and mastered the process of assembling the toy, thus advancing in the number of pieces and in the degree of difficulty required in other phases.

Class from the 1st to the 5th grade of Elementary School – Early Years

In this research, classes were also observed in a 1st to 5th grade class, composed of seven students: a 12 year old girl in the 3rd grade, and six boys: a 6 year old student in the 1st grade, a 10 year old student in the 3rd grade, a 12 year old student in the 4th grade, two 10 year old students and a 13 year old student in the 5th grade of the Elementary School Early Years. It is a multigrade class, in which the Curricular Components are worked on according to each student's year.

As far as learning is concerned, some students have more difficulties than others. In view of this, the teacher chose to work the contents in an integrated way in order to include all the students in the class, but giving special attention to those who had more difficulty, developing reinforcement activities.

Being a bilingual school, languages and culture are valued, so the teachers organized the activities and the classroom environment whenever possible, valuing Libras and Portuguese.

According to the observations, the teacher worked with Geography content, such as, for example, "The formation of the planet Earth", demonstrating the importance of water as an essential component for the maintenance of life. From the teacher's explanations directly in Libras, the students drew pictures representing the planet Earth, thus showing what each one understood of what was explained, as shown in Figure 5.

Image 5 – Representation of the planet Earth – 1st to 5th year of the Dulce de Oliveira School for the Deaf, Uberaba-MG, 2016



Student: A6 (13 years old)



Student: A1 (6 years old)

Source: Drawings of Student A6 (13 years old) and Student A1 (6 years old) from Dulce de Oliveira School for the Deaf, Uberaba-MG, 2016. **Org.:** REIS, C. F., 2017.

Student A6, from 5th grade, and student “A1”, from 1st grade, made drawings demonstrating the Earth in proportions, with details for the continents, emphasizing the vegetation cover (painted green), the abundance of water. The students demonstrated that they understood the importance of water for the survival of living beings. Thus, the possibilities of learning through bilingualism² were evidenced, as the students received the

2 Bilingualism is the communication modality that adopts the sign language, in Brazil, Libras (L1) as a natural language and Portuguese (L2) as a second language. As pointed out by Fernandes and Correa, (2005, p. 22), "the bilingual individual is one who uses two distinct symbolic systems in order to represent concepts". In Brazil, Decree No. 5.626, December 22, 2005, establishes bilingual education with Libras and written Portuguese,

information in Libras, and later represented it through drawing and writing in Portuguese.

Regarding the study of place, the teacher tried to establish a close relationship for the understanding of this category, exploring the classroom itself and how it was seen by deaf students. She did this by inviting them to represent it through a scale model. The students interacted very well, some representing richly the details in their models. Below is a picture of the classroom, along with one of the models produced by the students.

Image 6 – Image of the 1st to 5th grade classroom of the Dulce de Oliveira School for the Deaf used as a model for the model on the study of place



Source: REIS, C. F., 2016.

emphasizing that oral modality is optional, provided that institutions have environments and professionals available for monitoring.

Image 7 – Model of the classroom of the 1st to 5th grade of the School for the Deaf Dulce de Oliveira, representation of the study of place



Source: Model built by student A2 (9 years old) from Dulce de Oliveira School for the Deaf, Uberaba-MG, 2016. **Org.:** REIS, C. F., 2017.

It was possible to notice through the activity the interaction between the bilingual teacher and the deaf students, because they managed to complete the activity, providing a moment of socialization and mutual help, because besides performing the activity, students exchanged ideas and helped each other in the execution of the models.

The assumptions of Vygotsky (2008) contribute to the analysis of this activity. This author, as seen, emphasizes that the ZPD is developed in the child from these interactions and problem situations in which the child together with the collaboration of others can go beyond what they would do if they were alone. The learning through the challenge of building the classroom model became the stimulus for several complex processes to take place in the child's mind, contributing to his/her development.

Final Considerations

The acquisition of language, fundamental to all human beings, is a differential for deaf children not only because they communicate better from it, but also for the historical and cultural value that it has for everyone, and especially for the deaf. Mastering Libras is to be among “theirs”, thus establishing their belonging, but these go far beyond simply being; it is also to be part of it.

It is then realized how relevant is the presence of the bilingual teacher in the classroom, becoming the link between the contents of Geography and not only of this discipline, effective as a mediator in the process of teaching and learning. The observation in the classroom made it possible to understand the methodology adopted by the bilingual teachers participating in the research, who prepared materials in Libras and adapted the content so that the student could develop their knowledge naturally and spontaneously.

The activities developed led the deaf students to think of possible solutions to “problem situations” that involved: reasoning, mutual cooperation, reading and interpretation of texts, clarifying questions that arose from reflections, enabling direct dialogue between teacher and student. It was clear from the results of this research that the bilingual teacher promotes better interaction between the worked contents and the deaf student, because besides communicating directly, they created possibilities for teaching-learning the contents of Geography, confirming the research hypothesis in the light of Vygotsky’s theory.

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The texts that make up this book were brought together because they present theoretical formulations and investigations that gravitate around theoretical and methodological principles and common concepts for the teaching of Geography, based on the Cultural-Historical Theory and the thought of Vygotsky and his collaborators. The various texts in the book explore concepts about learning and development of students, internalization processes, cognitive and didactic mediation, the zone of proximal development, concept formation and the conceptual system, the word, the system of senses and meanings, activity, and experience. We are very happy and satisfied to have concluded this project and to bring to the public a set of reflections, productions, and theoretical and practical proposals from authors and researchers from several institutions and regions in Brazil and Latin America. We believe that it is a great contribution to continue the studies with theoretical and methodological deepening in the area of Geography teaching, an already legitimate field of academic research and citizen actions committed to the construction of new natural and social realities.

The organizers

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