

DIDACTIC SEQUENCE FOR ORAL AND WRITTEN GENRES IN THE TEACHING OF PHYSICAL-NATURAL THEMES

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402

ABSTRACT

This article aims to discuss the teaching planning process of a didactic sequence in Geography whose theme is watershed, developed in three classes of the 6th year of elementary school in a school in the state network of São Paulo in 2016. The planning proposal was based on the methodology developed by Schneuwly and Dolz (2004), in which reading and writing practices are organized throughout the modules, guided by the concern to explore with students the stable characteristics of the oral and written genres proposed during classes. In this context, we understand teaching planning as the expression of the teacher's conceptions of science and, above all, of the difficulties and possibilities of integration between the physical and the human in Geography classes.

Keywords: didactic sequence, teaching of Geography, watershed, teaching planning, Cultural-Historical Theory.

SEQUÊNCIA DIDÁTICA POR GÊNEROS ORAIS E ESCRITOS NO ENSINO DAS TEMÁTICAS FÍSICO NATURAIS

RESUMO

O presente artigo pretende discutir o processo de planejamento docente de uma sequência didática em Geografia cuja temática é bacia hidrográfica, desenvolvida em três classes do 6º ano do ensino Fundamental em uma escola da rede estadual de São Paulo no ano de 2016. A proposta de planejamento foi baseada na metodologia desenvolvida por Schneuwly e Dolz (2004), em que as práticas de leitura e escrita são organizadas ao longo dos módulos, orientadas pela preocupação em explorar com os estudantes as características estáveis dos gêneros orais e escritos propostos durante as aulas. Nesse contexto, entendemos o planejamento docente como a expressão das concepções de ciência do professor e sobretudo, das dificuldades e possibilidades de integração entre o físico e o humano nas aulas de Geografia.

Palavras-chave: sequência didática, ensino de Geografia, bacia hidrográfica, planejamento docente, Teoria Histórico Cultural.

INTRODUCTION

Learning to read and write is one of the great challenges of Brazilian education, and for this reason, it cannot be limited to the initial years of elementary school; this learning process is a continuous movement of language improvement that permeates our entire lives. Literacy needs to be able to ensure communication and production of ideas, concepts, and worldviews in an autonomous way and, therefore, these skills are not exclusive to Portuguese Language classes.

According to Lerner (2002), one of the obstacles involving the oral, reading and writing formation of students at school is related to the separation between learning and the social

use of language. We can exemplify this separation in the very organization of school activities when they are devoid of meaning, especially in productions that do not present a clear purpose in their context of production and circulation of these texts.

In the final years of elementary school, the separation between the use of language and school subjects is evident, especially in the learning of concepts and how these activities are organized to allow the expression of this knowledge (oral and written) by the students and also to ensure the monitoring of this cognitive construction throughout the classes. As class support, teachers often use textbooks that encourage the reproduction of geographic concepts.

In order to understand how the learning of concepts occurs in Geography teaching, we based ourselves on Vygotsky's Cultural-Historical Psychology (2009), which defends the spoken (or written) word as an expression of thought. For the author, at first, words and thought are distinct processes; however, in social interaction, words gain other senses and meanings and become verbalized thought. This phenomenon occurs around two years of age due to the individual's development, expressed by this improvement in the young child's verbal thought, which is detected in the evolution or not of speech and should be expanded during schooling and throughout life.

On the other hand, when we examined the Official Curriculum of Geography of the final years of Elementary School of the State of São Paulo, the parameter for the organization of the contents of the school participating in the research, we noticed suggestions that direct the learning to assumptions contrary to what Vygotsky proposes, despite the psychologist being one of the guiding references for its elaboration. These materials present suggestions of question and answer activities, but we evaluate that there is an explicit segmentation in which the learning of concepts is displaced, so that the movement of vocabulary appropriation and its approach with the adoption of criteria for the observation and analysis of world problems supported by science are detailed in favor of disconnected and quickly presented contents, that is, the connections and a concern with the process of accumulation and appropriation of knowledge of students are secondary.

In this context that raises heated debates in education sciences, we bring to the discussion the questioning of the teacher's role, expressed by his/her relationship with knowledge and the reach of his/her autonomy at school in face of official teaching proposals. According to Nóvoa (1999), the possible answers to these questions can be found in the history of the teaching profession, focusing on the questions of what knowledge teachers produce in their teaching practice. In other words, what is the nature of the teaching profession: "are they bearers (and producers) of their own knowledge, or are they just transmitters (and reproducers of other people's knowledge)? Is the knowledge teachers refer to fundamentally scientific or technical?"

In the attempts to answer these questions, we can verify conflicting visions of the teaching profession and consequently, distinct projects of professional development. Nóvoa (1999) suggests a new professional culture, because the values that sustain the conceptions of the teacher are outdated due to the contemporary social transformation that has produced effects in the educational systems. This new professional culture should enable a social and collective development of the subjects, and we believe that this change can be achieved if we consider teachers and students as subjects that access the knowledge socially produced by humanity, and that this knowledge is not static, consequently, the school is also a space of production of this knowledge.

The teaching practice imposes new challenges that are summarily dissociated from the initial academic training. However, this knowledge, weaknesses, and difficulties that teachers encounter in their classrooms need to be deepened so that they can go beyond findings that use common sense categories of analysis of the school reality to elaborations and investigations with a scientific basis. In this sense, we reaffirm the urgency of introducing, as an initial and continuing education project, the constitution of the researcher teacher, obviously recognizing that it is a very audacious proposition, but necessary for the transformation of the professional teaching culture, as proposed by Nóvoa (1999).

In the studies oriented by the research group and in the application of the Geography didactic sequence, it was possible to understand the importance of lesson planning, beyond the bureaucratic assignment of building a plan destined to be abandoned in drawers and rarely revisited throughout the development of the classes. Planning is an intellectual exercise of constituting a plan that provides for the organization of the contents and reveals the teacher's conception of science, the time required, the knowledge to be acquired and mobilized at each moment (interaction between teacher and student). It is an instrument that provides subsidies to the teacher from several perspectives, either to reformulate the lessons according to the needs of the class, or to evaluate the methodological choices adopted.

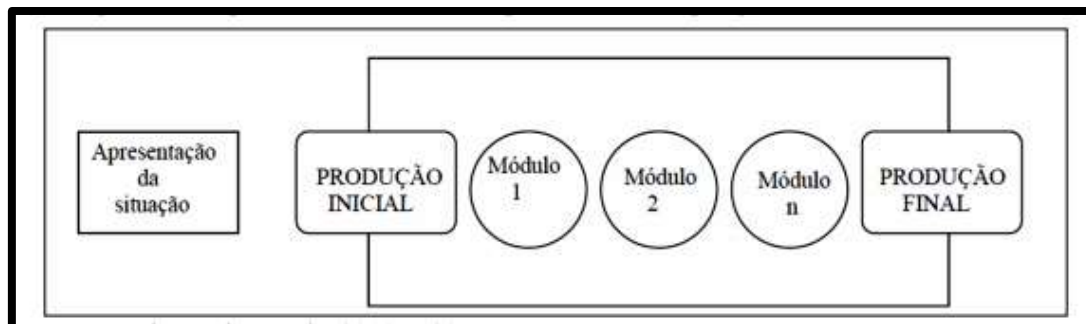
In this article, we will present the organization of the Geography Teaching Sequence "Watershed" worked with the 6th-grade students of the Elementary School and explore the areas of knowledge that were triggered in the preparation and execution of the plan, in the dimensions of the geography knowledge to be taught.

MATERIAL AND METHOD

The didactic sequence is a pedagogical strategy that the teacher can use to organize classroom activities in order to elucidate the stages of the thematic axes and the procedures involved. In our research, with the necessary adaptations for teaching Geography, we adopted the didactic sequence model proposed by Schneuwly & Dolz (2004). The group has as a parameter studies for the improvement and development of language and defines: "didactic sequence is a set of school activities organized in a systematic way around an oral or written genre" (DOLZ *et al.*, 2004, p. 82) (Our translation).

According to the proposal, the organization of the didactic sequence by textual discourse genres should prioritize practices that address a real context of verbal interaction and ensure the autonomous textual and oral production of students. The theoretical methodological orientation suggests initially the presentation of the situation to be studied, in which the teacher explains in detail the oral or written exposition task that students will learn and should perform throughout the process, according to the model below:

Figure 1 - Scheme of the Didactic Sequence structure by textual discursive genre¹



Source: Dolz *et al.*, 2004, p. 83.

The initial production is the second stage of the didactic sequence that has a diagnostic role for the teacher. For the student, it is the first activity which they can express orally or write their ideas about something that has not yet been worked on, and thus mobilize their spontaneous knowledge about the subject and formulate questions by the simple fact of being in a new and challenging situation.

In this activity, the teacher has indicators to reorganize the next steps of the class, by evaluating the knowledge that students bring from their experiences and the needs of the class regarding the theme, the textual, grammatical and communicative structure from the proposed discursive genre. Therefore, the first productions are not aimed at appointing a grade or classifying mistakes or successes, the goal is to build a tool that resignifies the evaluation traditionally placed towards the end of the teaching process with the purpose of classification to a space of observation and elaboration of the teacher's intellectual work:

Mas a produção inicial é igualmente o primeiro lugar de aprendizagem da sequência. Com efeito, o simples fato de “fazer”! - de realizar uma atividade de maneira precisa constitui um momento de conscientização do que está em jogo e das dificuldades relativas ao objeto de aprendizagem, sobretudo se o problema comunicativo a ser resolvido ultrapassa parcialmente as capacidades de linguagem dos alunos e confronta-os, assim, a seus próprios limites (DOLZ *et al.*, 2004, p. 87)².

The modules are progressive stages, whose purpose is to work in a decomposed way the problems posed by the genre (thematic, stylistic and compositional characteristics). The model establishes learning from complex to simple, the initial production without much information and then the modules, gradually working on each skill needed to master the genre and finally, the return to the complex with the final production. The last production

¹ Translation of the table, from left to right: Presentation of the situation; INITIAL PRODUCTION; Module 1; Module 2; Module 3; FINAL PRODUCTION;

² But the initial production is also the first place of learning the sequence. In fact, the simple fact of "doing"! - performing an activity in a precise manner constitutes a moment of awareness of what is involved and of the difficulties relative to the object of learning, especially if the communicative problem to be solved goes partially beyond the students' language abilities and thus confronts them with their own limits. (Our translation)

is the moment when students verbalize what was learned throughout the lessons and the teacher can compare the students' development using as a tool the activities developed during the stages of the sequence.

The didactic sequence approach has the goal of teaching the textual genres, classified by Bakhtin (2016) as primary (spontaneous and everyday communication) and secondary (more complex, that requires intervention). This Bakhtin's definition presents an interface with the everyday and scientific concepts brought by Vygotsky (2009), which justifies the approach in our research. In this aspect, Schneuwly (2004), based on psychology, argues that the transition from spontaneous (immediate experience) to secondary is not an automatic rupture, and therefore generates tensions, because the new acquisitions do not eliminate the old ones, but transform them drastically "written language, which is reorganizing the previous system of (spontaneous) oral language" (SCHNEUWLY, 2004 p. 30) (Our translation).

At first, the choice for a methodology that has textual genres as its centrality may seem a very specific language activity and, on the contrary, very distant from the purposes of Geography, especially the physical-natural themes. However, this hasty analysis does not consider that students produce few activities in school in an autonomous way, because the practices of reproduction were naturalized in school, especially because it is uncommon to plan activities with clear objectives that seek a progressive assessment of learning guided by the characteristics of a textual genre. Usually the activities propose commands such as: producing a text, making a summary, writing about your vacation, without the explicit orientation of the stable characteristics of the genre requested.

Geography Teaching Sequence

The adoption of the didactic sequence model of the Geneva school requires adaptations for the teaching of Geography, which we will deal with below. The use and construction of this format in Geography classes were discussed in the group "Geography and Human Sciences in the Information and Connectivity Era", whose language is the first structuring theoretical frontier for teacher education according to Miranda (2010). The planning of activities by discursive genres exposes the need to structure activities of communication and expression of conceptions. These situations are formative, because they ground the development of language skills and formation of critical scientific thinking, in our case guided by the categories of analysis of Geography.

Initially, we will present the aspects incorporated from Schneuwly and Noverraz's (2004) approach to the didactic sequence of Geography and later, the changes made due to the need to teach the concept of watershed, a unit of spatial representation of Geography. In this perspective we organized the sequence with a focus on conceptual learning of the watershed elements, a very important aspect of our research that pursues to understand how students learn new words in the semantic field of Geography. We synthesize in the following table the organization:

Table 1: Didactic Sequence Stages

SPEECH GENRE	School
TEXT GENRE	Table
LANGUAGE ABILITY	Express
Presentation of the situation	
MODULE STRUCTURE	Initial elaboration - oral (collective)
	MODULE 1 Longitudinal profile of a watershed and surface and subsurface runoff
	Intermediate Production Table of Evidence I
	MODULE 2 Orientation: direction and sense of the waters of the river; Surface and subsurface runoff in permeabilized and impermeabilized areas; Table of Evidence II
	Final production Metacognitive Assessment

Source: BATISTA, 2021, p.104

The first step was to choose which *textual genre* would be the most appropriate to accompany student learning in establishing the relationship between the image (longitudinal profile of a watershed) and the word (watershed). In this sense, we decided that the table textual genre, also belonging to the school discourse sphere, would be the option that would best meet our planning objectives.

The dictionary of textual genres defines the table as:

[...] uma relação de preços, de pessoas, coisas, quantias, horários e dias de trabalho em forma de escala, mercadorias, jogos de um campeonato ou certame, com a indicação das respectivas datas, etc., organizadas em determinada ordem.

No discurso jornalístico sua função é apresentar informações de maneira clara e de rápida leitura. Deve ser visualmente atraente e conter informações exatas redigidas de forma concisa (COSTA, 2012, p. 214)³.

Regarding *language skills*, we adopted exposure (oral and written) as a skill to be worked on throughout the sequence. The productions were oriented to the completion of the Table of Indications in which students should present the criteria of their choices to identify the elements of the watershed. In general, the exhibit requires the organization of the structure of a text guided by key words. In the episodes of oral communication, the presentation of their contributions requires a careful listening to the other, to assess whether their point of view diverges or converges with the previous speech, in addition to a concern with intonation, body attitude present even in the gaze directed at colleagues.

In the *presentation of the situation*, the students were informed that the activities produced during the sequence would be the object of analysis of the research group that the teacher participated. In the following week, the characterization questionnaire was presented to the three classes with the presence of two trainees belonging to the group and it stressed to the students the importance of everyone's participation, with emphasis on the questionnaire and the written production activities. We emphasized that they should consider that the teacher and other researchers would be looking over their answers, so they should express themselves clearly by adopting some precautions: reading the statement carefully, questioning in case of doubts, organizing ideas, expressing their ideas, avoiding copies, and performing the activities with attention. We also emphasize that, unlike what they were used to, all the didactic material was prepared by the teacher and could be subject to adjustments, if any mistakes were detected. This presentation of the situation already reveals the context of production and circulation of the texts. Of course, during the sequences the purposes and concerns with both learning and purpose had to be recalled with the students.

We listed some questions that were very similar between the rooms:

- What is a research group?
- What is and what does a professor doctor do?
- Where is the University of São Paulo?
- Why is the teacher still studying?

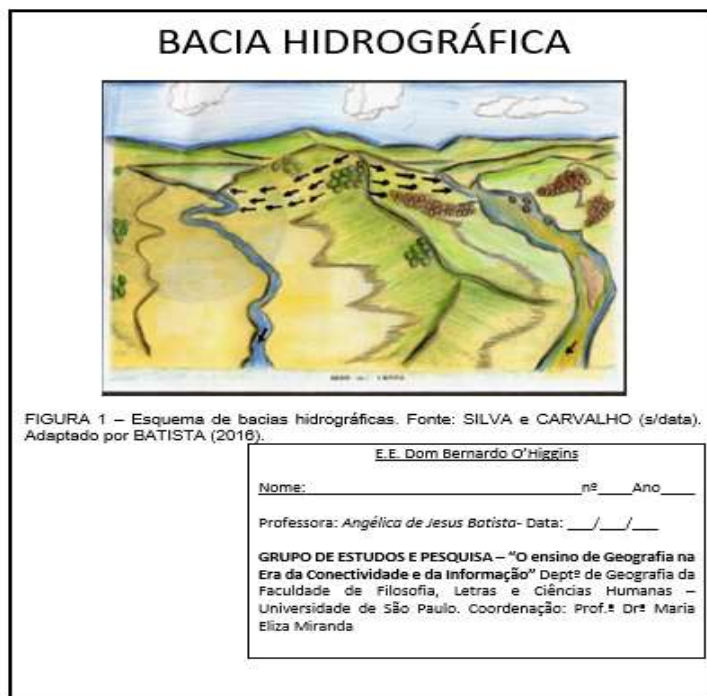
The *initial elaboration* - It is a first encounter with the theme of the Geography sequence, watershed, and therefore an opportunity for the teacher to instigate in a collective way the knowledge that the students have, even if spontaneously. These questionings, difficulties and interventions made in class, provide a guideline for the teacher to reorganize the

³ [...] a list of prices, of people, things, quantities, times and days of work in the form of a scale, goods, games of a championship or competition, with the indication of the respective dates, etc., organized in a certain order.

In journalistic discourse, its function is to present information in a clear and quickly readable way. It should be visually appealing and contain accurate information written in a concise manner. (Our translation)

modules. The oral presentation was directed through the reading of a figurative image of a watershed (Figure 2), which is the cover⁴ of the set of tools prepared by the teacher. We chose this image because it represents two watersheds, which enables an integrated approach to the drainage network.

Figure 2: Instrument - Cover of the Teaching Sequence "Watershed"



Source: BATISTA, 2021 p. 107

The strategy of starting the productions from the more complex activities to the simpler ones, broken down into modules, was maintained. In this image reading activity, we thoroughly planned the collective discussion with some guiding questions (Chart 1) so that students could explore the verbal and figurative aspects of the cover, identify the elements, and create hypotheses about what might be happening in the landscape and what the presence of the arrow as a symbol indicated. As we detail below in the instrument and plan.

Table 1: Guiding questions plan for the collective discussion

⁴ According to the Dictionary of textual genres, the cover circulates in various materials as a presentation support (book, magazine, for example), and is the reader's first contact. Therefore, "besides having a visual appeal that turns it into a promotional cover, mandatorily, in the case of books, periodicals or magazines, it must contain some essential information, among others, the title (v), subtitle (v), the name of the author(s), publisher, edition and date, which for us, in this case, makes the cover a genre" (COSTA, 2012 p.60) (Our translation) .

TEACHER PLANNING

COVER:

1. Say that the first sheet of the instrument is a cover.
 2. Ask what the word cover means. Ask for examples of other objects that have covers.
 3. Explore the modalities present on the cover (verbal and visual):
 - How is this cover organized? (Orient exploration in 1st, 2nd and 3rd plan).
 - Is there anything written? What information is written? Discuss why the word watershed appears in the first plan.
 - Is there a drawing?
 - Are there any relationships between the title and the figure? Which ones?
 - The word basin is quite usual. Is there a connection between what we are going to study?
 - Has anyone ever heard the word hydrographic? Does it remind you of any other word you have heard? Hydro?
 4. explain that it is essential at this point for everyone to watch carefully:
 - a) What elements are present in the figure?
 - What do the arrows indicate in the picture? And in everyday life, where do we find arrows? What is their function? (Transcendence)
 - Why are some of the arrows directed to basin 1 and the others to basin 2?
 - To say that the ridge separating the two watersheds acts as a watershed.
 - In the figure can we identify other water dividers? Where? What clues can we use? (Orient the analysis to the background of the figure)
 - The arrows are not present throughout the figure to indicate the direction of the water. Think of other clues that can be used to verify the direction of the water?
 - Comment that slopes are sloping surfaces in relation to the watershed.
 - Ask students to locate the slopes of the figure (explore the background of the figure).
 - What is the direction of the water? Do the waters infiltrate the soil? Why does it seep into the ground?
 - Say that this runoff is called subsurface.
 - With infiltration of water into the subsurface what other paths does it travel?
 - Does the figure allow us to perceive this subsurface runoff?
 - Does water run off the surface? Why do they run off and not infiltrate? In surface runoff what is the direction of the water?
 - In the picture we have the rivers, based on what we talked about, where does the water from the rivers come from?
 - The rivers in the picture also have arrows. We have already mentioned that the arrows indicate the direction of the water.
 - Why do the arrows on the rivers point in this direction that is marked in the picture? What are the indications?
 - By observing other rivers in our daily life can we indicate the direction of the water? Let's think for argument's sake.
- Homework Assignment: Write down in your notebook the new words you have learned.

Source: BATISTA, 2021, p. 108.

In the initial elaboration, the understanding of the image was a problem that should be solved by the class, thus, we prioritized that students expose their ideas, and for this, it was necessary to establish with the students some rules such as: the focus for the cover of the instrument, listening to the interventions of colleagues and how they could help in the discussion and advances for the group. Moreover, thinking about the space in the classroom was essential, in order to favor the exposure and exchange of ideas, and so we alternated the arrangement of tables and chairs to enlarge the visual field of the students. This last

action was seen with great enthusiasm by the students, there was a ritualistic noise of moving tables and chairs at the beginning and end of the classes.

At this moment, some manifestations of the students that were quite pertinent already appeared, such as: 1) association between basin (quite common object in everyday life) and watershed⁵; 2) the word hydro with hydrogymnastics, so hydrograph could be related to water; 3) the recognition of the arrow symbol and the mention of the first bimester activities of spatial orientation; 4) comments that they were learning hydrological cycle in science class; 5) the prefix sub associated with subsoil and 6) the following questioning of a 6th-grade student "*Teacher, how am I going to learn what subsurface runoff is if I can't even say properly?*" The student presents his difficulty in saying the word and for him, this can lead to prejudice to the understanding of its meaning and consequently, its written expression. The student's manifestation brings us back to the difference pointed out by Vygotsky (2009) that in the spoken language our proficiency is much higher in the written language.

In the modules we conducted a pilot planning of the didactic sequence, we developed several activities that totaled on average 3 modules, we realized with the initial development, the participation of classes and the time available that it was essential to modify the original project. In this scenario, the sequence was synthesized for 2 modules considering the initial elaboration and consequently, during the activities the students worked with the elements of the watershed, in different complexity modalities, i.e., they were exposed to different situations in which the concepts worked need to be applied and therefore, for the fulfillment of the tasks it was necessary to consider the previously acquired knowledge.

Elaborating the didactic sequence of Geography based on the methodology of textual genres brought very relevant subsidies, especially focused on an organization that prioritized the active participation of students through oral or written exposure of their ideas in the different modules. However, the obstacles encountered, in terms of written production, were the elaboration of authorial texts, the questioning of not using the textbook to copy texts, among others. In these cases, it is evident the need to add other theoretical references that support the mediation of geography knowledge so that this learning can boost the development of students' cognitive functions.

The development of didactic sequences of Geography by teacher researchers guided by the discussions and studies of the Theoretical Frontiers is part of the theoretical-methodological proposal conceived by Miranda (2010) and developed by the group already mentioned. The theoretical scope of the Theoretical Frontiers encompasses, among others, Vygotsky's Cultural-Historical Psychology and Reuven Feuerstein's Mediated Learning Experience Theory.

These boundaries permeated the processes of elaboration, application and analysis of the results of the didactic sequence of Geography "Watershed", and the incorporation of these theoretical foundations, represent the changes inserted to the model of didactic sequences by textual genres of the Geneva school that we elucidated before. In designing the plan for the Geography classes, we had to consider what it means to teach and learn to identify physical and human phenomena of reality through the geographic categories that underlie this scientific knowledge (*knowledge plan*) and under which methodological strand of

⁵ In portuguese: "*Bacia hidrográfica*", similar to "Bacia", common object.

analysis of Geography we are guided (*philosophical plan*) and finally, how to mediate this knowledge to foster the development of cognitive functions that allow adolescents to build their own worldviews from inferences and hypotheses (*psychological plan*).

In this text we will focus our discussions on the reflections raised in the knowledge plan mobilized by the teacher in the planning and analysis of the students' results. At the moment of selecting the theme, subject and content, the teacher expresses his conceptions of knowledge about science and the weaknesses in his training, in addition, in the physical-natural themes in the school and academic sphere they appear segregated from the human dimension, including what denotes philosophical conceptions that disregard the man apart from nature.

RESULTS AND DISCUSSION

In Geography, the answers to this philosophical question "who is man?" refer to the relationship between society and nature that permeates the trends of geographic thought in different historical periods, responsible even for the split of Geography into Human and Physical, at the turn of the nineteenth and twentieth centuries. This duality present in Geography is a reflection of the transformations in the macro field of scientific thought, which marks the advent of modern science coming initially from the contributions of the Heliocentric Theory, whose peak happens with Newton and his theory of gravity, which establishes a general law that governs all bodies in the universe. From these discoveries on, phenomena begin to be analyzed using physical-mathematical parameters and, as a result, great progress is made in the natural sciences. On the other hand, in the Human Sciences, if compared to the Natural Sciences, they lack a defined theoretical methodological framework, because it presents difficulties in adapting their categories of analysis to the institutional model of Sociology and Anthropology (MOREIRA 2011).

The split between the physical and the human in Geography can bring epistemological gains for the deepening of studies in these great areas, however, it is evident that there are also epistemological losses due to the compromise in the analysis of a geographic space, which becomes compartmentalized, that is, the whole is fragmented into parts as a method of analysis, and there is a difficulty in reconnecting these knowledge that produce a geographic knowledge that oscillates in choices that are oriented towards a nature without man or a man without nature.

The fragmentation of knowledge within the scope of Geography has consequences for teaching, in which the physical-natural themes, for being considered an inert theme of social life, have been underestimated in school, possibly because they are classified as content outside the scope of what is superficially propagated as *critical geography*, as emphasized by Vesentini (2013):

Portanto, um ensino crítico da geografia não se limita a uma renovação do conteúdo – com a incorporação de novos temas/problemas, normalmente ligados às lutas sociais [...]

O objetivo da disciplina escolar geografia não é reproduzir o discurso desses geógrafos especialistas e sim levar o educando a compreender o mundo em que vive, o espaço geográfico desde a escala local até a global. E a compreensão desse espaço passa necessariamente pelo estudo da natureza-para-o-homem, das paisagens naturais como encadeamento de elementos (clima,

relevo, solos, águas, vegetação e biodiversidade), que possuem as suas dinâmicas próprias (VESENTINI, 2013, p. 228)⁶.

In discussions related to the teaching of physical-natural themes, it is possible to identify reductionisms that, according to Morin (2011), lead to errors and illusions⁷. In the field of Geography studies, the first illusion is to disregard the systemic view that nature has impacts on human life and that the subject also performs profound transformations in this nature, therefore, nature is not static. This first observation leads us to the second illusion, that the teaching and learning of physical-natural aspects make it impossible to develop critical thinking in students. We highlight the role of the school as an institution of utmost importance, for the teaching and learning of scientific thinking, for the preeminence that adolescents have access to this human capacity to think from criteria and can observe, analyze, make inferences and build, therefore, their worldviews, considering the problems and claims of society.

The physical-natural themes constitute this repertoire of knowledge produced by humanity, so it is essential that at school students have access to this knowledge, which is structuring for the understanding of their social life, because in reality the elements are arranged in the world in an integrated manner, i.e., as a whole, and the formation of critical citizens goes through this understanding of cause and effect, as highlighted by Moraes (2011):

Todavia, sem esse conhecimento ele não exerce a cidadania em sua totalidade, pois o seu cotidiano também é lido, compreendido com base na relação que ele estabelece com esses temas – relação entre o todo e as partes. Com essa compreensão, o aluno tem condições de ler o mundo relacionando o físico-natural com o social. É possível, por exemplo compreender os motivos pelos quais ocorre a ocupação das áreas de risco e por que essas áreas se configuram como tais, compreender os diferentes valores atribuídos ao solo, sejam em área urbana ou não, e quais as relações que se estabelecem com as características do relevo e outras questões por eles mesmos problematizadas no seu cotidiano a partir dos conhecimentos construídos (MORAES, 2011, p. 139)⁸.

⁶ Therefore, a critical teaching of geography is not limited to a renewal of the content - with the incorporation of new themes/problems, usually linked to social struggles [...].

The objective of the geography school subject is not to reproduce the discourse of these expert geographers, but to lead the student to understand the world in which he lives, the geographic space from the local to the global scale. And the understanding of this space necessarily involves the study of nature-for-man, of natural landscapes as a chain of elements (climate, relief, soil, water, vegetation and biodiversity), which have their own dynamics. (Our translation)

⁷ According to Morin (2011) all knowledge runs the risk of error and illusion and, therefore, it is urgent for science to recognize this possibility, because "perceptions are, at the same time, brain translations and reconstructions, based on and stimuli or signals captured and encoded by the senses" (Our translation). Thus, the production of knowledge is guided by the conceptions of the researcher, based on their interpretation and the guiding principles they have about knowledge itself (MORIN, 2011 p. 19-20).

⁸ However, without this knowledge he does not exercise citizenship in its entirety, because his daily life is also read, understood based on the relationship he establishes with these themes - relationship between the whole and the parts. With this understanding, the student is able to read the world relating the physical-natural with the social. It is possible, for example, to understand the reasons why the occupation of risk areas occurs

The panorama described above, which covers the philosophical dimension of knowledge, allowed us to approach the dilemmas of Geography with its splits and specializations that, as we have seen, brought epistemological advances and weaknesses that reflect in geographic studies and impact the Geography that is taught in school. In view of this, we elucidate in Chart 2, our choices regarding the Geography field for the planning of the didactic sequence "Watershed", in order to explain the importance of this knowledge and, above all, the possibilities of links between the physical and the human.

Table 2: Didactic Sequence Plan - knowledge dimension

THEME	Watershed
SUBJECT	Water Drainage
CONTENT	Elements of the watershed
OBJECTIVE	<p style="text-align: center;">ON THE LEVEL OF KNOWLEDGE:</p> <ul style="list-style-type: none"> ● Input: Identify the elements that make up the watershed from an understanding of water drainage; ● Elaboration: Make analogies of water drainage knowledge with reality (empirical) situations ● Output: Appropriate vocabulary to communicate answers;

Source: BATISTA, 2021, p. 115.

The organization of the *theme, subject and content* in the lesson plan presupposes a hierarchy and a cut of what the teacher wants to teach, because the arrangement of content in the curriculum follows a light logic, in which there is no focus on the themes due to a very large and scattered load of content over the bimesters, which puts the teacher in a *modus operandi* often conditioned to speed and compliance of content without more strategic and integrative planning on the themes of teaching. This aspect of delimitation in the planning provides subsidies for structuring the concepts and keywords that the teacher will develop throughout the didactic sequence whose reference is the initial problem situation, that is, the reading of the cover of the instrument in which there is the image of two watersheds.

The watershed theme was selected to meet the demands of the official curriculum of the State of São Paulo, which provides as teaching content at this stage, the recognition of natural and social objects in the landscape. In addition to the curriculum, the state network offers the students learning notebooks as support materials for the classes, however, we made changes and created other teaching materials that would meet our objectives for the development of reading and writing, as mentioned above. Moreover, we focused on the

and why these areas are configured as such, to understand the different values assigned to the soil, whether in urban areas or not, and what relationships are established with the characteristics of the relief and other issues they themselves problematize in their daily lives from the knowledge built. (Our translation)

theme because of the possibility of integrating social and natural factors in the landscape that are experienced daily by students, as we saw in the previous chapter, when we brought the characterization of the district of Itaim Paulista.

According to Botelho and Silva (2020), since 1960, the watershed was recognized as a spatial unit of analysis in Physical Geography and later, other areas also incorporated it into their studies, especially when these studies are focused on Environmental Sciences. Thus, the watershed also becomes a "basic cell of the environmental analysis", because it is possible to evaluate the various components and the interaction processes, ensuring a systemic and integrated view of the events that occur, which overcomes the idea of a study of only physical phenomena.

Cunha and Guerra (2012) provide arguments that substantiate the watershed as a relevant unit of analysis for Geography:

As bacias hidrográficas integram uma visão conjunta de comportamento das condições naturais e das atividades humanas nelas desenvolvidas uma vez que, mudanças significativas em qualquer dessas unidades, podem gerar alterações, efeitos e/ou impactos a jusante e nos fluxos energéticos de saída [...]. Pelo seu caráter integrador das dinâmicas ocorridas nas unidades ambientais, e entre elas, as bacias de drenagem revelam-se excelentes áreas de estudos para o planejamento (CUNHA e GUERRA, 2012, p. 353-354)⁹.

In the *objectives of the knowledge plan*, we systematized the activities of the sequence in order to initially prioritize the identification of the **elements of the watershed** (water divide, slope, valley bottom, river, soil, and relief) and the **processes involved** (water direction, infiltration, surface runoff, and subsurface runoff). According to Feuerstein (2014), the arrangement of the stages (input, elaboration, and output) is related to the phases of the mental act, which concerns the processing of information, performed from the perceptions and recognition of the external object (input); the symbolic organizations that we perform in the brain with the support of language (elaboration) and generated action (output) arising from the information received that form a representation of the situation.

Cultural-Historical Psychology and Human Learning Theory, focusing on human cognition, enables us to understand that the identification of physical-natural elements drives the development and learning of structuring scientific concepts in Geography. This method of learning scientific concepts in learning situations supported by real problematization for the mobilization of knowledge provides the establishment of cause and effect relationships between physical and human aspects. These clarifications are necessary, because the lack of integration between physical and human Geography in the teaching makes it impossible for the student to establish relationships and appropriate the concepts in order to mobilize their knowledge for the analysis of world problems.

CONCLUSIONS

⁹ The watersheds integrate a joint vision of the behavior of natural conditions and human activities developed in them, since significant changes in any of these units, can generate changes, effects and/or impacts downstream and in the outgoing energy flows [...]. Due to their integrating character of the dynamics occurring in the environmental units, and among them, the drainage basins reveal themselves as excellent study areas for planning. (Our translation)

Teacher planning has become a merely bureaucratic document, distant from practice, sometimes used in the same way for repeated years, as a way to fulfill a pedagogical obligation and then abandoned. This practice led to the disbelief of planning as an indispensable instrument for the teacher's work.

Our participation in the Research Group as teacher researchers led us to learn other ways of organizing the teaching work, since usually the lesson plan is just a faithful reproduction of the textbooks. In this sense, the planning, application, and analysis of the results of the Geography didactic sequence allowed us to create strategies for didactic intervention and evaluation of student learning.

Moreover, we ask ourselves at all times: "what is this Geography?", that of the academy and that of the school. Although the physical and human geography in the books and university departments are separated and circumscribed in specific spaces, at school, the students, in moments of autonomous production, claim their reconnection, when they need the physical phenomena to make sense and be understood in their social reality.

These observations were only possible because the work with language requires that the subjects position themselves in the world, create their own conceptions, question, and thus, the school needs to rethink its projects and its formatted limits of understanding learning. According to Vygotsky (2009), the formation and development of concepts are continuous when problematizing situations are given the opportunity for individuals to create hypotheses, make inferences, and adopt criteria that justify their answers.

The teaching of physical-natural themes requires considering that, in order to build an understanding of themselves and the world, adolescents need to understand the totality of reality that involves physical and human phenomena. However, it must be emphasized that this learning, beyond the watershed content, has its psychological dimension for both the teacher and the student.

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