

**THE TEACHING OF GEOLOGY IN THE STATE EDUCATION NETWORK IN
AQUIDAUANA: A CRITICAL ANALYSIS OF THE REFERENCE
CURRICULUM OF THE STATE OF MATO GROSSO DO SUL**

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Received: august 2022 Accepted: march 2023

RESUMO

O presente artigo apresenta uma análise crítica da disposição dos conteúdos de geologia no Ensino Fundamental-Anos finais na rede estadual de ensino a partir do Currículo de Referência do Estado de Mato Grosso do Sul. A pesquisa teve como materiais e métodos a leitura crítica dos documentos normativos que asseguram os conteúdos que devem ser trabalhados em sala de aula e a importância tanto da Geografia, quanto da Geologia na formação crítica e cidadã dos alunos a partir da possibilidade da leitura do mundo. O trabalho apresenta um quadro comparativo entre os conteúdos de Geologia, sendo possível observar o alinhamento do Currículo de Referência de Mato Grosso do Sul à Base Nacional Comum Curricular, cujo grau de similaridade denota a baixa inserção de conteúdos associados às características locais. Isso esbarra diretamente no intuito da criação do Currículo de Referência de Mato Grosso do Sul apenas como uma adequação à BNCC (2017) e com pouca preocupação com as especificidades de cada localidade.

Palavras-chave: Ensino de Geologia; Currículo de Referência de Mato Grosso do Sul; BNCC

**O ENSINO DE GEOLOGIA NA REDE ESTADUAL DE EDUCAÇÃO EM
AQUIDAUANA: UMA ANÁLISE CRÍTICA DO CURRÍCULO DE
REFERÊNCIA DO ESTADO DE MATO GROSSO DO SUL**

ABSTRACT

This article presents a critical analysis of the disposition of Geology contents in Elementary School in the state education from the Reference Curriculum of the Mato Grosso do Sul. The research had as materials and methods the critical reading of normative documents that ensure the contents that must be worked in the classroom and the importance of both Geography and Geology in the critical and citizen formation of students from the possibility of reading the world. The work presents a comparative table between the contents of Geology, being possible to observe the alignment of the Reference Curriculum of Mato Grosso do Sul to the National Common Curricular Base, whose degree of similarity denotes the low insertion of contents associated to the local characteristics. This comparative table directly demonstrates the purpose of creating the Mato Grosso do Sul Reference Curriculum only as an adaptation to the BNCC (2017) and with little concern for the specifics of each location.

Keywords: Teaching Geology; Reference Curriculum of Mato Grosso do Sul; BNCC.

INTRODUCTION

Since a long time ago, the importance of geography teaching in Basic Education is being discussed. This debate has taken on even more significance with the new modifications in the segment of this education modality, with the introduction of *Base Nacional Comum Curricular* – BNCC; and the reform in the *Ensino Médio* (High School), that supported the development of the *Currículo de Referência do Estado de Mato Grosso do Sul*.

The premise of this paper is that geography, as a science taught on the basic education, contributes in a significative aspect to the conscientious and active citizenship formation of the students in their society.

In fact, the geography assumes an important role in the formation of citizens, when it proposes a discussion of the spatiality of the phenomena, searching understand the space with a critical view. Moraes and Santos (2014) discussed that the geography allows people to become "thinkers" who being able to understand what is around them, the real thing. From this point of view, the teaching of physical geography is helpful in this conception, as Suertegaray (1986) indicates, by questioning the teaching practice in the study of nature, where society survives based on natural resources. Understanding those resources, since their formation, dynamic and complexity, leads to a comprehension of the synthesis of society-nature relations.

Nonetheless, we must highlight the necessity to rupture with the mechanistic logic of teaching. The teaching of the geo-sciences has for a long time been modeled on the traditional teaching, which is based on memorizing. It's notable that, by learning about physical phenomenon, students stand still, not considering, in their construction as social creatures, the relationships and influences in the present society. The geology, as a science which teaches about the land and extraterrestrial formations, plays a significant role in the geographic science of Earth's constitution, tectonic movements, and rock formations, for ecological and economic issues.

Ernesto *et al.* (2018), discussing the relevance of the geosciences in school education, highlight some of the reasons for their importance, emphasizing that this area contributes significantly to debates about climate change and global warming, focusing on their contribution to studies to understanding these events and to the prevention and reduction of predatory practices against the ecosystem. The previously mentioned author also discusses that "studying planet Earth in a holistic way, considering its long history of climate change, processes and cycles, helps to understand environmental impacts and natural hazards" (ERNESTO *et al.* 2018, p. 339), alleging that the teachers need to have the ability to develop the student's capacity to understand the concepts in a long-lasting way, encouraging them to develop skills and competencies in those areas.

In point of view of geography and geosciences teaching, in the background of our analysis of the contents related to Geology, the main objective of the present study is to analyze the *Currículo de Referência do Estado de Mato Grosso do Sul* related to the teaching of geology in *Ensino Fundamental Anos Finais* (Middle School). To this purpose, the specific objectives were to Mato Grosso Do Sul analyze the distribution of the geology teaching contents by grades of middle school, to identify the correspondence between the contents related to geology teaching and the time allocated to classes, and to verify whether the geology content is being related to the other geographic contents.

In this sense, this study is developed through the presentation of materials and methodologies, presenting the entire methodological proposal, as well as the spatial and temporal cutout of the research, and then, a short discussion about the teaching of geography is presented, highlighting the main object of study of geography, that is the geographic space. Geology as a science that is taught in basic education was also discussed, as well as the normative documents that make teaching practice effective, like the BNCC and the *Currículo de Referência do Estado de Mato Grosso do Sul*, in parallel to the hourly workload available to develop the analyzed contents.

MATERIAL AND METHODS

This work is divided in three segments: documentary search, focused on the comparative analysis between the BNCC (2017) and the *Currículo de Referência do Estado de Mato Grosso do Sul*, looking for an analysis of the contents associated with the teaching of geology, in addition to the observations of other educational legislation; a bibliographic survey was conducted, covering themes about the object of study of geography, the school geography, the school as a citizenship formation place and the role of geography and geology teaching in this context; and, finally, an analysis about the geology content and the possibilities of teaching it.

For the documentary research, the educational legislation in force in Basic Education was consulted, including *Base Nacional Comum Curricular - BNCC*, *Currículo de Referência do Estado de Mato Grosso do Sul*, *Lei de Diretrizes e Bases da Educação - LDB* and *Parâmetros Curriculares Nacionais - PCN's*, in order to build an analysis on the teaching of geography and geology ensured in the educational legislation.

The BNCC and the *Currículo de Referência do Estado de Mato Grosso do Sul* are new documents, from 2017 and 2018 respectively, both offering a normative aspect in the provision of content that must be taught during the course of a student's life in basic education. At first, *Base Nacional Comum Curricular* was implemented in 2017, justified by the necessity of a curriculum that could be followed nationally. Because of the need to adapt to the BNCC (2017) and considering the specificities of each location, in light of the country's large territorial extension, the *Currículo de Referência do Estado de Mato Grosso do Sul* was published in 2018 to make the necessary adjustments in the state schools' curriculum.

Concerning the bibliographical research, we discussed the importance of geography teaching and the possibility of providing students with a reading of the world, which, through it, contributes to the formation of their citizenship. To this effect, we used the contributions of several authors, as Braga (2007); Abraão (2010); Santos (1992), and Moraes (2007), to debate the object of study of geography, emphasizing the geographic space. Thinking about geographic space as a product of the society/nature relationship proved to be relevant, since by trying to unravel it through the decoding of physical and/or social elements, we get closer to the possibility of reading the world in which we live.

Since geography promotes the critical formation of students, this science becomes even more important - although not by political planning - in the classroom. To understand the importance of the school's geography in student's citizen formation, we leaned on works of Vesentini (2009); Cavalcanti (2012); Callai (1999); Castellar (2005), and others.

Another important theme in this article is the teaching of geology in basic education, associated with the construction of the student's criticality as a world reader. To accomplish this, we use contributions from Suetergaray (1986); Campiani (2004); Guimarães (2004) and Freire and Silva (2019).

In the last part of the study, comparative tables of the geology-related thematic units are presented, contained in BNCC and *Currículo de Referência de Mato Grosso do Sul*, in the interest of analyzing the arrangement of the objects of study in an effort to identify how the contents are reflected in the construction of the local geographic knowledge of the students of the state education system.

For this purpose, the city of Aquidauana - MS, located in the nearby region of Aquidauana/Anastácio (IBGE, 2017), was used as a spatial reference.

RESULTS AND DISCUSSIONS

Geology teaching and the interpretation of geographic space

Knowing that geography, as a science, is committed to comprehending the geographic space and the relationships that are developed in it. With that, understands that all categories, which geography observes the world, are included in this spectrum of analysis, which is the space. But, in the end, what is the geographic space? How is it conceptualized in geography?

In general, in view of a parameter on the noticed discussions of this analysis category, the geographic space is the result of the interactions of the society with the space around them. Based on the assumption that "man (the first-order geographical factor) dominates nature and is dominated by it", as Braga (2007, p. 66) puts it when bringing Paul Vidal de La Blache's idea, this perception can be established.

Abraão (2010), discussing the conception of geographic space and territory, suggests that Geographic Space:

Emerges from the social intentionality through the man appropriates the natural space by transforming it, through work, into geographic space, is the result and condition of the dynamics of relationships that men establish between themselves, with nature and themselves on a daily basis. It also shows contradictions and social inequality (ABRÃO, 2010, p. 48).

In a similar point of view, Santos (1992, p. 1) discuss that space is, unquestionably, a factor of social evolution, and must be considered as an instance of society, as well as an economic and cultural-ideological instance, this meaning that the essence of space is social. It cannot just be formed by things, geographic, natural and artificial objects, whose set gives us nature, thus "space is all this plus society: each representation of nature harbors a recipe for current society".

In an analysis of the historical development of space as an object of geography, Moraes (2002, p. 17) affirms:

Space can be conceived as a specific one of the real, with its own characteristics and dynamics. There would be the possibility of thinking it as

an object of Geography, although only after demonstrating the statement made. This perspective of Geography, as a study of space, emphasizes the search for the logic of distribution and localization of phenomena, which is the essence of the spatial dimension. However, this Geography, which proposes deduction, has only achieved its success at the cost of statistics and quantifications. It is a current field of geographic discussion.

In this way, the debate about space is highlighted in the geography because of its chorological perspective, as by the spatial dynamics that is performed by the interaction of society and nature.

Braga (2007), in trying to conceptualize geographic space based on historical analyses of this category's concepts, finds that geographic space is:

A continuous product of social-spatial relations. These relations are economic (society-space relation mediated by labor), political (society-state or nation-state relation), and symbolic-cultural (society-space relation by language and imaginary) (BRAGA, 2007, p. 71).

The author also asserts, depending on the social-spatial relations, it can show up as contradictory, exposing the heterogeneity of the social projects. And, finally, he says that "geographic space is a reflection and condition for society/space relations".

All this discussion is relevant, especially concerning the teaching of geography, in light of the role of the school as an institution that forms citizens, as pointed out by Vesentini (2009, p. 30):

School is an institute where the young ones must learn to be full citizens, that means, active and not just passive ones, and must learn to take care of their bodies and of the ecosystem, to know the world where we live in every geographical scale, to master at least the rudiments of scientific methodology, to distinguish what is truthful in the heap of false or misleading information we receive daily, in addition to developing and improving their multiple intelligences, skills, competencies and democratic attitudes - respect for the others, absence of prejudice, learning to live together, learning to work as a group and to lead in a positive way, etc.

In the same vein, Callai (1999, p. 79) announced that "education for citizenship is a challenge for high school education, and Geography is one of the possibilities and its content can be worked in a way that the student will be able to build his citizenship".

Cavalcanti (2012, p. 45) presented important clues about the role of geography in the construction of students' citizenship, assuming:

In their daily activities, students and teachers build geography, because when they circulate, play, and work around the city and neighborhoods, they build places, produce space, and delimit their territories. In this way, they form everyday spatialities in their lived world and contribute to the production of larger geographic spaces. As they produce geography, they also construct knowledge about what they create, knowledge which is geographic. So, by dealing with things, facts and processes in everyday social practice, individuals are building and

rebuilding geographies (in the sense of spatialities) and, at the same time, knowledge about them (CAVALCANTI, 2012, p. 45).

Castellar (2005, p. 2012) claims "the greatest wish was to make the subject lose its tag of a decorative discipline, an inheritance left by Traditional Geography". For the author, if on the one hand these criticisms exist, on the other it seems that they were not incorporated into the school routine, because concretely the changes were little significant. "So I have no doubt that, especially from the 1980s on, the debate in geography advanced in the universities and stagnated in school curricula" (CASTELLAR, 2005, p. 212).

Given this parameter, and pointing out the importance of geography in the formation of citizens, Moraes and Santos (2014), when discussing school geography, point out that it:

[...] is supposed to make individuals become "thinkers", who are capable to develop skills that allow the analysis of the real, starting from the exposure of the causes and effects, the intensity, the heterogeneity and understand the spatial context of the phenomena that configure each society [...] (MORAES; SANTOS, 2014, p. 02).

The geography has fundamental importance in the formation of a critical and thinking citizen, since it analyzes the relationships that occur in geographic space.

Considering this aspect, it is extremely important to understand the physical data of the space, which includes studies as geology, geomorphology, climatology, among several other components of the so-called physical geography. For Suertegary (1986, p. 20), "the elements of nature are resources for the construction of man and society", thus being able to state that understanding such elements, their dynamics and formation, allows us to understand the man-nature relationship.

Geology, in its general and succinct definition, is the science concerned with the study of the Earth and other extraterrestrial bodies. Briefly, geology presents itself as broad and complex, sometimes technical, for elementary school, as well as distant from the formation of active citizens in society. Campiani (2004), when addressing the importance of teaching geology, points out such arguments as crucial to the lack of interest in the insertion of this content for students in Primary II, according to geologists and educators.

However, as postulated by Guimarães (2004), it is relevant to point out that geology composes important discussions for the human sciences, since it allows us the knowledge and representation of the geoenvironment, providing support for the socio-cultural contextualization. According to the same author, the contribution of geology is based on the appropriate training for the study and understanding of the Earth. This is only possible through reasoning and procedures specific to geology, which characterize the materials, the forms of energy, and their interactions with space and time. This procedure allows a set of related parameters to be defined, which serves as a reference standard for the physical environment. Guimarães also claims:

Constructed by the student, this pattern leads to the understanding of the local physical environment and its relations with the socio-cultural context, extending it to broader and broader contexts, until arriving at the conception of the Earth as a complex evolutionary system, which

avored the emergence and evolution of organisms, as well as of humanity, which, in turn, modify the Earth's surface (GUIMARÃES, 2004, p. 87).

Along these same lines, Campiani (2004) asserts "the teaching of geology/geosciences, with emphasis on fieldwork, can contribute to the formation of children to the 'nature literacy'" according to the author, this perception helps in the construction of knowledge about several factors, such as reasoning and spatial representation.

Geology has an important role in understanding the relations that occur in geographic space, since minerals make up the rocks that, in turn, constitute the substrate to which society is fixed and develops its relations (FREIRE; SILVA, 2019). Such observation, pointed in a general way, already presents the importance of this science in the citizen formation.

Between the BNCC and the *Currículo de Referência de Mato Grosso do Sul*: a study on the geology content

The *Base Nacional Comum Curricular*, with focus on elementary school, is a document approved on November 20, 2017 of a normative nature for all basic education. According to the BNCC (2017), it "defines the organic and progressive set of essential learning that all students should develop throughout the stages and modalities of Basic Education". The BNCC's installation is legally supported by the Law of Directives and Bases from art. 9, item IV, which ensures:

IV - To establish, in collaboration with the States, the Federal District and the Townships, competencies and guidelines for early childhood education, elementary school and high school, which will guide the curricula and their minimum contents, in order to ensure common basic education (BRASIL, 1996, p. 12).

The *Base Nacional Comum Curricular* aims at the development of ten general competencies that should be built over the course of basic education, "being articulated in the construction of knowledge, the development of skills and the formation of attitudes and values, under the terms of the LDB" (BNCC, 2017, p. 9).

After the installation of the BNCC, the necessity to adapt this theoretical reference to the different realities in the vast national territory has emerged. In Mato Grosso do Sul, on August, 28, by the Resolution "P" SED n. 2.766, was built a State Commission for the implementation of the *Base Nacional Comum Curricular* to make adjustments to the state-specific content and thereby began the process of developing and approving the document, that was finalized and released on November 30, 2018.

In a ceremony with the participation of Municipal Secretaries of Education, representatives of the State and Regional Commissions. The State Education Council published, on December 6, 2018, the Guiding Opinion CEE/MS n. 351/2018, which regulates the Mato Grosso do Sul Reference Curriculum for the State Teaching System in the stages of Kindergarten and Elementary Education (MATO GROSSO DO SUL, 2018, p. 19).

In these documents, Geography is found in the Humanities Area, which is responsible for transforming the student into a reader of the world and also for developing the student's critical thinking and ethical sense.

The Reference Curriculum of Mato Grosso do Sul (2018), about the role of the human sciences states as follows:

The work of the area with ethics training presupposes the intention to build respect and appreciation for substantial components for society, such as respect for the environment and human rights, appreciation of solidarity attitudes, and participation in the construction of citizenship, within a protagonist perspective (MATO GROSSO DO SUL, 2018, p. 640).

Of the various skills of the Geography curriculum component, we can highlight the role of the Geosciences, which investigates aspects of the planet Earth: its evolution, composition, internal structure, surface features and how to preserve its habitats for the maintenance of life.

Within the BNCC and the Mato Grosso do Sul Reference Curriculum these skills will be found in different stages of elementary school. In this article, we focus our attention on the contents related to geoscience and geology, arranged in the Elementary-Final Years. It is clear that the area of humanities, especially geography, does not work with content in a specific way, but rather in the form of competencies and skills that students are expected to acquire by the end of the stages of this curricular component.

Board 1: Comparison between the contents of the BNCC (2017) and the *Currículo de Referência de Mato Grosso do Sul* (2018).

Theme Unit Topics	Knowledge Object	Grade	BNCC	<i>Currículo de Referência de Mato Grosso do Sul</i>
			Skills	Skills
Connection and scales	Relation between physic-natural components	6 ^a	(EF06GE03) To describe planet's movements and its relation with general circulation of the atmosphere, atmospheric weather, and weather patterns.	(MS. EF06GE03. s.04) To describe planet's movements (Rotation and Translation) and its relation with general circulation of the atmosphere, atmospheric weather, and weather patterns.
Connection and scales	Relation between physic-natural components	6 ^a	(EF06GE04) To describe the water's circle, comparing runoff in urban and rural environments, recognizing the main components of the morphology of watersheds and hydrographic networks and their location on the land surface modeling and vegetation cover.	(MS. EF06GE04. s.08) To describe the water's circle, comparing runoff in urban and rural environments, recognizing the main components of the morphology of watersheds and hydrographic networks and their location on the land surface modeling and vegetation cover.
Connection and scales	Relation between physic-natural components	6 ^a	(EF06GE05) To relate weather patterns, soil types, relief, and vegetation formations.	(MS. EF06GE05. s.09) To relate weather patterns, soil types, relief, and vegetation formations.
Forms to representation and spatial thinking	Natural and social phenomena represented in a variety of forms	6 ^a	(EF06GE09) To make three-dimensional models, block-diagrams, and topographic and vegetation profiles to represent elements and structures of the Earth's surface.	(MS. EF06GE09. s.07) To make three-dimensional models, block-diagrams, and topographic and vegetation profiles to represent elements and structures of the Earth's surface.
Nature, environments and life's quality	Biodiversity and water's circle	6 ^a	(EF06GE12) To identify the consumption of water resources and the use of the main watersheds in Brazil and worldwide, emphasizing the transformations in urban environments.	(MS. EF06GE12. c.12) To identify the consumption of water resources and the use of the main watersheds in Brazil and Mato Grosso do Sul, emphasizing the transformations in urban environments.

Nature, environments and life's quality	Human actives and wheatear dynamics	6 ^a	(EF06GE13) To analyze pros and cons of human actives and wheatear dynamics (heat-island effect, etc.).	(MS. EF06GE13. s.13) To analyze consequences, pros and cons of human actives and wheatear dynamics (heat-island effect, etc.).
Nature, environments and life's quality	Regional identities and interculturalities: United States of America, Spanish and Portuguese America and Africa	8 ^a	(EF08GE21) To analyze Antarctica's environmental and territorial role in the geopolitical context, its relevance for the countries of South America, and its value as an area for research and understanding of the global environment.	(MS. EF08GE21. s.24) To analyze the environmental and territorial role of Antarctica in the geopolitical context, its relevance for South American countries and its value as an area destined for research and understanding of the global environment.
Nature, environments and life's quality	Environmental diversity and the transformation of Latin America's landscapes	8 ^a	(EF08GE23) To identify Latin America's landscapes and associate them, through cartography, to the different peoples of the region, based on aspects of geomorphology, biogeography and climatology.	(MS. EF08GE23. s.23) To identify Latin America's landscapes and associate them, through cartography, with the different peoples of the region, based on aspects of geomorphology, biogeography, and climatology.

Source: BNCC (2017); *Currículo de Referência do Estado de Mato Grosso do Sul* (2018).

From the board presented, we can see the documents' alignment in relation to the applicability of the skills related to geosciences at this step of elementary school. It is noticed that the skills are concentrated in the sixth grade of elementary school and, afterwards, in the eighth grade; meanwhile, it is important to highlight how the geology contents are dispersed in the curriculum and, many times, are presented linked to others only as a way of differentiation and understanding about them.

Although the intention of the *Currículo de Referência de Mato Grosso do Sul* focused on the adequacy of the *Base Nacional Comum Curricular* to the specificities of each locality, there is little autonomy of local content in the document. As shown in Board 1, the alignment of content in the two documents shows strong similarity.

The *Currículo de Referência de Mato Grosso do Sul*, in its presentation, has shown the composition of a committee for the development of the document and all the steps to make it a reality, being presented as a collective construction, including teachers, civil society and state agencies. The question that remains is why both documents are so similar in a curricular component of great importance in the formation of active citizens within

the society in which it is inserted, such as Geography?

The answer to this question is not easy and requires further in-depth research, including with regard to the production process of the state curriculum, because it does not seem logical to us the formation of a team composed of various segments of the Mato Grosso do Sul society and no progress in the presentation of a curriculum beyond what is provided in the BNCC (2017).

Returning to the analysis of the objects of knowledge related to geology that were presented in Board 1, it is necessary to compare the skills that the analyzed documents offer for physical geography, more specifically geology, and the time assigned for their application. Thus, it can be seen that the contents of geology are limited, with more emphasis, to the 6th grade of elementary school, with regard to the skill (EF06GE05) that will work the concepts discussed for geology.

Since the content is comprehensive and, very often, difficult to associate with the students' reality, the time available for its implementation becomes almost ineffective, which in the state of Mato Grosso do Sul is only 4 hours a week. As previously mentioned, the knowledge of the natural/physical environment, when analyzed together with the social relations and dynamics, becomes extremely important for understanding the dynamics of space. Bringing the student's reality, their background, to class and associating them with skills allows for a better understanding and assimilation by these students. Therefore, it is essential, in order to achieve knowledge about the geographic space, that this correlation occurs. However, analyzing what is available in the curricula, the contents, even if idealized to be worked in this way, are restricted to general concepts and approaches that pose countless difficulties to students, since they will not be able to establish relationships with the knowledge acquired in their daily lives.

There is still a notable lack of content that covers the local specificities, since the state, despite having only 79 municipalities, has a territorial extension of 357,147.995 km² and many distinctions among the physical, social, cultural, and environmental aspects.

When addressing Physical Geography and the BNCC, Cruz *et al* (2016) claim that, although the contents of physical geography bring in their core proposals for articulation between society-nature, the authors point out:

It is impoverished by ambiguities contained in the descriptions of these contents, so that the necessary guidance for the implementation of this knowledge in the reality of Basic Education becomes an additional challenge, since the interpreters of the proposals are inserted, by the document itself, in varied and shallow conceptions about the key concepts of Geography (CRUZ *et al*, 2016, p. 1408).

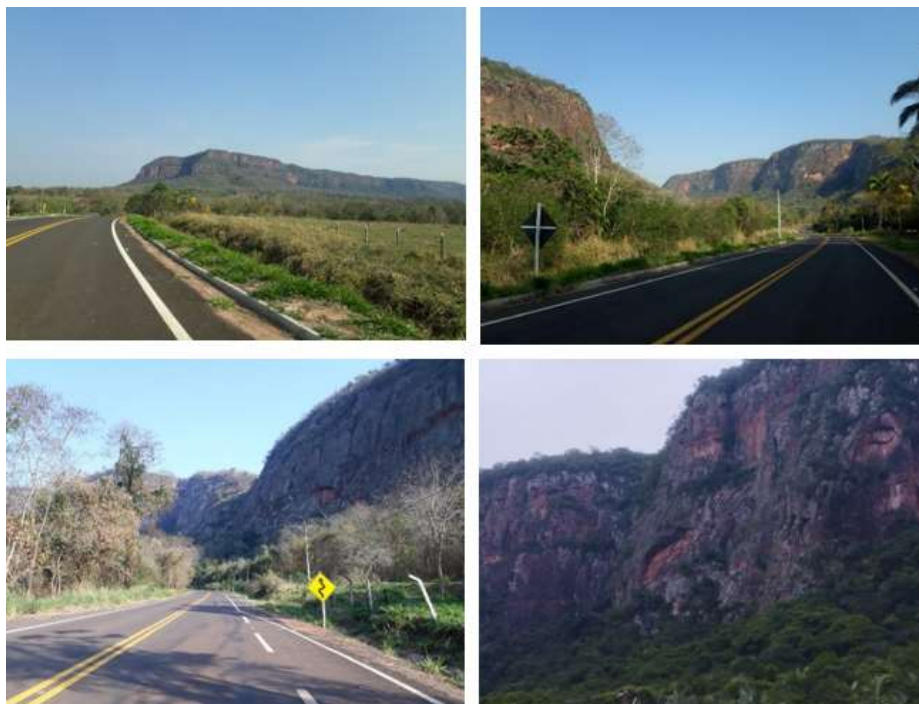
This problem is hampered by the use of textbooks that are produced based on generic and abstract contents, which compromises the teaching based on the concrete reality of the students.

In order to indicate teaching possibilities, it is understood that in Mato Grosso do Sul, specifically in Aquidauana, it is possible to work with geology content when approaching the composition of the Maracaju Mountains, which is a water divider in the state, as well as highlighting the importance of the rocks of the highest areas to constitute the Pantanal soil, one of the largest flood plains in the world; this information is part of the students'

reality and can be used in local geology teaching.

By observing the students' reality, and thinking of didactic methods to portray the teaching of geology, it is possible to use ludic resources, like games and models, besides making use of field activities. These resources are extremely important to help the students' comprehension of the object under study. A course on the Piraputanga Park Road, highlighting the outcroppings of the sandstones in the Maracaju mountain range, together with the erosive processes caused by exposure to various modifying agents, contributes significantly to the students' understanding.

Picture 1: Road of Piraputanga Park - Aquidauana/MS



Source: authors' personal archive

Games and models also contribute to the understanding, since many times such contents seem distant and abstract, and such resources allow the students to imagine the processes of earth formation in a clear way, bringing to them the importance of understanding such phenomena and pointing out the impacts on social construction.

FINAL CONSIDERATIONS

In Basic Education, the geography is presented as an essential instrument for citizenship education, enabling students to acquire new visions and perceptions of the world. Based on criticality, it aims to form active citizens within the society in which it is inserted, analyzing the different relationships that occur in space.

The teaching of geology, in view of this perspective of critical education, contributes to the comprehension of the components of the Earth, its formation and dynamics, as well as the relations between geographic phenomena. However, this area is outdated in elementary school, since its distribution during the various stages of education is superficial and linked almost imperceptibly to other concepts, contributing little to the perception of physical-social relationships.

In light of this parameter, the present proposal analyzed the educational documents in force, focusing on the *Currículo de Referência de Mato Grosso do Sul*, seeking to understand the distribution of geology content in the final years of elementary education in state schools of Aquidauana/MS. Thus, it found that, although the skills laid out in the BNCC (2017) present geological content and their relationship with other components, they are linked to basic concepts.

We also observed that the limited hours available for geography classes in elementary school, combined with the various skills that the teachers need to bring to the students, reveals the mechanistic realities of geography, where students can hardly make a correlation between the subjects studied and their reality. From this perspective, new methodological paths help to instigate the students' search for knowledge, stimulating their curiosity and perception of the environment in which they live.

GREETINGS

We want to thank everyone that contributed, somehow, to this study, and also to the Universidade Federal do Mato Grosso do Sul and Post-graduate Program in Geography of Aquidauana Campus.

REFERENCES

- ABRÃO, Joice Aparecida Antonello. Concepções de espaço geográfico e território. **Sociedade e Território**, p. 46-64, 2010.
- BRAGA, Rhalf Magalhães. O espaço geográfico: um esforço de definição. **GEOUSP: Espaço e Tempo**, v. 11, n. 2, p. 65-72, 2007.
- BRASIL. Lei de Diretrizes e Bases da Educação Nacional, **LDB**. 9394/1996. BRASIL.
- BRASIL. Parâmetros Curriculares Nacionais: **Geografia** / Secretaria de Educação Fundamental. Brasília: MEC/SEF, 1998.
- BRASIL. Ministério da Educação. **Base Nacional Comum Curricular**. Brasília, 2018.
- CASTELLAR. Sônia Maria Vanzella. Formação de professores e o ensino de Geografia. **Terra Livre**. São Paulo, jan-jun 1999, p. 51-59.
- CASTELLAR. Sônia Maria Vanzella. Educação geográfica: a psicogenética e o conhecimento escolar. **Cad. Cedes**. Campinas, vol. 25, n. 66, maio/ago. 2005, p. 209-

225.

CAVALCANTI, Lana de Souza. **O ensino de geografia na escola**. Campinas, SP: Papyrus, 2012, p. 45 – 47.

COMPIANI, Maurício. Geologia/geociências no ensino fundamental e a formação de professores. **Geologia USP. Publicação Especial**, v. 3, p. 13-30, 2005.

CRUZ, Francisco Herbster Alencar; CASTRO, Antônio Fernando Gomes de; PINTO, Deborah Amorim Noberto; BARBOSA, Maria Edivani Silva. A. Análise crítico-compreensiva da Base Nacional Comum Curricular voltada para os conteúdos de Geografia Física na Educação Básica. **Revista de Geociências do Nordeste**, [S. l.], v. 2, p. 1401–1410, 2016. DOI: 10.21680/2447-3359.2016v2n0ID10606. Disponível em: <https://periodicos.ufrn.br/revistadoregne/article/view/10606>. Acesso em: 30 mai. 2022.

DO SUL, MATO GROSSO. **Currículo de referência de Mato Grosso do Sul**. Mato Grosso do Sul: Secretaria de Estado de Educação do Mato Grosso do Sul, 2018.

ERNESTO, Marcia et al. Perspectivas do ensino de Geociências. **Estudos Avançados**, v. 32, p. 331-343, 2018.

FREIRE, Mariana Romanzini; SILVA, Thon Dalles. O ENSINO DE GEOLOGIA: UMA PONTE ENTRE A DISCIPLINA NA ACADEMIA E A GEOGRAFIA ESCOLAR. **Anais do 14º Encontro Nacional de Prática de Ensino de Geografia: políticas, linguagens e trajetórias**, p. 3176-3186, 2019.

GUIMARÃES, Edi Mendes. A contribuição da geologia na construção de um padrão de referência do mundo físico na educação básica. **Revista Brasileira de Geociências**, v. 34, n. 1, pág. 87-94, 2004.

MORAES, Antônio Carlos de. **Geografia pequena história crítica**. 18 Ed. - São Paulo: Hucitec, 2002.

MORAES, Bruna B. dos Santos; SANTOS, Lucas dos. Geografia e a formação da cidadania. In: FERRETTI, Orlando; CUSTÓDIO, Gabriela A. (orgs). **Artigos da disciplina estágio curricular supervisionado em geografia II: segundo semestre de 2013**. Florianópolis: NEPEGeo; UFSC, 2014. Disponível em <http://nepegeo.ufsc.br/files/2014/06/Artigo-Bruna-e-Lucas.pdf>. Acessado em: 13. Mai. 2022.

SANTOS, Milton. **A Natureza do Espaço: Técnica e Tempo. Razão e Emoção – 2º ed.** – São Paulo; Hucitec, 1997.

SUERTEGARAY, Dirce Maria Antunes. Geografia física: uma reflexão. **Boletim Gaúcho de Geografia**, v. 14, n. 1, 1986.

VESENTINI, José Willian. **Repensando a geografia para o século XXI**. São Paulo:

Plêiade, 2009.

