

# The Relief in the Context of the Teaching of Physical-Natural Themes in the Teaching of Geography

Bruna Lima Carvalho<sup>1</sup>, José Falcão Sobrinho<sup>1</sup> & Raimundo Lenilde de Araújo<sup>2</sup>

<sup>1</sup> Academic Master's in Geography - MAG, Vale do Acaraú State University – UVA, Ceará, Brazil

<sup>2</sup> Graduate Program in Geography, Federal University of Piauí – UFPI, Piauí, Brazil

Correspondence: José Falcão Sobrinho, Graduate Program in Geography, Vale do Acaraú State University – UVA, Ceará, Brazil.

Received: February 10, 2022

Accepted: March 15, 2022

Online Published: March 20, 2022

doi:10.5539/jel.v11n3p58

URL: <https://doi.org/10.5539/jel.v11n3p58>

## Abstract

This work aims to understand the importance of relief and how it is addressed in geography teaching. Supporting, including its different meanings. To carry out this work, a wide bibliographic research was carried out on the theme. As results it was possible to perceive that the theme relief presents a significant contribution to the student's education, in addition this theme can be studied at different levels and contexts, having the possibility of even relating to the reality of the student, in order to situate it and provide a critical and reflective thought of the environment in which it lives. It is concluded that the use of teaching practices auxiliary to the textbook are necessary for a significant predizing.

**Keywords:** learning, geomorphology, geography teaching

## 1. Introduction

The educational field presents a number of challenges, especially in the school environment. These challenges are linked, among other factors, to the distance between what is taught and the daily life of the student, including the lack of more practical clarification of the objectives and contents passed on to the students.

The teaching of physical-natural themes is of great importance due to the ability to promote the student's knowledge about the geographic space and its transformations through human interventions in nature, as well as the changes of nature itself and physical-natural phenomena (Sacramento; Lino & Lima, 2019). With regard to the understanding of these phenomena, Afonso (2015), calls it a "joint approach" between society and nature, in order to develop in the student a socio-environmental awareness of the space lived.

Regarding the importance of knowing the changes in the geographic space, Sacramento, Lino and Lima (2019), emphasize the dimension of understanding the different socio-environmental impacts through the relationship between society and nature, thus becoming a possibility of discussion also on the social issue, and it is possible to create new values of use and relationship with nature.

The physical-natural themes of the geographical space are important contents for the formation of students (Morais, 2011). As the author op.cit explains, the teaching of the physical-natural themes has taken place in a different way over time. Being possible to mention that these themes already appeared in textbooks during the nineteenth century, based on conceptions that these were static, holding back the descriptions.

Regarding the textbook nowadays, it is the most used for the planning of classes on physical-natural themes. When analyzing the textbooks of Moral Geography (2014) it states that, in most of these books, the teaching of physical-natural themes does not emerge from problems situated in the daily life of students, as indicated by the analyses presented by researchers in the area of Geography Teaching that leave an open gap for them to reason about such themes.

In geography PCNs, physical-natural contents can be found in the 3rd cycle of elementary school (6th and 7th years) in the thematic axis "The study of nature and its importance for man" (Brasil, 1998). In this axis, phenomena related to relief, rocks and soils are indicated as study themes (Morais, 2011). In line with the author regarding the teaching of physical-natural themes, these contents should be contemplated in an associative way highlighting their dynamics and relationships, as well as their links with society.

It is important to highlight the role of the school, together with the teacher, in the construction of knowledge on the themes as well as their relevance both in training and in daily action as a citizen. In this reasoning, Callai (2005) emphasizes the idea that the student's reality should be taken as an essential principle in explaining the phenomena, since "it is easier to organize the information, being able to theorize, abstract from the concrete, in the search for explanations, comparisons and extrapolations". According to Rodrigues (2001), when using these approaches, there is the possibility of working the contents of Physical Geography in its genetic and dynamic perspective at all levels of education.

Based on the discussion, it is mentioned how important the study of these themes for the formation of citizenship is and that they are often found in textbooks in a fragmented way without any connection (Araújo, Souza, & Diniz, 2019).

In continuation, specifically the theme relief, we mention the need to clarify the role of relief in the totality of knowledge, including the understanding of its applicability in the real world, as an element of nature, as well as the understanding of the different meanings and contexts presented by this theme, which is quite broad.

When we refer to the relief, the main object of study of Geomorphology, it is possible to emphasize geography as an integrative science, which includes this branch, being of a physical nature, a geomorphology requires a higher degree of abstraction on the part of those who study it (Santos & Falcão Sobrinho, 2020).

By studying and explaining the land surface forms, this branch of geographic science carries with it a complexity that affects the discipline of Geography. Most of the time the books portray the relief more generally, leaving aside the local specificities which makes their understanding lame (Santos & Falcão Sobrinho, 2020).

Thus, the importance of studies at different levels of education on local relief is highlighted. Because the place of experience itself can present the alterations caused by anthropic actions in the natural environment that today are considered environmental problems. This way of teaching makes it possible to bring knowledge to students clearly so that they can play a leading role in the preservation of nature.

It was mentioned that geography as a discipline present in the curricula of educational institutions, has the responsibility to promote these contemplative studies of the student's own reality, promoting students to question the reflection of the natural and social reality that are inserted

This discussion becomes important because it brings discursive and reflective elements about a very broad theme, which is addressed in the teaching of geography. In addition, geographic education contributes to the knowledge and prevention of environmental impacts. According to Afonso (2015) knowing the dynamics of physical space in the areas frequented daily by students should therefore be a priority in school geography. The objective is to understand the importance of relief and how it is addressed in geography teaching. Supporting, including its different meanings.

## **2. Theoretical Reference**

### *2.1 Geomorphology and Geography Teaching*

When discussing geomorphology as to its origin, we have to report to the distant past. Since antiquity, human beings have felt curious about the different forms of the earth's crust (Falcão Sobrinho, 2006).

It is important to note that Geomorphology is not just about describing relief forms statically. In addition to describing the different forms of relief, geomorphology is concerned with bringing to the center of its research the issues intrinsic to its origin, how the whole training process took place, and most importantly which factors are inserted in these processes (Jatobá & Lins, 2008, p. 12).

The discipline of Geography has been going through a constant process of searching for innovations as a school discipline, with this arises several problems related to it, when the issue is the classroom (Santos & Falcão Sobrinho, 2020). Also according to the authors mentioned above, in the classrooms, the discontent and disinterest on the part of the majority in knowing geographical science are noticeable. Knowing that this fact is not new, it has been following this discipline for some years, and adding to the intrinsic problems the school reality of (infrastructure), public with learning deficit, with deficit of interest, with deficit of sociability, makes even greater and more challenging the task of teaching Geography. When we talk about teaching Geography, we are referring to the basis of a diverse science, able to engender in a range of other different areas, influencing and influenced by them (Silva et al., 2008; Falcão Coast & Falcão Sobrinho, 2014).

The geomorphological contents, at the level of Basic Education, are worked by geography which, in addition to studying a huge range of natural and social phenomena, is in charge of addressing distinct agents, processes and relief forms that model diverse landscapes in the globe (Albuquerque & Falcão Sobrinho, 2007).

The study involving the relief lies within the geographical science. Mentioning that in the discipline of Geography in the normal curricula adopted by elementary schools, the study of the forms of the Earth is supposed to be in accordance with the textbooks. Thus, it is up to the teacher to make a good articulation of these contents in favor of the significant learning of the students.

With regard to the knowledge of the terrestrial relief, it can be highlighted from the beginning, either in the search to understand the best places to hunt, as well as for places such as caves to shelter. All this was related to the relief forms, which provide survival advantages.

However, society in general has evolved and has increasingly demanded the relief forms. The knowledge of the relief has undergone many transformations, from concepts, methods and methodologies used for its understanding.

School geomorphology ended up not suffering directly from the evolution suffered by geomorphological science. In recent years, studies have shown the case for studies of relief forms in basic education (Albuquerque & Falcão Sobrinho, 2007).

It is notorious, the case when we analyze more deeply the curriculum of elementary schools. It is even more worrying when analyzing the geography books adopted by schools, where most do not contemplate the basics of Geomorphology, necessary for the teacher to make learning in the classroom. Reflecting thus, in the hull with geomorphological knowledge in school. Thus, the proposal arose to work with model as a methodology in the approach of the content relief in basic education (Santos & Falcão Sobrinho, 2014).

## *2.2 The Representation of the Relief by Means of a Model*

In this context, it is worth showing some practices of teaching the relief, because it highlights the importance of this and the playful and practical way in understanding this theme within the teaching. When discussing the theme relief within the teaching of Geography, many questions come to the fore, among them the challenges that refer to the approach of this theme within the classroom. Even in view of this reality, it is appropriate to highlight practices that show the relevance of the relief, aligned with very interesting practices, which promote a very efficient teaching-learning.

Based on a proposal by Santos and Falcão Sobrinho (2014), these clarify the importance of studying and knowing the different forms of relief that make up the surface of planet Earth. However, knowing the difficulty in portraying and transmitting the content that deals with the importance in basic education, it comes to the proposal to work on such contents associated with innovative and tangible methodologies, as is the case with the use of the model.

In general, not only with regard to school geomorphology, it is notorious the need for approaches and teaching practices that arouse the interest of the student, because some contents require a greater abstraction on the part of the students, depending on the age group of the student. When it comes to the relief in particular, it needs to be understood from practices that enable the understanding of the relief forms.

Therefore, the model gains support as an additional methodology in the teaching-learning process of school geomorphology. But it is interesting to highlight the importance of the textbook and other methods, such as the use of maps, atlases, videos, as well as the association of relief with the daily life of the student, among others, which should be used, due to having great relevance in teaching.

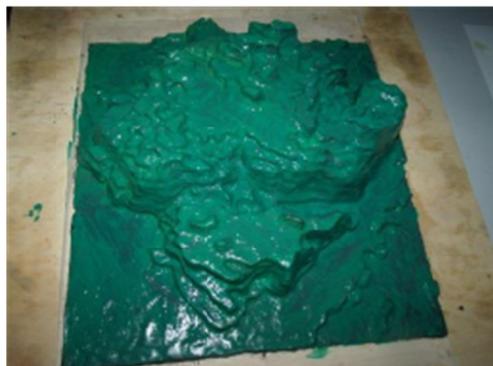


Figure 1. Representation of a relief shape by means of a pattern

Source: Santos, 2014.

### 2.3 Contexts and Meanings of Relief in Teaching

The justification in addressing this item refers to the need for students to understand the various dimensionalities of the relief, which often leads to the concealment of this one because it belongs to an ambiguous category as a natural resource, and thus leads to a certain lack of social importance in relation to the treatment of other elements of nature (Oliveira & Nunes, 2009). In this sense, the following is explained the amplitude with regard to the theme relief.

With the intensification of environmental problems, geomorphology meets this demand with a new approach focused on planning, both urban and rural. Or environmental planning then becomes an instrument for renewing the application of geomorphological knowledge, both in academic terms, addressed in the classroom as justification and exemplification, as well as in practical terms through the use of instruments and tools in the intervention of works and equation of environmental problems, such as floods and landslides (Oliveira & Nunes, 2009).

Still in the view of the aforementioned authors, these emphasize the integrative role of the relief with support for geographic knowledge. Even in view of the fragmentation and specialization of the various disciplines, it is up to the teacher to articulate an approach that integrates and associates the various contents establishing the correlations between them. It can be cited as an example, what is the role of relief and its influence on the climate issue, on the formation of soils, in the flow of water, and besides, to highlight the importance of relief as a stage of human activities, where society inhabits, builds and develops.

Another context and meaning of relief is a (i)material resource, according to Venturi (2004) this as a natural resource presents itself as:

An ambiguous element for carrying with it concrete and abstract aspects. As a conceptual dimension, the explanation of the relief is embodied through the form aspect that denotes the absence of substantial materiality. In opposition, substantial materiality—as seen in other elements of nature such as water, soil, rocks, plants—cannot deny the representation of the relief in the landscape, since in its heterogeneous set, the forms are observable and thus contained in it their concrete aspect of existence (Venturi, 2004).

In any case, the relief is present everywhere, regardless of the conditions that present itself. Unlike soils, vegetation and waters that depend on certain factors for them to occur in space and time, relief as a shape has always been “ubiquitous” on surfaces that are surfaced or not. Its occurrence is unconditional (Venturi, 2006).

An important point to be explained is with regard to the understanding of this theme, because it is still a challenge for students, and most of the time this approach is done only theoretically and statically. In this perspective, Mendonça (2010, p. 18) discusses the need for an approach to relief in teaching closer to the student’s daily reality, so that he himself constructs his conceptualizations and assimilates this content in the construction of his knowledge. This path contributes to the perception of the relations between nature and the human being, acting in the transformation of terrestrial relief.

Also according to the author op.cit, the difficulties of understanding the study on the part of students are related to the pedagogical practices developed by teachers of the discipline of Geography, and may be related to deficiency in teacher education, at this point it is important to emphasize the importance of continuing education, and there will be a positive impact on the practice of teaching, provided by teacher improvement.

### 3. Method

The methodology used in the execution of this article is initially based on a bibliographic review that involves the discussions around the proposed theme and later on their reflection, correlating with the teaching of physical-natural themes, with emphasis on relief.

Because it is a work of qualitative theoretical nature that aims to analyze the natural physical theme relief especially, emphasizing its importance, as well as some teaching practices within the context of Geography. Using as support references of works already carried out, such as scientific articles, monographs, dissertations and theses, ranging from theoretical works to the most practical in the classroom.

### 4. Results and Discussion

Geography as an integrative science provides a broad worldview that prepares the student for the exercise of citizenship. However, some challenges in the teaching of geography are notorious, as explained by Albuquerque and Falcão Sobrinho (2007), and Geography is a very broad and complex science, because it addresses in the same spatial context, elements of society and nature, it is a huge challenge to work seemingly so distinct themes in a single textbook. Therefore, it is concluded that it is essential that the teacher can complement with other

resources the teaching of physical-natural themes.

Based on all context addressed, we highlight the teaching of physical-natural themes in school geography, which present a significant contribution to the formation of students as citizens (Morais, 2011). It is evident the importance with regard to a significant learning that the teacher in its completeness makes integrative approaches to the contents, as well as associations with the reality of the student. What is notorious is that the contents of the physical-natural themes, with the relief, are better understood when they are taught in an integrated way, because this path allows the learning of the relationship between man and society in the geographical space.

In view of the various contexts and meanings applied to the knowledge of relief for the teaching of Geomorphology, it is mentioned that it has grown a lot in recent times and can play a decisive role in adding interdisciplinary possibilities, thus having an integrative character (Oliveira & Nunes, 2009). The importance of relief permeates several habits as can be seen below:

The reliefs constitute the floors on which human populations are fixed and their activities are developed, deriving from it economic and social values attributed to them. Due to their characteristics and the processes that work on them, they offer, for populations, types and levels of benefits or risks of the most varied. Its greater or minor stability stems from its evolutionary tendencies and the interferences they may suffer from other environmental components, or from the action of man. The recognition of the importance of the relief can be inferred by the attention that is given to its study in the elaboration of plans and projects that increasingly need to explain the possible environmental impacts that will be due to its implementation (Marques, 2003, pp. 24–25).

In view of the existing challenges in understanding the forms of relief, it is necessary to use auxiliary didactic means, which complement the textbook to understand this theme. Since there are often flaws and gaps in the geomorphological approach that more specifically contemplates the processes and agents that shape the relief, including an explanation of the local relief, which facilitates the visualization in reality by the student. However, what is generally seen is the lack of interrelation of the contents, having as a claim, in most cases, the didactic question, because it would “facilitate” the understanding of the student (Albuquerque & Falcão Sobrinho, 2007).

Based on the example presented, the use of the model to represent the relief, it is concluded that this support as a tool in the process of content transmission is very satisfactory, as it involves the students and arouses their interest in all stages of the construction of the model.

## 5. Final Considerations

In view of all the discussion, with regard to the physical-natural themes, whether in the scope of academia or school, it is satisfactory to approaches to these themes, emphasizing the importance, which are contemplated in an integrated way not treating them in isolation.

With regard to the teaching-learning of the relief, which auxiliary methodologies, such as models, maps, high, videos, among others, arouse in the educating curiosity, so there is greater ease and greater efficiency aimed at meaningful learning.

However, it is worth mentioning that the textbook should be assisted by other instruments, especially when it comes to geomorphological contents, because they require a series of other pedagogical resources in order to make the classes more interesting.

In this sense, the meaning of relief within the teaching of physical-natural themes, in the scope of geography teaching, is not expressed the penalty in demonstrating its importance in various spheres, but also has a pedagogical function of demonstrating the totality of knowledge in the student's education process.

## References

- Afonso, A. E. (2015). A Geografia da Natureza no ensino de Geografia: propostas para a educação ambiental e preventiva de riscos naturais. *Giramundo Revista de Geografia do Colégio Pedro II*, 2, 83–93. <https://doi.org/10.33025/grgcp2.v2i4.672>
- Albuquerque, F. N. B., & Falcão Sobrinho, J. (2007). A geomorfologia do semiárido brasileiro nos livros de geografia do ensino médio: agentes morfogenéticos e formas de relevo. *Revista Homem, Espaço e Tempo*, 1, 1–12.
- Araújo, F. H. R. de, Souza, E. L., & Diniz, M. T. M. (2019). As temáticas físico-naturais no ensino de geografia. *Revista Equador*, 8, 257–275.
- Brazil. (1998). *Parâmetros Curriculares Nacionais para o ensino fundamental: Geografia*. Brasília: MEC/SEF.

- Callai, H. C. (2005). Aprendendo a ler o mundo: a Geografia nos anos iniciais do ensino fundamental. *Cad. Cedes*, 25, 227–247. <https://doi.org/10.1590/S0101-32622005000200006>
- Costa Falcão, C. L., & Falcão Sobrinho, J. (2014). A utilização de recursos didáticos como auxiliares no processo de aprendizagem do solo. *Revista da Casa da Geografia de Sobral (RCGS)*, 16, 19–28.
- Falcão Sobrinho, J. (2006). *O relevo, elemento e âncora, na dinâmica da paisagem do vale, verde e cinza, do Acaraú, no estado do Ceará*. Unpublished doctoral dissertation. Universidade de São Paulo – USP, São Paulo, Brazil.
- Jatobá, L., & Lins, R. C. (2008). *Introdução à geomorfologia*. Recife: Bagaço.
- Marques, J. S. (2003). Ciência Geomorfológica. In A. J. T. Guerra & S. B. da Cunha (Orgs.), *Geomorfologia: uma atualização de bases e conceitos* (5ª ed.). Rio de Janeiro: Bertrand Brasil.
- Morais, E. M. B. (2011). *O ensino das temáticas físico-naturais na geografia escolar*. Unpublished doctoral dissertation. Departamento de Geografia, FFLCH, Universidade de São Paulo – USP, São Paulo, Brazil.
- Morais, E. M. B. (2014). As temáticas físico-naturais nos livros didáticos e no ensino de Geografia. *Revista Brasileira de Educação em Geografia*, 4, 175–194. <https://doi.org/10.46789/edugeo.v10i20.779>
- Oliveira, O. S. A., & Nunes, J. O. R. (2009). Contextos e Significados do relevo para o Ensino de Geomorfologia. *Caderno Prudentino de Geografia*, 1, 127–147.
- Rodrigues, C. (2001). A teoria geossistêmica e sua contribuição aos estudos geográficos e ambientais. *Revista do Departamento de Geografia USP*, 14, 69–77. <https://doi.org/10.7154/RDG.2001.0014.0007>
- Sacramento, A. C. R., Lino, T. A. G. & Lima, B. C. T. (2019). As bacias hidrográficas e as dinâmicas naturais: os riscos de enchentes para o ensino da geografia. In L. de S. Pinheiro & A. Gorayeb (Org.), *Geografia Física e as Mudanças Globais* (pp. 1–12). Editora UFC, Fortaleza, Ceará, Brazil.
- Santos, M. F., & Falcão Sobrinho, J. (2020). O relevo representado em maquete: diminuindo-o para aumentar sua compreensão (uma proposta metodológica para o ensino básico). *Revista Homem, Espaço e Tempo*, 12, 59–81.
- Silva, C. S., Costa Falcão, C. L., & Falcão Sobrinho, J. (2008). O estudo do solo no livro Didático de Geografia. *Revista Homem Espaço e Tempo*, 1, 101–112.
- Venturi, L. A. B. (2004). Os diferentes significados do relevo no ensino de Geomorfologia. In *Anais do V Simpósio Nacional* (pp. 1–10). Santa Maria: UFSM, Rio Grande do Sul. Brazil.

### Copyrights

Copyright for this article is retained by the author, with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).