

MOCKUPS AS INNOVATIVE TOOLS FOR TEACHING GEOGRAPHY IN BAIXADA FLUMINENSE/RJ

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ABSTRACT

It seeks through this research, to present the models as didactic-innovative tools for the teaching of Geography in basic education and the possibility of them as support and inclusion of the visually impaired to the contents of geographic science: Krempacki (2015), Oliveira; Malanski (2008). It aims through this work to present the various possibilities of teaching Geography that can be carried out through the maquees: Basso; Krempacki (2015), Borges (2016), Nascimento et. al (2022), Souza; Paiva (2019) and Zozimo; Moraes (2019). It will show the eradication of the dichotomous separation between physical and human geography, provided by the maquees: Castro; Serrão; Alves (2021, p.16); serving as a unifying agent not only in the educational issue, integrating disabled people, but also unifying geographic science. It will be alluded to, that the maquets are a cheap tool to build: Santos (2021, p.02); which allows the reuse of recyclable materials: Borges (2016) and a greater participation of students in geography classes: Zózimo; Moraes (2019). It will be seen that the maquets are paramount to make abstract knowledge material: Rodrigues (2012, p.1-2); that in many cases it is almost unreachable by the student, when the teacher cannot do the didactic transposition; and that assists in understanding complex issues: Silva; Araújo (2019).

Keywords: Mockup; teaching geography; courseware

MAQUETES COMO FERRAMENTAS DIDÁTICO-INOADORAS PARA O ENSINO DE GEOGRAFIA NA BAIXADA FLUMINENSE/RJ.

RESUMO

Busca-se por meio dessa pesquisa, apresentar as maquetes como ferramentas didático-inovadoras para o ensino de Geografia na educação básica e a possibilidade das mesmas como apoio e inclusão de deficientes visuais aos conteúdos da ciência geográfica: Krempacki (2015), Oliveira; Malanski (2008). Almeja-se por meio desse trabalho, apresentar as variadas possibilidades de ensino de Geografia que pode ser realizado por meio das maquetes: Basso; Krempacki (2015), Borges (2016), Nascimento et. al (2022), Souza; Paiva (2019) e Zózimo; Moraes (2019). Mostrar-se-á a erradicação da separação dicotômica entre Geografia física e humana, proporcionada pelas maquetes: Castro; Serrão; Alves (2021, p.16); servindo de agente unificador não só na questão educacional, integrando deficientes, como também unificando a ciência geográfica. Será aludido, que as maquetes são uma ferramenta barata de se construir: Santos (2021, p.02); que permite o reaproveitamento de materiais recicláveis: Borges (2016) e uma maior participação dos estudantes nas aulas de geografia: Zózimo; Moraes (2019). Será visto, que as maquetes são primordiais para tornar material o conhecimento abstrato: Rodrigues (2012, p.1-2); que em muitos casos é quase inalcançável pelo discente, quando o docente não consegue fazer a transposição didática; e que auxilia na compreensão de assuntos complexos: Silva; Araújo (2019).

Palavras-chave: Maquete; ensino de Geografia; material didático

INTRODUCTION

The research present at this event was developed in the Institutional Program of Scientific Initiation Scholarships - PIBIC, from the National Development Council Scientific and Technological - CNPq, at Federal Rural University of Rio de Janeiro - UFRRJ; and its general object is analyze the models as didactic-innovative tools for teaching of Geography in Elementary Education of Baixada Fluminense. Highlights the importance of inserting visually impaired people at more accessible level knowledge of the Geography's contents through touch; as well as promoting the integration by the malevolent dichotomization of physical and human Geography's.

The relevance of models as instruments of pedagogical innovation is very important, in sense of bringing together students dispersed by visual impairment in the classroom; Basso; Krempacki (2015); and show how inclusive models can become, not only in terms of visual impairment, but also in terms of being a resource inclusive and cheaper teaching among low-income students, residents from peripheral-urban regions; Borges (2016).

Teachers have some difficulties in instructing knowledge of Geography in classrooms when they do not associate these with practical methods: "many preceptors have difficulty making sense of knowledge taught, and learners end up not being able to discern the knowledge built in class." Pimentel; Paula; Santos (2021, p.04). And it takes into account the challenges that educators face the diversity of learners in the classroom; Urbanck (2015). The research highlights that models actually allow students become builders of their own knowledge in geography, mediated by teachers; Gomes; Silva; Miro (2016).

And it refers the fact that model allows students to leave theoretical world and materialize theirs knowledge into practical activities by construction of models: "it's in this construction that lectures became significant, because model modify the physical embodiment of oral knowledge." Pimentel;Paula; Santos (2021, p.03).

METHOD AND MATERIAL

This research is a qualitative nature and was built through reading and analysis of several texts on the subject of teaching Geography through models. Stand outt: Santos (2010; 2021), Oliveira; Malanski (2008), Kimura (2010), Freire (1987), Demo (2004), Cavalcante (2014), Castro; Serrão; Alves (2021) e Carbonell (2002), Basso; Krempacki (2015), Silva; Araújo (2019), Gomes; Silva; Miro (2016), Borges (2016), Nascimento, et.al (2022), Piuzana; Moraes; Gontijo (2016), Souza; Paiva (2019), Rodrigues, et.al (2015), Urbanck (2015), Zózimo; Moraes (2019), Alvarenga; Fernandes (2021), Brandão (2005), Castro (2014), Lacoste (1988), Kramer (1988), Nascimento; Oliveira (2015), Pimentel; Paula; Santos (2021), Rodrigues (2012), Santos; Santana (2017), Santos (2006), Fonseca; Carlos (2015) e Escobar (2016).

The period for consulting references bibliographic of this work took place at July 2021 to May 2022.

The present text constitutes a bibliographic review work that inter-relates several important authors referring to dialogued theme. Among countless ways to use mockups, we chose models as innovative teaching tools precisely because they have many teaching

possibilities, in different school subjects; but, in this research, we sought to direct attention to teaching Geography.

RESULTS AND DISCUSSION

In education, there are many contemporary challenges to be alleviated and overcome; among them is banking education, where “students are not called know, but to memorize the content narrated by the educator” Freire (1987); also, that of make students able to understand volatile contents of the discipline, in addition to build knowledge throughout their experiences: “Education must support ability to produce and participate, not being restricted to disciple, who listens, takes notes, makes proof, copy, above all “cheat”: Demo (2004, p.131). In view of this, emphasis must be placed on the “importance of teachers to bring to the classroom, didactic resources as an element differential in student education”: Basso; Krempacki (2015, p.01) and the diversity of methods for teaching Geography classes: Pimentel; Paula; Santos (2021, p.02).

The Baixada Fluminense is part of context on periphery of Metropolitan Region of Rio de Janeiro’s State where the social, economic, political, educational and other spheres, forgotten by public governance; many problems materialize Baixada Fluminense as: “a needy region of basic rights, mainly basic sanitation, health, public transport, public high schools and colleges, among others.” Alvarenga; Fernandes (2021, p. 106-107). However, school reality differs, for example, from the context capital of the State, where more investments are noticeable. Therefore, “the teacher of Geography must develop a pedagogical methodology that has theoretical-conceptual clarity and that connects the study objective of the discipline to everyday life,..” Rodrigues (2012, p.01). Fulfilling this, the teacher will be making teaching of geography more inclusive and closer to reality of learner.

Some students are placed in a poverty scenery, where many times some don't have breakfast before going to school; their first meal necessarily is in school environment: “for some families that have a low socioeconomic status and who have children in school, lunch is not just a daily snack received at school, but the main meal”, Fonseca; Carlos (2015). Others, upon returning from school, parents are unable to buy school supplies; some buy only certain foods from home, to meet demands for school supplies, prioritizing hope that one day their children will have a “better future” that their parents never had. In an elitist society, where education aims serve those with a higher level, Castro (2014, p. 41-42) “children of families with higher educated and wealthier people tend to be best in the school compared to others who doesn’t have these characteristics”: Castro (2014, p. 60). In other words, education was designed for minority and not for popular masses. “Public, universal and free school – a right of all citizens–needs to become for everyone's”: Kramer (1988, p.95).

Is in this metropolitan periphery space, where “capitalism, liberal and secular – extended its field of influence to most corners of the world”: Escobar (2016), where these problems are automatically generated by hegemonic system of the postmodern era, which needs to look for “features of relating students’ daily life with the geography”: Rodrigues et.al (2015). It's necessary look for inclusive tools and methods to teaching geography, in order to transform unknowable contents for understanding knowable; the abstract to concrete; the impalpable to palpable; the imaginary for reality; the complex to simple; the boring for

ludic and the banking education for critical education and creative. However, for this to occur, teacher needs to consider understanding of the world by student part:

In general, we adopt procedure to listen that we want to hear. The teacher has great difficulty to consider understanding come from the student, based on elements and aspects he is presenting. In other words, the way in which the world is present in universe of that student is ignored or minimized and is being expressed by some discursive form.(KIMURA, 2010, p.131).

It is mostly necessary to seek various means of projecting construction of knowledge so that diversity of the classroom can be satisfied according to each family culture and way of understanding: Pimentel; Paula; Santos (2021, p.02). “It is through new concepts that student feels more stimulated and interested in understanding and cooperating so that, this way there are significant advances in way content is discussed.” Santos; Santana (2017, p.9-10):

To put it better, didactic transposition to be effective depends a lot on the conditions and environment provided by teacher. This environment must be active participatory where doubts arise, exchange of experiences, dialogue permanent. The teacher needs to observe abilities of each student: the most participatory, the most shy, the one who has more doubts, the one who learns the most fast, what you learn through experience, etc. (NASCIMENTO; OLIVEIRA, 2015, p.312).

Observing, understanding and intervening in an innovative way in diversity of the classroom is fundamental for teacher to achieve unifications in disparities; inclusions in exclusions; approximations in distances; aptitude in difficulties; confidence in discouragements; understandings in misunderstandings; interests in disinterests; evolution and development in involutions and delays. The teacher needs to “contribute to overcoming difficulties by explaining Geography in constant changes, making student acquire a critical understanding of space, societies and environment;” Cavalcante (2014, p. 198).It's need to move from perspective of universalisms to pluriversalisms, because students are immeasurably diverse. It must be taken into account what “it is already known that each student always learns in a personal and particular way.” Carbonell (2002, p.72); that is why, “It is essential that teacher in his classes always looks for learning methods innovative, trying to find ways to make students understand subjects in a more pleasurable”: Santos; Santana (2017, p.8) and Gomes; Silva; Miro (2016). However “good teacher is the one who leads his students to understand well what they need to learn at the pace correct.” Castro (2014, p.229). “After all, being a teacher is about innovating, it is about wanting to always want to more, and never let time stagnate or be discouraged by difficulties.” Castro; Serrão; Alves (2021, p.20).

MOCKUPS AS A DIDACTIC INNOVATION FOR TEACHING: WHAT THEYREALLY ARE AND WHAT ARE THEY FOR?

“Educational resources in general occupy a great relevance with regard to teaching, as they are like a bridge of conciliation when ministering certain matters”:Souza; Paiva (2019), Basso; Krempacki (2015), Silva; Araujo (2019), Nascimento et.al (2022), Castro; Serrão; Alves (2021, p.15), Santos (2021, p.03) e Santos; Santana (2017, p.02). “The use of didactic resources aims to help teacher and student in educational activities, with contribution of environment to facilitate, encourage or enable mediation” Rodrigues, et. al.(2015) e Santos;

Santana (2017, p.08). “There are now several studies on use of resources (such as mockups) in Geography classes” Castro; Serrão; Alves (2021, p.14), Basso; Krempacki (2015), Silva; Araujo (2019), Gomes; Silva; Miro (2016), Borges (2016), Piuzana; Moraes; Gontijo (2016) e Souza; Paiva (2016). The mockups are physical and miniaturized replicas, which seek to copy a given location in geographic space, on a reduced scale; it transforms a 2D reality into 3D, being very useful for a better understanding of the contents that must be built in basic education. “The mockup is a didactic resource that can help students understand the concepts of Geography at the most different scales, allowing to establish associations between different proportions, from local to global:” ; Oliveira; Malanski (2008, p. 181). Is “representation of a real object with different possibilities of use in different areas of knowledge”: Basso; Krempacki (2015) and Souza; Paiva (2019). “The use of models as a proposal for action, it demonstrated to aggregate both knowledge already acquired by students, through reality in which they live”: Zózimo; Moraes (2019); this shows that mockups helps student to put into practice a good part of content learned in discipline of geography.

They are important because, “through a model it is possible to have visual domain of entire spatial set that is its theme and for being a three-dimensional model, it helps favors relationship between what is observed on ground and on map”: : Santos (2010, p.01). It also helps students to relate their experiences with discipline: Rodrigues et.al (2015).

Below is a mockup built in a public school at Nova Iguaçu's municipality in Rio de Janeiro:

Figure 1 - The model as pedagogical tools for the materialization of abstract knowledge.



Source: Personal collection of the author.

The model is “an important communication resource and strong didactic potential for integrated analysis of landscape and understanding of geographic space in a teaching-

learning process”: Piuzana; Morais; Gontijo (2016) e Rodrigues et.al (2015). The mockups help breaking with traditionalism: Urbanck (2015); also favor to correlate information contained therein: Zózimo; Moraes (2019). The model “helps to understand of topics with a high degree of difficulty and abstraction, facilitating the teaching process learning in geography”: Silva; Araujo (2019). It is “important in Teaching of Geography, because enhances teaching-learning process, enabling students to build their own knowledge”: Gomes; Silva; Miro (2016). They help with assimilation and understanding of the passage from abstract to concrete knowledge: Urbanck (2015). “It can be used in a variety of ways to represent physical and human affairs of geography a for example in construction of reliefs, cities, environment among others...”: Rodrigues, et. al (2015) and Castro; Sawmill; Alves (2021, p.19).

Working with practical resources meet the needs teaching of Geography and becomes more and more important, because teaching shouldn't be only based on reading and text interpretation, copies of maps and lectures.(CASTRO; SERRÃO; ALVES, 2021, p.15).

It is necessary to work with more practical resources to teaching geography: Basso;Krempacki (2015) and Castro; Sawmill; Alves (2021), because what's often done is a predominantly theorized and content geography, where practical activities in large part suffocated because are considered more complex. Just like butterfly doesn't flies with only one wing, geography cannot walk with only one leg, that is, it cannot there is only theory, it is also necessary to have practical activities:

Among those around us, near or far, animals whose offspring parents create and recreate situations, so that training young makes and repeat the acts of learning that guarantee life, like mother who one day cast child out of the nest with love, so that he may learn art and courage of the first flight (BRANDÃO, 2005, p.14).

Comes a time when it isn't enough for little bird knows that its mother flies because it flaps its wings, but flaps its own, to take its own flight. The teacher emancipator, idealized by Paulo Freire, needs to create independence and emancipation of student who tries to fly with the wings of other traditional teachers, to then fly with your own wings; that is, to create your own knowledge of world around you, as it is not only teacher who has knowledge; in the horizontality desired by an education problem-solving model designed by Freire (1987), learners have a lot to teach.

Practice leads to a full improvement of some knowledge that was built by student, but not completely understood by him, Santos (2010, p.13); however model works as a materialization of the subject discussed in classroom; Cavalcanti (2014, p.198) theoretical knowledge comes from minds and materializes through some materials, giving meaning to a reality that was once debated. Therefore, the use of practical activities is actually a confirmation and realization of theoretical knowledge.

“Therefore when building a mockup, the student becomes familiar with representation of his space, transporting information from two-dimensional (map) to three-dimensional (land surface):” Santos (2010, p.09). “Looking at the model allows students to see geographic space in three-dimensional form, which is theoretically abstract”: Urbanck (2015).

Teaching through models, it is possible to explore various contents related to school and academic geography's, Santos (2021, p.02) and Castro; Serrão; Alves (2021, p.19); serving as an integrative tool of geographic knowledge:

In this way, the model allows teacher to explore different contents of School Geography, both physical (geomorphology, hydrography, geology, among others) and human (urbanization, culture, economy, etc.) interrelate both aspects at different cartographic scales and geographies on model. (SANTOS, 2021, p.02).

Using mockups in this sense helps to solve problem of dichotomization of geography, where thinking solely and exclusively focused on human geography or physical geography, are left aside, to introduce an integrative view of a thought essentially geographic and unitary, Santos (2021). It is necessary to overcome compartmentalization of dualistic geography for an overview and focus on spatial analysis, interrelating spheres physical and human. As Milton Santos says, specialists from other disciplines don't know clearly what geographers actually do or study: Santos (2006, p.28). Yves Lacoste says that the distance between physical and human geographers is so marked that some give up "unitary geography in order to take advantage progress of a division of the scientific work": Lacoste (1988, p. 102). However, mockups are tools essential for this disciplinary unification between these two poles of geographical science. As Clézio dos Santos says, models allow true "effectiveness of knowledge geographic area in the Basic School, allowing a unique moment of formation and learning." Santos (2021).

THE MODELS ARE INCLUSIVE BECAUSE THEY ARE SIMPLE AND CHEAP TO BUILD.

The models are one of viable solutions, given lack of resources, which should be destined to Baixada Fluminense's education. They are cheap and simple to make: Santos (2021, p.02); being reused countless times by teachers. "Teachers earn another ally for your classes with training of critical people, and it is a resource that has low cost in market and that use of recyclable materials is considerable": Borges (2016). Faced with technological resources that humanity currently has, the miniaturized representation of geographic space through recyclable solid waste, if configures as a more economical means to generate the construction of knowledge in learners

Even in times when the use of Geographical Information System (GIS) reached a large number of basic education schools enabling virtual manipulation of spatial data and information, the model presents itself as a relatively simple and cheap to build compared to using GIS software and hardware necessary for use of these systems. In fact, constituting resource didactic and accessible for a greater number of educational subjects (SANTOS, 2021, p. 02).

The models can also be made from recyclable materials, becoming an option sustainable in sense of minimizing impacts that would be generated if waste used were inappropriately discarded: Borges (2016). Paper, medicine boxes, cardboard, small objects, styrofoam, miniaturized toys, bottles, plastic, matchsticks and etc... All that would previously be "garbage" gain usefulness for teaching, in construction of mockups.

Building models from recyclable materials would not require much from teachers of basic education; Teachers can set a time for students to gather necessary materials and then bring

them all the class with teacher can build together a desired dimension of geographic space. Knowledge cannot be something only created by teachers, and yes, by the different subjects in classroom; all of somehow have some knowledge to share and build with others: Freire (1987).

Bear in mind that “teaching is a very complex task”: Urbanck (2015); “Geography's teachers report that they are often facing difficulties in “attract” their learners in classes, as most of them aren't interested in contents that this discipline works”: Cavalcante (2014, p.3). Mockups can function as a kind of construction of knowledge in a playful way; There are several ways in which this mechanism of teaching can be carried out, one of them would be to separate class in half and thus propose a challenge of who builds model faster or who builds the most beautiful and well-detailed mockup. According to Zozimo; Moraes (2019): “The construction of models proved to be a great tool, as it allowed a greater participation of the students...” This would be one of those classes where the teacher would more efficiently get attention of fussy students, because it would be the kind of class where they get up to pick up materials and exchange ideas and plans for construction of representation. This could be a way to awaken students in a creative way to the contents of geography. “The realization of a class with didactic resources different from traditional ones provides students with a greater interest in content, in addition to arousing curiosity and better apprehension of the contents”: Nascimento, et.al (2022).

If before in merely expository class geographic space was a given reality, through construction of models, becomes a reality built with their own hands, experiencing and appreciating the self-construction of student knowledge.

THE MODELS ALLOW STUDENTS TO BUILD THEIR OWN KNOWLEDGE ABOUT THE STUDIED SPACE.

“Knowledge requires time and several attractive activities for its solid learning”: Carbonell (2002, p.54) and Silva; Araujo (2019). Usually tools educational used in basic education are characterized by being given tools and not built by students; textbooks, for instance, would be something that has already been pre-established by educational network; Basso; Krempacki (2015), not requiring teacher innovate by creating their own means of building knowledge. “You cannot look back on direction to school anchored in the past, which was limited to reading, writing, counting and receiving passively a bath of general culture.” Carbonell (2002 p.16).

It is necessary to assume a new model of education, one that is innovative, burying traditional way of teaching, for acquisition of knowledge that is anchored in the environment in which student finds himself. How would students be studying realities from the city of Rio de Janeiro and leaving aside your experiences in Baixada Fluminense? It isn't only state capital that has tourist attractions, it is not only there that culture, innovation or technology; the periphery also has its own culture; “necessarily, they must represent situations known by individuals whose theme is search, which makes them recognizable by them, thus enabling them to recognize”: Freire (1987).

Students from periphery end up growing cognitively with an imaginary of that environment in which they developed has little or nothing to contribute to their formations. Therefore, extreme importance must be given to bringing reality to classroom lived and experienced

by students, showing them that all geographic and all people have a lot to contribute to educational evolution; Rodrigues et. al (2015).

MOCKUP AS INCLUSION FOR THE VISUALLY IMPAIRED: WHEN VISION IS UNTHINKABLE, TOUCH BECOME SOLUTION

Models are also important tools for visually impaired; Basso; Krempacki (2015), they can be used through touch, so that students could touch features of relief, shapes of urban landscape, shapes of landscape rural, among many other physical representations that can be miniaturized accessible for visually impaired:

The use of model in Geography's teaching is an important didactic resource, because it helps understanding of topics with a high degree of difficulty and abstraction, in addition to promoting social inclusion of people with totally or partial visual impairment due to use of touch in process of learning. (OLIVEIRA; MALANSKI, 2008, p. 181).

According to Basso; Krempacki (2015): "It can be added in caption, written in Braille, using darker colors for colorblind students and differentiated relief shapes..." That it would make it easier to eradicate part of challenge of building knowledge with the disabled. If teaching built with normal students becomes a challenging task, the same with the disabled students is an extremely complex task, requiring innovative methods and resources to overcome barriers of disability.

Models manage to make touch one of main gateways to teaching of visually impaired. Teaching this target audience through mockups helps in building a better understanding of subjects that belongs to geography; for example, present different relief features such as plateaus, plains, depressions and mountains; through the tact, learners will be able to differentiate characteristics of each type of relief; That differentiation of features could not be made by this audience only in theoretical knowledge:

In addition to providing regular students with other ways of perceiving space, the teacher creates an inclusive environment that provides disabled visual, subsidies for him to better explore the environment in which he lives, providing them with conditions for them to actively participate and together with school activities. (OLIVEIRA; MALANSKI, 2008,p.183).

A replica of a location in geographic space enable carriers of visually impaired perceive world around them, in a way that only theoretical knowledge wouldn't be able to handle it. Through use of mockups, teachers manage to build an inclusive environment, making students with visual impairment overcome some deficiencies, such as the lack of knowledge of some forms of space elements; Basso; Krempacki (2015).

CONCLUSIONS

Based on authors cited, the conclusive result was reached that models are immeasurable pedagogical tools in teaching of Geography. This is due to multiple possibilities of using them in the teaching of basic education. They enable break with traditional teaching paradigm, placing students in condition of builders of their own knowledge.

It was alluded to various uses that models can provide to teaching of Geography, Basso; Krempacki (2015), Borges (2016), Nascimento et. al (2022), Souza; Paiva (2019), Zozimo; Moraes (2019), mainly in peripheral regions of cities; where socioeconomic needs are expressive, Alvarenga; Fernandes (2021, p.106-107).

It was highlighted fact that models can be inclusive tools, not only in the issue of visually impaired, through touch, Basso; Krempacki (2015), Oliveira; Malanski (2008, p. 181, 183), as well as in sense of students who have needs economic, as it is a cheap tool to build: Santos (2021, p.02); that allows reuse of recyclable materials: Borges (2016) and greater participation of students: Zozimo; Moraes (2019).

They allow true geographic analysis, Santos (2021), through miniaturized representation of spatial elements of given portion of geographic space, Silva; Araújo (2019); eradicate physical and human geography dichotomy in a single relational observation, “representing physical and human aspects of geography”: Castro; Serrão; Alves (2021, p.16), effecting an essentially complete synthesis these two poles of geographical science; have great “didactic potential for the integrated analysis of landscape and understanding of geographic space in a teaching-learning process”: Piuzana; Morais; Gontijo (2016).

These 3D representations of space allow students to materialize theoretical knowledge built with teachers in classroom: Nascimento et.al (2022) and Castro; Serrão; Alves (2021, p.19). They allow perception of the abstract in concrete: Rodrigues (2012, p.1-2). They make learners true builders their own knowledge: Gomes; Silva; Miro (2016).

The mockups help students to develop creativity in playful and simple; takes students out of blackboard routine classes: Santos; Santana (2017, p.07) and encourages interpersonal relationships among students. They also help to understand complex issues: Silva; Araújo (2019).

Research is important when it comes to alleviating/solving problem of lack didactic resources for teaching geography in basic education. The fact is undoubted that there are many possibilities for teaching Geography, through models. They are pedagogical innovation that basic education needs.

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