

# **TOPONYMICAL SOFTWARE FOR EDUCATIONAL PURPOSES SOFTWARE TOPONÍMICO COMO PROPOSTA PEDAGÓGICA<sup>1</sup>**

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## **ABSTRACT**

In Linguistic studies, Toponymy is the study of place names and, out of many other aspects, it is based on etymology and semantic data of proper place names (including physical as well as human elements). It is key that such names be understood on the basis of their different meanings, views and fields of study, since they are organized dynamically and, for this reason, are constantly (re)invented in time and space, thus overlapping with sociocultural, identity-related, economic, political and religious values. To our view, a place name is linguistic and cultural inheritance, as well as testimony to a given community. Materialized and embodied, it is product and sociocultural reflection of a group's cosmovision. The present study seeks to answer the following question: How might a piece of software developed for pedagogical purposes, functioning on the basis of additional information about physical and human elements from the Brazilian state of Tocantins, value and broaden one's knowledge range about place names in the same state? The concept of pedagogical innovation, in addition to official documentation and a theoretical and methodological literary review on Toponymy are used as grounds for this study.

**Keywords:** Toponymy. Education. Pedagogical Software.

## **RESUMO**

A toponímia, na área dos estudos da Linguística, tem como escopo o estudo dos nomes de lugares, baseia-se, entre outros aspectos, na etimologia e nos dados semânticos dos nomes próprios de lugares (elementos físicos e humanos). É fundamental compreender esses nomes a partir dos diferentes significados, olhares e áreas de atuação, pois, por se organizarem de maneira dinâmica, constantemente (re)inventam-se no tempo e no espaço, sobrepondo-se a valores socioculturais, identitários, econômicos, políticos e religiosos. No nosso entender, reconhecemos o nome de lugar como sendo um

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<sup>1</sup> Vai publicada também uma versão em português deste artigo.

patrimônio linguístico e cultural, testemunho de uma comunidade. Materializado e corporificado, ele é um produto e o reflexo social e cultural da cosmovisão de um grupo. Para este estudo, partimos da seguinte questão norteadora: de que forma um software, de caráter pedagógico, ao partir de informações adicionais a respeito de elementos físicos e humanos do estado do Tocantins, pode valorizar e promover a ampliação do leque de conhecimentos acerca dos nomes de lugares do estado do Tocantins? Partimos do conceito de inovação pedagógica para fundamentar nosso trabalho, dos documentos oficiais, como também do referencial teórico e metodológico da toponímia.

**Palavras-chave:** Toponímia, Ensino, Software Pedagógico.

## **1. Introduction**

Given the interdisciplinary and dynamic nature of toponymical studies, this article seeks to answer the following question: From a pedagogical standpoint, how might the development and implementation of a piece of software with additional information about physical and human/urban elements from the Brazilian state of Tocantins value and broaden one's knowledge range about place names displayed by Portuguese Language, Geography and History Elementary School text books?

Toponymy comes from the Greek *tópos* (place) and *ónoma* (name). It is dedicated to the study of names of places and geographical entities whether of a physical, human, anthropic or cultural nature. This field of study should be understood as a linguistic-cultural compound: a fact inherent in human languages. From an interdisciplinary point of view, it is possible to consider that toponymical relationships provide a sense of unit in view of various areas of knowledge. Thus, it “allows subjects to (re)discover the identity, history and etymology of the name within a variety of fields of knowledge, given the onomasiological plan involved in the act of assigning names to places” (ANDRADE, 2012, p. 205-206).<sup>2</sup>

Toponymy is capable of “evincing signs in social history (ethnic background, migration processes, systems of settlement in a given administrative region) and perpetuating the physical environmental features (vegetation, hydrography, geomorphology, fauna...) of a given region” (ISQUERDO; SEABRA, 2010, p. 79). It is key that toponyms be understood on the basis of their different meanings, views and fields of

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<sup>2</sup> All quotes mentioned throughout this article were originally written in Portuguese and translated into English by us for the present study.

study, since they are organized dynamically and, for this reason, are constantly (re)invented in time and space, thus overlapping with sociocultural, economic, political and religious values.

Taking the educational context into consideration, we have felt the need to come up with strategies for developing technological tools that meet the needs of those attending school in the present. In this study, conducted from a practice-in-education standpoint, we understand innovation in the sense of (re)inventing, (re)discovering, (re)creating something that had been previously pictured or thought of and now is under process of translation and (re)interpretation.

As mentioned by the official document National Curriculum Guidelines for Elementary School (*Diretrizes Curriculares Nacionais Gerais para Educação Básica*),

due to requirements set out by Elementary School, the latter needs to be reinvented: prioritizing processes capable of developing inventive individuals with participative behavior, willing to cooperate and feeling prepared to be inserted into a number of work, cultural, political and social contexts. Meanwhile, those individuals should also be capable of interfering in and question/discuss means of production and life. School faces the challenge of its own creation, since everything referring back to school is a product of invention: school rituals are a result of a given ongoing sociocultural context. (BRASIL, 2013, p. 16)

Therefore, school requires that all individuals inserted in education processes have a certain degree of expansion, particularly in terms of political view. This is expressed by means of groundbreaking skills which, in turn, are well-grounded on individuals' ability to apply ethics- and esthetics-related techniques and technology. It is no longer possible to ignore neither scientific knowledge nor the use of new technologies in the everyday teaching and learning processes developed at school. The latter have continuously consisted of the utmost condition necessary for individuals to be able to hold a given position towards any processes or innovations affecting them. Thus, teachers, as well as students and the entire school community need to be inserted into an environment where culture, art, science and technology are integrated and part of school routine since the start of Elementary School.

We understand that toponyms play a major role in the process of apprehending a cosmovision of the world surrounding individuals who experience school life. For this reason, we offer for discussion the idea of thinking of a prototype for a piece of pedagogical software aiming at a macro perception of place names, as means to increase one's potential of

acquiring content disclosed by Portuguese Language, Geography and History Elementary School text books, whenever the theme emerges (for instance, names given to ridges, rivers, mountains, municipalities, states, countries, among others). Before presenting the prototype itself, we bring to discussion issues related to the concept of pedagogical innovation which we have appropriated in the present study.<sup>3</sup>

## **2. *Place names as interdisciplinary groundbreaking pedagogical practice***

The term “innovation” was introduced to the educational sphere from production and administration spectra. In the 1950s and 1960s, innovation experts defined the concept as a process happening in stages, all of which can be predicted from creation/development to implementation and generalization. Thus, the concept of innovation aimed at education resulted from advances in science and technology which, in turn, have exerted influence over economic, social and cultural development. As a result of such advances, the technological component, seen as an innovation-provoking mechanism in a progressionist scenario, wields influence over educational programs and reforms. Nevertheless, it is key to be warned that the concept of innovation is not a synonym for problem solution, particularly in regards to education.

We are based on the principle that the concept of innovation, particularly in an educational context, is not necessarily connected to the development of something new, “the latest thing” or something that had never been conceived before. Innovating means introducing something previously developed, discovered and created into a different context. For the present study, which focuses on educational matters, we understand innovation as (re)inventing, (re)discovering, (re)creating something that had been previously pictured or thought of and now is under process of translation. According to Mitruilis (2002, p. 231), innovation stands for a process of “decoding pure novelty into acceptable novelty capable of being applied with a view to improving something that already exists, thus introducing better knowledge, better action and better being into a new context.”

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<sup>3</sup> In the present study, pedagogical particularly refers to the process of reflecting about teaching theories, models, methods and techniques.

Innovating in the educational context is understood as a quest for answers whenever one is faced with challenges in school contexts. To this end, it is appropriate to analyze and reflect on the current sociocultural scenario and the actual contribution provided by innovation while meeting such challenges.

Saviani (1995, p. 30) highlights that educational innovation should be understood as “causing educational experience to be at the service of new purposes.” In other words, innovation requires the purposes of educational experience to be questioned. Therefore, our studies are based on the fact that educational innovation should, whether explicitly or implicitly, question the purposes of educational action that has been proposed, so as to seek new means capable of being adapted to new educational purposes.

Within the aforementioned discussion, we aim at considering the study of place names as groundbreaking pedagogical practice while conceiving the development of a database focusing on the teaching of Portuguese Language, Geography and History in Elementary School. We begin based on the following premise: Toponymical studies imply in conducting works that embrace several fields of study. Name places are not merely any kind of name. Behind every single name there is a reason, history, cultural, historical and linguistic traits, as well as a toponymical motivation. Examining linguistic, sociocultural, geomorphological and psychological aspects is already part of toponymical studies. This is the context to be considered for the present study: interdisciplinary action. Such an action enables individuals to hold a more critical position whenever faced with facts of reality which, in turn, is better understood. That is the case of studying place names. Place and culture are cognitive dimensions necessary for one’s understanding of geographic space, all of which are intertwined for reading the world. According to Seemann (2005, p. 30), “human beings’ own understanding is achieved by understanding the environment where they live. Meanwhile, living somewhere means comprehending it, changing it and making it more human.” That is to say it is a cultural space, as discussed by Bonnemaïson (2002, p. 85), “determined not only by territorial dimensions, but also by historical ones.”

A brief discussion on the prototype for a piece of pedagogical toponymical software is developed as follows. It is worth highlighting that it is currently being tested by the researchers along with school subjects: teachers and students.

### **3. Toponymical software: in-process prototype**

In this section, we present both methodological steps and programming languages used for the development and implementation of the aforementioned toponymical software. We aim at promoting a discussion inserted in a practical-methodological context focusing on how the system might contribute to the process, mediation and expansion of knowledge relative to information on Toponymy in the Brazilian state of Tocantins, particularly regarding Elementary School. Importantly, the discussion proposed herein is seen as process and product of pedagogical innovation within the educational field. We are based on the concepts that define education as a process leading to development and achievement of intellectual, physical, spiritual, esthetic and affective potentials existing in any individual.

The idea of developing a system initially arose from the need for classifying information registered in toponymical lexicographic forms (Dick, 2004). Those forms resulted from works collecting and analyzing data obtained from 139 maps of different municipalities located in the state of Tocantins. Additionally, the forms include linguistic, historical, geographical and etymological information, and have Dick (2004) and Andrade (2010 and 2013) as theoretical-methodological reference. Data collection instigates knowing and understanding not only community history, but also individual and collective cosmovision which is what comprises the cultural as well as linguistic identity of a given region, in our case, that of Tocantins territory.

A groundbreaking interdisciplinary pedagogical proposal is based on the principle of reconsidering and reassessing, from different points of view as well as by holding new positions and making new commitments, the study of place names disclosed by text books. The present study aims at developing a system for classifying information concerning 139 municipalities located in the Brazilian state of Tocantins along with information registered in toponymical lexicographic forms (geographical location, historical and sociocultural data, etymology/origin, historical sources, among others): physical elements (ridges, hills, valleys, islands, rivers, municipalities, states, countries, streams, creeks, among others) as well as urban elements (communities, villages, districts, cities, streets, churches, squares, among others). The software primary goal is to trigger reflection on a groundbreaking pedagogical practice for teaching

Portuguese Language, Geography and History in Elementary School, particularly regarding the study of place names disclosed by text books.

#### **4. Modeling selected requirements: some brief considerations**

We present herein a conceptual view of technologies and tools used for the development of the system proposed. By doing so, we hope to demonstrate the importance of all technology used for this work, which was seen as basic requirement to develop the system. Subsequently, we will present a few diagrams with a view to demonstrating the modelling process of all requirements gathered during the conceiving stage, and, at last, we will show a few examples illustrating the results of implementing the system proposed.

- a. PHP language, which stands for “Hypertext Preprocessor” was chosen due to being considered as a solid language recommended for web development.
- b. Another major tool used to ease implementation was CASE Studio 2<sup>4</sup> designed to manage and create various types of database.
- c. Navicat<sup>5</sup> for MySQL was also used. It is aimed at management and development of MySQL database servers.
- d. WampServer<sup>6</sup>, on the other hand, is a platform for the Windows Operating System aimed at programmers and/or individuals in need of testing web applications. It consists of Apache, PHP and MySQL database support.
- e. API Google Maps<sup>7</sup> was used to develop the system, as it allows users to virtually tour around the world while enjoying high-quality aerial photographs depicting a few regions while it also provides access to vectorial mapping of other regions.

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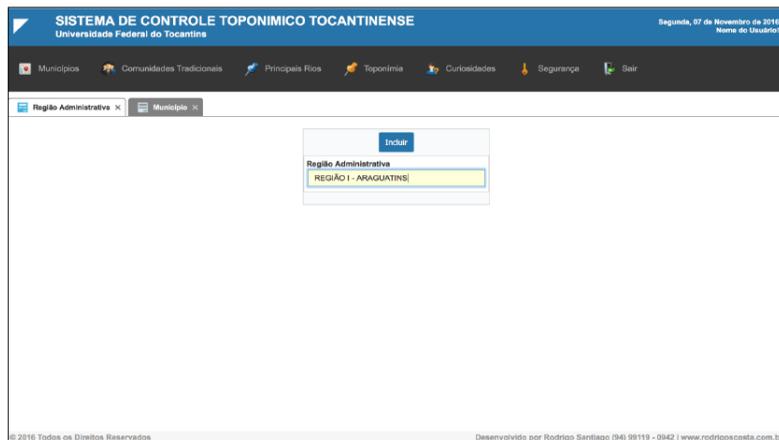
<sup>4</sup> For further information: <<http://www.casestudio.com/>>. Accessed in August, 2019.

<sup>5</sup> For further information: <<http://www.navicat.com/>>. Accessed in August, 2019.

<sup>6</sup> For further information: <<http://www.wampserver.com/>>. Accessed in August, 2019.

<sup>7</sup> For further information: <<https://developers.google.com/maps/documentation/>>. Accessed in August, 2019.

In the sequence, we present a few access prototypes under development and which have been tested for satisfaction of the pedagogical software initial requirements.

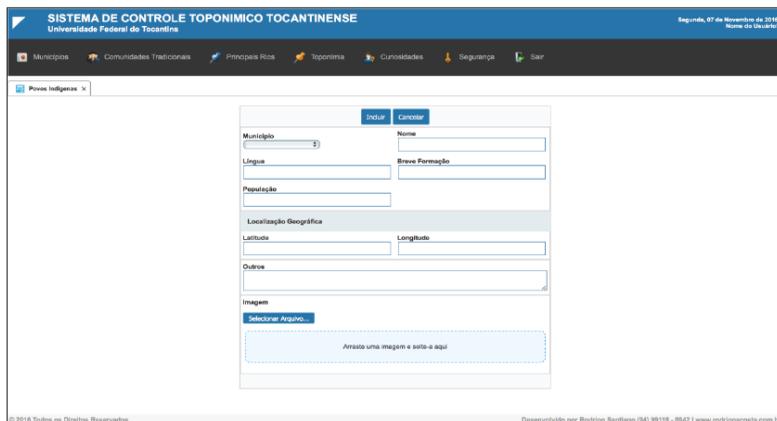


**Figure 1 - Toponymical software screen – registering administrative regions<sup>8</sup>**  
Fonte: Nascimento (2017)

Figure 1 illustrates the process of registering administrative regions comprised the Brazilian state of Tocantins into the data base. Every municipality is registered and mapped in accordance with the respective administrative region.

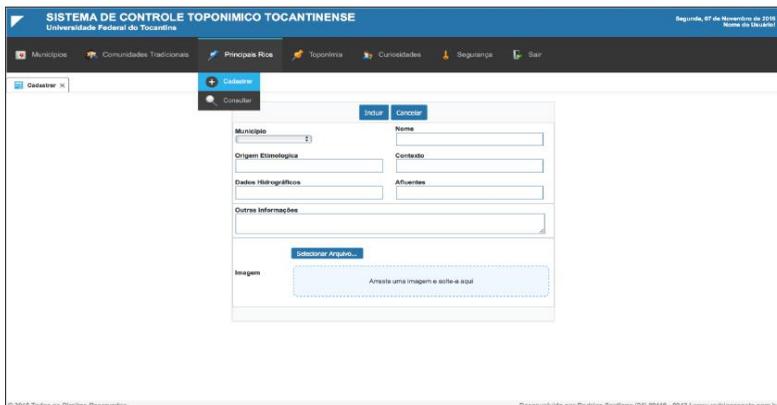
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<sup>8</sup> The system was originally developed in Portuguese. We provide screen translations into English for understanding purposes only: TOPONYMICAL CONTROL SYSTEM OF TOCANTINS – Universidade Federal do Tocantins (UFT) – Municipalities / Traditional communities / Main rivers / Toponymy / Curiosities / Safety / Log out - Include: Administrative regions.



**Figure 2 – Current toponymical software screen – registering indigenous people<sup>9</sup>**  
**Fonte: Nascimento (2017)**

Figure 2 illustrates the process of registering indigenous people information into the data base. Every indian settlement is registered as specified in the image.



**Figure 3 – Current toponymical software screen – registering rivers<sup>10</sup>**

<sup>9</sup> Toponymical Control System of Tocantins – Universidade Federal do Tocantins (UFT) – Municipalities / Traditional communities / Main rivers / Toponymy / Curiosities / Safety / Log out – Include/Cancel: Municipality / Name / Language / Brief formation / Population / Geographical location / Latitude / Longitude / Other information / Image / Select file / Drag an image here.

<sup>10</sup> Toponymical Control System of Tocantins – Universidade Federal do Tocantins (UFT) – Municipalities / Traditional communities / Main rivers / Toponymy / Curiosities / Safety / Log out – Include / Cancel

Fonte: Nascimento (2017)

Figure 3 illustrates the process in which river information is provided, meeting a few requirements in order to be inserted into the data base. Every river is registered as specified in the image.

**Figure 4 – Current toponymical software screen  
– registering toponyms: human elements<sup>11</sup>  
Fonte: Nascimento (2017)**

Figure 4 describes the process of filling the form with information necessary for toponym registration, particularly those regarding the insertion of human elements into the data base. Every human element is registered as specified in the image.

## 5. Conclusion

The major idea behind toponymical studies for pedagogical purposes is rather recent, which further highlights the groundbreaking nature of what has been proposed herein in terms of education and research. Once

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/ Municipality / Name / Etymological origin / Context / Hydrographical data / Tributary / Other information / Image / Select file / Drag an image here.

<sup>11</sup> Toponymical Control System of Tocantins – Universidade Federal do Tocantins (UFT) – Municipalities / Traditional communities / Main rivers / Toponymy / Curiosities / Safety / Log out – Name / Save / Delete / Type: District / Municipality: Palmas / Include / Collection / Reviewer / Morphological structure / Toponym / Latitude / Longitude / Taxionomy / Etimology / Lexical entry / History / Encyclopedic information / Context / Source

system creation, use and assessment have been concluded, the following steps will be taken: a) coming up with pedagogical proposals capable of introducing place names studies from an interdisciplinary standpoint into students' learning process; b) carrying out pedagogical workshops with teachers teaching Portuguese Language, Geography and History in order to allow them not only to get acquainted with and learn how to operate the software, but also to reassess and rethink all content previously taught to and learned by their students.

It is important to make it clear that our intention is not to introduce changes to the content taught in Portuguese Language, Geography and History classes in Elementary School, particularly those relative to place names, on the contrary, teaching purposes should remain unchanged, although they might be improved and reassessed through other points of view.

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