



“An Analysis of the Contribution of ICT in Association with Geographical Education for the Formation of the Spatial Citizenship in Public Schools in Fortaleza / Brazil”

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Abstract

Information and Communication Technologies (ICT) have brought new possibilities for exploring school subjects, fostering more motivating teaching and learning experiences, bringing the school closer to students' interests. The aim of the research is to reflect on the use of ICT as an important tool for meaningful learning and for the development of spatial citizenship skills. This work is being developed in the PhD course in Geography of the Institute of Geography and Spatial Planning of the University of Lisbon and took place in three schools in Fortaleza (Brazil), participating in the Project We Propose and NTPPS Project.

Keywords: ICT; Spatial Citizenship; Geography Education; We Propose; Brazil; NTPPS Project.

1. Introduction

The research we present focuses on the use of Information and Communication Technologies in the teaching of Geography, in order to contribute to the development of a spatial citizenship with an emphasis in educational success. Our research is based in two central ideas; the first is the importance of ICTs as a transversal skill in education and their contribution to the development of citizenship practices. The second idea refers to the potential of ICTs in the transformation of teaching practices, fostering changes in the established practices and bringing the school closer to students' daily lives - so it is also important to encourage their implementation in the teaching and learning process.

This research project is being carried out in three schools in Fortaleza / Brazil that participate in the projects We Propose! Citizenship and Innovation in Geographical Education, as well as the Center for Work, Research and Social Practices - projects that have common objectives: the promotion of active spatial citizenship, mobilizing students to identify the main local problems and proposing their resolution.

The following chapter includes a brief reflection on the importance of ICT in teaching and learning; after, we will approach the projects involved in the research, We Proposed and NTPPS (to then move on to research experience. Finally, some reflections will be presented on the short results and identification of some challenges schools in general are facing, and also geography teaching and learning.

2. The importance of ICT in education

Teachers and schools are experiencing important moments related to the use of innovative techniques that make use of the potential of the resources available in the field of Information and Communication Technologies, as key tools in the teaching and learning process (Carlos, 2015). In this context, ICT has a great contribution as an approach capable of innovating Geography Education and the development of spatial citizenship skills (Gryl & Jakel, 2015).

Information and Communication Technologies (ICT) are used to group, disseminate and share information. They are mediators of communications and information, to be used with a particular objective (SILVA, 2001; IMBERNÓN, 2010; MORAN et al, 2012). According to Miranda (2007), ICTs are understood as a set of technological resources, which are integrated and provide, through telecommunications or through the functions of software and hardware, the automation and communication in the business world, in the scientific research and in the teaching and learning process.

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The use of ICTs in the classroom implies an important change in the traditional role played by teachers and students. Without this change, the use of ICT in the classroom could run the risk of being an extension of a traditionally teacher-centered teaching as Area (2010) sought to demonstrate. However, this renewal of teaching practices will have to undergo an initial and continuous training process that will enable the implementation of new teaching and learning models based on the use of ICT.

Our research is focused on the use of ICT in high school Geography classes and is presented as a study based on the application of curricular reorganization projects applied in Portugal and Brazil, We Propose! and NTPPS, respectively. We will present briefly both projects that are being implemented both in Portugal and Brazil.

3. Project WE PROPOSE! citizenship and innovation in geographical education and project NTPPS (center of work, research and social practices)

The Project "We Propose! Citizenship and Innovation in Geographic Education" was created in 2011. The Program is presented as an effective opportunity to introduce knowledge of reality in work in Geography and making it required to implement a case study of a more practical nature on the local environment. It is a project directed to the resolution of local problems. The realization of the project is based on the relationship between the discourse and reality, carrying out a case study with a practical character and directed to an active local citizenship.

In 2012, the Secretariat of Education of the state government of Ceará (SEDUCCE) launched the proposal for a reorganization of the curriculum of High School through the Work, NTPPS (Center of work, research and social practices), which aimed at promoting, in conjunction with public education policy, the reorganization of the curriculum of secondary education, in order to ensure students' knowledge and skills for life and work.

This project has an integrative curricular component and induced new practices with the objective of developing socio-emotional skills through research, interdisciplinary studies and student affirmation, contributing to a more integrated, motivating and supportive school environment for the production of knowledge. The NTPPS works in three research environments (experiences and the researches) that include the school and the family, the community and the world of work.

3.1 Context of the investigation and activities

The present work experience involves Information and Communication Technologies (ICT), Geographic Education and Spatial Citizenship and took place in three high schools of the Education Department of the State of Ceará, with students of the 2nd year (a total of 65 students) in the city of Fortaleza / Brazil, which participate in the projects We Propose: Citizenship and Innovation in Geographical Education and NTPPS.

In order to associate ICT, geographic education and spatial citizenship, students (i) identified the problems that most affect their communities, (ii) located them through Google Maps, (iii) developed maps using the technological tools for symbol creation and iv) made their presentations on social networks and proposed to create an application that aims to contribute. At the same time they would be creating a "useful practice", alerting the population about violence in the place, showing alternative ways to minimize the effects of violence, in addition to indicating local services. In this way, they would try to change the reality studied or to mitigate the effects of the inefficiency of local public policies. The following are examples of the work developed by students.

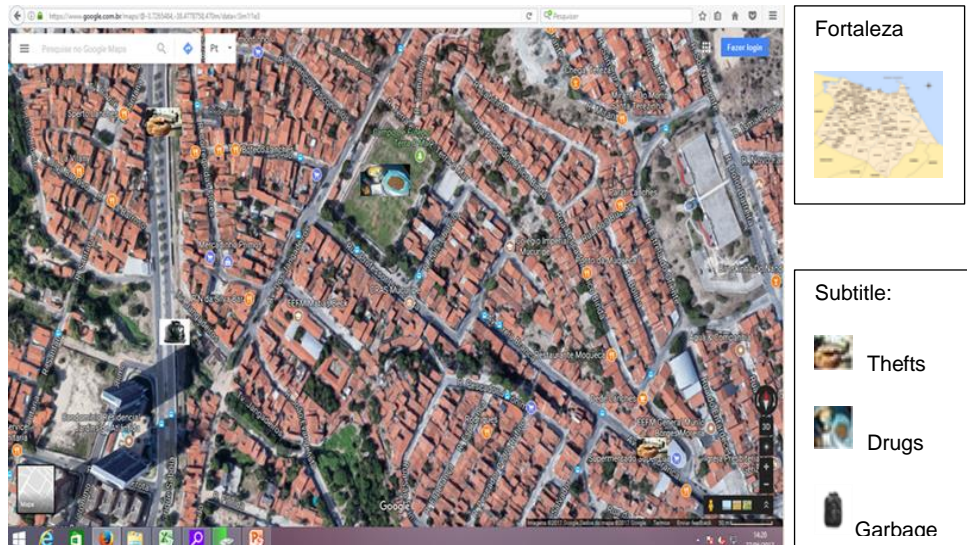


Fig 1. Vicente Pinzón and spatial citizenship

Source: www.google.com.br/maps/@-3.7092603,-38.593245,197m/data=J3m111e3,2017

ICTs are present in the teaching of Geography and, in the last years, they have increased their importance in the science of innovation, facilitating the understanding of the natural, social and economic processes of the planet. They play a fundamental role in the formation of the student, since they stimulate observation and understanding the spatial transformations, besides helping analyze reality in a critical way, with the purpose of transforming it, and so accomplishing their role in the formation of the individual.

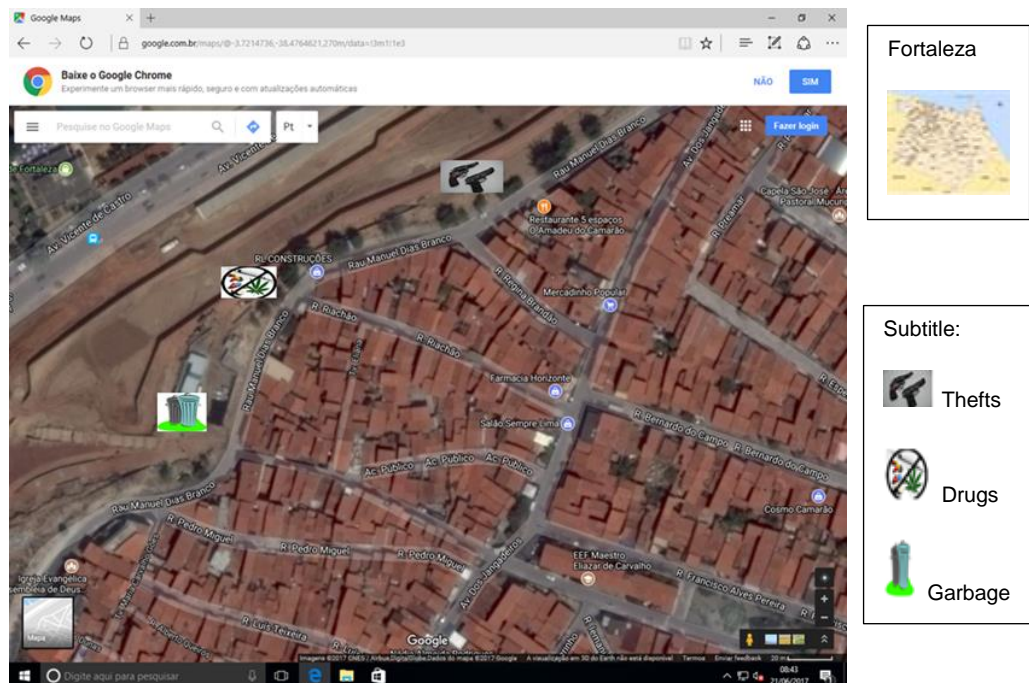


Figure 2. The limitations to exercise citizenship

Source: www.google.com/maps/@-3.7265484,-38.4772968,470m/data=J3m11

This work attests the relation of the students with the spatial citizenship as they considered that the citizenship is related to mobility rights, which are often difficult due to local problematics (insecurity for instance), attesting the inefficiency of the current public policies for the exercise of citizenship. Askins & Fuller (2008) argue that teaching and learning about citizenship requires the adoption of relationships between people in their spatial, local and environmental context - and geography is positioned to undertake this function in education. In a text of "Thematic network for Geography in



higher education meeting (2009)", Geography stands out as a science that prepares active, consciously active citizens. It allows students to develop an awareness of the relevance of issues at different scales, from the local scale to the globalized world.

4. ICT contribution to school motivation

The experience developed in schools has led to some important reflections. The first is that ICTs are important in order to develop a more motivating teaching and learning. The effective use of ICT implies the development of new work methodologies, leading to a change in the way of teaching (Almeida and Valente, 2011) - and this is perhaps one of the most important challenge to overcome in most school subjects and also by Geography teachers. Teachers in general will need to be open to changing teaching processes that will make possible a better the construction of knowledge (Kenski, 2002).

It was also found that students also face difficulties in the use of ICT - if in terms of research skills in the internet they are very good, it is necessary to develop better skills to critically analyze the information to which they have access. And this is an important role for schools - to develop, improve the sense of criticality and to create strategies that allow the student to learn meaningfully using the technological tools.

The action research project demonstrated that the use of ICT in the classroom is a motivating experience of helps developing autonomy and the possibility to develop spatial citizenship skills. Having been an experience in the field of school geography, it has also been shown that Geography has much to benefit from the use of ICT (from the point of view of the main educational actors, reflecting in the teaching and learning process) as it is contributing for the development of location and spatial skills. The formation of more informed and critical citizens is very important, as it is recommended in the guidelines for the introduction of ICT in teaching and curricular reform.

(This paper had the collaboration of Sergio Claudino professor of the Institute of Geography and Ordering of the Territory and coordinator of the project We Propose! citizenship and innovation in geographical education. sergio@campus.ul.pt).

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