

# **Tactile mapping in the learning of geography: a methodology for development and combination of teaching resources suitable for people with visual disabilities**

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The present research proposes a methodology that considers the production and use of a group of didactical resources for Geography teaching, specifically designed and adapted to students with visual impairment, being low vision or blind, towards an interdisciplinary approach. It brings together issues related to space perception, Geography teaching and the importance of Tactile Cartography in communicating geographic information. The work also discusses the technology contribution in teaching and inclusion of people with special needs.

The city of Sao Paulo, mainly its urban growth through history, was selected as the study area and main research theme for didactical resources development. Considering where the target group of users lives and the relevance of their personal environment and experiences, studying their city enhance both the interface space versus time, as the local to global perspectives, giving more significance to the proposed pedagogical practices.

The main didactical resource designed is an interactive relief model of Sao Paulo in the 19th century, associating model building techniques, tactile geography and robotics. A set of Sao Paulo municipality maps and with the historical downtown area in a larger scale was also developed, together with some illustrations, both using tactile graphic language.

The use of technology during the development and analysis of the didactical materials, specially the use of sounds, was discussed and evaluated considering its efficacy not only as a pedagogical resource for History and Geography teaching but also as an instrument to promote the inclusion of people with disability in public spaces.

The materials evaluation confirmed that association of tactile maps and illustrations with sound models enhances and facilitates the study of the city, allowing the student to analyze, comprehend and establish relationships between diverse themes, within a dynamic and efficient process for Geography teaching, presenting new possible ways for interdisciplinary approaches at school.

**Key words:** Geography teaching; didactical resources, relief models with sound, visual impairment and blindness; accessibility, inclusion.