

ABSTRACT

Engaging Students through GIS-Based Learning: A Multiple Case Study of Teaching with GIS in Primary and Secondary Schools in Trinidad and Tobago.

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Geographic Information Systems offer a variety of tools and techniques to convey information and increase understanding across a wide student demographic. GIS can be incorporated into the classroom setting with various learning styles and techniques and design of instruction. The use of descriptive mapping tools, visuals and the dynamic nature of GIS allows for communication of key curriculum objectives and facilitates understanding of the real world and by extension, its many issues.

This study presents the results of a multiple case study designed for four schools at the primary and secondary school level. GIS is used to effectively teach content across multiple age groups starting at the primary school level of Standard Three to the Form Four student body of secondary school. The flexible nature of GIS allows for the incorporation for transmission of content across multiple disciplines in this study including Mathematics, Social Studies and Geography. Student Engagement and Student Academic Achievement were examined using a mixed methods approach in order to ascertain the effectiveness of GIS as an educational tool within the context of computer-based and instructional technology.

The results indicate that student academic achievement increases with the use of GIS across multiple age groups. Students exposed to the GIS teaching method saw higher post-assessment scores. Spatial Cognition, Knowledge Retention and Analysis and Interpretation were also higher among the GIS-based delivery groups. Student engagement was more diverse in GIS groups which allowed for student interest and attention during delivery of lessons.

Keywords: Shivani Ramoutar; Geographic Information System; GIS; Education; Primary; Secondary; Geographic Learning; Trinidad and Tobago