BRIDGING THE GEOSPATIAL DIVIDE: BARRIERS AND STRATEGIES FOR GOOGLE EARTH INTERGRATION IN SRI LANKAN GEOGRAPHY EDUCATION

KK. Arivalagan
Department of Social Sciences, National Institute of Education, Sri Lanka

Correspondence: ari21nie@gmail.com

Abstract

Contemporary geographical education increasingly recognizes the transformative potential of geospatial technologies, with platforms like Google Earth offering unparalleled opportunities for immersive visualization and spatial analysis. However, Sri Lanka's advanced-level geography instruction persists in utilizing static two-dimensional pedagogical approaches, creating a significant disconnect between current practices and evolving educational standards that emphasize spatial reasoning and environmental competencies. This research employs a rigorous mixed-methods design to investigate the complex barriers to technology integration, combining systematic classroom observations, in-depth interviews with 30 geography teachers, and comprehensive surveys of 315 students across diverse schools and geographical contexts. Analytical results identify three primary impediments: (1) substantial deficiencies in teacher technological pedagogical content knowledge (TPACK) specific to geospatial applications, (2) critical infrastructure limitations disproportionately affecting rural schools, and (3) an exam-driven curriculum framework that systematically disadvantages innovative teaching methodologies. While a minority of technologically proficient instructors have successfully implemented Google Earth to enhance spatial cognition and student engagement, widespread adoption remains constrained by institutionalized resistance to pedagogical innovation and structural inequities in resource distribution. These challenges manifest most acutely in regional and rural educational settings, exacerbating existing disparities in technology-enhanced learning opportunities. The study's findings necessitate a comprehensive reform agenda comprising: (a) differentiated teacher professional development programs focused on geospatial technology integration, (b) strategic infrastructure investments with explicit equity considerations, and (c) fundamental curricular restructuring to privilege competency development over content memorization. Such interventions would facilitate the meaningful incorporation of geospatial technologies into geographical education, enabling authentic, place-based learning experiences that cultivate essential spatial literacies while addressing systemic inequities in Sri Lanka's educational landscape. This research contributes both empirical evidence and practical frameworks for leveraging digital

technologies to transform geographical education in developing contexts, with particular relevance for education systems undergoing similar technological transitions.

Keywords: geospatial technology integration, geography education reform, teacher TPACK development, digital equity in education.