



Methodological Assessment of Secondary School Systems in South Africa Through Quasi-Experimental Design

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Abstract

South African secondary school systems are facing significant challenges in adapting to climate change impacts on education infrastructure and resources. A mixed-method approach was employed, integrating quantitative data analysis with ethnographic fieldwork. Schools were randomly selected for intervention and control groups, ensuring robust comparison of pre- and post-intervention conditions. The proportion of schools implementing energy-saving measures increased from 30% to 65% after the quasi-experimental design intervention, highlighting a significant improvement in clinical outcomes related to energy management. The quasi-experimental design successfully demonstrated its efficacy in measuring clinical outcomes within South African secondary school systems, particularly in enhancing energy efficiency and sustainability practices. Further research should explore scalability of these findings across different geographic regions and educational sectors. Policy recommendations include funding incentives for schools adopting sustainable energy solutions. The empirical specification follows $Y = \beta_{0+\beta} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African Geography, Ethnography, Methodology, Quasi-Experimental Design, Rural Education, Socioeconomic Factors, Vernacular Knowledge*

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