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# Methodological Evaluation of Tanzanian Secondary School Systems Using Quasi-Experimental Design for Efficiency Gains

**Kamau Mpimbuzanwa**[1], **Mwita Mkamba**[2], **Chuma Ngowi**[3], **Samson Maganga**[4]

[1] University of Dar es Salaam

[2] Department of Advanced Studies, State University of Zanzibar (SUZA)

[3] State University of Zanzibar (SUZA)

[4] Department of Advanced Studies, University of Dar es Salaam

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**Correspondence:** kmpimbuzanwa@outlook.com

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**Author notes**

*Kamau Mpimbuzanwa is affiliated with University of Dar es Salaam and focuses on Physics research in Africa.*
*Mwita Mkamba is affiliated with Department of Advanced Studies, State University of Zanzibar (SUZA) and focuses on Physics research in Africa.*
*Chuma Ngowi is affiliated with State University of Zanzibar (SUZA) and focuses on Physics research in Africa.*
*Samson Maganga is affiliated with Department of Advanced Studies, University of Dar es Salaam and focuses on Physics research in Africa.*

## Abstract

The Tanzanian secondary school system is characterized by a diverse range of educational institutions, varying in quality and efficiency across the country. A quasi-experimental design was employed to assess the impact of different teaching methodologies, resources allocation, and teacher training programmes on student performance in Physics across Tanzanian schools. The study utilised pre- and post-test scores from a sample of students to measure efficiency gains attributable to these intervention factors. The analysis revealed significant variance in Physics test scores between schools with well-resourced and trained teachers compared to those without such support, indicating the importance of equitable resource distribution and teacher development programmes. This study provides evidence that targeted interventions can lead to substantial improvements in student performance in Physics within Tanzanian secondary schools, suggesting a pathway for enhancing educational outcomes. School administrators should prioritise investment in teacher training and resource allocation to promote more equitable learning environments across all institutions. Tanzania, Secondary School Systems, Quasi-Experimental Design, Physics Education, Efficiency Gains The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** *Sub-Saharan, African, Educational, SocialScience, Methodology, Quasi-Experimental, Inequality*

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