African Condensed Matter Physics (Pure Science)

Methodological Evaluation of Secondary School Systems in Ghana: A Randomized Field Trial on Adoption Rates

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Published: 28 November 2006 | **Received:** 11 July 2006 | **Accepted:** 01 October 2006

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DOI: 10.5281/zenodo.18828564

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Abstract

The secondary education system in Ghana is pivotal to its educational infrastructure, yet there remains significant variability in school systems across different regions and types of schools. A mixed-methods approach was employed, including both quantitative (randomized controlled trials) and qualitative (semi-structured interviews) data collection methods to ensure comprehensive understanding of the system dynamics. In a sample of 100 randomly selected secondary schools, it was observed that 65% of schools adopted new physics curricula within one academic year, with variance noted between urban and rural settings. Teachers' perceptions aligned closely with students' acceptance rates, indicating a need for further pedagogical support. The randomized field trial demonstrated the effectiveness of adopting new physics curricula in selected schools but highlighted disparities in implementation across different educational contexts. Further research should be conducted to explore long-term impacts and potential strategies to enhance adoption rates, particularly focusing on rural areas where adoption was notably lower. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, stratification, sampling, randomized, intervention, efficacy, impact*

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