



Methodological Evaluation of South African Secondary School Systems Using Quasi-Experimental Design to Assess System Reliability

Methodological
Evaluation of South African
Secondary

DOI

[10.5281/zenodo.18913](https://doi.org/10.5281/zenodo.18913)

[039](#)

50

Sheila Taylor

University of Venda

University of the Witwatersrand

Khaya Ngubane

University of Fort Hare

Emily Nkosingiphon

Department of Cybersecurity, University of Venda

University of the Witwatersrand

Zola Khumalo

University of Fort Hare

Correspondence: staylor@aol.com

Received 28 May 2010

Accepted 08 September
2010

Abstract

This study addresses a current research gap in Computer Science concerning Methodological evaluation of secondary schools systems in South Africa: quasi-experimental design for measuring system reliability in South Africa. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A structured analytical approach was used, integrating formal modelling with domain evidence. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Methodological evaluation of secondary schools systems in South Africa: quasi-experimental design for measuring system reliability, South Africa, Africa, Computer Science, methodology paper This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Model estimation used $\hat{\theta} = \operatorname{argmin}\{\theta\} \operatorname{sumiell}(y_i, f\theta(\xi)) + \lambda \sqrt{\theta} \sqrt{\theta}^2$, with performance evaluated using out-of-sample error.

Keywords: *Sub-Saharan, stratification, cluster sampling, validity, reliability, inferential statistics, randomized controlled*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge