

Review of: "Influence of Meta-cognition, Self-efficacy, and Self-regulated Learning on Students' Achievement in Biology in Ibadan, Nigeria"

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Potential competing interests: No potential competing interests to declare.

Introduction

- Incorporate recent studies that have examined the influence of meta-cognition, self-efficacy, and self-regulated learning on academic achievement, especially in the sciences. Highlight similarities and differences in findings to contextualize your study within the current research landscape.
- Discuss relevant theoretical frameworks that underpin meta-cognition, self-efficacy, and self-regulated learning. This could include Bandura's theory of self-efficacy and Flavell's model of meta-cognition, providing a deeper theoretical grounding for the study.
- Include a review of studies from various cultural and educational contexts to highlight the universal and context-specific aspects of your findings. This could help in understanding how the Nigerian educational setting impacts the relationships between the constructs studied.

Methodology

- Elaborate on the criteria used for selecting schools and participants, including any stratification or weighting applied to ensure representativeness. Explain the rationale behind focusing on senior secondary students in SS2 and the implications of this choice for the study's findings.
- Provide a more detailed description of how the instruments were validated for this specific study, including any adaptations made to suit the local context and any pilot testing conducted. Discuss the implications of the instrument reliabilities on the interpretation of the study results.
- Offer more insights into the data collection process, including how consent was obtained, the duration of data collection, and any challenges encountered during this phase. This would provide clarity on the reliability and validity of the collected data.

Discussion of Implications

- Delve into how the findings can inform educational policy and curriculum design in Nigeria, especially concerning biology education. Discuss specific strategies that educators can use to enhance self-efficacy and self-regulated learning among students.

- Explore the implications for teacher training programs, emphasizing the importance of training teachers in strategies to foster students' meta-cognitive skills, self-efficacy, and self-regulation.
- Suggest how the Nigerian educational curriculum could integrate components that explicitly teach and reinforce meta-cognitive strategies, self-efficacy, and self-regulated learning, potentially through interdisciplinary approaches.

Addressing Limitations

- Discuss the potential impact of the sample's limited diversity on the study's findings and generalizability. Suggest how future research could include a broader range of schools, including more private schools and schools from different regions of Nigeria.
- Address the issue of incomplete instrument responses more thoroughly by discussing its potential impact on the study's results and validity. Suggest strategies for encouraging complete response rates in future studies, such as ensuring anonymity and reducing the length or complexity of the instruments.

Recommendations for Future Research

- Propose conducting intervention studies that aim to enhance students' meta-cognitive skills, self-efficacy, and self-regulated learning strategies to directly observe the impact on academic achievement in biology and other subjects.
- Recommend longitudinal studies to track changes in meta-cognition, self-efficacy, and self-regulated learning over time and their long-term effects on academic achievement and career choices in the sciences.
- Suggest qualitative research to gain deeper insights into students' and teachers' perspectives on the challenges and opportunities related to developing meta-cognitive skills, self-efficacy, and self-regulated learning in the Nigerian educational context.