

Review of: "Effects of Teachers' Professional Development on Students' Academic Achievement"

Olukayde Apata

Potential competing interests: No potential competing interests to declare.

The study focuses on the impact of teacher professional development on student achievement, using pretest and posttest scores as key metrics.

Key Observations

Appropriate Statistical Test: The use of the t-test for comparing pretest and posttest scores is appropriate for the study's design. This method helps to determine if there are significant changes in student achievement scores following teacher professional development.

Clarity in Presentation: The tables presented in the analysis section are clear and provide detailed information on the means, standard deviations, t-values, degrees of freedom, significance levels, and decisions on hypotheses. This detailed presentation aids in understanding the impact of the intervention.

Significance Levels and Decision Criteria: The article clearly states the significance level ($p < 0.05$) and provides the decisions to accept or reject the null hypotheses based on the t-test results. This helps in understanding whether the professional development had a statistically significant impact on student achievement.

Comparative Analysis: The study effectively compares both the experimental (teachers who underwent professional development) and control groups, providing a comprehensive view of the impact.

Large Sample Size: The sample sizes for both the experimental and control groups are substantial, enhancing the reliability of the findings.

Limitations and Areas for Improvement:

Explanation of Statistical Terms: While the article is clear in its presentation of statistical data, it could benefit from a more detailed explanation of certain statistical terms and concepts for readers who may not be familiar with advanced statistical analysis.

Discussion on Effect Size: The article could provide more insights into the effect size of the observed differences. While statistical significance is reported, understanding the practical significance (effect size) would offer a deeper understanding of the impact of teacher professional development.

Addressing Potential Biases: While the methodology seems robust, there is limited discussion on how potential biases or

confounding variables were addressed or controlled in the study.

Longitudinal Impact Analysis: The study appears to focus on immediate post-intervention outcomes. Including a longitudinal perspective to assess the durability of the impact over time could enhance the study's contribution.