

REVIEWER'S REPORT

Manuscript No.: IJAR- 59453

Title: A Comparative Study of the Effectiveness of Discussion and Demonstration Method on the Academic Achievement in Physical Science of Class IX Students of West Bengal Board of Secondary Education.

Recommendation:

Accept as it is

Accept after Minor revision.....

Accept after Major revision.....

Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality			Yes	
Techn. Quality				Yes
Clarity			Yes	
Significance		Yes		

Reviewer's ID: JPR- 212

Reviewer's Comment for Publication.

The study addresses a relevant pedagogical question and the rotational counterbalanced design is a sensible choice for comparing two teaching methods within intact classrooms. However, the manuscript has a fundamental credibility problem that undermines the entire study, along with several structural and reporting weaknesses.

Strengths

The counterbalanced rotational design, in which each group experiences both methods across two chapters, is methodologically appropriate and strengthens internal validity.

The classroom procedures for both methods are described in good practical detail, particularly the demonstration activities for force, motion, pressure, surface tension, viscosity and Bernoulli's principle.

The literature review is reasonably current and well selected, including Glasson 1989, Eryilmaz 2002, Thompson and Soyibo 2002 and the recent Fung and Ng 2026 review.

Major Weaknesses

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Fatal disclosure regarding the data. The manuscript repeatedly admits that the findings are based on simulated datasets, for example "in this simulated dataset", "the simulated datasets used for methodological practice", "based on simulated datasets prepared for methodological demonstration". Yet the Abstract, Methodology and Acknowledgement present the study as an actual classroom experiment with 60 real students, including a gratitude statement to participating students. This is a serious ethical and scholarly misrepresentation and must be resolved immediately.

Impossible and inconsistent test scores. Table 4.1 reports a Group A mean of 0.97 with SD 0.79, yet the earlier narrative reports Group B mean 2.07 with SD 1.05. More critically, Tables 4.3 and 4.4 show post test score distributions that are inconsistent with the stated means. For example, Table 4.4 lists values of 13, 9, 10, 12, 11, 8, 10, 11, 9, 12, 15, 10, 11, 13, 9, 12, 10, 14, 11, 9, 10, 12, 11, 13, 10, 11, 8, 12, 11, 10, whose average is not 10.90. The reported statistics cannot be verified from the data presented.

Structural corruption. Page 6 contains roughly 1,200 lines of consecutive integers, beginning with Chapter I, Chapter II followed by 1, 2, 3 and continuing up to 1385, indicating a file conversion or formatting failure. The manuscript is not submission ready.

Hypotheses never tested. Null hypotheses H01 to H04 are stated, including claims about statistical significance, but no inferential test such as a t test, ANOVA or equivalent is reported anywhere. The study repeatedly states that a statistically significant difference is at issue, yet only means, standard deviations and mean gains are computed. The conclusion that the Demonstration Method was more effective therefore rests on descriptive differences alone.

Word significantly misused. The Abstract and Results describe the demonstration post test mean as significantly 11.6 and 10.9, where significantly appears to mean substantially rather than statistically significant. This must be corrected.

Misleading statements. The Discussion acknowledges that interpretation of superiority should always be based on the actual statistical analysis rather than on mean differences alone, but no such statistical analysis exists in the paper. This contradiction needs to be resolved.

Inconsistent reporting. The pre test means for Chapter I are reported as 0.97 and 2.07 in the Abstract, but the text of Table 4.1 and Table 4.2 uses these inconsistently, and Chapter II pre test standard deviations are reported as 1.15 and 1.45 in one table and 1.15 and 1.15 elsewhere.

Ethical concern. If the data are simulated, the Acknowledgement thanking real students and the head of institution, and the claim that the West Bengal Board of Secondary Education syllabus was used in an actual intervention, are inappropriate and must be removed, or the study must be reframed honestly as a methodological demonstration.

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Minor issues. Typographical errors such as relativ motion, It was shown while walking where third law is missing, inconsistent use of Group 1 and Group A, and missing formulas in the Statistical Techniques section where the Mean and SD equations are blank.

Recommendation

Accept after major revision. This manuscript requires fundamental revision before it can be considered. The author must first resolve the simulated data disclosure and either present genuine collected data or reframe the paper explicitly and consistently as a methodological simulation without claiming real participants. Second, remove the corrupted integer block on page 6. Third, conduct and report the inferential statistical tests needed to test the stated null hypotheses. Fourth, correct all arithmetic inconsistencies between reported means and raw score tables. Fifth, remove the inappropriate Acknowledgement if no real study took place. Sixth, revise the use of significantly throughout to reflect actual statistical testing or replace it with substantially. The classroom procedure section is the strongest part of the manuscript and could form the basis of a genuine empirical study if real data are collected