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Examining the Effectiveness of Cognitive Learning in Enhancing Intrinsic Motivation for Learning Mathematics in Adolescents

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1. Round 1

1.1. Reviewer 1

Reviewer:

The opening paragraph could better contextualize the issue of intrinsic motivation in mathematics. Consider elaborating on the broader societal and educational implications of motivation deficits.

The statement, "Quantitative data were collected using the Mathematics Motivation Scale (MMS)," could benefit from a brief discussion of the scale's validity and reliability in the Iranian context.

The description of brain-based learning activities is comprehensive but could benefit from a more structured explanation. Break down each activity's specific objectives and how they align with the intervention's goals.

You mention qualitative data collected through field notes. Clarify who recorded the field notes and how inter-rater reliability was maintained to ensure consistency in observations.

When discussing thematic analysis, it would be helpful to briefly describe how themes were derived and how NVivo software was specifically used to aid this analysis.

The ANOVA results section lacks a full interpretation of the practical significance of findings. For instance, discuss what an effect size of $\eta p^2 = 0.75$ means in practical, educational terms.

The table layout could be improved for clarity. Consider including a brief explanation of the key findings below the table for readers who may not be familiar with statistical notation.

The statement, "Results support the efficacy of brain-based learning as an educational strategy," is compelling but needs more discussion of possible confounding factors that could have influenced the results.

Authors uploaded the revised manuscript.

1.2. Reviewer 2

Reviewer:

The sentence "Brain-based learning is an educational approach founded on neuroscience findings..." lacks citations for the neuroscience studies referenced. Including primary research sources could strengthen this claim.

The phrase "Brain-based learning helps teachers align their teaching methods with brain functioning" is too general. Specify which aspects of brain functioning are most critical and how they are applied in teaching.

In the description of the sampling method, you mention "simple random sampling," but it is unclear how randomization was ensured in practice. Please provide more detail on the process used to achieve true randomization.

The activities such as "visual storytelling" and "role-playing" need clearer connections to specific neuroscience principles. How do these activities engage the brain in ways that traditional methods do not?

Consider comparing your results with more international research studies. While you reference some, deeper integration into global research could provide a richer context.

The link between student anxiety and mathematics performance is mentioned, but more specific references to studies on anxiety's neurobiological underpinnings would strengthen the argument.

Authors uploaded the revised manuscript.

2. Revised

Editor’s decision after revisions: Accepted.

Editor in Chief’s decision: Accepted.

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