Educational Grant Research Proposal

Project Title

Improving STEM Learning Outcomes in Middle School Through Inquiry-Based Learning

Principal Investigator(s)

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Project Summary

This proposal aims to evaluate the effectiveness of inquiry-based learning approaches in improving Science, Technology, Engineering, and Mathematics (STEM) outcomes for middle school students. The research will analyze student engagement, academic achievement, and attitudes toward STEM subjects across three public schools.

Background and Rationale

Despite recent educational reforms, STEM achievement scores remain stagnant among middle school students. Inquiry-based learning has been identified as a potential method to increase both engagement and learning outcomes, yet comprehensive, data-driven studies in regional contexts are lacking.

Research Objectives

- To implement inquiry-based learning in selected classrooms.
- To analyze the impact on student STEM achievement scores.
- To assess changes in student attitudes toward STEM subjects.

Methodology

A mixed-methods approach will be used, combining quantitative pre- and post-tests with qualitative interviews. Three schools will participate, involving approximately 150 students over a 12-month period.

Expected Outcomes

- Improved STEM test scores among participating students.
- Increased student engagement and positive attitudes toward STEM.
- Recommendations for wider implementation in the district.

Budget Overview

Item	Amount (USD)
Personnel	15,000
Materials & Supplies	5,000
Data Analysis	3,000

Travel	2,000
Total	**25,000**

Timeline

- Q1: Preparation, recruitment, baseline assessment
- Q2–Q3: Implementation of teaching strategies, ongoing data collection
- Q4: Final data analysis and report preparation

Conclusion

This research intends to provide actionable insights and practical recommendations for enhancing STEM education outcomes using inquiry-based learning strategies.

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Principal Investigator

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Date