

REVIEWER'S REPORT

Manuscript No.: IJAR-51915

Date: 28-05-2025

Title: Difficultés de résolution de problèmes mathématiques chez les élèves de première année du collège : Une analyse empirique basée sur le modèle de Pólya

Recommendation:

Accept as it is.....YES.....

Accept after minor revision.....

Accept after major revision

Do not accept (*Reasons below*)

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

Reviewer's Name: Shafiya Akhter

Reviewer's Decision about Paper: Recommended for Publication.

Comments (*Use additional pages, if required*)

Reviewer's Comment / Report

Résumé and Abstract Evaluation:

The abstract and résumé provide a coherent and comprehensive overview of the study. The parallel presentation in French and English enhances accessibility and academic rigor. Both sections clearly articulate the central focus of the research—identifying specific problem-solving difficulties in mathematics among first-year middle school students, using George Pólya's four-stage model as a framework.

The importance of problem solving in mathematics is aptly emphasized, and the observational claim that many students struggle regardless of age is well-aligned with broader educational findings. The consistent use of the Pólya model (comprehension, plan development, execution, verification) offers a structured and theoretically grounded lens for analysis. The methodology—qualitative case study—suits the objective of examining detailed student responses, and the use of a “problem” exercise aligns well with the practical intent of the research.

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Research Relevance and Focus:

The research addresses a well-recognized pedagogical challenge: the gap between teaching and actual student performance in mathematical problem-solving. By focusing on early secondary education, the paper sheds light on foundational learning difficulties that may persist throughout later stages of education if unaddressed. The alignment with the Pólya model provides a timeless and methodologically sound framework for such an investigation.

Methodology and Empirical Insight:

The choice of a qualitative case study approach is appropriate for exploring nuanced difficulties in student problem-solving behaviors. The analytical comparison of student responses to a standard solution allows for the identification of specific stages at which difficulties arise. The empirical results are clearly presented:

- 7% fail at comprehension
- 14% face challenges in planning
- 79% struggle with execution
- 72% neglect verification

These findings are illustrative of a significant disparity between instructional delivery and student understanding or procedural competence. The statistical breakdown adds clarity and depth to the qualitative assessment.

Structure and Clarity:

The writing is structured and accessible. The transition between theoretical framing, methodological design, and empirical findings is smooth and coherent. The use of technical terms and statistical representation enhances the academic quality of the work. The comparative bilingual presentation maintains consistency and quality in both languages.

Theoretical Contribution and Practical Implications:

The study contributes to ongoing discussions in mathematics education about the layered nature of problem-solving difficulties. By mapping specific percentages to each stage of Pólya's model, the research brings granularity to commonly observed issues and provides an empirical basis for understanding how these stages are navigated (or not) by learners.

Overall Evaluation:

This is a well-conceptualized and competently executed study. It presents a thoughtful application of a classical educational theory to a contemporary classroom context. The combination of qualitative analysis and empirical reporting provides valuable insights into student learning processes. The use of George Pólya's model reinforces the theoretical integrity of the work, and the detailed breakdown of student difficulties offers a solid basis for further research or pedagogical reflection.

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