

REVIEWER'S REPORT

Manuscript No.: IJAR-51640

Date: 17-05-2025

Title: A MICROLEARNING APPROACH WITH SCRATCH FOR DEVELOPING STUDENT COMPUTATIONAL THINKING

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: Mr Bilal Mir

Reviewer's Decision about Paper: **Recommended for Publication.**

Comments (*Use additional pages, if required*)

Reviewer's Comment / Report

General Overview:

This manuscript explores the application of a microlearning strategy utilizing Scratch to enhance computational thinking skills among 8th-grade students in Montería, Colombia. The study employs a design science methodology combined with a qualitative approach to assess the effectiveness of this pedagogical intervention. The paper is structured clearly, providing a comprehensive overview of the research rationale, methodology, and preliminary findings.

Abstract:

The abstract succinctly summarizes the study's focus on improving computational thinking skills through a Scratch-based microlearning platform. It highlights key skills targeted (problem-solving, sequence tracking, pattern recognition), methodology, and positive outcomes in student performance and satisfaction. The scope and results are clearly communicated.

Introduction:

The introduction effectively frames computational thinking as an essential 21st-century skill, supported by relevant literature including Wing (2006) and others. The significance of Scratch as a visual programming tool is well contextualized with references to prior studies. The rationale for using

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microlearning is convincingly presented with appropriate citations, and the specific educational context at INEM Lorenzo María Lleras is detailed clearly, including data on student performance (Figure 1).

Literature Review:

The paper provides an informative review of microlearning and its benefits in educational contexts, particularly its ability to promote active participation and individualized learning. Citations are relevant and recent, grounding the study in current academic discourse.

Materials and Methods:

The qualitative research design is clearly described, emphasizing the study's focus on understanding students' perceptions and skills. Reference to Taylor and Bogdan (1992) supports the qualitative paradigm chosen. The use of the Design Science methodology is appropriate for developing and evaluating the microlearning artifact, and the citation of Hevner et al. (2024) supports this approach well. The explanation of the methodology is coherent and logically connected to the study's objectives.

Data Presentation:

The inclusion of quantitative data on student grades and participation (Figure 1) complements the qualitative approach and provides context for the intervention. This adds depth to the research and helps in understanding baseline performance.

Clarity and Language:

The manuscript is well-written with clear and formal academic language. Terminology related to computational thinking, microlearning, and educational technology is used correctly and effectively. The flow of ideas is logical and easy to follow.

Relevance and Contribution:

The study addresses a pertinent issue in education—improving computational thinking through innovative pedagogical approaches. It contributes to the growing body of knowledge on microlearning and the use of Scratch in middle school settings, particularly in Latin America, which adds regional relevance.

Overall Evaluation:

This manuscript presents a well-structured and methodologically sound study that aligns with current educational research priorities. It provides valuable insights into the potential of microlearning combined with Scratch programming to enhance critical computational skills. The integration of qualitative and design science methods is appropriate and strengthens the study's contribution to educational practice and research.