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Development of Ethnomathematics Based Flipped Classroom Learning Materials to Enhance Students' Critical Thinking Skills and Self-Confidence, Viewed in Terms of Learning Readiness

Abstract

This study was motivated by students' low critical thinking skills and self-confidence in mathematics learning, as well as the need for teaching materials that accommodate student learning needs in alignment with technological advancements and local cultural contexts. The study aimed to develop ethnomathematics-based flipped classroom teaching materials and to examine students' learning readiness, critical thinking skills, and self-confidence. It employed a Research and Development (R&D) approach using the 4D model (define, design, develop, and disseminate) combined with a mixed-methods approach. Research instruments included validation sheets, questionnaires on learning readiness and self-confidence, critical thinking tests, and interviews. Data were analyzed quantitatively using descriptive analysis, two-way ANOVA, the Mann-Whitney test, and Spearman correlation, and qualitatively using the Miles and Huberman interactive analysis model (involving data reduction, data display, and conclusion drawing). The results indicated that the developed teaching materials were feasible and practical for use in instruction. Students' learning readiness in both groups fell into the "sufficient" category, albeit with differing characteristics. Ethnomathematics-based flipped classroom instruction fostered superior critical thinking skills and self-confidence compared to conventional instruction, both overall and when analyzed by learning readiness levels. Furthermore, students' self-confidence improved through increased willingness to express opinions and active participation in discussions. However, no interaction effect was found between the instructional model and learning readiness regarding critical thinking skills, nor was there a significant relationship between critical thinking skills and self-confidence. Thus, ethnomathematics-based flipped classroom teaching materials offer a potential, effective alternative for developing students' critical thinking skills and self-confidence.

Keywords: Flipped Classroom, ethnomathematics, critical thinking skills, self-confidence, learning readiness.

INTRODUCTION

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METHOD

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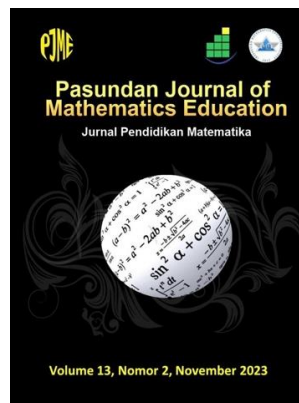


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In Introduction, Authors should state the objectives of the work at the end of the introduction section. Before the objective, Authors should provide an adequate background, and very short literature survey in order to record the existing solutions/method, to show which is the best of previous research, to show the main limitation of the previous research, to show what do you hope to achieve (to solve the limitation), and to show the scientific merit or novelties of the paper. Avoid a detailed literature survey or a summary of the results.

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