

ABSTRAK

MAYLIZA WAHIDA: Pengembangan Media Flashcard Berbasis *Augmented Reality* Dengan Pendekatan *Realistic Mathematics Education* Untuk Penguatan Kemampuan Spasial Matematis Siswa. **Program Studi Pendidikan Matematika FKIP Universitas Malikussaleh, 2026**

Kemampuan spasial matematis siswa tergolong rendah, yang ditunjukkan oleh kesulitan siswa dalam memvisualisasikan dan memahami objek tiga dimensi. Rendahnya kemampuan tersebut dipengaruhi oleh penggunaan media pembelajaran yang masih didominasi oleh buku teks dan gambar dua dimensi sehingga belum mampu memfasilitasi siswa dalam membangun pemahaman spasial secara optimal. Untuk mengatasi permasalahan tersebut, diperlukan media pembelajaran yang menarik, interaktif, dan kontekstual agar siswa dapat menghubungkan konsep matematika dengan situasi nyata serta memperkuat kemampuan spasial matematisnya. Salah satu alternatif yang dapat digunakan adalah media Flashcard berbasis *Augmented Reality* dengan pendekatan *Realistic Mathematics Education*. Oleh karena itu, penelitian ini bertujuan untuk mengetahui kevalidan, kepraktisan, dan keefektifan media Flashcard berbasis *Augmented Reality* dengan pendekatan *Realistic Mathematics Education* untuk penguatan kemampuan spasial matematis siswa.

Penelitian ini merupakan penelitian dan pengembangan (*Research and Development*) dengan menggunakan model ADDIE yang meliputi tahap *Analysis*, *Design*, *Development*, *Implementation*, dan *Evaluation*. Penelitian dilaksanakan di SMP Negeri 2 Muara Batu dengan subjek uji coba kelompok kecil sebanyak 6 siswa dan uji coba kelompok besar sebanyak 25 siswa kelas VII-3. Teknik pengumpulan data menggunakan lembar validasi ahli media dan ahli materi, angket respon siswa, dan tes kemampuan spasial matematis. Analisis data dilakukan secara kuantitatif dan kualitatif untuk mengetahui tingkat kevalidan, kepraktisan, dan keefektifan media yang dikembangkan.

Hasil penelitian menunjukkan bahwa media yang dikembangkan memperoleh persentase validasi ahli media sebesar 94,64% dan validasi ahli materi sebesar 90,00% dengan kategori sangat valid. Hasil uji kepraktisan memperoleh persentase sebesar 90,83% pada kelompok kecil dan 81,47% pada kelompok besar dengan kategori sangat praktis. Hasil uji keefektifan menunjukkan persentase ketuntasan kemampuan spasial matematis siswa sebesar 84% dengan kategori sangat efektif. Dengan demikian, media Flashcard berbasis *Augmented Reality* dengan pendekatan *Realistic Mathematics Education* dinyatakan sangat valid, sangat praktis, dan sangat efektif sehingga layak digunakan dalam pembelajaran matematika pada materi kubus untuk memperkuat kemampuan spasial matematis siswa.

Kata kunci: *Augmented Reality*, Flashcard, *Realistic Mathematics Education*, kemampuan spasial matematis

ABSTRACT

MAYLIZA WAHIDA: *Development of Augmented Reality-Based Flashcard Media with a Realistic Mathematics Education Approach to Strengthen Students' Mathematical Spatial Abilities. Mathematics Education Study Program, FKIP Malikussaleh University, 2026.*

Students' mathematical spatial ability is relatively low, as indicated by their difficulties in visualizing and understanding three-dimensional objects. This low level of mathematical spatial ability is influenced by the use of learning media that are still dominated by textbooks and two-dimensional images, which have not been able to optimally facilitate students in developing their spatial understanding. To address this problem, interactive, engaging, and contextual learning media are needed to enable students to connect mathematical concepts with real-life situations while enhancing their mathematical spatial ability. One alternative is the use of Augmented Reality-based Flashcard media with a Realistic Mathematics Education (RME) approach. Therefore, this study aims to determine the validity, practicality, and effectiveness of Augmented Reality-based Flashcard media with a Realistic Mathematics Education approach in enhancing students' mathematical spatial ability.

This study employed a Research and Development (R&D) method using the ADDIE model, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation. The research was conducted at SMP Negeri 2 Muara Batu with six students involved in the small-group trial and twenty-five students from class VII-3 involved in the large-group trial. Data were collected through media expert and material expert validation sheets, student response questionnaires, and mathematical spatial ability tests. Data analysis was carried out quantitatively and qualitatively to determine the validity, practicality, and effectiveness of the developed media.

The results showed that the developed media obtained a media expert validation score of 94.64% and a material expert validation score of 90.00%, both categorized as very valid. The practicality test results yielded percentages of 90.83% in the small-group trial and 81.47% in the large-group trial, both categorized as very practical. The effectiveness test showed that students' mathematical spatial ability mastery reached 84%, which was categorized as very effective. Therefore, the Augmented Reality-based Flashcard media with a Realistic Mathematics Education approach was considered very valid, very practical, and very effective, making it suitable for use in mathematics learning on the topic of cubes to enhance students' mathematical spatial ability.

Keywords: *Augmented Reality, Flashcards, Realistic Mathematics Education, mathematical spatial ability*