

**PENGEMBANGAN MEDIA PEMBELAJARAN *FLASHCARD*
AUGMENTED REALITY DENGAN MUATAN *FUTURE THINKING*
UNTUK MENINGKATKAN KEMAMPUAN SPASIAL SISWA SD**

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ABSTRAK

Kemajuan teknologi dalam dunia pendidikan menuntut adanya inovasi media pembelajaran yang interaktif, namun rendahnya kemampuan spasial siswa pada mata pelajaran Matematika di sekolah dasar masih menjadi problematika akibat dominasi media konvensional dan belum optimalnya pemanfaatan teknologi digital. Penelitian ini bertujuan untuk mengembangkan *flashcard augmented reality* dengan muatan *future thinking* pada materi bangun ruang yang valid, praktis, dan efektif dalam meningkatkan kemampuan spasial siswa kelas V SD Negeri 6 Panji. Metode penelitian yang digunakan adalah *Research and Development* (R&D) dengan model pengembangan ADDIE. Kelayakan media dievaluasi melalui uji validitas ahli materi dan media, kepraktisan diuji melalui respon guru dan siswa, sementara efektivitas dianalisis menggunakan uji-t. Hasil penelitian menunjukkan bahwa validitas ahli materi memperoleh indeks validitas *Aiken's* 0,88 dan validitas ahli media sebesar 3,90 dengan kualifikasi validitas tinggi. Uji kepraktisan pada seluruh tahapan menunjukkan kategori sangat praktis untuk digunakan dalam pembelajaran. Hasil analisis efektivitas melalui uji-t menunjukkan nilai signifikansi 0,000 ($<0,05$) yang menandakan adanya peningkatan signifikan terhadap kemampuan spasial siswa setelah *flashcard augmented reality* digital dinyatakan layak, praktis, dan efektif untuk meningkatkan kemampuan spasial siswa pada materi bangun ruang di sekolah dasar.

Kata kunci: *flashcard augmented reality*, *future thinking*, kemampuan spasial.

**DEVELOPMENT OF AUGMENTED REALITY FLASHCARD
LEARNING MEDIA INCORPORATING FUTURE THINKING TO
ENHANCE STUDENTS' SPATIAL ABILITIES OF
ELEMENTARY SCHOOL**

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ABSTRACT

Technological advancements in education demand innovative, interactive learning media; however, low spatial ability among elementary school students in Mathematics remains a problem due to the dominance of conventional media and the suboptimal use of digital technology. This study aims to develop augmented reality flashcards incorporating "future thinking" concepts for the topic of 3D shapes (geometric solids) that are valid, practical, and effective in enhancing the spatial abilities of fifth-grade students at SD Negeri 6 Panji. The research employs the Research and Development (R&D) method using the ADDIE development model. Media feasibility was evaluated through validity tests by subject matter and media experts; practicality was assessed via teacher and student responses; and effectiveness was analyzed using a t-test. The results indicate that the subject matter expert validity achieved an Aiken's validity index of 0.88, while the media expert validity score was 3.90, both falling within the high validity category. Practicality tests across all stages showed the media to be in the "very practical" category for classroom use. Effectiveness analysis via the t-test yielded a significance value of 0.000 (<0.05), indicating a significant improvement in students' spatial abilities. Consequently, the digital augmented reality flashcards were deemed feasible, practical, and effective for enhancing elementary students' spatial abilities regarding 3D shapes.

Keywords: *augmented reality flashcards, future thinking, spatial ability.*