ABSTRAK

Arthana, M. P. (2026). Pengembangan E-Modul *Case Based Learning* Berbantuan *Augmented reality* Untuk Meningkatkan Kemampuan Berpikir Kritis Peserta Didik Pada Mata Pelajaran Informatika SMP. Tesis, Teknologi Pendidikan, Program Pascasarjana, Universitas Pendidikan Ganesha.

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Kata Kunci: augmented reality, berpikir kritis, case based learning, e-modul, informatika.

Transformasi pendidikan abad ke-21 menuntut peserta didik memiliki keterampilan berpikir kritis. Namun, hasil observasi di SMP Negeri 4 Singaraja menunjukkan bahwa pembelajaran Informatika masih menggunakan metode konvensional berbasis media cetak yang kurang mendukung interaktivitas pembelajaran. Kondisi ini menyebabkan siswa mengalami kesulitan dalam memahami konsep teknis yang abstrak sehingga berdampak pada rendahnya kemampuan berpikir kritis. Oleh karena itu, penelitian ini bertujuan mengembangkan e-modul interaktif berbasis *case based learning* berbantuan teknologi *augmented reality*. Penelitian ini merupakan penelitian *research and development* yang menggunakan model pengembangan ADDIE dengan rancangan *one-group pretest-posttest*. Subjek penelitian adalah siswa kelas VII. Teknik pengumpulan data dilakukan melalui wawancara, observasi, lembar validasi ahli, angket kepraktisan, dan tes kemampuan berpikir kritis. Analisis data dilakukan menggunakan uji validitas gregory, analisis kepraktisan, indeks *n-gain*, *paired sample t-test*, dan *effect size Cohen's d*.

Hasil penelitian memperoleh tingkat kevalidan sebesar 100% dengan kategori "Sangat Valid" berdasarkan hasil penilaian ahli materi, ahli media, dan ahli desain pembelajaran. Tingkat kepraktisan juga menunjukkan hasil yang sangat baik, dengan persentase sebesar 91% berdasarkan respons siswa dan 100% berdasarkan respons guru. Hasil uji lapangan menunjukkan peningkatan kemampuan berpikir kritis siswa yang signifikan, dengan nilai rata-rata meningkat dari 44,47 pada *pre-test* menjadi 89,81 pada *post-test*. Hasil *paired sample t-test* menunjukkan nilai signifikansi ($p < 0{,}001$), sedangkan nilai *effect size Cohen's d* sebesar $d \geq 0{,}80$ menunjukkan pengaruh yang sangat kuat terhadap peningkatan kemampuan berpikir kritis siswa. Berdasarkan hasil tersebut, dapat disimpulkan bahwa media ini memenuhi kriteria sangat valid, praktis, dan efektif untuk mendukung visualisasi materi abstrak serta meningkatkan kemampuan berpikir kritis peserta didik.

ABSTRACT

Arthana, M. P. (2026). Development of an Augmented reality-Assisted Case-Based Learning E-Module to Improve Students' Critical Thinking Skills in Junior High School Informatics. Master's Thesis, Educational Technology, Postgraduate Program, Ganesha University of Education.

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Keywords: augmented reality, critical thinking, case-based learning, e-module, informatics.

The transformation of 21st-century education requires students to possess critical thinking skills as one of the essential competencies in learning. However, observations conducted at SMP Negeri 4 Singaraja indicated that Informatics learning still relies on conventional print based methods that provide limited support for interactive learning. This condition causes students to experience difficulties in understanding abstract technical concepts, which consequently affects their critical thinking abilities. Therefore, this study aimed to develop an interactive e-module based on case based learning integrated with AR technology. This study employed a research and development approach using the ADDIE development model with a one-group pretest-posttest design. The research subjects were seventh grade students. Data collection techniques included interviews, observations, expert validation sheets, practicality questionnaires, and critical thinking tests. Data analysis was conducted using Gregory validity testing, practicality analysis, N-gain index, paired sample t-test, and Cohen's d effect size.

The results showed that the developed media achieved a validity score of 100%, categorized as "Highly Valid," based on assessments by subject matter experts, media experts, and instructional design experts. The practicality level also demonstrated excellent results, with percentages of 91% based on student responses and 100% based on teacher responses. The field testing results revealed a significant improvement in students' critical thinking skills, with the mean score increasing from 44.47 in the pre-test to 89.81 in the post-test. The paired sample t-test results indicated a significant value of ($p < 0.001$), while Cohen's d effect size value of $d \geq 0{,}80$ *demonstrated a very strong effect on improving students' critical thinking skills. Based on these findings, it can be concluded that the developed media met the criteria of being highly valid, practical, and effective in supporting the visualization of abstract concepts and improving students' critical thinking skills.*