

**PENGEMBANGAN GAME EDUKASI 2.5D DUNGEON CRAWLER
DENGAN ONLINE LEADERBOARD SEBAGAI MEDIA ASESMEN AWAL
SERTA ANALISIS PENGARUHNYA TERHADAP MOTIVASI DAN
HASIL BELAJAR SISWA SMK**

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ABSTRAK

Pendidikan di era digital menuntut inovasi media pembelajaran interaktif agar proses belajar tidak monoton serta mampu meningkatkan motivasi dan pemahaman siswa. Penelitian ini mengembangkan *game* edukasi “Logical Quest”, yaitu *game 2.5D dungeon crawler* dengan *online leaderboard* sebagai media asesmen awal mata pelajaran Informatika di tingkat SMK. Tujuan penelitian ini meliputi: (1) mengembangkan *game* Logical Quest dengan integrasi *leaderboard*, (2) menganalisis pengaruh penggunaan *game* terhadap motivasi belajar, (3) menganalisis pengaruh terhadap hasil belajar, serta (4) mengevaluasi efektivitas *leaderboard* sebagai instrumen asesmen awal. Metode penelitian menggunakan model pengembangan ADDIE dengan subjek 324 siswa kelas X dari SMK N 1 Banyumas dan SMK Kesatrian Purwokerto. Data dianalisis dari 211 siswa yang mengikuti *pre-test*, *post-test*, dan kuesioner motivasi model ARCS secara lengkap. Instrumen meliputi tes hasil belajar, kuesioner motivasi sebelum dan sesudah bermain *game*, serta wawancara guru. Analisis data menggunakan uji *Wilcoxon Signed-Rank Test* dengan SPSS. Hasil penelitian menunjukkan peningkatan signifikan pada hasil belajar, dengan rata-rata *pre-test* 79,22 menjadi 86,90 pada *post-test* (selisih 7,68 poin, $Z = -6,304$; $\text{Sig.} = 0,000 < 0,05$). Motivasi siswa juga meningkat pada aspek *Attention* ($Z = -2,659$; $\text{Sig.} = 0,008$), *Confidence* ($Z = -4,562$; $\text{Sig.} = 0,000$), *Satisfaction* ($Z = -2,431$; $\text{Sig.} = 0,015$), serta total ARCS ($Z = -4,027$; $\text{Sig.} = 0,000$). Namun, aspek *Relevance* tidak berbeda signifikan ($Z = -0,390$; $\text{Sig.} = 0,696$) karena heterogenitas jurusan. Hasil wawancara guru menegaskan bahwa *leaderboard* mendorong kompetisi sehat dan memudahkan pemantauan hasil belajar secara *real-time*. Kesimpulannya, Logical Quest efektif meningkatkan hasil belajar dan motivasi siswa serta memberikan inovasi asesmen awal melalui integrasi gaya visual *2.5D dungeon crawler* dengan *online leaderboard*.

Kata Kunci: 2.5D, ADDIE, Construct 3, Game Edukasi, Motivasi Belajar, Online Leaderboard, Wilcoxon Signed-Rank Test

**DEVELOPMENT OF A 2.5D DUNGEON CRAWLER EDUCATIONAL
GAME WITH AN ONLINE LEADERBOARD AS AN INITIAL
ASSESSMENT MEDIUM AND ITS EFFECT ON VOCATIONAL HIGH
SCHOOL STUDENTS' MOTIVATION AND LEARNING OUTCOMES**

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ABSTRACT

Education in the digital era demands innovative and interactive learning media to make the learning process more engaging and to enhance students' motivation and understanding. This study developed an educational game titled Logical Quest, a 2.5D dungeon crawler game integrated with an online leaderboard as an initial assessment tool for Informatics subjects at the vocational high school (SMK) level. The objectives of this study were to: (1) develop the Logical Quest game with leaderboard integration, (2) analyze the effect of the game on students' learning motivation, (3) analyze its effect on learning outcomes, and (4) evaluate the effectiveness of the leaderboard as an initial assessment instrument. The research employed the ADDIE development model with a total of 324 tenth-grade students from SMK N 1 Banyumas and SMK Kesatrian Purwokerto as participants. Data were analyzed from 211 students who completed the pre-test, post-test, and ARCS-based motivation questionnaire. The instruments consisted of learning outcome tests, pre- and post-game motivation questionnaires, and teacher interviews. Data were analyzed using the Wilcoxon Signed-Rank Test with SPSS. The results showed a significant improvement in learning outcomes, with an average pre-test score of 79.22 increasing to 86.90 in the post-test (difference of 7.68 points, $Z = -6.304$; $\text{Sig.} = 0.000 < 0.05$). Learning motivation also increased in the aspects of Attention ($Z = -2.659$; $\text{Sig.} = 0.008$), Confidence ($Z = -4.562$; $\text{Sig.} = 0.000$), Satisfaction ($Z = -2.431$; $\text{Sig.} = 0.015$), and total ARCS ($Z = -4.027$; $\text{Sig.} = 0.000$). However, the Relevance aspect showed no significant difference ($Z = -0.390$; $\text{Sig.} = 0.696$) due to heterogeneity among majors. Teacher interviews confirmed that the leaderboard encourages healthy competition and facilitates real-time monitoring of learning outcomes. In conclusion, Logical Quest effectively enhances students' learning outcomes and motivation while offering an innovative initial assessment medium through the integration of 2.5D dungeon crawler visuals and an online leaderboard.

Keywords: 2.5D, ADDIE, Construct 3, Educational Game, Learning Motivation, Online Leaderboard, Wilcoxon Signed-Rank Test