

ABSTRAK

PENGEMBANGAN *e-MODULE* INTERAKTIF BERBASIS APLIKASI ANDROID PADA MATERI ALGORITMA PEMROGRAMAN UNTUK SISWA SMK KELAS X

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Era digital yang terus berkembang menyebabkan kebutuhan media pembelajaran inovatif semakin meningkat. Tujuan dari penelitian adalah mengembangkan dan menguji kelayakan *e-Module* interaktif berbasis aplikasi android pada materi Algoritma Pemrograman untuk Siswa SMK Kelas X. Penelitian ini menggunakan metode pengembangan *Research and Development* (R&D) model ADDIE dan uji efektivitas produk menggunakan pendekatan kuantitatif eksperimen yaitu *quasi-experiment design*. Subjek pengujian dilaksanakan di kelas X Jurusan TKJ di SMK Budi Karya Natar. Instrumen pengumpulan data menggunakan lembar angket ahli media, angket ahli materi, angket respons siswa, dan tes hasil belajar siswa. Teknik analisis data untuk pengujian ahli media, ahli materi, dan respons siswa menggunakan analisis skor dan analisis persentase. Sementara teknik analisis data hasil belajar siswa dengan pengujian pra penelitian (uji validitas dan reliabilitas), prasyarat pengujian (uji N-Gain, normalitas, dan homogenitas), dan uji hipotesis (uji t dan Ancova). Hasil pengujian kevaliditasan ahli materi mendapatkan skor akhir 89% sangat valid dan uji ahli media 78% valid. Hasil pengujian kepraktisan berdasarkan hasil uji respons siswa 87% sangat praktis. Pengujian efektivitas hasil belajar kognitif mendapatkan hasil yaitu H_{01} ditolak dan H_{a1} diterima dengan nilai *Partial Eta Squared* sebesar 0,650 atau memiliki besar pengaruhnya yaitu 65%. Hasil belajar psikomotorik mendapatkan hasil $sig. 0,000 < 0.05$ sehingga H_{02} ditolak dan H_{a2} diterima yang berarti bahwa terdapat pengaruh yang signifikan pada kelas eksperimen dibandingkan dengan kelas kontrol. Sehingga, *e-Module* Interaktif berbasis aplikasi android pada materi Algoritma Pemrograman untuk siswa SMK kelas X berhasil dikembangkan dan layak digunakan dalam pembelajaran.

Kata Kunci: Algoritma Pemrograman, Android, *e-Module*, Interaktif, SMK

ABSTRACT

DEVELOPMENT OF INTERACTIVE *e*-MODULE BASED ON ANDROID APPLICATION FOR PROGRAMMING ALGORITHM MATERIAL FOR GRADE X VOCATIONAL HIGH SCHOOL STUDENTS

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The ever-growing digital era causes the need for innovative learning media to increase. The aim of this research is to develop and assess the feasibility of an interactive e-Module based on android application for Programming Algorithm subjects for Grade X Vocational High School students. The research employs the Research and Development (R&D) method with the ADDIE model and assesses the product's effectiveness using a quantitative experimental approach, specifically a quasi-experimental design. The testing subjects were students from the X-grade Computer Network Engineering Department at SMK Budi Karya Natar. Data collection instruments included expert media questionnaires, expert content questionnaires, student response questionnaires, and student learning outcome tests. Data analysis techniques for testing media experts, content experts, and student responses involved score analysis and percentage analysis. Meanwhile, the data analysis technique for student learning outcomes included pre-research testing (validity and reliability tests), prerequisite testing (N-Gain test, normality, and homogeneity tests), and hypothesis testing (t-test and Ancova). The results of the content expert validity testing obtained a final score of 89%, indicating high validity, while the media expert test resulted in 78% validity. Practicality testing based on student response yielded a high practicality score of 87%. The cognitive learning effectiveness test showed the rejection of H_01 and acceptance of H_{a1} , with a Partial Eta Squared value of 0.650, indicating a substantial impact of 65%. The psychomotor learning outcomes revealed a significant impact in the experimental class compared to the control class, with a sig. value of $0.000 < 0.05$, leading to the rejection of H_02 and acceptance of H_{a2} . Thus, the Interactive e-Module based on the Android application for Programming Algorithm subjects for Grade X Vocational High School students has been successfully developed and is deemed suitable for use in learning.

Keywords: *Programming Algorithm, Android, e-Module, Interactive, Vocational High School.*