

ABSTRAK

Rio Parulian Sitompul, NIM. 5223121042, Pengembangan E-modul Mesin Konvensional Berbasis Augmented Reality Untuk Siswa Kelas XI Teknik Pemesinan SMK Negeri 1 Lubuk Pakam. Skripsi, Jurusan Pendidikan Teknik Mesin, Fakultas Teknik, Universitas Negeri Medan.

Penelitian ini bertujuan untuk mengembangkan serta mengetahui kelayakan dan efektivitas e-modul berbasis Augmented Reality untuk siswa kelas XI Teknik Pemesinan SMK Negeri 1 Lubuk Pakam. Penelitian ini menggunakan metode Research and Development (R&D) dengan model pengembangan ADDIE yang meliputi tahap analisis, desain, pengembangan, implementasi, dan evaluasi. Subjek penelitian berjumlah 33 siswa. Instrumen penelitian meliputi angket validasi ahli, soal pretest-posttest, serta angket respon siswa. Hasil validasi menunjukkan bahwa e-modul berada pada kategori valid dengan rata-rata skor 3,77. Uji instrumen menghasilkan 20 soal valid dan reliabilitas sebesar 0,779 (reliabel). Rata-rata nilai siswa sebelum menggunakan e-modul adalah 55,51, dan setelah menggunakan e-modul meningkat menjadi 85,84. Hasil Uji N-Gain menunjukkan nilai rata-rata sebesar 0,6843 atau 68,43% dengan kategori sedang. Dengan demikian, e-modul berbasis Augmented Reality yang dikembangkan layak digunakan dan cukup efektif dalam meningkatkan hasil belajar mesin konvensional pada siswa Teknik Pemesinan.

Kata Kunci: E-modul mesin konvensional, Augmented Reality, Teknik Pemesinan, hasil belajar, R&D.



ABSTRACT

Rio Parulian Sitompul, Student ID Number 5223121042, Development of an Augmented Reality-Based Conventional Machine Learning E-module for Grade XI Machining Engineering Students of SMK Negeri 1 Lubuk Pakam. Thesis, Department of Mechanical Engineering Education, Faculty of Engineering, State University of Medan.

This study aims to develop and determine the feasibility and effectiveness of an Augmented Reality-based e-module for grade XI Machining Engineering students of SMK Negeri 1 Lubuk Pakam. This study used the Research and Development (R&D) method with the ADDIE development model, which includes the stages of analysis, design, development, implementation, and evaluation. The research subjects were 33 students. The research instruments included an expert validation questionnaire, pretest-posttest questions, and a student response questionnaire. The validation results showed that the e-module was valid with an average score of 3.77. The instrument test resulted in 20 valid questions and a reliability of 0.779 (reliable). The average student score before using the e-module was 55.51, and after using the e-module, it increased to 85.84. The N-Gain test results showed an average score of 0.6843, or 68.43%, in the moderate category. Thus, the developed Augmented Reality-based e-module is feasible and quite effective in improving conventional machine learning outcomes for Machining Engineering students.

Keywords: *Conventional machine e-module, Augmented Reality, Machining Engineering, learning outcomes, R&D.*