

ABSTRAK

Mangasi Hotmaruli Tua Sinaga: 5181121006. Pengembangan Media Pembelajaran Berbasis *Android* Pada Elemen Pembelajaran Kelas XI Teknik Permesinan SMK PAB 1 Helvetia. Skripsi. Fakultas Teknik. Universitas Negeri Medan. 2025.

Seiring dengan kemajuan teknologi informasi dan komunikasi pada era modern, peran pendidik semakin dituntut untuk mampu merancang serta mengembangkan media pembelajaran yang dapat menunjang efektivitas proses belajar mengajar. Media pembelajaran tidak dimaksudkan untuk menggantikan metode pengajaran konvensional yang telah efektif, melainkan berfungsi sebagai alat bantu yang dapat memperkuat penyampaian materi dan informasi, sehingga tujuan pembelajaran dapat tercapai secara lebih optimal dan terarah. Penelitian ini bertujuan untuk mengembangkan media pembelajaran berbasis *Android* pada elemen pembelajaran Teknik Pemesinan Bubut untuk siswa kelas XI Teknik Pemesinan di SMK PAB 1 Helvetia, mengetahui tingkat kelayakannya, serta menguji efektivitas media tersebut dalam meningkatkan hasil belajar siswa. Metode yang digunakan adalah penelitian dan pengembangan (*Research and Development*) dengan mengadaptasi model ADDIE yang terdiri atas lima tahapan, yaitu: *Analysis*, *Design*, *Development*, *Implementation*, dan *Evaluation*. Hasil validasi menunjukkan bahwa media pembelajaran yang dikembangkan dinyatakan layak untuk digunakan, dengan rata-rata skor dari ahli materi I sebesar 4,81, ahli materi II sebesar 4,84, ahli media I sebesar 4,87, ahli media II sebesar 4,66, ahli pembelajaran I sebesar 4,80, dan ahli pembelajaran II sebesar 4,57. Uji coba skala kecil memperoleh skor rata-rata sebesar 4,21 dan uji coba lapangan sebesar 4,27. Sementara itu, efektivitas media ditunjukkan melalui peningkatan nilai rata-rata hasil belajar siswa dari pretest sebesar 67 menjadi posttest sebesar 80. Uji normalitas Shapiro-Wilk menunjukkan bahwa data berdistribusi normal (pretest = 0,223; posttest = 0,060), sedangkan uji paired sample t-test menunjukkan signifikansi 0,000 ($< 0,05$), yang mengindikasikan perbedaan yang signifikan antara hasil pretest dan posttest. Nilai N-Gain sebesar 0,576 menunjukkan peningkatan dalam kategori sedang hingga tinggi.

Kata Kunci: Pengembangan Media, *Android*, Teknik Pemesinan Bubut

ABSTRACT

Mangasi Hotmaruli Tua Sinaga: 5181121006. *Development of Android-Based Learning Media on Learning Elements for Grade XI Machining Engineering Students at SMK PAB 1 Helvetia.* Thesis. Faculty of Engineering. Universitas Negeri Medan. 2025.

Along with the advancement of information and communication technology in the modern era, educators were increasingly required to *design* and develop instructional media that could support the *effectiveness* of the teaching and learning process. Instructional media were not intended to replace conventional teaching methods that had proven *effective*, but rather to serve as supportive tools that enhanced the delivery of material and information, thereby enabling learning objectives to be achieved more optimally and purposefully. This study aimed to develop *Android*-based instructional media for the subject of Lathe Machining Techniques for Grade XI students of the Mechanical Engineering Program at SMK PAB 1 Helvetia, to determine its feasibility, and to assess its *effectiveness* in improving student learning outcomes. The research employed a Research and Development (R&D) method by adapting the ADDIE *development* model, which consisted of five phases: Analysis, Design, Development, Implementation, and Evaluation. The validation results indicated that the developed instructional media was deemed feasible for use, with average scores as follows: material expert I scored 4.81, material expert II scored 4.84, media expert I scored 4.87, media expert II scored 4.66, learning expert I scored 4.80, and learning expert II scored 4.57. The small-scale trial obtained an average score of 4.21, while the field trial received a score of 4.27. Furthermore, the *effectiveness* of the media was demonstrated by an increase in students' average learning outcomes, from a pretest score of 67 to a posttest score of 80. The Shapiro-Wilk normality test showed that the data were normally distributed (pretest = 0.223; posttest = 0.060), while the paired sample t-test yielded a significance value of 0.000 (< 0.05), indicating a significant difference between the pretest and posttest results. The N-Gain score of 0.576 fell within the medium to high category, indicating that most students experienced substantial learning gains from the use of the developed instructional media.

Keywords: Media *Development*, *Android*, Machining Turning