ABSTRAK

Andre Pratama Sibuea: *Pengembangan E-modul Berbasis Aplikasi Filpbook Pada Elemen Proses Bisnis Bidang Manufaktur Secara Menyeluruh Di Kelas X SMK Negeri 1 Lubuk Pakam.* Skripsi. Fakultas Teknik Universitas Negeri Medan. 2025

Pembelajaran DDTM di SMK Negeri 1 Lubuk Pakam masih menggunakan metode konvensional, sehingga siswa kurang aktif dan banyak yang belum mencapai KKM. Di satu sisi, pemakaian perangkat *android* sudah lumrah digunakan oleh siswa namun belum dimanfatkan dengan baik. Penelitian ini bertujuan mengembangkan e-modul berbasis *flipbook* untuk meningkatkan minat, pemahaman, dan hasil belajar siswa kelas X Teknik Pemesinan, serta mengetahui kelayakannya melalui validasi ahli pada media yang dihasilkan.

Penelitian ini merupakan penelitian dan pengembangan (R&D) yang mengacu pada model Borg dan Gall dengan tahapan pengembangan ADDIE (*Analysis, Design, Development, Implementation*, dan *Evaluation*). Penelitian menggunakan pendekatan metode campuran (*mixed methods*) yang menggabungkan data kualitatif dan kuantitatif. Subjek penelitian berjumlah 34 siswa kelas X Teknik Pemesinan di SMK Negeri 1 Lubuk Pakam. Validasi dilakukan oleh ahli media dan ahli materi masing masing validasi dilakukan terhadap 2 ahli. Hasil validasi digunakan untuk mengembangkan produk sebelum implementasi. E-modul yang dikembangkan diharapkan layak dan efektif digunakan dalam proses pembelajaran teknik pemesinan.

Hasil analisis kebutuhan menunjukkan bahwa siswa membutuhkan media pembelajaran yang interaktif, digital, dan sesuai dengan karakteristik generasi saat ini. Pembuatan media dikembangkan melalui tahap desain, validasi, hingga implementasi terbatas. Validasi oleh ahli media dan materi menunjukkan bahwa *flipbook* yang dikembangkan memenuhi kriteria kelayakan isi, tampilan, dan interaktivitas adapun rata-rata keseluruhan skor penilaian validator media sebesar 4,39(87,8%) dengan kategori "Sangat Layak" dan rata-rata keseluruhan skor penilaian dari validator materi adalah sebesar 4,63(92,6%) dengan kategori "Sangat Layak". Uji coba terhadap siswa melalui tiga tahapan (*One to One* dengan tingkat kelayakan 84,6% , Uji Terbatas dengan tingkat kelayakan 86,4% , dan Uji Lapangan dengan tingkat kelayakan 88,6%) menunjukkan peningkatan skor pada semua aspek yang dinilai, termasuk panduan informasi, materi, desain media, dan efek pedagogi. Secara keseluruhan, media dinyatakan layak dan efektif digunakan untuk meningkatkan minat serta pemahaman siswa dalam pembelajaran DDTM.

Kata kunci: e-modul, *flipbook*, media pembelajaran, DDTM, ADDIE.

ABSTRACT

Andre Pratama Sibuea: *Development of an E-Module Based on Flipbook Application on the Business Process Element in the Manufacturing Field for Grade X at SMK Negeri 1 Lubuk Pakam, Essay, Faculty of Engineering, Unimed. 2025.*

Basics of mechanical engineering learning at SMK Negeri 1 Lubuk Pakam still uses conventional methods, resulting in students being less active and many not achieving the Minimum Completeness Criteria (MCC). On the one hand, the use of Android devices is already common among students, but they have not been utilized effectively. This research aims to develop a flipbook-based e-module to enhance the interest, understanding, and learning outcomes of tenth-grade students in the Machining Engineering program, as well as to determine its feasibility through expert validation of the produced media.

This research is a research and development that refers to the Borg and Gall model with the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) development stages. The research uses a mixed-methods approach that combines qualitative and quantitative data. The research subjects consisted of 34 students from the X Grade of the Machining Engineering program at SMK Negeri 1 Lubuk Pakam. Validation was conducted by media experts and subject matter experts, with each validation carried out by 2 experts. The validation results are used to develop the product before implementation. The developed e-module is expected to be feasible and effective for use in the machining engineering learning process.

The results of the needs analysis indicate that students require interactive, digital learning media that align with the characteristics of the current generation. The creation of the media was developed through the stages of design, validation, and limited implementation. Validation by media and material experts shows that the developed flipbook meets the criteria for content, appearance, and interactivity feasibility, with an overall average score of 4.39 (87.8%) in the "Very Feasible" category from media validators and an overall average score of 4.63 (92.6%) in the "Very Feasible" category from material validators. Trials with students through three stages (one-to-one with a feasibility level of 84.6%, limited test with a feasibility level of 86.4%, and field test with a feasibility level of 88.6%) show an increase in scores across all assessed aspects, including information guides, materials, media design, and pedagogical effects. Overall, the media is deemed suitable and effective for enhancing students' interest and understanding in learning basics of mechanical engineering learning.

Keywords: *e-module, flipbook, learning media, BME, ADDIE.*