

ABSTRAK

Yasha Agatha Lumbantobing: Pengembangan Bahan Ajar E-Book Menggunakan Aplikasi Flipbook Maker Berbasis Problem Based Learning (PBL) untuk Meningkatkan Hasil Belajar Peserta Didik pada Materi Keselamatan dan Kesehatan Kerja serta Lingkungan Hidup (K3LH) dan Budaya Kerja. Tesis. Pascasarjana, Program Studi Teknologi Pendidikan, Universitas Negeri Medan. 2025.

Penelitian dan pengembangan ini bertujuan untuk menghasilkan bahan ajar *E-Book* yang layak, praktis, dan efektif dengan menggunakan aplikasi *Flipbook Maker* dalam meningkatkan hasil belajar peserta didik pada materi K3LH dan Budaya Kerja. Jenis penelitian ini adalah penelitian pengembangan yang menggunakan model ADDIE dengan tahapan: *Analysis, Design, Development, Implementation, dan Evaluation*. Hasil penelitian menunjukkan bahwa: Uji validasi ahli memperoleh nilai rata-rata 3,82 atau 95,60% yang termasuk kategori sangat layak. Uji coba produk memperoleh rata-rata skor 4,28 atau 85,72%, dan pada uji coba lapangan bahan ajar dinyatakan layak tanpa memerlukan revisi. Hasil uji kepraktisan menunjukkan bahwa *e-book* yang dikembangkan berada pada kategori sangat praktis. Penilaian guru memperoleh skor rata-rata 4,83 dengan persentase 96,67%, sedangkan penilaian peserta didik memperoleh skor 4,74 dengan persentase 94,89%. Kedua hasil tersebut menunjukkan bahwa *e-book* mudah digunakan dan membantu proses pembelajaran siswa. Untuk uji keefektifan, hasil tes belajar peserta didik dianalisis melalui uji normalitas dan homogenitas. Hasil uji normalitas pada kelas eksperimen menunjukkan bahwa χ^2 hitung $< \chi^2$ tabel ($9,4 < 11,07$) dan untuk kelas kontrol nilai χ^2 hitung $< \chi^2$ tabel ($8,5 < 11,07$) pada taraf 5 persen berdistribusi Normal. Hasil uji homogenitas menunjukkan bahwa nilai $F_{hitung} < F_{tabel}$ ($1,164 < 4,196$), yang berarti distribusi data dikatakan Homogen. Pengujian hipotesis menggunakan *independent t-test* diperoleh hasil analisis skor $t_{hitung} > t_{tabel}$ ($5,78833 > 2,00172$) maka H_0 ditolak dan H_a diterima. Hal ini menunjukkan bahwa terdapat perbedaan yang signifikan dari hasil *post-test* peserta didik yang menggunakan *E-Book* K3LH dan Budaya Kerja pada kelas eksperimen antara hasil *post-test* peserta didik menggunakan buku cetak pada kelas kontrol di kelas X Desain Pemodelan dan Informasi Bangunan di SMK Negeri 2 Medan.

Kata Kunci: *E-Book, Flipbook Maker, Problem Based Learning, K3LH, Budaya Kerja, Pengembangan Bahan Ajar.*

ABSTRACT

Yasha Agatha Lumbantobing: Development of E-Book Learning Materials Using the Flipbook Maker Application Based on Problem Based Learning (PBL) to Improve Students' Learning Outcomes in Occupational Health and Safety (OHS) and Work Culture. Thesis. Postgraduate Program, Educational Technology Study Program, Universitas Negeri Medan. 2025.

This research and development study aims to produce appropriate, practical, and effective E-Book learning materials using the Flipbook Maker application to improve students' learning outcomes in Occupational Health and Safety (OHS) and Work Culture. This study employed a development research design using the ADDIE model, which consists of Analysis, Design, Development, Implementation, and Evaluation stages. The results show that expert validation obtained an average score of 3.82 or 95.60%, categorized as very feasible. Product trials obtained an average score of 4.28 or 85.72%, and field trials indicated that the learning materials were feasible without requiring revisions. The practicality test results indicated that the developed e-book falls into the very practical category. The teacher assessment yielded an average score of 4.83 with a percentage of 96.67%, while the student assessment yielded a score of 4.74 with a percentage of 94.89%. Both results demonstrate that the e-book is easy to use and supports the learning process effectively. For the effectiveness test, students' learning outcomes were analyzed using normality and homogeneity tests. The normality test results for the experimental class showed that χ^2 calculated $< \chi^2$ table ($9.4 < 11.07$) and for the control class χ^2 calculated $< \chi^2$ table ($8.5 < 11.07$), indicating that the data were normally distributed at the 5 percent significance level. The homogeneity test results showed that $F_{\text{calculated}} < F_{\text{table}}$ ($1.164 < 4.196$), meaning that the data distribution was homogeneous. The hypothesis testing using the Independent t-test revealed that $t_{\text{calculated}} > t_{\text{table}}$ ($5.78833 > 2.00172$), thus H_0 was rejected and H_a was accepted. This indicates that there is a significant difference in the post-test results between students who used the OHS and Work Culture E-Book in the experimental class and those who used printed textbooks in the control class of Grade X Building Modeling and Information Design at SMK Negeri 2 Medan.

Keywords: E-Book, Flipbook Maker, Problem Based Learning, OHS, Work Culture, Learning Material Development.