

ABSTRAK

Bayu Andica Perangin Angin. NIM : 5182131011. Pengembangan Bahan Ajar Digital Instalasi Penerangan Listrik Berbasis *Challenge Based Learning (Cbl)* Untuk Kemandirian Belajar Siswa Kelas Xi Teknik Instalasi Tenaga Listrik. Skripsi, Jurusan Pendidikan Teknik Elektro Fakultas Teknik Universitas Negeri Medan, 2022.

Tujuan yang akan dicapai dalam penelitian ini yaitu untuk mengetahui: (1) Pengembangan bahan ajar digital dengan model pembelajaran *Challenge Based Learning* sebagai media pembelajaran. (2) Kelayakan dan keefektifan belajar siswa dengan menggunakan bahan ajar *digital Model Challenge Based Learning* Penelitian dilaksanakan di SMK Swasta Imelda Medan Jl. Billal No. 52 Pulo Brayan Darat 1 Medan, Kota Medan, Sumatera Utara 20239. Ukuran Sampel yang layak pada penelitian adalah antara 30 responden sampai dengan 500 responden (Sugiyono, 2019). Berikut adalah subjek yang dipakai pada penelitian ini adalah: (1) Dua Ahli materi (Validator materi) dan dua Ahli media (Validator media) (2) 30 Siswa Kelas XI Jurusan Teknik Instalasi Tenaga Listrik SMK Swasta Medan Tahun Ajaran 2022/2023. Objek dari penelitian ini adalah kompetensi dari pemahaman siswa dengan menggunakan Bahan Ajar Digital Instalasi Penerangan Listrik Berbasis *Challenge Based Learning (Cbl)* Untuk Kemandirian Belajar Siswa pada mata pelajaran Instalasi Penerangan Listrik Tahun Ajaran 2022/2023. Penelitian ini menggunakan metode penelitian dan pengembangan atau lebih dikenal dengan *Research and Development (R&D)*. Model pengembangan produk ini adalah serangkaian prosedur rangka menghasilkan media pembelajaran aplikasi media pembelajaran *learning* berbasis *Challenge Based Learning* pada pemahaman Konsep Instalasi Listrik untuk siswa menengah kejuruan XI Instalasi Tenaga Listrik. Model pengembangan produk ini menggunakan model ADDIE Lee dan Owens. Hasil penelitian menunjukkan bahwa: Bahan ajar digital dengan model pembelajaran *challenge based learning* berbasis *flipbook maker* yang peneliti kembangkan sudah layak digunakan dalam proses pembelajaran, didapatkan hasil dari perolehan penilaian yaitu: (1) Penilaian materi dan media bahan ajar digital dengan model pembelajaran *challenge based learning* berbasis *flipbook maker* yang peneliti kembangkan untuk aspek “Materi” diperoleh skor penilaian sebesar 89,50% dengan kategori “Sangat layak” dan aspek “Media” sebesar 86,25% dengan kategori “Sangat layak”. (2) Perolehan bahan ajar digital dengan model pembelajaran *challenge based learning* berbasis *flipbook maker* yang peneliti kembangkan diperoleh persentase efektifitas sebesar 80,6% dengan kriteria sangat efektif, dan dapat digunakan sebagai model dalam mendukung kegiatan pembelajaran. Skor aspek kelayakan isi sebesar 89,50% dan termasuk dalam kriteria “Sangat layak”.

Kata kunci : Bahan ajar digital, *challenge based learning*, instalasi penerangan listrik satu fasa.

ABSTRAK

Bayu Andica Perangin Angin. NIM : 5182131011. *Development of Challenge Based Learning (CBL) Digital Electrical Installation Instructional Materials for the Independent Learning of Class XI Students in Electrical Power Installation Engineering. Thesis, Department of Electrical Engineering Education, Faculty of Engineering, Medan State University, 2022.*

The objectives to be achieved in this research are to find out: (1) Development of digital teaching materials using the Challenge Based Learning learning model as a learning medium. (2) The feasibility and effectiveness of student learning by using digital teaching materials with the Challenge Based Learning Model. The research was conducted at Imelda Medan Private Vocational School, Jl. Billal No. 52 Pulo Brayan Darat 1 Medan, Medan City, North Sumatra 20239. An appropriate sample size for research is between 30 respondents to 500 respondents (Sugiyono, 2019). The following subjects were used in this study: (1) Two material experts (material validators) and two media experts (media validators). The object of this study is the competence of students' understanding by using Challenge Based Learning (CBL) Digital Electrical Installation Instructional Materials for Student Learning Independence in the Electric Lighting Installation subject for the 2022/2023 Academic Year. This research uses research and development methods or better known as Research and Development (R&D). This product development model is a series of procedures to produce learning media application learning media based on Challenge Based Learning on understanding the Concept of Electrical Installation for vocational high school students XI Electrical Installation. This product development model uses the ADDIE Lee and Owens model. The results showed that: The digital teaching materials with the flipbook maker-based challenge based learning model that the researchers developed were suitable for use in the learning process, the results obtained from the acquisition of the assessment were: (1) Assessment of digital teaching material materials and media with challenge based learning models based on the flipbook maker that the researchers developed for the "Material" aspect, an assessment score of 89.50% was obtained in the "Very feasible" category and the "Media" aspect was 86.25% in the "Very feasible" category. (2) The acquisition of digital teaching materials with the flipbook maker-based challenge based learning model that the researchers developed obtained an effectiveness percentage of 80.6% with very effective criteria, and can be used as a model in supporting learning activities. The content feasibility aspect score is 89.50% and is included in the "Very feasible" criteria.

Keywords: *Digital teaching materials, challenge based learning, single phase electric lighting installation.*