

ABSTRAK

Ramadhan : *Pengembangan Buku Latihan Gambar Teknik Untuk Meningkatkan Kemampuan Baca Gambar Teknik Pada Siswa Kelas XI Teknik Mesin di SMK Dwiwarna Medan*. Skripsi. Fakultas Teknik. Universitas Negeri Medan.2022

Masalah pada penelitian ini adalah rendahnya kemampuan membaca gambar teknik pada mata pelajaran gambar teknik mesin, padahal sudah disediakan buku ajar, siswa masih belum paham dalam membaca gambar teknik. Penelitian ini bertujuan untuk mengembangkan buku latihan gambar teknik dengan cara berbasis visual proyeksi isometri serta efektifitasnya pada siswa kelas XI Sekolah Menengah Kejuruan (SMK) Dwiwarna Medan TA 2021/2022.

Jenis penelitian ini adalah *Research and Development* dengan metode pengembangan model 4-D (four-D) yaitu: (1) *Define* (pendefinisian), (2) *Design* (perancangan), (3) *Develop* (pengembangan), dan (4) *Disseminate* (penyebaran). Penelitian dilakukan pada siswa kelas XI Jurusan Teknik Pemesinan di SMK Dwiwarna Medan dengan sampel 20 siswa. Teknik pengambilan data yang digunakan melalui observasi, angket, dokumen ujicoba pembelajaran dan tes validitas. Data-data yang diperoleh selanjutnya dianalisis sehingga diperoleh simpulan penelitian.

Hasil penelitian dan pengembangan Buku Latihan Gambar Teknik Mesin berbasis sket isometri ini sebagai berikut: (1) Validitas aspek materi pembelajaran adalah rerata 5 (100%) dengan katagori sangat layak, pada aspek media pembelajaran dengan nilai rerata 4,68 (93,6%) dengan katagori sangat layak dan desain pembelajaran dengan nilai rerata 4,38 (87,6%) dengan katagori sangat layak. (2) Hasil uji efektifitas perbedaan nilai rata-rata siswa sebelum uji coba diperoleh 60,64 dan sesudah uji coba memperoleh nilai rerata 81,82 dengan menggunakan uji *t-test* terbukti hal ini di tunjukkan oleh hasil *t-test* sebesar t hitung (7.540239431) > t tabel (2.093024054). Berdasarkan penelitian ini dapat disimpulkan bahwa Buku Latihan Gambar Teknik Mesin berbasis sket isometri dinyatakan valid dan efektif untuk dimanfaatkan sebagai bahan ajar gambar teknik guna meningkatkan kemampuan baca gambar teknik.

Kata kunci: Gambar Teknik, Buku Latihan Gambar Teknik, dan Kemampuan Baca Gambar Teknik.



ABSTRACT

Ramadhan: Development of a Technical Drawing Exercise Book to Improve Reading Skills on Engineering Drawings in Class XI Mechanical Engineering Students at SMK Dwiwarna Medan. Thesis. Faculty of Engineering. Medan State University. 2022

The problem in this study is the low ability to read technical drawings in mechanical engineering drawing subjects, even though textbooks have been provided, students still do not understand how to read technical drawings. This study aims to develop a technical drawing exercise book using isometric projection visual-based methods and their effectiveness in class XI students of Dwiwarna Vocational High School (SMK) Medan FY 2021/2022.

This type of research is Research and Development with a 4-D (four-D) model development method, namely: (1) Define, (2) Design, (3) Develop, and (4) Disseminate. (spread). The study was conducted on students of class XI Mechanical Engineering Department at SMK Dwiwarna Medan with a sample of 20 students. The data collection technique used was through observation, questionnaires, learning test documents and validity tests. The data obtained were then analyzed to obtain research conclusions.

The results of research and development of the Mechanical Engineering Drawing Exercise Book based on isometric sketches are as follows: (1) The validity of the learning material aspect is an average of 5 (100%) with a very decent category, on the aspect of learning media with an average value of 4.68 (93.6%)) with a very decent category and learning design with a mean value of 4.38 (87.6%) with a very decent category. (2) The results of the effectiveness test of the difference in the average score of students before the trial were obtained 60.64 and after the trial the average value was 81.82 using the t-test proved this was shown by the t-test results of t count (7.540239431) $>$ t table (2.093024054). Based on this research, it can be concluded that the isometric sketch-based Mechanical Engineering Drawing Exercise Book is declared valid and effective to be used as a technical drawing teaching material to improve technical drawing reading skills.

Keywords: Technical Drawings, Technical Drawing Practice Book, and Ability to Read Technical Drawings.

