

ABSTRAK

Angga Perdana Isodorus Situmorang, NIM. 5213121002, Pengembangan *E-Diagnostic Test* Pada Materi Pembelajaran Pengelasan SMAW Pada Siswa Kelas XI Teknik Pengelasan SMK Negeri 13 Medan. Skripsi, Jurusan Pendidikan Teknik Mesin, Fakultas Teknik, Universitas Negeri Medan.

Penelitian pengembangan ini bertujuan menghasilkan *E-Diagnostic Test* berbasis *Google Form* untuk materi pembelajaran pengelasan *Shielded Metal Arc Welding* (SMAW) pada siswa kelas XI Teknik Pengelasan SMK Negeri 13 Medan. Penelitian ini dilaksanakan menggunakan model 4D (*Define, Design, Develop, Disseminate*), dimana instrumen awal 40 soal pilihan ganda divalidasi ahli media dan materi mencapai 91,38% (sangat baik). Uji coba pada 30 siswa menghasilkan 30 soal valid (*r-pbiserial* tinggi-sangat tinggi), reliabilitas KR-20 = 0,970 (sangat tinggi), daya beda baik-sekali (28 soal), tingkat kesukaran sedang (37 soal). Kepraktisan siswa 92% (sangat praktis), efektivitas N-Gain 0,65 (sedang) dengan peningkatan skor pre-test rata-rata 54,43 menjadi post-test 84,33 (29 siswa tuntas KKM 75). Produk layak digunakan sebagai evaluasi pembelajaran mendeteksi kelemahan siswa secara cepat dan otomatis, mendukung Kurikulum Merdeka di pendidikan kejuruan.

Kata Kunci : *E-Diagnostic Test*, Pengelasan SMAW, Tes Diagnostik, SMK.



ABSTRACT

Angga Perdana Isidorus Situmorang, NIM. 5213121002, *Development of E-Diagnostic Test on SMAW Welding Learning Material for Class XI Welding Engineering Students of SMK Negeri 13 Medan. Thesis, Department of Mechanical Engineering Education, Faculty of Engineering, Universitas Negeri Medan.*

This development research aims to produce a Google Form-based E-Diagnostic Test for Shielded Metal Arc Welding (SMAW) learning materials for class XI Welding Engineering students of SMK Negeri 13 Medan. Using the 4D model (Define, Design, Develop, Disseminate), the initial instrument of 40 multiple-choice questions was validated by media and material experts reaching 91.38% (very good). Trials on 30 students resulted in 30 valid questions (high-very high r -pbiserial), KR-20 reliability = 0.970 (very high), good-very good discrimination power (28 questions), moderate difficulty level (37 questions). Student practicality was 92% (very practical), N-Gain effectiveness was 0.65 (moderate) with an increase in the average pre-test score from 54.43 to 84.33 post-test (29 students completed the KKM 75). The product is suitable for use as a learning evaluation to detect student weaknesses quickly and automatically, supporting the Independent Curriculum in vocational education.

Keywords: *E-Diagnostic Test, SMAW Welding, Diagnostic Test, Vocational School.*

