

**PENGEMBANGAN E-MODUL STATISTIKA BERBASIS VOKASI  
TERINTEGRASI PENDIDIKAN KARAKTER UNTUK MENINGKATKAN  
HASIL BELAJAR SISWA KELAS XII SMK**

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**ABSTRAK**

Matematika mampu melatih siswa berpikir secara logis, rasional dan kritis yang sangat berguna dalam pemecahan masalah. Akan tetapi sebagian siswa SMK menganggap matematika tidak mempunyai kaitan dengan vokasi yang mereka tekuni sehingga minat mereka terhadap pelajaran matematika sangat rendah. Penelitian ini bertujuan mengembangkan e-modul statistika berbasis vokasi terintegrasi pendidikan karakter yang memenuhi persyaratan validitas, kegunaan, dan efektif. Model pengembangan yang digunakan dalam penelitian ini adalah model ADDIE. Implementasi dilaksanakan pada siswa kelas XII SMK Wira Harapan. Kevalidan materi e-modul dinilai oleh tiga orang ahli materi dan tiga orang ahli media menggunakan lembar evaluasi dan diuji dengan tabulasi silang Gregory. Hasil evaluasi yang diperoleh menunjukkan bahwa e-modul memenuhi syarat validitas. Aspek kegunaan dievaluasi dengan memberikan angket kepada siswa dan guru serta lembar observasi. Hasil uji kegunaan menunjukkan e-modul yang dikembangkan memenuhi kriteria baik, baik dari siswa, guru maupun observasi. Skor rata-rata nilai kegunaan oleh siswa sebesar 0,92 berada pada kriteria sangat baik, skor rata-rata nilai kegunaan oleh guru sebesar 0,91 berada pada kriteria sangat baik dan skor rata-rata nilai kegunaan berdasarkan observasi sebesar 0.90 berada pada kriteria sangat baik. Keefektifan e-modul dievaluasi dengan memberikan tes hasil belajar kepada siswa dan dianalisis berdasarkan nilai ketuntasan klasikal sedangkan nilai karakter gotong royong dievaluasi berdasarkan observasi. Nilai ketuntasan klasikal diperoleh 95% dan didukung oleh data kualitatif yaitu: secara keseluruhan siswa mampu mengerjakan soal dengan baik serta siswa saling membantu dalam memecahkan masalah diskusi, sehingga e-modul yang diimplementasikan dikategorikan efektif. Keunggulan e-modul yang dikembangkan ada pada gambar, contoh soal dan bahan diskusi sesuai dengan vokasi praktek siswa SMK yang dapat digunakan siswa untuk belajar mandiri maupun kelompok, baik dalam jaringan maupun luar jaringan. Berdasarkan hasil tersebut disimpulkan bahwa, e-modul statistika berbasis vokasi terintegrasi pendidikan karakter yang dikembangkan sudah memenuhi unsur validitas, kegunaan, dan keefektifan dan dapat digunakan dalam pembelajaran.

***Kata Kunci: E-Modul, Vokasi, Pendidikan Karakter***

**DEVELOPMENT OF VOCATIONAL STATISTICS BASED ON  
INTEGRATED CHARACTER EDUCATION TO IMPROVE LEARNING  
OUTCOME OF STUDENTS OF CLASS XII SMK  
I WAYAN SUMANDYA**

**ABSTRACT**

Mathematics is able to train students to think logically, rationally and critically which is very useful in problem solving. However, some vocational students consider mathematics to be unrelated to the vocational they are engaged in so that their interest in mathematics is very low. This study aims to develop an integrated vocational-based statistical e-module for character education that meets the requirements of validity, usability, and effectiveness. The development model used in this study is the ADDIE model. The implementation was carried out in class XII students of Wira Harapan Vocational School. The validity of the e-module material was assessed by three material experts and three media experts using an evaluation sheet and tested by Gregory cross tabulation. The evaluation results obtained indicate that the e-module meets the validity requirements. The usability aspect was evaluated by giving questionnaires to students and teachers as well as observation sheets. The results of the usability test show that the developed e-module meets good criteria, both from students, teachers and observations. The average score of usability value by students is 0.92 which is in very good criteria, the average score of usability value by teachers is 0.91 is in very good criteria and the average score of usability value based on observations is 0.90 is in very good criteria. good. The effectiveness of the e-module was evaluated by giving a test of learning outcomes to students and analyzed based on classical completeness scores, while the value of the gotong royong character was evaluated based on observation. The classical completeness score is 95% and is supported by qualitative data, namely: overall students are able to work on questions well and students help each other in solving discussion problems, so that the implemented e-modules are categorized as effective. The advantages of the e-module developed are in the pictures, sample questions and discussion materials in accordance with vocational practice for vocational students that can be used by students for independent and group study, both within the network and outside the network. Based on these results, it is concluded that the integrated vocational-based statistical e-module of character education that has been developed has fulfilled the elements of validity, usability, and effectiveness and can be used in learning.

**Keywords:** *E-Module, Vocational, Character Education*