

ABSTRAK

M. Ichsan Putra Samy: Pengembangan Simulator Sistem Rem Sepeda Motor Pada Mata Pelajaran Chasis Sepeda Motor Konsentrasi Keahlian Teknik Sepeda Motor SMK Swasta Mandiri Percut Sei Tuan

Penelitian ini dilatarbelakangi oleh keterbatasan sarana praktik pada mata pelajaran chasis sepeda motor, khususnya materi sistem rem sepeda motor. Pembelajaran yang masih berpusat pada guru dan minimnya alat bantu praktik menyebabkan siswa kurang aktif serta kesulitan memahami pelajaran. Penelitian ini bertujuan untuk: (1) mengembangkan Simulator Sistem Rem Sepeda Motor pada mata pelajaran Chasis Sepeda Motor Siswa Kelas XI Teknik Sepeda Motor SMK Swasta Mandiri Percut Sei Tuan; (2) Menganalisis kelayakan Simulator Sistem Rem Sepeda Motor sebagai media pembelajaran praktik pada Mata Pelajaran Chasis Sepeda Motor Siswa Kelas XI Teknik Sepeda Motor SMK Swasta Mandiri Percut Sei Tuan; serta (3) menganalisis efektifitas penggunaan Simulator Sistem Rem Sepeda Motor Pada Mata Pelajaran Chasis Sepeda Motor Siswa Kelas XI Teknik Sepeda Motor SMK Swasta Mandiri Percut Sei Tuan. Pada penelitian ini, untuk model pengembangan yang digunakan adalah model pengembangan R&D (Research and Development) yang terdiri dari Potensi Dan Masalah Penelitian, Pengumpulan Data, Desain Produk, Validasi Desain, Revisi Desain, Uji Coba Produk dan Uji Coba Pemakaian. Hasil penelitian menghasilkan output berupa sebuah simulator sistem rem sepeda motor yang telah sesuai dengan kebutuhan media dan kompetensi siswa. Pada simulator sistem rem sepeda motor digunakan komponen-komponen sistem rem yang sebenarnya pada sepeda motor yang mencakup tromol depan, tromol belakang, kampas rem depan, kampas rem belakang, selang rem, master rem, tali rem, handle rem, tutup tromol belakang, lengan rem, kaliper rem dan piringan cakram. Berdasarkan penilaian dari ahli materi diperoleh total skor sebesar 100% dengan kriteria “Sangat Layak”. Kemudian penilaian dari ahli media diperoleh total skor sebesar 71,15% dengan kriteria “Layak”. Berdasarkan hasil uji N-Gain didapatkan N-Gain Score sebesar 0,60 dengan klasifikasi “Sedang” dan N-Gain Score (%) sebesar 60,18% dengan tafsiran “Cukup Efektif”. Hasil uji coba kelompok kecil sebanyak 12 orang siswa didapatkan hasil penilaian dari responden memperoleh persentase kelayakan sebesar 86,45% dengan kategori kelayakan “Sangat Layak”. Hasil uji coba kelompok besar dengan 20 orang siswa didapatkan hasil penilaian dari responden memperoleh persentase kelayakan sebesar 89,79% dengan kategori kelayakan “Sangat Layak”. Dari hasil penilaian tersebut, maka dapat ditarik kesimpulan bahwa media pembelajaran yang dikembangkan yaitu simulator sistem rem sepeda motor sangat layak dan cukup efektif digunakan sebagai media pembelajaran pada mata pelajaran chasis sepeda motor materi pelajaran sistem rem sepeda motor.

Kata Kunci : Pengembangan, Simulator, Media Pembelajaran, Chasis, Sistem Rem, Sepeda Motor, Model R&D, Kelayakan, Efektifitas

ABSTRACT

M. Ichsan Putra Samy: Development of a Motorcycle Brake System Simulator in the Motorcycle Chassis Subject for the Motorcycle Engineering Concentration at SMK Swasta Mandiri Percut Sei Tuan

This research is motivated by the limited practical facilities in the motorcycle chassis subject, particularly the motorcycle brake system material. Learning that is still teacher-centered and lacks practical aids causes students to be less active and have difficulty understanding the lessons. This research aims to: (1) develop a Motorcycle Brake System Simulator for the Motorcycle Chassis subject for Class XI Motorcycle Engineering students at SMK Swasta Mandiri Percut Sei Tuan; (2) analyze the feasibility of the Motorcycle Brake System Simulator as a practical learning medium for the Motorcycle Chassis subject for Class XI Motorcycle Engineering students at SMK Swasta Mandiri Percut Sei Tuan; and (3) analyze the effectiveness of using the Motorcycle Brake System Simulator in the Motorcycle Chassis subject for Class XI Motorcycle Engineering students at SMK Swasta Mandiri Percut Sei Tuan. In this research, the development model used is the R&D (Research and Development) model, which consists of Research Potential and Problems, Data Collection, Product Design, Design Validation, Design Revision, Product Testing, and Usage Testing. The research results in an output in the form of a motorcycle brake system simulator that meets the media and student competency needs. The motorcycle brake system simulator uses actual motorcycle brake system components, including the front drum, rear drum, front brake pads, rear brake pads, brake hose, master brake, brake cable, brake handle, rear drum cover, brake lever, brake caliper, and disk brake. Based on the assessment from subject matter experts, a total score of 100% was obtained with the criteria "Very Feasible." Then, the assessment from media experts yielded a total score of 71.15% with the criteria "Feasible." Based on the N-Gain test results, an N-Gain Score of 0.60 was obtained with the classification "Moderate" and an N-Gain Score (%) of 60.18% with the interpretation "Fairly Effective." The results of the small group trial with 12 students showed that the respondents' assessment yielded a feasibility percentage of 86.45% with the feasibility category "Very Feasible." The results of the large group trial with 20 students showed that the respondents' assessment yielded a feasibility percentage of 89.79% with the feasibility category "Very Feasible." From these assessment results, it can be concluded that the developed learning media, namely the motorcycle brake system simulator, is very feasible and fairly effective to be used as a learning media in the motorcycle chassis subject, specifically the motorcycle brake system material.

Keywords: Development, Simulator, Learning Media, Chassis, Brake System, Motorcycle, R&D Model, Feasibility, Effectiveness