PENGEMBANGAN MEDIA PEMBELAJARAN MESIN BAKAR 2 TAK DAN 4 TAK BERBASIS *AUGMENTED REALITY*

TESIS

Diajukan sebagai salah satu syarat untuk memperoleh gelar Magister Pendidikan Teknologi dan Kejuruan

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UNIVERSITAS PENDIDIKAN INDONESIA

2019

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ABSTRAK

Mesin bakar 2 tak dan 4 tak merupakan salah satu mata pelajaran penting di jurusan TKRO. Hasil belajar siswa pada mata pelajaran mesin bakar 2 tak dan 4 tak tergolong rendah disebabkan siswa masih mengalami kesulitan memahami bentuk visual pada materi ini, karena media pembelajaran yang digunakan masih terbatas. Penelitian ini bertujuan untuk mengembangkan media pembelajaran *augmented reality* berbasis *android* sebagai media pembelajaran mesin bakar 2 tak dan 4 tak. Penelitian ini menggunakan metode kualitiatif dan kuantitatiif (mix method) dengan pendekatan deskriptif serta penjaringan data digunakan kuesioner. Proses pengembangan media pembelajaran *augmented reality* menggunakan pendekatan *Analisys, Design, Development, Implementation, and evaluation* (ADDIE). Selanjutnya dilakukan pengujian kelayakan pada aspek *usability* dan penerapan disekolah kepada siswa untuk mengetahui tingkat kemampuan kognitif maupun psikomotorik siswa. Sampel pada penelitian adalah siswa SMK Negeri 1 Kerumutan kelas XI TKRO. Kemampuan kognitif dan psikomotorik siswa mengalami peningkatan serta memperoleh respon positif dari penggunaan media pembelajaran tersebut. Media pembelajaran *augmented reality* berbasis *android* dinyatakan layak dan efektif digunakan untuk mendukung proses pembelajaran mesin bakar 2 tak dan 4 tak di sekolah.

Kata Kunci: media pembelajaran, aplikasi, *augmented reality*, dan *android*

ABSTRAK

Two and four stroke engines are not one of the important subjects in the TKRO department. Student learning outcomes in 2 and 4 combustion engine subjects are not low because students still have difficulty understanding the visual form on this material, because the learning media used is still limited. This study aims to develop an Android-based augmented reality learning media as a 2-stroke and 4-stroke combustion engine learning media. This study uses qualitative and quantitative methods (mix method) with a descriptive approach and data collection using a questionnaire. The process of developing augmented reality learning media uses the Analysis, Design, Development, Implementation, and evaluation (ADDIE) approaches. Furthermore, a feasibility test was conducted on the aspects of usability and application in schools to students to determine the level of cognitive and psychomotor abilities of students. The sample in the study was students of SMK Negeri 1 Kerumutan in class XI TKRO. Students' cognitive and psychomotor abilities have increased and have received positive responses from the use of learning media. Android-based augmented reality learning media is declared feasible and effective to be used to support the learning process of 2 and 4 fuel engines not at school.

Keywords: learning media, applications, augmented reality, and android

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