

**PENGEMBANGAN LABORATORIUM VIRTUAL BERBASIS FLASH  
KOMPETENSI DASAR PENGENALAN KOMPONEN  
MATA PELAJARAN INSTALASI PENERANGAN LISTRIK  
DI SMK MAARIF 1 WATES**

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**ABSTRAK**

Penelitian ini bertujuan untuk mengetahui : (1) model laboratorium virtual instalasi penerangan listrik, (2) kelayakan laboratorium virtual instalasi penerangan listrik, dan (3) respon siswa terhadap penggunaan laboratorium virtual instalasi penerangan listrik dalam mendukung pembelajaran di SMK.

Penelitian ini merupakan jenis penelitian *Research and Development (R&D)* menggunakan model pengembangan penelitian ADDIE. Laboratorium virtual yang dikembangkan merupakan jenis laboratorium virtual 2D berbasis *flash*. Penelitian dilakukan di SMK Maarif 1 Wates dengan responden penelitian yakni 1 guru dan 27 siswa kelas XI Teknik Instalasi Tenaga Listrik. Metode pengumpulan data dilakukan dengan : (1) wawancara, (2) angket dan (3) observasi. Teknik analisis data dilakukan dengan teknik diskriptif kualitatif dan kuantitatif. Instrumen penelitian yang digunakan meliputi : (1) instrumen panduan wawancara, (2) angket, dan (3) observasi. Validasi instrumen dilakukan oleh dosen pembimbing. Validitas produk dilakukan dengan *expert judgement* oleh ahli di lingkungan Balai Pengembangan Multimedia Pendidikan dan Kebudayaan (BPMPK) dan dosen Jurusan Pendidikan Teknik Elektro FT UNY.

Hasil penelitian yang diperoleh berdasar validasi ahli, uji coba, dan observasi menunjukkan : (1) model laboratorium virtual instalasi penerangan listrik yang tepat merupakan laboratorium virtual yang memiliki : peralatan praktikum, berbasis komputer, jaringan komunikasi hardware pendukung, program simulasi, manajemen laboratorium dan pemandu praktikum, (2) tingkat kelayakan laboratorium virtual termasuk dalam kategori sangat layak dengan nilai 76,38 dan hasil uji kelayakan penggunaan produk dengan nilai 91,60, (3) respon siswa terhadap penggunaan laboratorium virtual sangat tinggi, terbukti dari penilaian respon siswa aspek perilaku 9% baik, 86% sangat baik dan 5% kurang baik.

Kata kunci : *research and development*, laboratorium virtual, instalasi penerangan listrik, ADDIE

**DEVELOPMENT OF VIRTUAL LABORATORY BASED ON FLASH  
BASIC COMPETENCE COMPONENTS INTRODUCTION OF  
ELECTRICAL LIGHTING INSTALLATION IN MAARIF 1 WATES  
VOCATIONAL HIGH SCHOOL**

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**ABSTRACT**

*This research aims to find out : (1) the model of virtual laboratory of electric lighting installations, (2) the feasibility level of the virtual laboratory of electric lighting installations, and (3) the response of students as virtual laboratory users of electric lighting installations in supporting learning process in vocational high school.*

*This research is Research and Development (R&D) research using the ADDIE research development model. The virtual laboratory developed is a 2D virtual laboratory based on flash. The research is conducted at Maarif 1 Wates Vocational High School with research respondents of 1 teacher and 27 students of class XI Electricity Installation Engineering. The method of data collection is done by: (1) interviews, (2) questionnaires, and (3) observations. The data analysis technique is performed using qualitative and quantitative descriptive techniques. The research used instruments are : (1) interview guide instruments, (2) questionnaires, and (3) observation guide instruments. Instrument validation is done by the supervisor. Product validity test is done by expert judgment by experts in Multimedia Education and Culture Development Center (BPMPK) and lecturer in Electrical Engineering Education Department FT UNY.*

*The results of research based on expert validation, trials, and observations obtained show that : (1) the virtual laboratory model of electric lighting installation would be good if the virtual laboratory had : practicum utilities, computer based, hardware network, simulation program, laboratorium management and practicum guide, (2 ) the feasibility level of virtual laboratory of electric lighting installation categorized as very good based on the results of product feasibility test with an average value of 76.38 from value of 100 and the results of the feasibility test of product use with an average value of 91.60 from value of 100, and (3) the response of students to virtual laboratory use are very high, it was evident from assesment of student response in behavior aspect informs that 9% of students was good, 86% of students was very good and 5% was not good.*

*Keywords: research and development, virtual laboratory, electric lighting installation, ADDIE*