

**PENGEMBANGAN PROGRAM *E-TRAINING* FISIKA  
UNTUK MENINGKATKAN KEMAMPUAN MEMAHAMI DAN  
MENGANALISIS GURU SEKOLAH MENENGAH KEJURUAN (SMK)**

**ABSTRAK**

Penelitian ini bertujuan mengembangkan Program *e-Training* Fisika untuk meningkatkan kemampuan memahami dan menganalisis guru-guru fisika Sekolah Menengah Kejuruan (SMK). Fakta lapangan menunjukkan ada kendala dalam pelaksanaan diklat konvensional sehingga perlu dilakukan inovasi dengan diklat berbantuan TIK agar kendala-kendala tersebut dapat diatasi. Penelitian menggunakan metode campuran (*mixed methods*) dengan desain *embedded experimental model* terdiri dari 3 tahap yaitu: (1) tahap studi pendahuluan, (2) tahap perancangan program, (3) tahap pengembangan program. Subyek penelitian pada ujicoba terbatas adalah 5 guru di Kabupaten Bandung dan Kota Cimahi, kemudian dilakukan perbaikan dan validasi ahli. Ujicoba luas dilakukan di PPPPTK BMTI Bandung dengan subyek 12 guru yang tergabung dalam wadah Musyawarah Guru Mata Pelajaran (MGMP) Fisika Kota Bandung. Hasil tahap perancangan meliputi bagan tahapan diklat, struktur program, dan panduan diklat, *storyboard*, *courselab* materi ajar, lembar kerja guru (LKG). Temuan dari penelitian ini adalah Program *e-Training* Fisika mampu meningkatkan kemampuan memahami dan menganalisis pada materi rangkaian listrik arus searah dan sifat mekanik bahan, yang berdasarkan hasil survey merupakan dua materi ajar yang tergolong sulit untuk dipahami para guru fisika SMK. Peningkatan kemampuan memahami dan kemampuan menganalisis ditentukan dengan menghitung rata-rata skor gain yang dinormalisasi,  $\langle g \rangle$ , berdasarkan data rata-rata skor tes awal dan tes akhir kedua kemampuan tersebut. Hasil implementasi program *e-Training* dalam kegiatan diklat konten fisika menunjukkan bahwa program ini dapat meningkatkan kemampuan memahami dan kemampuan menganalisis guru-guru fisika SMK terkait materi ajar Rangkaian Listrik Arus Searah dan Sifat Mekanik Bahan dengan kategori peningkatan sedang dan tinggi. Program diklat ini mendapat respon positif dari peserta, mereka merasa bahwa program *e-Training* yang dikembangkan dapat meningkatkan kemampuan memahami dan menganalisis terkait kedua materi ajar tersebut.

Kata kunci: Program *e-Training*, Kemampuan Memahami, Kemampuan Menganalisis, guru fisika SMK

**DEVELOPMENT OF PHYSICS E-TRAINING PROGRAM  
TO IMPROVE UNDERSTANDING AND ANALYZING ABILITY  
OF VOCATIONAL HIGH SCHOOL TEACHER (SMK)**

**ABSTRACT**

*The aim of this study is to develop physics e-training program to improve the understanding and analyzing ability of physics teachers of vocational schools (SMK). Facts showed there are constraints to the implementation of conventional training that needs to be innovation with ICT training so that these constraints can be overcome. The study employed a mixed-methods with embedded experimental design consists of three phases: (1) the stage of preliminary studies, (2) the stage of design phase of the program, (3) the stage of program development. The sample of the study in limited trials are 5 teachers in Bandung and Cimahi, and then do revision and expert validation. Extensive trials was conducted at PPPPTK BMTI Bandung with the sample is 12 teachers who are members of Musyawarah Guru Mata Pelajaran (MGMP) of Physics of Bandung. The results of the design stage include training phase diagram, the structure of the program, and training guide, storyboards, courselab teaching materials, worksheets teachers (LKG). The findings of this research are Physics e-Training Programs improved understanding and analyzing ability of direct current electric circuits and mechanical properties of materials. Physics e-Training Program developed including Direct Current Electric Circuits and Mechanical Properties of Materials which is based on the results of the survey are the two teaching materials are quite difficult to understand the physics teachers of SMK. The improvement of understanding ability (KM) and the analyzing ability (KA) is determined by calculating the average score normalized gain,  $\langle g \rangle$ , based on average data initial test scores and final test both these capabilities. The results of the e-training program implementations show that this program improving of understanding and analyzing ability of teachers of Direct Current Electric Circuits and Mechanical Properties of Materials in medium and high categories. This training program received a positive response from the participants, they feel that e-training programs improving understanding and analyzing ability.*

*Keywords: e-Training Program, Understanding Ability, Analyzing Ability, Vocational School Physics Teacher*