

ABSTRACT

Raimon Efendi, 2019. *Development of Competency Based E-Learning (CBE) Model on Computer Network Course.*

The research was based on preliminary studies and needs analysis conducted on Computer Network Courses, which was found the problems in the learning computer networks was not optimal. These were caused by several factors, among others, the model and learning strategy were not appropriate and have not been implemented by the concept of student centered learning. A need analysis was also found the existence of the personality/needs of lecturers and students who have high expectations of the learning process to improve the competencies of the 21st century, among others critical thinking, communication, collaboration, and creativity. This study was aimed at producing a Competency Based E-learning (CBE) learning model on Computer Network courses in higher education that were valid, practice and effective.

Type of the research was a Research and Development (R and D), and the development methods and procedures used the ADDIE model with five stages are Analysis, Design, Development, Implementation and Evaluation. The analysis technique uses the Aiken'V test, and the validity uses expert testing and Focus Group Discussion (FGD). The practicality test was carried out by applying the product to students in form of a product practicality questionnaire and to test the effectiveness of the product using experimental and control classes.

The findings of this research were a Competency Based E-learning (CBE) model on Computer Networks in Higher Education, which was equipped with a Model Book, a Teaching Module, Learning Manuals and e-Learning Media. The model and support system met the validity criteria which suitable for using according to experts. Model and Modul development met practicality criteria with practical values according to lecturers and students. The results of the effectiveness test show that the activities and learning outcomes are significantly improved by using the CBE Experimental class compared to the control class. The ability of critical thinking, communication, collaboration and creativity (4C) have significantly developed. The results of this study can be used by lecturers, students and learning designers. The implication of this study was that the Competency Based E-learning (CBE) model have been able to optimized the learning process in the Computer Network courses in Higher Education. Based on the findings, it can be be concluded that the new development model has significantly improve the students learning

Keywords: *Instructional Model, Research and Development, Competency Based E-Learning, Computer Network.*

ABSTRAK

Raimon Efendi, 2019. Pengembangan Model *Competency Based E-learning* (CBE) pada Mata Kuliah Jaringan Komputer. Disertasi Pascasarjana Fakultas Teknik Universitas Negeri Padang.

Penelitian ini didasarkan kepada studi pendahuluan dan analisis kebutuhan (*need analysis*) yang dilakukan pada Mata Kuliah Jaringan Komputer, ditemukan permasalahan bahwa pembelajaran jaringan komputer belum optimal dan belum bersinergi dengan perkembangan teknologi. Hal ini disebabkan oleh beberapa faktor antara lain model dan strategi pembelajaran belum tepat dan belum terlaksana konsep belajar mahasiswa aktif (*student centre learning*). Analisis kebutuhan juga menemukan adanya prioritas/kebutuhan dosen dan mahasiswa yang memiliki ekspektasi tinggi terhadap proses pembelajaran yang mampu meningkatkan kompetensi abad ke-21 (4C). Penelitian ini bertujuan untuk menghasilkan model pembelajaran *Competency Based E-learning* (CBE) pada mata kuliah jaringan komputer di pendidikan tinggi yang valid, praktis dan efektif.

Jenis Penelitian ini adalah Penelitian dan Pengembangan (*Research and Development*), metode dan prosedur pengembangan yang digunakan merujuk pada model ADDIE dengan lima tahapan yaitu *analysis, design, development, implementation* dan *evaluation*. Teknik analisis menggunakan uji Aiken'V, dan validitas menggunakan uji pakar dan *Focus Group Discussion* (FGD). Uji kepraktisan dan efektivitas dilakukan dengan menerapkan produk ke mahasiswa dengan menggunakan kelas eksperimen dan kelas kontrol.

Temuan penelitian adalah sebuah model *Competency Based E-learning* (CBE) pada pembelajaran Jaringan Komputer di Pendidikan Tinggi. Model dan sistem pendukung memenuhi kriteria validitas dan layak digunakan menurut para pakar. Model dan produk pengembangan memenuhi kriteria praktikalitas dengan nilai praktis menurut dosen dan mahasiswa. Hasil uji efektifitas menunjukkan bahwa aktifitas dan hasil belajar mahasiswa lebih unggul menggunakan model CBE (kelas eksperimen) dibandingkan dengan model konvensional (kelas kontrol). Kemampuan *critical thinking, communication, collaboration* dan *creativity* (4C) berkembang dengan baik. Hasil penelitian ini dapat digunakan oleh dosen, mahasiswa dan perancang pembelajaran dalam mengembangkan atau merealisasikan proses pembelajaran dengan penggunaan teknologi *e-learning* yang mampu mengoptimalkan peran peserta didik untuk kreatif dan inovatif dalam membangun pengetahuan dan kompetensi mahasiswa dalam proses pembelajaran. Implikasi penelitian yang dikembangkan mampu mengoptimalkan proses pembelajaran pada mata kuliah Jaringan Komputer di Pendidikan Tinggi.

Kata Kunci: Instruksional Model, R dan D. *Competency Based E-learning*, Jaringan Komputer.