ABSTRACT

Nurliana Nasution, 2019. ***Developing Blended Learning Model for Simulation Engineering Course.***

This research is based on the lack optimalization of student' interaction in the classroom which results in the lack of learning outcomes in the Simulation Engineering Course caused by limited learning time. Developing a learning model is aimed to enhancing student learning interactions through NNST blended learning that combines face-to-face and online-based learning. This research aims developing a NNST blended learning model for Simulation Engineering Course in a valid, practical and effective way.

This research applied the Research and Development (R&D) method using the development model of Borg and Gall. The research subjects were the seventh semester students from Information System Department in 2018/2019 academic year as many as 25 people in each control group and experimental group. The data collection instruments are objective test, likert scale questionnaire, and observation sheet. The data analysis utilized the V Aiken calculation to validate the products and percentages which were then used to analyze the practicality and effectiveness of the products. The hypothesis testing for the effectiveness was carried out by using the analysis of the independent sample t-test.

The research results indicated that NNST Blended Learning Model for Simulation Engineering Course has been developed with a syntax arrangement that combines face-to-face and online learning with a composition of 50%:50% consisting of six phases. The development of this model is supported by book product of Blended Learning Model, Simulation Engineering module, Blended Learning manual for Simulation Engineering learning, student Blended Learning manual, and E-Learning website. The results of the product validity analysis stated that all products are valid in all aspects and sub-aspects of the assessment. The products have very high practicality and effectiveness in influencing the learning outcomes in the cognitive, affective, and psychomotor domains. Based on the analysis, it is concluded that NNST blended learning model has a tested validity, practicality and effectiveness so that it is suitable for use in Simulation Engineering Course and in other courses. The implication of this research improve the students' motivation and learning.

Keywords: *NNST Blended Learning, Research and Development, Borg and Gall Model, Simulation Engineering Learning.*

ABSTRAK

Nurliana Nasution, 2019. Pengembangan Model *Blended Learning* Mata Kuliah Teknik Simulasi. Disertasi Pascasarjana Fakultas Teknik Universitas Negeri Padang.

Penelitian ini didasari oleh kurang optimalnya interaksi mahasiswa di dalam kelas yang mengakibatkan hasil belajar Teknik Simulasi belum optimal karena keterbatasan waktu pembelajaran. Pengembangan model pembelajaran untuk meningkatkan interaksi belajar mahasiswa melalui pembelajaran *blended learning* NNST dengan menggabungkan pembelajaran berbasis tatap muka (*face to face*) dan daring (*online*). Penelitian ini bertujuan mengembangkan sebuah model *blended learning* NNST mata kuliah Teknik Simulasi yang valid, praktis dan efektif.

Metode yang digunakan adalah *Research and Development* (R&D) dengan model pengembangan Borg and Gall. Subjek penelitian mahasiswa Jurusan Sistem Informasi semester 7 pada tahun ajaran 2018/2019 sebanyak masing-masing 25 orang pada kelompok kontrol dan eksperimen. Instrumen pengumpul data menggunakan tes objektif, kuesioner berskala *likert* dan lembar observasi. Analisis validitas data menggunakan perhitungan V-Aiken untuk validasi produk, teknik persentase digunakan untuk analisis praktikalitas dan efektivitas. Uji hipotesis pada efektivitas menggunakan analisis *independent sample t test*.

Hasil penelitian ini menunjukkan bahwa model *blended learning* NNST mata kuliah Teknik Simulasi telah dikembangkan dengan susunan *syntax* yang menggabungkan pembelajaran tatap muka (*face to face*) dan pembelajaran daring (*online*) dengan komposisi 50%:50% yang terdiri dari enam fase. Pengembangan model didukung dengan produk buku model *blended learning*, modul Teknik Simulasi, buku panduan pembelajaran Teknik Simulasi *blended learning*, buku panduan *blended learning*, dan *website E-Learning.* Hasil analisis validitas produk menyatakan semua produk telah valid pada seluruh aspek dan sub aspek penilaian. Produk memiliki praktikalitas yang sangat tinggi dan memiliki keefektifan dalam mempengaruhi hasil belajar pada ranah kognitif, afektif dan psikomotor. Berdasarkan analisis dapat disimpulkan bahwa model *blended learning* NNST memiliki validitas, praktikalitas dan efektivitas yang telah teruji sehingga layak digunakan pada mata kuliah Teknik Simulasi dan pada mata kuliah lainnya. Implikasi dari penelitian ini meningkatkan motivasi dan cara belajar mahasiswa.

Kata kunci: *Blended Learning* NNST, *Research and Development*, Borg and Gall, Model Pembelajaran Teknik Simulasi.