

## ABSTRAK

**HERU CHRISTIANTO.** Analisis dan Pengembangan Penuntun Praktikum Interaktif Berbasis Multimedia untuk Materi Kimia Larutan di SMA. Program Pascasarjana Universitas Negeri Medan, 2016.

Tujuan penelitian ini adalah untuk memperoleh penuntun praktikum Interaktif Berbasis Multimedia (IBM) yang standar untuk siswa kelas XI SMA semester II pada materi kimia larutan. Populasi dalam penelitian ini adalah penuntun praktikum kimia SMA yang beredar di sekolah, seluruh guru kimia di SMA se-Sumatera Utara, seluruh dosen kimia di Universitas Negeri Medan dan seluruh siswa kelas XI di SMAN 5 Medan. Sampel penelitian diambil secara *purposive sampling*. Penelitian bersifat deskriptif dan pengembangan eksperimen (*research and development*). Langkah penelitian meliputi: (a) Analisis penuntun praktikum yang dipergunakan di kelas XI semester II; (b) Pengembangan penuntun praktikum IBM untuk materi kimia larutan di SMA; (c) Validasi penuntun praktikum IBM oleh guru dan dosen; dan (d) Uji coba penggunaan penuntun praktikum IBM dalam pembelajaran praktikum. Hasil penelitian menunjukkan bahwa penuntun praktikum IBM yang telah dikembangkan untuk siswa kelas XI SMA semester II pada materi kimia larutan telah layak/ standar sesuai dengan BSNP. Penuntun praktikum IBM untuk materi kimia larutan terdiri dari percobaan indikator asam basa, indikator alami, titrasi asam basa, hidrolisis garam, dan larutan penyangga/ buffer. Standarisasi penuntun praktikum IBM menunjukkan bahwa responden memberikan respon positif terhadap penuntun praktikum IBM dengan nilai rata-rata standarisasi 4,40 lebih tinggi dibandingkan nilai rata-rata standarisasi penuntun praktikum yang ada di sekolah (penuntun praktikum A = 3,81 dan penuntun praktikum B = 3,75). Implementasi penuntun praktikum IBM yang dikembangkan memberikan hasil belajar kognitif yang lebih tinggi kepada siswa kelas eksperimen-1 dibandingkan dengan hasil belajar kognitif siswa kelas eksperimen-2. Persen peningkatan hasil belajar kelas eksperimen-1 sebesar 74% dengan kategori tinggi, sedangkan kelas eksperimen-2 sebesar 65% dengan kategori sedang. Hasil uji coba juga menunjukkan ada pengaruh afektif dan psikomotor terhadap hasil belajar kognitif siswa secara parsial dan simultan. Kontribusi atau pengaruh afektif dan psikomotor terhadap hasil belajar kognitif siswa sebesar 43,7%. Pengaruh motivasi belajar siswa terhadap hasil belajar melalui pembelajaran praktikum menggunakan penuntun praktikum IBM yang dikembangkan lebih tinggi ( $R^2 = 0,610$ ) dengan kriteria kuat dibandingkan dengan pengaruh motivasi belajar siswa terhadap hasil belajar melalui pembelajaran praktikum menggunakan penuntun praktikum yang ada di sekolah ( $R^2 = 0,077$ ) dengan kriteria rendah.

**Kata Kunci:** *Penuntun Praktikum, Interaktif, Multimedia, Kognitif, Afektif, Psikomotor, Kimia Larutan*

## ABSTRACT

**HERU CHRISTIANTO.** Analysis and Development of Interactive Based Multimedia Practical Guide for Chemical Solution Topic in High School. Postgraduate Program of the State University of Medan, 2016.

The objective of this research was to obtain an Interactive Based Multimedia (IBM) practical guide standard for high school students of eleventh grade in the second semester for chemical solution topic. The population in this research is the chemical practical guide of outstanding at the school, all of chemistry teacher at high school in North Sumatera, all of chemistry lecturer at the State University of Medan and all of eleventh grade students of SMAN 5 Medan. Samples were taken by purposive sampling. This research was conducted by using descriptive and experimental development (research and development). The procedure of this research were: (a) Analysis of practical guides that are used at eleventh grade students in second semester; (b) Development of an IBM practical guide for chemical solution topic in high school; (c) Validation of IBM practical guide by teachers and lecturers; and (d) Trial use IBM practical guide in practical learning. The results show that the IBM practical guide that have been developed for eleventh grade students in the second semester for chemical solution topic has a decent or standards in accordance with BSNP (National Education Standards). IBM practical guide for chemical solution consists of acid-base indicator experiment, an indicator of natural experiment, acid-base titration experiment, hydrolysis of salt experiment, and a buffer solution experiment. Standardization of IBM practical guide showed that respondents gave a positive response to the IBM practical guide with the average value of standardization 4,40 higher than the average value of standardization of practical guide in school (practical guide A = 3,81 and practical guide B = 3,75). The implementation of IBM practical guide provided the cognitive learning was higher to student experimental class-1 compared than results of students cognitive learning experimental class-2. The percentage of increase learning outcomes experimental class-1 was 74% with the high category, while the experimental class-2 was 65% in the medium category. The trial results also showed that influence on the affective and psychomotor learning outcomes of students cognitive partially and simultaneously. Contribute or influence affective and psychomotor for cognitive learning outcomes of students was 43,7%. The influence of students motivation for learning outcomes by practical learning using IBM practical guide was higher ( $R^2 = 0,610$ ) with strong category compared than the influence of students motivation for learning outcomes by practical learning using practical guide in school ( $R^2 = 0,077$ ) with low category.

**Keywords:** *Practical Guide, Interactive, Multimedia, Cognitive, Affective, Psychomotor, Chemical Solution*