

ABSTRAK

**PENGEMBANGAN LABORATORIUM VIRTUAL ELEKTROLISIS
BERBASIS WEB UNTUK MENDIAGNOSIS KETERAMPILAN
PROSEDURAL PESERTA DIDIK**

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Keterbatasan alat, bahan, dan waktu eksperimen, serta sistem pembelajaran daring selama pandemi Covid-19 menyebabkan eksperimen luring di SMA Pangudi Luhur Sedayu tidak dapat dilaksanakan. Oleh karena itu, perlu dikembangkan laboratorium virtual berbasis *web*, salah satunya pada topik elektrolisis untuk menunjang keterampilan prosedural peserta didik. Tujuan penelitian ini adalah menghasilkan produk berupa laboratorium virtual elektrolisis berbasis *web*; mengetahui validitas, kepraktisan, serta efektivitasnya; dan mendeskripsikan hasil diagnosis keterampilan prosedural. Penelitian ini merupakan *Research and Development* dengan model pengembangan Borg dan Gall (1983). Produk dan instrumen penelitian berupa angket uji keterbacaan produk, butir soal *pretest* dan *posttest*, soal evaluasi dalam produk, lembar observasi keterampilan prosedural, dan angket respon divalidasi oleh Ahli Media, Ahli Materi, dan Guru Kimia. Uji keterbacaan produk melibatkan tiga orang peserta didik. Uji coba lapangan dilakukan pada salah satu kelas XII MIPA yang berjumlah 36 peserta didik. Analisis data dilakukan menggunakan statistik Aiken's V, program SPSS 26.0, model *Rasch*, dan deskriptif. Hasil penelitian menunjukkan bahwa: (1) produk cocok dikembangkan dengan model Borg and Gall (1983) karena tahapannya yang sistematis dan detail; (2) produk telah memenuhi kriteria sangat valid dengan rata-rata skor 92,71%; kriteria sangat praktis dengan rata-rata skor 85,83%; dan kriteria sangat efektif dengan rata-rata skor 94,44%; dan (3) keterampilan prosedural peserta didik selama eksperimen virtual menggunakan produk dikelompokkan ke dalam tiga kriteria yaitu sangat baik (30 orang), cukup (4 orang), dan kurang (2 orang). Produk dapat digunakan untuk menunjang eksperimen virtual elektrolisis di SMA.

Kata kunci: laboratorium virtual, elektrolisis, keterampilan prosedural

ABSTRACT**DEVELOPMENT OF WEB-BASED ELECTROLYSIS VIRTUAL
LABORATORY TO DIAGNOSE STUDENTS'
PROCEDURAL SKILL**

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Due to Covid-19 pandemic, limited experiment time, materials, and tools, chemistry offline experiments at SMA Pangudi Luhur Sedayu cannot be carried out. Therefore, it is necessary to develop web-based virtual laboratory, one of which is on the topic of electrolysis to support students' procedural skills. The purpose of this research is to create product in the form of web-based virtual electrolysis laboratory; to measure its validity, practicality, and effectiveness; and describe the diagnostic results of procedural skills. This study is Research and Development with model of Borg and Gall (1983). Product and research instruments in the form of product readability test questionnaire, pretest and posttest items, product evaluation questions, procedural skills observation sheet, and response questionnaire were validated by Media Expert, Chemistry Expert, and Chemistry Teachers. The product readability test was carried out by three students. Field trial was carried out in one of the XII MIPA classes, totaling 36 students. Data analysis were performed using Aiken's V statistics, SPSS 26.0 program, Rasch model, and descriptive. The results showed that: (1) the development model of Borg and Gall (1983) is suitable for developing products that have systematic and detail stages; (2) the product has fulfilled very valid criteria with average score of 92.71%, the criteria are very practical with average score of 85.83%, and the criteria are very effective with average score of 94.44%; and (3) the students' procedural skills were grouped into three criteria, namely very good (30 students), quite good (4 students), and poor (2 students). The product can be used to support virtual electrolysis experiment at senior high school.

Keywords: *virtual laboratory, electrolysis, procedural skill*