PENGEMBANGAN *E-MODUL* BERBASIS TEORI APOS UNTUK MENINGKATKAN KEFASIHAN PROSEDURAL SISWA KELAS IV SD NEGERI 5 UBUD

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui rancang bangun, kelayakan, serta efektivitas dari media pembelajaran *E-modul* berbasis Teori APOS khususnya pada pembelajaran matematika materi pola gambar dan pola bilangan siswa kelas IV SD. Subjek penelitian pengembangan *E-modul* berbasis Teori APOS ini melibatkan 24 siswa kelas IV SD Negeri 5 Ubud. Penelitian ini menggunakan model pengembangan ADDIE (*Analyze, Design, Development, Implementation, Evaluation*). Metode penggumpulan data yang digunakan terdiri dari observasi, wawancara, angket, dan tes. Teknik analisis data yang digunakan adalah analisis deskriptif kualitatif, deskriptif kuantitaif serta statistik inferensial. Hasil penelitian ini berupa produk *E-modul* berbasis Teori APOS dengan kualifikasi produk sangat baik serta efektif digunakan dalam proses pembelajaran matematika materi pola gambar dan pola bilangan. Berdasarkan hasil penilaian menurut ahli isi/materi pembelajaran memperoleh skor sebesar 100% dengan kualifikasi sangat baik, ahli desain instruksional memperoleh skor sebesar 83,3% dengan kualifikasi baik, ahli media pembelajaran memperoleh skor sebesar 86,7% dengan kualifikasi baik, uji coba perorangan yang melibatkan tiga siswa kelas IV memperoleh skor sebesar 91,7% kualifikasi sangat baik, uji coba kelompok kecil yang melibatkan sembilan siswa kelas IV memperoleh skor sebesar 91,9% dengan kualifikasi sangat baikdengan rata-rata keseluruhan mencapai 90,72% berkualifikasi sangat baik. Berdasarkan uji efektivitas yang melibatkan 24 siswa kelas IV memperoleh hasil t_{hitung} sebesar 17,044 dan t_{tabel} pada taraf signifikan 5% dengan dk= 23 sebesar 2,069, maka dinayatakan H_0 ditolak dan H_1 diterima yaitu terdapat perbedaan hasil belajar yang signifikan antara sebelum dan sesudah menggunakan produk *E-modul* berbasis Teori APOS. Berdasarkan hal tersebut maka disimpulkan bahwa *E-modul* berbasis Teori APOS layak dan efektif digunakan pada pembelajaran matematika materi pola gambar dan pola bilangan IV SD Negeri 5 Ubud.

Kata Kunci: Pengembangan, *E-modul*, Teori APOS, Kefasihan Prosedural

DEVELOPMENT OF E-MODULE BASED ON APOS THEORY TO IMPROVE PROCEDURAL FLUENCY OF GRADE IV STUDENTS OF ELEMENTARY SCHOOL 5 UBUD

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ABSTRACK

This study aims to determine the design, feasibility, and effectiveness of the E-module learning media based on APOS Theory, especially in learning mathematics on picture pattern and number pattern material for fourth grade elementary school students. The subjects of the APOS Theory-based E-module development research involved 24 fourth grade students of SD Negeri 5 Ubud. This study uses the ADDIE (Analyze, Design, Development, Implementation, Evaluation) development model. The data collection methods used consist of observation, interviews, questionnaires, and tests. The data analysis techniques used are qualitative descriptive analysis, quantitative descriptive analysis, and inferential statistics. The results of this study are in the form of an E-module product based on APOS Theory with very good product qualifications and are effective for use in the process of learning mathematics on picture pattern and number pattern material. Based on the assessment results according to the content/learning material expert, the score was 100% with very good qualifications, the instructional design expert scored 83.3% with good qualifications, the learning media expert scored 86.7% with good qualifications, individual trials involving three fourth-grade students scored 91.7% with very good qualifications, small group trials involving nine fourth-grade students scored 91.9% with very good qualifications with an overall average reaching 90.72% with very good qualifications. Based on the effectiveness test involving 24 fourth-grade students, the t-test results were 17.044 and the t-table at a significance level of 5% with dk = 23 was 2.069, so it was stated that H0 was rejected and H1 was accepted, namely there was a significant difference in learning outcomes between before and after using the APOS Theory-based E-module product. Based on this, it is concluded that the APOS Theory-based E-module is feasible and effective for use in learning mathematics on picture pattern and number pattern material IV at SD Negeri 5 Ubud.

Keywords: Development, E-module, APOS Theory, Procedural Fluency