Abstraks

Andreas Ricky Proklamanto. 2013. *Rancangan dan Pengembangan Modul Elektronik Materi Turunan Fungsi dengan Program Geogebra*. **Program Studi Pendidikan Matematika, Jurusan Pendidikan Matematika dan Ilmu Pengeatahuan Alam, Fakultas Keguruan dan Ilmu Pengetahuan, Universitas Sanata Dharma.**

Penelitian ini bertujuan untuk menghasilkan elektronik modul matematika dengan pendekatan konstruktivisme sebagai perangkat pembelajaran siswa kelas XI IPA 5 SMA Kolese de Britto tahun ajaran 2012/2013 pada materi Tafsiran Geometris Turunan Fungsi. Elektronik modul ini menggunakan *software Geogebra* dan dikemas secara *website offline*.

Langkah-langkah penelitian pengembangan ini menggunakan model *ADDIE*, *Analysis*, *Design*, *Development*, *Implementation*, dan *Evaluation*. *Analysis* (analisis) adalah analisis awal sebelum dilakukan pengembangan, mulai dari analisis awal, analisis kurikulum, dan analisis situasi, dilanjutkan dengan *design* (perancangan), adalah menyusun dan mengumpulkan materi, membuat desain. Kemudian *development* (pengembangan) melakukan pengembangan produk dari desain yang sudah dibuat, dan validasi ahli dengan menggunakan instrumen penelitian oleh ahli media dan ahli materi. Setelah divalidasi ahli dilanjutkan dengan pengemasan untuk selanjutnya dilakukan implementasi. Tahap berikutnya implementasi yang diikuti oleh 30 siswa sebagai kelas uji coba lapangan dan pengisian angket kualitas teknis. Ada pula lembar observasi yang diisi oleh 2 guru matematika dan 1 dosen pengamat sebagai penilaian kepraktisan pengguna guru saat pembelajaran. Tahap terakhir adalah evaluasi, dari semua tahapan dan masukan pada saat implementasi dievaluasi dan direvisi kembali, agar mendapat produk akhir.

Penilaian kualitas elektronik modul matematika berdasarkan aspek kevalidan, menunjukkan skor ideal 60,33 untuk aspek pendidikan dan skor ideal 38,50 untuk aspek tampilan, dengan persentase keidealan 80,84% untuk aspek pendidikan menunjukkan nilai **sangat baik**, sedangkan pada aspek tampilan dengan persentase keidealan 77,00% menunjukkan penilaian **baik**. Aspek kualitas teknis dengan pengguna guru matematika memperoleh skor ideal 40 dengan persentase keidealan 88,89% yang menunjukkan penilaian **sangat baik**. Aspek kualitas teknis dengan pengguna siswa memperoleh skor ideal 13,34 dengan persentase keidealan 77,11% yang menunjukkan penilaian **baik**. Pada aspek keefektifan ditunjukkan berdasarkan ketuntasan hasil belajar siswa sebesar 73,34%, berdasarkan pedoman ketuntasan maka dapat disimpulkan tingkat ketuntasannya **tinggi**, sehingga dapat dikatakan **efektif**. Berdasarkan tiga kriteria penilaian kualitas produk menurut Nieveen:(1999), yakni kevalidan, kepraktisan dan keefektifan, maka dapat disimpulkan bahwa elektronik modul yang dikembangkan berhasil dengan memperoleh penilaian **baik.**

Kata kunci: pengembangan elektronik modul matematika, pendekatan konstruktivisme, perangkat pembelajaran, *Geogebra*

Abstract

Andreas Ricky Proklamanto. 2013. *Designing And Developing Of Electronic Module In Derivatif Function Material Using Geogebra Program*. **Mathematics Education Studies Program, Department of Mathematics and Natural Science, Faculty of Teacher of Training and Education, Sanata Dharma University.**

This research aimed to create an electronic mathematics module using constructivism approach as a students' learning device in class XI IPA 5 SMA Kolese de Britto academic year 2012/2013 in subject geometric interpretation derivative function. This electronic module used *GeoGebra* software and offline website.

The development research step used ADDIE model, Analysis, Design, Development, Implementation, and Evaluation. Analysis was a preliminary analysis which was done before doing development, started from the initial analysis, curriculum analysis, and situation analysis, followed by design which prepared and gathered materials, making design. Then, *development was* developing products which had been created and validating the product using research instruments from media specialists and experts. After validation, the step was continued with packaging and implementation. The implementation was done in 30 students as the field trial and filling up technical quality of the questionnaire. There was also observation sheets, which were filled in by two mathematics teachers and a lecturer as an observer, as teacher's practical rating during learning process. The last step was evaluation of all steps and comments during the implementation which were evaluated and revised in order to get the final product.

Electronic quality assessment module, which was based on aspects of mathematical validity, showed ideal score was 60.33 for the educational aspect and 38.50 for the ideal score of display aspect, with ideal percentage 80.84% for the education aspect, it showed **an excellent score,** while the display aspect with an ideal percentage of 77.00% showed **a good score**. Technical quality in which mathematics teacher as a user got an ideal score 40 with an ideal percentage 88.89%, it showed **an excellent score**. Technical quality in which the students as the users got an ideal score ideal score of 13.34 with an ideal percentage 77.11% indicated **a good score**. In effectiveness aspect which was showed during student learning outcomes was 73.34%,it was based on the standard score guidelines, it can be concluded that the level of thoroughness was **high** in other words it was **effective.** According to the three criteria of product quality assessment by Nieveen : (1999), namely validity, practicality and effectiveness, it can be concluded that the electronics module which had been developed could successfully got a **good** score.

Keywords: **mathematics module electronics development, constructivism approach, learning devices,** *GeoGebra*