

ABSTRAK

Paulinus Patigor Gulo, 2022. Pengembangan Multimedia Pembelajaran Berbasis Aktivitas Desmos untuk Meningkatkan Kemampuan Representasi Matematis Siswa Kelas X SMA Negeri 2 Yogyakarta pada Materi Relasi dan Fungsi. Skripsi. Program Studi Pendidikan Matematika, Jurusan Pendidikan Matematika dan Ilmu Pengetahuan Alam, Fakultas Keguruan dan Ilmu Pendidikan. Universitas Sanata Dharma.

Kemampuan representasi matematis siswa kelas X MIPA 6 SMA Negeri 2 Yogyakarta pada materi relasi dan fungsi masih perlu ditingkatkan. Disisi lain, proses pembelajaran matematika kurang memaksimalkan penggunaan media. Siswa kelas X MIPA 6 SMA Negeri 2 Yogyakarta membutuhkan media yang memfasilitasi kemampuan representasi matematis dan mendukung pembelajaran matematika baik secara *online* maupun *offline*. Oleh karena itu, peneliti mengembangkan multimedia pembelajaran berbasis aktivitas desmos. Tujuan dari penelitian meliputi: 1) proses pengembangan; dan 2) kelayakan produk yang meliputi kevalidan, keefektifan, dan kepraktisan multimedia pembelajaran berbasis aktivitas desmos.

Jenis penelitian yang dilakukan adalah penelitian pengembangan dengan model pengembangan ADDIE. Subjek dalam penelitian yaitu 20 siswa kelas X MIPA 6 SMA Negeri 2 Yogyakarta tahun ajaran 2021/2022. Objek dalam penelitian ini adalah proses pengembangan dan kelayakan multimedia pembelajaran berbasis aktivitas desmos untuk meningkatkan kemampuan representasi matematis siswa SMA Negeri 2 Yogyakarta materi relasi dan fungsi. Data penelitian meliputi hasil validasi, hasil tes serta tanggapan guru dan peserta didik dari kuesioner terkait penggunaan multimedia pembelajaran berbasis aktivitas desmos. Kelayakan multimedia dalam penelitian diukur berdasarkan tiga aspek yaitu kevalidan, kepraktisan dan keefektifan. Aspek valid dilihat dari hasil validasi

produk dan kuesioner. Aspek efektif dilihat dari nilai tes siswa. Aspek praktis dilihat dari hasil kuesioner guru dan siswa.

Hasil penelitian yang diperoleh adalah: 1) proses pengembangan multimedia pembelajaran berbasis aktivitas desmos menggunakan model pengembangan ADDIE yang melalui 5 tahap yaitu: *Analyze, Design, Development, Implementation* dan *Evaluation*. 2) produk multimedia pembelajaran berbasis aktivitas desmos layak digunakan sebagai multimedia pembelajaran. Diperoleh tingkat kevalidan berdasarkan penilaian validator masuk dalam kategori sangat valid dengan rerata penilaian oleh ahli media sebesar 94,16% dan rerata penilaian oleh ahli materi sebesar 98%. Tingkat keefektifan mencapai kategori efektif dengan presentase siswa tuntas sama dengan 80% dari total siswa. Kemudian tingkat kepraktisan masuk dalam kriteria praktis dengan rerata 78,125%.

Kata kunci: Multimedia Pembelajaran, Aktivitas Desmos, Pengembangan, Kelayakan.



ABSTRACT

Paulinus Patigor Gulo, 2022. The Development of Desmos Activity-Based Learning Multimedia to Improve Students' Mathematical Representation Ability of Class X of SMA Negeri 2 Yogyakarta on The Relation and Function Materials. Essay. Mathematics Education Study Program, Department of Mathematics Education and Natural Sciences, Faculty of Teacher Training and Education. Sanata Dharma University.

The mathematical representation ability of students of class X MIPA 6 SMA Negeri 2 Yogyakarta in relation and function material still needs to be improved. On the other hand, the mathematics learning process does not maximize the use of media. Students of class X MIPA 6 SMA Negeri 2 Yogyakarta need media that facilitate mathematical representation skills and support learning mathematics both online and offline. Therefore, researchers developed a learning multimedia based on Desmos activities. This study aims to determine: 1) the development process; and 2) product feasibility which includes the validity, effectiveness, and practicality of desmos activity-based learning multimedia.

The type of research carried out is development research with the ADDIE development model. The subjects in the study were 20 students of class X MIPA 6 SMA Negeri 2 Yogyakarta in the 2021/2022 academic year. The object of this research is the development process and feasibility of learning multimedia based on Desmos activities to improve the mathematical representation ability of students at SMA Negeri 2 Yogyakarta in terms of relations and functions. The research data includes validation results, test results and teacher and student responses from questionnaires related to the use of desmos activity-based learning multimedia. The feasibility of multimedia in research is measured based on three aspects, namely validity, practicality and effectiveness. The valid aspect is seen from the results of product validation and questionnaires. The effective aspect is seen from the student's test scores. The practical aspect is seen from the results of the teacher and student questionnaires.

The research results obtained are: 1) the process of developing learning multimedia based on Desmos activities using the ADDIE development model which goes through 5 stages, namely: Analyze, Design, Development, Implementation and Evaluation. 2) Desmos activity-based learning multimedia products are suitable for use as learning multimedia. The validity level obtained based on the validator's assessment is in the very valid category with an average assessment by media experts of 94.16% and an average assessment by material experts of 98%. The level of effectiveness reaches the effective category with the percentage of students completing the same as 80% of the total students. Then the level of practicality is included in the practical criteria with an average of 78.125%.

Keywords: *Learning Multimedia, Desmos Activities, Development, Feasibility.*

