

ABSTRAK

Ade Novita Sari Harahap, NIM. 4193111010 (2023). Pengembangan e-Modul Trigonometri Berbasis *Problem Based Learning* Berbantuan Aplikasi *Flip Pdf* untuk Meningkatkan Kemampuan Berpikir Kritis Siswa Kelas X SMA.

Penelitian ini bertujuan untuk mengembangkan serta menghasilkan produk e-modul trigonometri berbasis *problem based learning* berbantuan aplikasi *flip pdf* yang bersifat valid, praktis, efektif dan dapat meningkatkan kemampuan berpikir kritis siswa kelas X SMA. Penelitian ini menggunakan jenis penelitian dan pengembangan mengacu kepada model pengembangan ADDIE (*Analysis, Desain, Development, Implementation dan Evaluation*). Subjek dalam penelitian ini adalah siswa kelas X PMIA 4 SMA Negeri 4 Pematangsiantar yang berjumlah 36 siswa. Berdasarkan penelitian dan analisis data yang telah dilakukan, hasil penelitian menunjukkan bahwa (1) e-modul trigonometri berbasis *problem based learning* berbantuan aplikasi *flip pdf* yang dikembangkan dalam kategori valid dengan rata-rata penilaian ahli sebesar 3,79; (2) e-modul trigonometri berbasis *problem based learning* berbantuan aplikasi *flip pdf* yang dikembangkan telah memenuhi kategori praktis ditinjau dari persentase keterlaksanaan pembelajaran sebesar 98,4%, rata-rata penilaian pelaksanaan pembelajaran 3,71 serta persentase angket respon siswa terhadap penggunaan e-modul sebesar 86,4%; (3) e-modul trigonometri berbasis *problem based learning* berbantuan aplikasi *flip pdf* yang dikembangkan memenuhi kategori efektif ditinjau dari persentase ketuntasan klasikal sebesar 83,33%. Berdasarkan analisis hasil penelitian diperoleh skor nilai *N-gain* sebesar 0,71, hal ini menunjukkan bahwa terdapat peningkatan kemampuan berpikir kritis siswa setelah digunakannya e-modul trigonometri berbasis *problem based learning* berbantuan aplikasi *flip pdf* dengan kategori tinggi.

Kata Kunci: e-Modul, Trigonometri, *Problem Based Learning*, Flip Pdf, Kemampuan Berpikir Kritis.

ABSTRACT

Ade Novita Sari Harahap, NIM. 4193111010 (2023). Development of a Trigonometry *e*-Module Based on Problem-Based Learning Assisted by the Flip Pdf Application to Improve Critical Thinking Skills of Class X High School Students.

This research aimed to develop and produce trigonometry *e*-module based on problem-based learning assisted by the flip pdf application that are valid, practical, effective and can improve critical thinking skills of class X high school students. This research uses a type of development research with the development model used, namely the ADDIE models (*Analysis, Desain, Development, Implementation, Evaluation*). The subjects in this research were students of class X PMIA 4 SMA Negeri 4 Pematangsiantar with a total of 36 students. Based on the research and data analysis that has been done, the results show that (1) the *e*-module based on problem-based learning assisted by the flip pdf application is in the valid category with an average expert rating of 3,79; (2) the *e*-module based on problem-based learning assisted by the flip pdf application is in the practical category in terms of the percentage of learning implementation of 98,4%, the average assessment of learning implementation is 3,71 and the percentage of student responses to the *e*-module is 86,4%; (3) the *e*-module based on problem-based learning assisted by the flip pdf application is in the effective category in terms of the classical completeness percentage of 83.33%. Based on the analysis of the results of the research, it was obtained that the N-gain score was 0.71, so that there was an increase in students' critical thinking skills after the implementation of the *e*-module based on problem-based learning assisted by the flip pdf application in the high category.

Keywords: *e*-Module, Trigonometry, *Problem Based Learning*, Flip Pdf, Critical Thinking Skills.