

ABSTRAK

Richard Patrosza Sinaga, NIM 4193311042 (2023). Pengembangan Bahan Ajar Matematika Berbasis Masalah dengan Bantuan *Adobe Flash CS6 Profesional* untuk Meningkatkan Kemampuan Penalaran Matematika Siswa Kelas XI SMA.

Penelitian ini bertujuan untuk menghasilkan bahan ajar matematika yang valid, praktis, dan efektif, sekaligus untuk mengevaluasi peningkatan kemampuan penalaran matematika siswa setelah menggunakan bahan ajar tersebut. Instrumen penelitian melibatkan lembar validasi materi dan media bahan ajar, Rencana Pelaksanaan Pembelajaran (RPP), angket respon siswa dan guru, serta *pretest* dan *posttest*. Subjek penelitian terdiri dari 40 siswa kelas XI MIPA 4 SMAN 14 Medan. Temuan penelitian meliputi: (1) Proses pengembangan buku digital yang valid, praktis, dan efektif dilakukan dengan metode 4D (Define, Design, Develop, dan Disseminate). Langkah-langkah ini dimulai dari analisis karakteristik dan kebutuhan, kemudian solusi dirumuskan, dilanjutkan dengan perancangan dan pembuatan bahan ajar berbasis masalah menggunakan *Adobe Flash CS6 Profesional*, dan tahap validasi oleh 3 ahli materi dan 3 ahli media. Hasil validasi menunjukkan bahwa bahan ajar yang dihasilkan memiliki kualitas yang valid, praktis, dan efektif. (2) Terdapat peningkatan signifikan pada kemampuan penalaran matematika siswa pada setiap indikator, dengan nilai N-gain rata-rata siswa sebesar 0,736, menandakan peningkatan tingkat tinggi.

Kata kunci: Bahan ajar, *Problem Based Learning*, kemampuan penalaran matematik, *Adobe Flash CS6 Profesional*.

ABSTRACT

Richard Patrosza Sinaga, NIM 4193311042 (2023). Development of Problem-Based Mathematics Teaching Materials with the Help of Professional *Adobe Flash CS6* to Improve the Mathematical Reasoning Abilities of Class XI High School Students.

This research aims to produce valid, practical and effective mathematics teaching materials, as well as to evaluate the increase in students' mathematical reasoning abilities after using these teaching materials. The research instrument involved material validation sheets and teaching material media, Learning Implementation Plans (RPP), student and teacher response questionnaires, as well as pretest and posttest. The research subjects consisted of 40 students of class XI MIPA 4 SMAN 14 Medan. Research findings include: (1) The process of developing valid, practical and effective digital books was carried out using the 4D method (Define, Design, Develop and Disseminate). These steps start from analyzing characteristics and needs, then solutions are formulated, followed by designing and creating problem-based teaching materials using Adobe Flash CS6 Professional, and the validation stage by 3 material experts and 3 media experts. The validation results show that the resulting teaching materials have valid, practical and effective quality. (2) There is a significant increase in students' mathematical reasoning abilities in each indicator, with the students' average N-gain value being 0.736, indicating a high level of improvement.

Keywords: Teaching materials, Problem Based Learning, mathematical reasoning skills, *Adobe Flash CS6 Profesional* .

