

ABSTRAK

Ni Kadek Ayu Sudiasih (2026). Pengembangan Media Pembelajaran Interaktif Berbasis Problem Solving Berbantuan Scratch Untuk Meningkatkan Kemampuan Berpikir Kritis Matematika Siswa Sd Kelas V. Tesis, Pendidikan Matematika, Program Pascasarjana, Universitas Pendidikan Ganesha

Kata-kata kunci: media pembelajaran interaktif, problem solving, Scratch, berpikir kritis matematika, lintasan belajar.

Penelitian ini bertujuan untuk (1) mengetahui karakteristik media pembelajaran interaktif berbasis *problem solving* berbantuan Scratch yang valid, praktis, dan efektif, serta (2) mengetahui lintasan belajar (*learning trajectory*) siswa yang menggambarkan proses berpikir siswa selama pembelajaran menggunakan media pembelajaran interaktif berbasis *problem solving* berbantuan Scratch. Penelitian ini merupakan penelitian dan pengembangan (*Research and Development*) dengan menggunakan model pengembangan Plomp yang meliputi tahap *preliminary investigation, design, realization/construction, test, evaluation and revision*, serta *implementation*. Subjek penelitian adalah 15 siswa kelas V SDTK Pelita Hati. Data penelitian dikumpulkan melalui lembar validasi ahli, angket respon guru dan siswa, tes kemampuan berpikir kritis matematika, serta analisis *Hypothetical Learning Trajectory* (HLT). Data dianalisis secara deskriptif kuantitatif dan kualitatif.

Hasil penelitian menunjukkan bahwa: (1) media pembelajaran interaktif berbasis *problem solving* berbantuan Scratch yang dikembangkan memenuhi kriteria sangat valid dengan rata-rata skor validasi ahli materi sebesar 4,5 dan ahli media sebesar 4,5; (2) media yang dikembangkan memenuhi kriteria sangat praktis dengan rata-rata skor respon guru sebesar 4,5 dan respon siswa sebesar 4,52; (3) media pembelajaran efektif dalam meningkatkan kemampuan berpikir kritis matematika siswa yang ditunjukkan oleh peningkatan rata-rata nilai dari 39,67 pada pretest menjadi 78,67 pada posttest dengan nilai N-Gain sebesar 0,65 dalam kategori sedang; dan (4) lintasan belajar siswa menunjukkan adanya perkembangan pemikiran siswa dalam memahami konsep matematika melalui tahapan identifikasi masalah, penyusunan strategi penyelesaian, pelaksanaan pemecahan masalah, hingga penarikan kesimpulan secara kritis dengan bantuan media Scratch. Dengan demikian, media pembelajaran interaktif berbasis *problem solving* berbantuan Scratch layak digunakan untuk meningkatkan kemampuan berpikir kritis matematika siswa kelas V sekolah dasar.

ABSTRACT

Ni Kadek Ayu Sudiasih (2026). The Development of Scratch-Assisted Interactive Learning Media Based on Problem Solving to Improve Mathematical Critical Thinking Skills of Fifth-Grade Elementary School Students. Thesis, Mathematics Education Study Program, Postgraduate Program, Ganesha University of Education

Keywords: interactive learning media, problem solving, Scratch, mathematical critical thinking, learning trajectory.

This study aimed to (1) identify the characteristics of Scratch-assisted interactive learning media based on problem solving that are valid, practical, and effective, and (2) examine students' learning trajectories that describe their thinking processes during learning activities using the developed media. This research employed a Research and Development (R&D) approach using the Plomp development model, which consists of the stages of preliminary investigation, design, realization/construction, test, evaluation and revision, and implementation. The participants of this study were 15 fifth-grade students of SDTK Pelita Hati. Data were collected through expert validation sheets, teacher and student response questionnaires, mathematical critical thinking tests, and Hypothetical Learning Trajectory (HLT) analysis. The data were analyzed using descriptive quantitative and qualitative methods.

The results showed that: (1) the Scratch-assisted interactive learning media based on problem solving was highly valid, with an average validation score of 4.5 from both material experts and media experts; (2) the developed media was highly practical, as indicated by an average teacher response score of 4.5 and an average student response score of 4.52; (3) the learning media was effective in improving students' mathematical critical thinking skills, as evidenced by the increase in the average score from 39.67 on the pretest to 78.67 on the posttest, with an N-Gain score of 0.65 categorized as moderate; and (4) students' learning trajectories indicated the development of their thinking processes in understanding mathematical concepts through the stages of problem identification, strategy formulation, problem-solving implementation, and critical conclusion drawing with the assistance of Scratch-based learning media. Therefore, the Scratch-assisted interactive learning media based on problem solving is feasible and effective for improving the mathematical critical thinking skills of fifth-grade elementary school students.