

ABSTRAK

Cindy Ersinta. 2026. Pengembangan Media Pembelajaran VISTA (*Video-Based Intelligent System for Teaching Physics*) Menggunakan Model PBL Untuk Meningkatkan Hasil Belajar Siswa. Skripsi. Program Studi Pendidikan Fisika, FKIP, Universitas PGRI Madiun. Pembimbing (I) Dr. Tantri Mayasari, S.Pd., M.Pd., (II) Farida Huriawati, S.Si., M.Si.

Rendahnya hasil belajar fisika siswa pada materi Gerak Lurus disebabkan oleh keterbatasan media pembelajaran yang mampu memvisualisasikan konsep abstrak secara interaktif dan adaptif terhadap kebutuhan belajar siswa. Penelitian ini bertujuan mengembangkan media pembelajaran VISTA (*Video-Based Intelligent System for Teaching Physics*) berbasis model *Problem Based Learning* (PBL) serta mengkaji efektivitasnya dalam meningkatkan hasil belajar siswa kelas XI. Penelitian ini merupakan penelitian dan pengembangan (*Research and Development*) dengan model ADDIE (*Analysis, Design, Development, Implementation, Evaluation*). Subjek uji coba adalah 35 siswa kelas XI-8 SMAN 4 Madiun yang dipilih melalui teknik *purposive sampling*. Kelayakan media diukur melalui *Content Validity Ratio* dan *Content Validity Index* Lawshe berdasarkan penilaian lima validator ahli, respon guru diukur menggunakan indeks Aiken's V, sedangkan efektivitas diukur melalui desain *One-Group Pretest-Posttest* yang dianalisis dengan uji *Wilcoxon Signed-Rank Test*, N-Gain, dan *effect size*.

Hasil penelitian menunjukkan media VISTA valid digunakan berdasarkan penilaian ahli materi, media, dan soal, serta sangat praktis dengan nilai Aiken's V sebesar 0,95. Hasil uji Wilcoxon menunjukkan perbedaan signifikan antara hasil belajar siswa sebelum dan sesudah penerapan media ($Z = -3,992$; *Sig.* kurang dari 0,05), dengan rata-rata *posttest* meningkat menjadi 76,57, N-Gain sebesar 0,39 kategori sedang, dan *effect size* sebesar 0,48 kategori sedang. Peningkatan juga tampak pada aspek afektif siswa yang diukur melalui lembar observasi dengan reliabilitas sangat tinggi (Cronbach's Alpha = 0,940). Penelitian ini menyimpulkan bahwa media VISTA valid, praktis, dan efektif digunakan sebagai media pembelajaran fisika pada materi Gerak Lurus di kelas XI SMA.

Kata kunci: VISTA, Problem Based Learning, hasil belajar, N-Gain, effect size, Gerak Lurus.

ABSTRACT

Cindy Ersinta. 2026. Development of VISTA (Video-Based Intelligent System for Teaching Physics) Learning Media Using the PBL Model to Improve Student Learning Outcomes. Undergraduate Thesis. Physics Education Study Program, Faculty of Teacher Training and Education, Universitas PGRI Madiun. Advisors: (I) Dr. Tantri Mayasari, S.Pd., M.Pd., (II) Farida Huriawati, S.Si., M.Si.

The low physics learning outcomes of students on the topic of Straight-Line Motion are caused by the limitations of learning media capable of visualizing abstract concepts interactively and adaptively to students' learning needs. This study aims to develop VISTA (*Video-Based Intelligent System for Teaching Physics*) learning media based on the Problem-Based Learning (PBL) model and to examine its effectiveness in improving the learning outcomes of 11th-grade students. This research is a Research and Development (R&D) study using the ADDIE model (*Analysis, Design, Development, Implementation, Evaluation*). The trial subjects consisted of 35 students from class XI-8 at SMAN 4 Madiun, selected through a purposive sampling technique. Media feasibility was measured using Lawshe's Content Validity Ratio (CVR) and Content Validity Index (CVI) based on evaluations by five expert validators. Teacher responses were measured using Aiken's V index, while effectiveness was assessed through a One-Group Pretest-Posttest design analyzed using the Wilcoxon Signed-Rank Test, N-Gain, and effect size.

The results showed that the VISTA media is valid for use based on evaluations by subject matter, media, and assessment experts, and is highly practical with an Aiken's V value of 0.95. The Wilcoxon test results indicated a significant difference between students' learning outcomes before and after the implementation of the media ($Z = -3.992$; Sig. < 0.05), with the average post-test score increasing to 76.57, an N-Gain of 0.39 (moderate category), and an effect size of 0.48 (moderate category). Improvements were also observed in the students' affective domain, measured through observation sheets with very high reliability (Cronbach's Alpha = 0.940). This study concludes that the VISTA media is valid, practical, and effective for use as a physics learning medium for the topic of Straight-Line Motion in 11th-grade high school classrooms.

Kata kunci: VISTA, Problem-Based Learning, learning outcomes, N-Gain, effect size, Straight-Line Motion.