

ABSTRAK

Haidar Fillah Muhyiddin, 2026. Pengembangan Modul Ajar Fisika dengan Pendekatan Deep Learning Berbasis AI untuk Meningkatkan Literasi Digital Siswa SMA Kelas XI. 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..

Penelitian ini bertujuan mengembangkan modul ajar fisika berbasis AI *Interactive Feedback* dengan pendekatan Deep Learning pada materi Kinematika Gerak untuk siswa kelas XI, guna mendeskripsikan proses pengembangan, kelayakan, respon pengguna, dan peningkatan literasi digital siswa. Penelitian ini merupakan penelitian pengembangan dengan model ADDIE dan desain one-group pretest-posttest, melibatkan 20 siswa kelas XI A MAN 4 Madiun dalam empat kali pertemuan. Hasil penelitian menunjukkan bahwa proses pengembangan berhasil dilaksanakan sesuai tahapan ADDIE, menghasilkan modul digital yang mengintegrasikan tiga pilar Deep Learning (*Mindful, Meaningful, Joyful Learning*) serta AI *Interactive Feedback* melalui tutor AI "Lara" pada platform Teachy.com. Modul dinyatakan Sangat Layak oleh lima validator ahli dengan rata-rata 88%, serta memperoleh respon Sangat Positif dari siswa dan guru (masing-masing 89%), didukung keterlaksanaan pembelajaran sebesar 88,9%. Literasi digital siswa meningkat signifikan dari rata-rata 41,93 (Sedang) menjadi 86,07 (Sangat Tinggi), dengan N-Gain 0,75 (Tinggi) dan Uji-T Berpasangan signifikan ($p < 0,001$); hasil belajar kognitif turut meningkat dari 40,42 menjadi 81,25 dengan N-Gain 0,68 (Sedang). Hasil ini menunjukkan bahwa modul ajar fisika berbasis AI dengan pendekatan Deep Learning layak digunakan sebagai alternatif bahan ajar inovatif untuk meningkatkan literasi digital dan hasil belajar siswa pada materi Kinematika Gerak.

Kata Kunci: *AI Interactive Feedback, Deep Learning, Kinematika Gerak, Literasi Digital, Modul Ajar.*

ABSTRACT

Haidar Fillah Muhyiddin, 2026. Development of a Physics Teaching Module with an AI-Based Deep Learning Approach to Improve the Digital Literacy of Grade XI Senior High School Students. Undergraduate Thesis. Physics Education Study Program, Faculty of Teacher Training and Education (FKIP), Universitas PGRI Madiun. Supervisors: (I) Dr. Tantri Mayasari, S.Pd., M.Pd.; (II) Farida Huriawati, S.Si., M.Si.

This study aims to develop a physics teaching module based on AI Interactive Feedback using a Deep Learning approach on the topic of Kinematics of Motion for Grade XI students, in order to describe the development process, feasibility, user responses, and the improvement of students' digital literacy. This is a development research study employing the ADDIE model and a one-group pretest-posttest design, involving 20 students of Class XI A at MAN 4 Madiun over four meetings. The results show that the development process was carried out successfully in accordance with the ADDIE stages, producing a digital module that integrates the three pillars of Deep Learning (Mindful, Meaningful, and Joyful Learning) as well as AI Interactive Feedback through the AI tutor "Lara" on the Teachy.com platform. The module was rated Highly Feasible by five expert validators with an average score of 88%, and received Very Positive responses from students and the teacher (89% each), supported by a learning implementation rate of 88.9%. Students' digital literacy increased significantly from a mean of 41.93 (Moderate) to 86.07 (Very High), with an N-Gain of 0.75 (High) and a significant Paired-Samples T-Test ($p < 0.001$); cognitive learning outcomes also improved from 40.42 to 81.25 with an N-Gain of 0.68 (Moderate). These results indicate that a physics teaching module based on AI with a Deep Learning approach is feasible to be used as an innovative alternative teaching material to improve students' digital literacy and learning outcomes on the topic of Kinematics of Motion.

Keywords: AI Interactive Feedback, Deep Learning, Kinematics of Motion, Digital Literacy, Teaching Module.