

Abstrak

Ahmad Ridho Salam, 1182050002, 2024, Pengembangan *Electronic Module* Berbasis *Assembler Edu* Melalui Pendekatan Master Untuk Meningkatkan Kemampuan Visualisasi spasial Matematis Peserta Didik.

Electronic Module memfasilitasi materi yang interaktif, adaptif, dan mudah diakses, guna mendukung proses pembelajaran yang lebih efektif dan efisien, terutama dalam konteks pendidikan berbasis teknologi. Namun kendala yang terjadi sebagian pendidik dan peserta didik terbatasnya infrastruktur yang dipasilitasi sekolah. Adapun Tujuan penelitian ini adalah : 1). mengetahui proses pengembangan *Electronic Module* berbasis *Assembler Edu* sebagai sumber belajar melalui pendekatan MASTER (*Motivating, Acquiring, Searching, Triggering, Exhibiting, Reflecting*) dalam meningkatkan kemampuan visualisasi spasial matematis peserta didik.; 2). mengetahui efektivitas pengembangan *Electronic Module* berbasis *Assembler Edu* melalui pendekatan master dalam meningkatkan kemampuan visualisasi spasial matematis peserta didik., 3) mengetahui bagaimana tanggapan guru dan peserta didik selama pembelajaran menggunakan *Electronic Module* berbasis *Assembler Edu*. Metode yang digunakan adalah research and development dengan model ADDIE (*Analysis, Design, Development, Implementation, and Evaluation*). Sumber data didapatkan dari validator materi, validator media, peserta didik XI TKJ SMK Muhammadiyah 1 Kadungora Garut. Teknik pengumpulan data dalam penelitian ini yaitu wawancara dan angket. Tahap uji coba dilakukan dua kali yaitu pada kelompok kecil secara *ekspert* dan di kelas XI.TKJ. Analisis data untuk pengembangan *Electronic Module* berbasis *Assembler Edu* mendapatkan kriteria layak dari ahli materi, dan Ahli media. Hasil penelitian menunjukkan bahwa *Electronic Module* berbasis *Assembler Edu* bisa menjadi sumber belajar menarik karena lebih mengedepankan gambar-gambar sesuai dengan realita kehidupan anak serta menyenangkan, sehingga mampu meningkatkan kemampuan visualisasi spasial matematis peserta didik dan mendapat tanggapan yang baik dari guru matematika SMK Muhammadiyah 1 Kadungora Garut dan peserta didik SMK Muhammadiyah 1 Kadungora Garut. Pengembang *Electronic Module* berbasis *Assembler Edu* meningkatkan interaktivitas dan motivasi belajar, efisiensi penggunaan materi digital sehingga mampu meningkatkan kemampuan visualisasi spasial peserta didik.

Kata kunci: *Electronic Module, Assembler Edu, Visualisasi Spasial.*

Abstract

E-modules facilitate interactive, adaptive and accessible materials to support a more effective and efficient learning process, especially in the context of technology-based education. However, the obstacles that occur for some educators and students are limited to the infrastructure facilitated by the school. Research objectives: 1). To determine the process of developing electronic modules based on Assembler Edu as a learning resource through the MASTER approach (Motivating, Acquiring, Searching, Triggering, Exhibiting, Reflecting) in improving students' mathematical spatial visualization abilities; 2). to determine the effectiveness of developing electronic modules based on Assembler Edu through the master approach in improving students' mathematical spatial visualization abilities; 3) and to find out how teachers and students respond during learning using electronic modules based on Assembler Edu. The method used is research and development with the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). Data sources were obtained from material validators, media validators, XI TKJ students of SMK Muhammadiyah 1 Kadungora Garut. Data collection techniques in this study were interviews and questionnaires. The trial phase was carried out twice, namely in a small group on an expert basis and in class XI.TKJ. Data analysis for the development of Assembler Edu-based electronic modules received feasible criteria from material experts, and media experts. The results showed that the Assembler Edu-based electronic module could be a learning resource anywhere and anytime because it is interesting and prioritizes images in accordance with the reality of children's lives and fun, so that it can improve the ability of Mathematical Spatial Visualization of Learners and get good responses from mathematics teachers of SMK Muhammadiyah 1 Kadungora Garut and students of SMK Muhammadiyah 1 Kadungora Garut. Electronic module development based on assembler edu increases interactivity and motivation to learn, efficient use of digital materials so as to improve students' spatial visualization skills.

Keywords: *Electronic Module, Assembler Edu, Spatial Visualization.*