

**PENGEMBANGAN BAHAN AJAR *E-BOOK* MULTI
REPRESENTASI UNTUK MENINGKATKAN
KETERAMPILAN BERPIKIR KRITIS DAN KETERAMPILAN
BERPIKIR KREATIF PADA MATERI GELOMBANG
MEKANIK SMA**

TESIS

Diajukan untuk memenuhi salah satu syarat untuk memperoleh gelar Magister
Pendidikan pada Program Studi Pendidikan Fisika.



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**PENGEMBANGAN BAHAN AJAR *E-BOOK* MULTI REPRESENTASI
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KETERAMPILAN BERPIKIR KREATIF PADA MATERI GELOMBANG
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Sebuah Tesis yang diajukan untuk Memenuhi Syarat Memperoleh Gelar Magister
Pendidikan (M.Pd.) pada Program Studi Pendidikan Fisika

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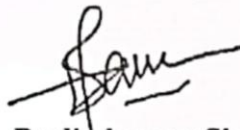
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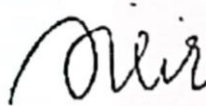
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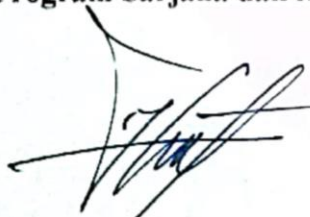
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ABSTRAK

Digitalisasi dalam dunia pendidikan menjadi tantangan tersendiri bagi pendidikan di Indonesia diantaranya kurangnya infrastruktur digital, salah satunya berupa bahan ajar. Dunia pendidikan di Indonesia juga dituntut agar peserta didik memiliki kompetensi diantaranya keterampilan kritis dan kreatif, yang tertera dalam Permendikbud No 20 Tahun 2016. Penelitian ini bertujuan untuk mengembangkan bahan ajar berupa *e-book* multi representasi untuk meningkatkan keterampilan berpikir kritis dan keterampilan berpikir kreatif pada materi gelombang mekanik SMA. Metode penelitian ini termasuk penelitian dan pengembangan (R&D) yang mengacu pada model pengembangan ADDIE dengan tahapan yaitu analisis, desain, pengembangan, implementasi, dan evaluasi. Populasi dalam penelitian ini adalah peserta didik kelas XI MIPA SMA dengan sampel 60 peserta didik yang terdiri dari 30 peserta didik kelas eksperimen dan 30 peserta didik kelas kontrol. Analisis data menggunakan *N-gain*, uji statistik parametrik, uji dampak dan persentase respon peserta didik yang menggunakan *e-book* multi representasi. Hasil uji kelayakan diperoleh 87,71% dari uji validasi dengan katagori sangat layak dan 69,29% dari uji keterpahaman ide pokok dengan kategori keterpahaman *e-book* tinggi. Hasil perhitungan *N-gain* diperoleh pada kelas yang menggunakan *e-book* diperoleh 0,62 untuk keterampilan berpikir kritis dan 0,66 untuk keterampilan berpikir kreatif dengan kategori sedang dan memiliki dampak yang signifikan terhadap peningkatan keterampilan berpikir kritis dan keterampilan berpikir kreatif. Respons peserta didik terhadap *e-book* yang dikembangkan menunjukkan positif, dimana hampir seluruh peserta didik setuju pada pernyataan yang disajikan.

Kata Kunci: *E-book*, Multi Representasi, Keterampilan Berpikir Kritis, Keterampilan Berpikir Kreatif, Gelombang Mekanik.

DEVELOPMENT OF E-BOOK TEACHING MATERIALS USING MULTI REPRESENTATION TO IMPROVE CRITICAL THINKING SKILLS AND CREATIVE THINKING SKILLS IN HIGH SCHOOL MECHANICAL WAVES

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ABSTRACT

Digitalization in the world of education is a challenge in itself for education in Indonesia, including the lack of digital infrastructure, one of which is in the form of teaching materials. The world of education in Indonesia is also required that students have competencies including critical and creative skills, which are listed in Permendikbud No 20 of 2016. This research aims to develop teaching materials in the form of multi-representation e-books to improve critical thinking skills and creative thinking skills on material high school mechanical waves. This research method includes research and development (R&D) which refers to the ADDIE development model with stages namely analysis, design, development, implementation, and evaluation. The population in this study were students in class XI MIPA SMA with a sample of 60 students consisting of 30 students in the experimental class and 30 students in the control class. Data analysis used N-gain, parametric statistical tests, impact tests and the percentage of students' responses using multi-representation e-books. The results of the due diligence test obtained 87.71% from the validation test with the very feasible category and 69.29% from the main idea comprehension test with the high e-book comprehension category. The results of the N-gain calculation obtained in classes using e-books obtained 0.62 for critical thinking skills and 0.66 for creative thinking skills in the medium category and had a significant impact on improving critical thinking skills and creative thinking skills. The students' response to the e-book that was developed was positive, where almost all students agreed with the statements presented.

Keywords: E-book, Multi Representation, Critical Thinking Skills, Creative Thinking Skills, Mechanical Waves.

DAFTAR ISI

Halaman

LEMBAR PENGESAHAN	i
PERNYATAAN	ii
KATA PENGANTAR	iii
UCAPAN TERIMAKASIH	iv
ABSTRAK	vi
ABSTRACT	vii
DAFTAR ISI	viii
DAFTAR TABEL	x
DAFTAR GAMBAR	xii
DAFTAR LAMPIRAN	xiv
BAB I PENDAHULUAN	1
1.1. Latar Belakang.....	1
1.2. Rumusan Masalah Penelitian.....	7
1.3. Tujuan Penelitian	8
1.4. Manfaat Penelitian	8
1.5. Definisi Operasional	9
1.6. Struktur Organisasi Tesis.....	11
BAB II KAJIAN PUSTAKA	13
2.1. Bahan Ajar <i>E-Book</i>	13
2.2. Multi Representasi	21
2.3. Keterampilan Berpikir Kritis	25
2.4. Keterampilan Berpikir Kreatif.....	30
2.5. Gelombang Mekanik	32
2.6. Keterkaitan Antara Bahan Ajar <i>E-book</i> Multi Representasi dengan Keterampilan Berpikir Kritis, Keterampilan Berpikir Kreatif, dan Materi Gelombang Mekanik	48
2.7. Kerangka Berpikir	49
BAB III METODE PENELITIAN	53
3.1. Metode dan Desain Penelitian	53
3.2. Populasi dan Sampel.....	54
3.3. Instrumen Penelitian	55
3.4. Prosedur Penelitian	62
BAB IV TEMUAN DAN PEMBAHASAN	81
4.1. Temuan	81
4.2. Pembahasan	116
BAB V SIMPULAN, IMPLIKASI, DAN REKOMENDASI	128
5.1. Simpulan	128
5.2. Implikasi	129
5.3. Rekomendasi.....	130
DAFTAR PUSTAKA	131

DAFTAR PUSTAKA

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