

**PENGEMBANGAN *EBOOK* FISIKA MENGGUNAKAN  
MULTI REPRESENTASI BERORIENTASI KETERAMPILAN PEMECAHAN  
MASALAH ANALITIK DAN INTERAKTIF PADA SISWA SMA**

**TESIS**

Diajukan untuk memenuhi sebagian syarat memperoleh gelar  
Magister Pendidikan pada Program Studi Pendidikan Fisika



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2019**

**PENGEMBANGAN *EBOOK* FISIKA MENGGUNAKAN  
MULTI REPRESENTASI BERORIENTASI  
KETERAMPILAN PEMECAHAN MASALAH ANALITIK  
DAN INTERAKTIF PADA SISWA SMA**

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S.Pd UIN SGD Bandung, 2014

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Magister Pendidikan (M.Pd.) pada Fakultas Pendidikan Matematika dan Ilmu  
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Agustus 2019

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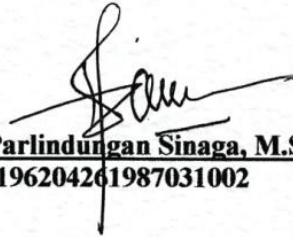
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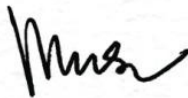
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## ABSTRAK

### **Pengembangan *Ebook* Fisika Menggunakan Multi Representasi Berorientasi Keterampilan Pemecahan Masalah Analitik Dan Interaktif pada Siswa SMA**

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Penelitian ini bertujuan untuk mengembangkan *ebook* Fisika multi representasi berorientasi keterampilan pemecahan masalah analitik dan interaktif pada siswa SMA. Metode penelitian yang digunakan adalah *Research and Development (R&D)*. Pengembangan konten *ebook* menggunakan model penulisan bahan ajar dengan multi representasi. Sedangkan pembuatan aplikasi *ebook* menggunakan layanan *App Builder* pada situs *BuildFire*. Penelitian dilakukan di salah satu SMA Negeri Kota Tangerang. Jumlah sampel sebanyak 60 siswa. Pengambilan data menggunakan beberapa cara yaitu; 1) validasi kualitas *ebook* oleh ahli, 2) uji keterpahaman, 3) tes keterampilan pemecahan masalah analitik dan interaktif menggunakan soal esai, 4) uji hipotesis dan pengukuran *effect size* untuk mengetahui kriteria dampak *ebook*, 5) observasi persepsi siswa melalui angket respon siswa terhadap implementasi *ebook*. Kualitas *ebook* yang diketahui melalui validasi ahli menunjukkan kriteria baik sekali. Uji keterpahaman *ebook* menunjukkan bahwa keterbacaan wacana pada tiap sub bab termasuk dalam kriteria sedang dan tinggi. Peningkatan keterampilan pemecahan masalah analitik dan interaktif termasuk dalam kategori sedang berdasarkan perhitungan *N-gain*. Melalui uji hipotesis diketahui bahwa terdapat perbedaan rata-rata keterampilan pemecahan masalah antara siswa yang mengikuti pembelajaran menggunakan *ebook* dan siswa yang mengikuti pembelajaran menggunakan Buku Sekolah Elektronik (BSE). Sedangkan keefektifan *ebook* berdasarkan pengukuran *effect size* menunjukkan bahwa penggunaan *ebook* menghasilkan efek yang besar (*large effect*). Respons siswa terhadap *ebook* menunjukkan bahwa hampir seluruh siswa setuju pada pernyataan positif dan tidak setuju terhadap pernyataan negatif mengenai *ebook*.

**Kata Kunci:** *Ebook* Fisika SMA, Multi Representasi, Keterampilan Pemecahan Masalah Analitik (*Analytical Problem Solving*), Keterampilan Pemecahan Masalah Interaktif (*Interactive Problem Solving*).

## ABSTRACT

### **Development of Physic Ebook Using Multi Representation Oriented On Analytic and Interactive Problem-Solving Skills in Senior High School Student**

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This research aimed to develop a multi representation physic ebook, which oriented on analytic and interactive problem-solving skills in high school students. The research method used is Research and Development (R&D). While the multi representation teaching material writing model was used on the development of the ebook content, the ebook application itself was build using the App Builder on BuildFire website. The research was conducted in one of Tangerang public schools and attended by 60 students. Several data collection method was used as follow: 1) Expert judgment on ebook validation process, 2) Comprehensibility test using discourse main idea check, 3) Analytic and interactive problem-solving skill test using essay question sets, 4) hypothesis testing and effect size measurement, 5) observation on student perceptions through student responses on ebook implementation questionnaire. Expert judgement shows that the ebook has very good quality criteria. The comprehensibility test show that the readability of the discourse is on the medium and high criteria. Based on the N-gain calculation, the analytic and interactive problem-solving skill improvement is on medium criteria. It is known through the hypothesis test that there are gaps on problem-solving skills between student whose study using the ebook and the ones using the Electronic School Books. The effect size measurement shows large effect criteria on the effectiveness of the ebook. Students responses on the ebook shows that almost every student agreed to positive statement on the ebook and disagreed to negative statement on the ebook.

**Key words:** Senior high school ebook, Multi representation, Analytical Problem Solving skill, Interactive Problem Solving skill

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