

**PENGEMBANGAN *GAME* EDUKASI BERBASIS INTERTEKSTUAL
UNTUK MENGKONSTRUKSI MODEL MENTAL PESERTA
DIDIK PADA KONSEP PENGARUH SUHU DAN
KATALIS TERHADAP LAJU REAKSI**

TESIS

*diajukan untuk memenuhi salah satu syarat untuk memperoleh gelar Magister Pendidikan
Kimia*



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Pengembangan *Game* Edukasi Berbasis Intertekstual untuk Mengkonstruksi Model Mental Peserta Didik pada Konsep Pengaruh Suhu dan Katalis terhadap Laju Reaksi

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ABSTRAK

Penelitian ini bertujuan untuk menghasilkan *game* edukasi berbasis intertekstual yang dapat mengkonstruksi model mental peserta didik pada konsep pengaruh suhu dan katalis terhadap laju reaksi. Metode penelitian yang digunakan adalah metode R&D dengan menggunakan model *Borg and Gall*. Subjek penelitian ini adalah guru dan peserta didik. Sebanyak 3 orang guru dan 22 orang peserta didik diberi angket untuk mengetahui tanggapan terhadap *game* edukasi. Kemudian, sebanyak 14 orang yang terdiri dari 7 orang kelas eksperimen dan 7 orang kelas kontrol diberi *pretest dan posttest* untuk mengetahui profil model mental terhadap konsep pengaruh suhu dan katalis terhadap laju reaksi. Hasil penelitian yang diperoleh adalah *game* edukasi berbasis intertekstual dengan mempertimbangkan aspek konten, pedagogi, dan multimedia yang layak setelah perbaikan sesuai saran yang diberikan, seperti sudut pengambilan video percobaan di dalam *game* edukasi. Berdasarkan analisis TDM-IAE, sebelum diberi perlakuan, terdapat 11 orang peserta didik (5 orang kelas kontrol dan 6 orang kelas eksperimen) memiliki model mental parsial pada konsep pengaruh suhu terhadap laju reaksi, sedangkan 13 orang (7 orang kelas kontrol dan 6 orang kelas eksperimen) memiliki model mental miskonsepsi pada konsep pengaruh katalis terhadap laju reaksi. Setelah perlakuan, pada konsep pengaruh suhu terhadap laju reaksi, sebanyak 2 orang dari kelas eksperimen memiliki model mental utuh, 10 orang peserta didik (7 orang kelas kontrol dan 3 orang kelas eksperimen) memiliki model mental parsial, dan 2 orang memiliki model mental miskonsepsi. Pada konsep pengaruh katalis terhadap laju reaksi, sebanyak 2 orang dari kelas eksperimen memiliki model mental utuh, 2 orang dari kelas kontrol memiliki model mental parsial, dan 10 orang memiliki model mental miskonsepsi (5 orang kelas kontrol dan 5 orang kelas eksperimen). Berdasarkan uji coba terhadap guru dan peserta didik, tanggapan guru sebagian besar setuju terhadap kejelasan aspek konten, video dan grafik, peran *game* edukasi, dan kemudahan navigasi. Selain itu, tanggapan peserta didik pada *game* edukasi menunjukkan tingkat persetujuan lebih dari 70% terhadap aspek visual, kejelasan audio, kejelasan gambar/video/grafik, kemudahan bermain, dan konten kimia.

Kata kunci : *game* edukasi, intertekstual, model mental, pengaruh suhu dan katalis terhadap laju reaksi

ABSTRACT

This study aims to develop an educational game based on intertextuality that helps students construct mental models related to the impact of temperature and catalysts on reaction rates. The research employs the R&D method using the Borg and Gall model, involving both teachers and students as subjects. Three teachers and 22 students were given a questionnaire to determine their responses to the educational game. Then, a total of 14 people consisting of 7 people from the experimental class and 7 people from the control class were given a pretest and posttest to determine the mental model profile of the concept of the effect of temperature and catalysts on reaction rates. The study resulted in the creation of an intertextual-based educational game that effectively integrates content, pedagogy, and multimedia elements. The game was refined based on feedback, including adjustments like the angle of the experimental videos within the game. According to the TDM-IAE analysis, before the intervention, 11 students (5 from the control group and 6 from the experimental group) displayed a partial mental model of the temperature's effect on reaction rates, while 13 students (7 from the control group and 6 from the experimental group) held misconceptions about the catalyst's effect on reaction rates. Post-intervention, in terms of understanding the temperature's effect, 2 students from the experimental group developed a complete mental model, 10 students (7 from the control group and 3 from the experimental group) retained a partial mental model, and 2 students continued to hold misconceptions. Regarding the catalyst's effect, 2 students from the experimental group achieved a complete mental model, 2 students from the control group had a partial mental model, and 10 students (5 from each group) still had misconceptions. Teacher feedback on the game was largely positive, particularly regarding content clarity, video and graphic quality, the educational value of the game, and ease of navigation. Similarly, over 70% of students responded positively to the game's visual aspects, audio clarity, image/video/graphic quality, gameplay ease, and chemical content.

Keywords: educational games, intertextual, mental models, the effect of temperature and catalysts on reaction rates

DAFTAR ISI

LEMBAR PENGESAHAN	i
LEMBAR PERNYATAAN.....	ii
UCAPAN TERIMAKASIH	iii
ABSTRAK.....	v
DAFTAR ISI	vi
DAFTAR TABEL	viii
DAFTAR GAMBAR.....	ix
DAFTAR LAMPIRAN	xi
BAB I PENDAHULUAN.....	1
1.1 Latar Belakang	1
1.2 Rumusan Masalah	6
1.3 Pembatasan Masalah	6
1.4 Tujuan Penelitian.....	6
1.5 Manfaat Penelitian.....	7
1.6 Struktur Organisasi Tesis	7
BAB II KAJIAN PUSTAKA.....	8
2.1 Intertekstual dalam Pembelajaran Kimia	8
2.2 Model Mental Peserta Didik	10
2.3 <i>Game</i> Edukasi Berbasis Intertekstual.....	15
2.4 Tinjauan Materi Pengaruh Suhu dan Katalis Terhadap Laju Reaksi	23
BAB III METODOLOGI PENELITIAN	28
3.1 Desain Penelitian.....	28
3.2 Prosedur Penelitian.....	29
3.3 Subjek dan Tempat Penelitian.....	33
3.4 Instrumen Penelitian.....	33
3.5 Teknik Pengumpulan Data	34
3.6 Analisis Data	35
BAB IV TEMUAN DAN PEMBAHASAN.....	38
4.1 Karakteristik <i>Game</i> Edukasi Berbasis Intertekstual pada Materi Pengaruh Suhu dan Katalis terhadap Laju Reaksi.....	38

4.2 Hasil Uji Kelayakan <i>Game</i> Edukasi Berbasis Intertekstual pada Materi Pengaruh Suhu dan Katalis terhadap Laju Reaksi.....	59
4.3 Profil Model Mental Peserta Didik Sebelum Perlakuan	64
4.4 Profil Model Mental Peserta Didik Setelah Perlakuan.....	76
4.5 Tanggapan Guru dan Peserta Didik terhadap <i>Game</i> Eduaksi berbasis Intertekstual pada Materi Pengaruh Suhu dan Katalis terhadap Laju Reaksi	88
BAB V SIMPULAN, IMPLIKASI, DAN REKOMENDASI.....	95
5.1 Simpulan.....	95
5.2 Implikasi.....	96
5.3 Rekomendasi	96
DAFTAR PUSTAKA	97
LAMPIRAN	108

DAFTAR TABEL

Tabel 2.1 Pengaruh Suhu Terhadap Laju Reaksi Hidrolisis Ester	24
Tabel 3.1 Pengumpulan Data dan Analisis Data.....	37
Tabel 4.1 Rumusan IPK dan Label Konsep	39
Tabel 4.2 Buku Teks General Chemistry pada Analisis Level Representasi Kimia pada Pengaruh Suhu dan Katalis terhadap Laju Reaksi.....	400
Tabel 4.3 Materi Pengaruh Suhu dan Katalis terhadap Laju Reaksi.....	411
Tabel 4.4 Langkah – Langkah Pembelajaran POE	422
Tabel 4.5 Bagian – bagian Utama di dalam Game “Rate Reaction : Seeking of the Antidote”	49
Tabel 4.6 Data Peserta Didik dan Pengelompokkannya	65
Tabel 4.7 Pengelompokkan Model Mental Peserta Didik pada Konsep Pengaruh Suhu terhadap Laju Reaksi sebelum Perlakuan	66
Tabel 4.8 Pengelompokkan Model Mental Peserta Didik pada Konsep Pengaruh Katalis terhadap Laju Reaksi	722
Tabel 4.9 Pengelompokkan Model Mental Peserta Didik pada Konsep Pengaruh Suhu terhadap Laju Reaksi setelah Perlakuan	777
Tabel 4.10 Pengelompokkan Model Mental Peserta Didik pada Konsep Pengaruh Katalis terhadap Laju Reaksi setelah Perlakuan	844
Tabel 4.11 Tanggapan Guru terhadap Kejelasan Video dan Grafik	888
Tabel 4.12 Tanggapan Guru mengenai Peran Game Edukasi.....	899
Tabel 4.13 Tanggapan Guru mengenai Kemudahan Navigasi.....	899
Tabel 4.14 Tanggapan Guru terhadap Aspek Pedagogi.....	901
Tabel 4.15 Tanggapan Peserta Didik mengenai Aspek Visual Game Edukasi.....	91
Tabel 4.16 Tanggapan Peserta Didik mengenai Aspek Kejelasan Audio Game Edukasi.....	91
Tabel 4.17 Tanggapan Peserta Didik mengenai Aspek Kejelasan Gambar/Video/Grafik	92
Tabel 4.18 Tanggapan Peserta Didik mengenai Aspek Kemudahan Bermain	93
Tabel 4.19 Tanggapan Peserta Didik mengenai Aspek Konten Kimia.....	94

Gambar 4.23 Video Observe Misi 1 Sebelum Validasi	61
Gambar 4.24 Video Observe Misi 1 Setelah Validasi	62
Gambar 4.25 Layar Soal 10 Misi 1 Sebelum Validasi.....	63
Gambar 4.26 Layar Soal 10 Misi 1 Setelah Validasi	63
Gambar 4.27 Profil Model Mental Peserta Didik Kelas Eksperimen pada Konsep Pengaruh Suhu terhadap Laju Reaksi Sebelum Perlakuan	70
Gambar 4.28 Profil Model Mental Peserta Didik Kelas Kontrol pada Konsep Pengaruh Suhu terhadap Laju Reaksi Sebelum Perlakuan	71
Gambar 4.29 Profil Model Mental Peserta Didik Kelas Kontrol dan Eksperimen pada Konsep Pengaruh Katalis terhadap Laju Reaksi Sebelum Perlakuan.....	75
Gambar 4.30 Layar Hasil Game Peserta Didik 8 pada Misi 1	79
Gambar 4.31 Hasil Bermain Game Peserta Didik 12 pada Misi 1.....	79
Gambar 4.32 Profil Model Mental Peserta Didik Kelas Eksperimen pada Konsep Pengaruh Suhu terhadap Laju Reaksi Setelah Perlakuan.....	82
Gambar 4.33 Profil Model Mental Peserta Didik Kelas Kontrol pada Konsep Pengaruh Suhu terhadap Laju Reaksi Setelah Perlakuan.....	83
Gambar 4.34 Hasil Game Peserta Didik 8 pada Misi 3	85
Gambar 4.35 Profil Model Mental Peserta Didik Kelas Kontrol dan Eksperimen pada Konsep Pengaruh Katalis terhadap Laju Reaksi setelah Perlakuan	87

DAFTAR LAMPIRAN

Lampiran 1 Kajian Kompetensi Dasar pada Kurikulum 2013.....	108
Lampiran 2 Analisis Tiga Level Representasi pada Konsep Pengaruh Suhu dan Katalis terhadap Laju Reaksi	111
Lampiran 3 Analisis Game Edukasi Existing pada Konsep Pengaruh Suhu dan Katalis terhadap Laju Reaksi	115
Lampiran 4 Analisis Miskonsepsi pada Konsep Pengaruh Suhu dan Katalis terhadap Laju Reaksi.....	120
Lampiran 5 Storyboard Pengembangan Game Edukasi pada Konsep Pengaruh Suhu dan Katalis terhadap Laju Reaksi	122
Lampiran 6 Lembar Validasi Aspek Konten pada Game Edukasi	159
Lampiran 7 Lembar Validasi Aspek Pedagogi pada Game Edukasi	167
Lampiran 8 Lembar Validasi Aspek Multimedia pada Game Edukasi.....	170
Lampiran 9 Instrumen Penelitian untuk TDM-IAE	173
Lampiran 10 Interpretasi Jawaban Peserta Didik sebelum Perlakuan	183
Lampiran 11 Interpretasi Jawaban Peserta Didik setelah Perlakuan	199
Lampiran 12 Lembar Tanggapan Guru mengenai Game Edukasi.....	218
Lampiran 13 Lembar Tanggapan Siswa mengenai Game Edukasi	223

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