

**PENGEMBANGAN PERKULIAHAN KIMIA BAHAN MAKANAN
MENGUNAKAN PENDEKATAN STSE DAN INKUIRI REFLEKTIF
UNTUK MENINGKATKAN KETERAMPILAN BERPIKIR
EVALUATIF DAN PEMECAHAN MASALAH.**

Disertasi

**Diajukan untuk memenuhi sebagian syarat untuk memperoleh gelar Doktor
Pendidikan Ilmu Pengetahuan Alam**



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**PROGRAM STUDI PENDIDIKAN ILMU PENGETAHUAN ALAM
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2021**

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EVALUATIF DAN PEMECAHAN MASALAH**

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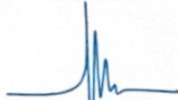
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ABSTRAK

Sofia (1402422). Pengembangan Perkuliahan Kimia Bahan Makanan Menggunakan Pendekatan STSE dan Inkuiri Reflektif untuk Meningkatkan Keterampilan Berpikir Evaluatif dan Pemecahan Masalah.

Penelitian ini bertujuan mengembangkan dan menguji efektivitas program perkuliahan Kimia Bahan Makanan (KBM) menggunakan pendekatan *Science Technology Society dan Environment* dan Inkuiri Reflektif (STSE-IR) yang dapat meningkatkan keterampilan berpikir evaluatif dan pemecahan masalah calon guru kimia. Metode penelitian yang digunakan adalah *mixed methods research* dengan *embedded experimental*, yang terdiri atas studi awal, pengembangan dan implementasi dan interpretasi data. Sampel penelitian adalah 26 mahasiswa calon guru kimia. Instrumen Penelitian yang dipakai untuk menjawab masalah penelitian sebagai berikut. 1) Bagaimana Program perkuliahan KBM menggunakan pendekatan STSE-IR? 2) Bagaimana keterampilan berpikir evaluatif mahasiswa menggunakan pendekatan STSE-IR? 3) Bagaimana Keterampilan pemecahan masalah mahasiswa menggunakan pendekatan STSE-IR? 4) Bagaimana Tanggapan mahasiswa calon guru Kimia terhadap keunggulan dan keterbatasan perkuliahan KBM menggunakan pendekatan STSE-IR? Data dianalisis baik secara kualitatif maupun kuantitatif. Hasil penelitian menunjukkan hasil sebagai berikut. 1) Disain Program perkuliahan KBM menggunakan pendekatan STSE-IR yang telah diujicobakan dan cukup efektif meningkatkan keterampilan berpikir evaluatif dan Keterampilan pemecahan masalah mahasiswa Calon Guru Kimia. 2) Program perkuliahan KBM STSE-IR yang dikembangkan lebih efektif meningkatkan keterampilan berpikir evaluatif mahasiswa calon guru kimia dengan nilai persen N-gain adalah 77,20. % dan berbeda signifikan dibandingkan pendekatan konsep. 3) Program perkuliahan KBM STSE-IR yang dikembangkan lebih efektif meningkatkan keterampilan pemecahan mahasiswa calon guru kimia dengan nilai persen N-gain adalah 81,27 % dan berbeda signifikan dibandingkan pendekatan konsep. 4) Tanggapan mahasiswa terhadap keunggulan dan keterbatasan perkuliahan KBM menggunakan pendekatan STSE-IR sebagai berikut. Perkuliahan menyenangkan, membuat materi lebih nyata, relevan dengan kehidupan sehingga mudah memahami konsep, meningkatkan motivasi, sikap, keterampilan berpikir evaluatif dan pemecahan masalah mahasiswa. Keterbatasan program perkuliahan ini adalah membutuhkan waktu dan biaya untuk melaksanakan rancangan teknologi yang telah dirancang.

Kata Kunci: Kimia Bahan makanan, keterampilan berpikir evaluatif, keterampilan pemecahan masalah, Pendekatan STSE-IR.

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ABSTRACT

Sofia (1402422). Development of Food Chemistry Lectures Use STSE and Reflective Inquiry Approach to Improve Evaluative and Problem-Solving Thinking Skills.

This research aims to develop and test the effectiveness of the Food Chemistry (FC) lecture program using the Science Technology Society and Environment and Reflective Inquiry (STSE-IR) approach which can improve evaluative and problem-solving thinking skills of chemistry pre-service teachers. The mixed-method research with embedded experimental which consists of initial studies, development and implementation and interpretation of data was applied in this study. 26 chemistry teacher candidate students were selected as the research sample. In addition, the research instruments that were used to answer research problems are as follows. 1) 1) How does the teaching and learning program use the STSE-IR approach? 2) How do the students' evaluative thinking skills use the STSE-IR approach. 3) How do Students' problem-solving skills use the STSE-IR approach. 4) How do the response of the Chemistry pre-service teacher to the advantages and limitations of the STSE-IR teaching and learning activities. Data were analyzed both qualitatively and quantitatively. The results of the study show the following results. 1) The design of the KBM lecture program uses the STSE-IR approach that has been tested and is quite effective in improving evaluative thinking skills and problem-solving skills of Chemistry Pre-service teacher students. 2) The FC lecture uses the STSE-IR approach which is developed to more effectively improve the evaluative thinking skills of chemistry pre-service teacher with a percent N-gain value of 77.20. % and significantly different compared to the conceptual approach. 3) The FC lecture program uses the STSE-IR approach which is developed to more effectively improve the solving skills of prospective chemistry pre-service teacher with a percent N-gain value of 81.27% and is significantly different versus conceptual approach. 4) Student responses to the advantages and limitations of FC lectures using the STSE-IR approach are as follows. Lectures are considered fun, they created the relevant material to real life therefore it is easy for students to understand concepts, also increase motivation, attitudes, evaluative thinking skills and problem solving. The limitation of this lecture program is that it requires time and money to implement the technology design that has been designed.

Keywords: Food chemistry, evaluative thinking skills, problem solving skills, STSE-IR approach.

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DAFTAR ISI

Lembar Persetujuan	ii
Pernyataan	iii
Ucapan Terima Kasih.....	iv
Abstrak	vi
Abstract	vii
Daftas Isi	viii
Daftar Gambar.....	xiii
Daftar Tabel	xv
Daftar Lampiran	xviii
BAB I. PENDAHULUAN	1
1.1. Latar Belakang	1
1.2. Rumusan Masalah Penelitian	7
1.3. Pembatasan Masalah	9
1.4. Tujuan Penelitian	9
1.5. Manfaat Penelitian	9
1.6. Penjelasan Istilah.....	10
BAB II. KAJIAN PUSTAKA	13
A. Kajian Teoritis	13
2.1. Pendekatan <i>Science-Technology- Society-Environment</i> (STSE)	13
2.2. Inkuiri Reflektif	17
2.3. Keterampilan Berpikir Evaluatif	21
2.4. Keterampilan Pemecahan Masalah	24
2.5. Kajian Materi Kimia Bahan Makanan/Bahan Pangan	27
2.6. Kajian Penelitian yang Relevan	40
B. Kerangka Berpikir.....	46
C. Hipotesis	51
BAB III. METODE PENELITIAN.....	54

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PENGEMBANGAN PERKULIAHAN KIMIA BAHAN MAKANAN MENGGUNAKAN PENDEKATAN STSE DAN INKUIRI REFLEKTIF UNTUK MENINGKATKAN KETERAMPILAN BERPIKIR EVALUATIF DAN PEMECAHAN MASALAH.

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3.1. Paradigma Penelitian.....	54
3.2. Subjek Penelitian	56
3.3. Instrumen Penelitian	56
3.3.1. Rancangan Program Perkuliahan Menggunakan Pendekatan STSE-IR.	57
3.3.2. Rancangan Instrumen Penelitian Keterampilan Berpikir Evaluatif Mahasiswa Menggunakan Pendekatan STSE-IR.	57
3.3.3. Rancangan Instrumen Penelitian Keterampilan Pemecahan Masalah Mahasiswa Menggunakan Pendekatan STSE-IR.	59
3.3.4. Rancangan Instrumen Tanggapan Mahasiswa Calon Guru Kimia Terhadap Keunggulan dan Keterbatasan Perkuliahan KBM Menggunakan Pendekatan STSE-IR.....	60
3.4. Teknik Analisis Data	61
3.4.1. Uji Validasi Dan Reliabilitas	61
3.4.1.1. Validitas	61
3.4.1.2. Reliabilitas	62
3.4.2. N-gain, Uji Normality, dan Homogenitas	62
3.4.3. Uji t atau U-Mann whitney	62
3.5. Metode dan Desain Penelitian	63
3.5.1. Tahap Sebelum Intervensi.....	65
3.5.1.1. Studi Dokumentasi dan kepustakaan	65
3.5.1.2. <i>Field Study</i>	65
3.5.1.3. Perancangan Program Perkuliahan KBM Menggunakan Pendekatan STSE-IR	65
3.5.1.4. Validasi Instrumen Penelitian	66
3.5.1.4.1. Validasi Ahli	66
3.5.1.4.2. Reliabilitas Butir Soal.....	67
3.5.1.5. Uji Coba Terbatas	69
3.5.2. Tahap Intervensi.....	71
3.5.3. Tahap Interpretasi.....	71

3.5.3.1. Mendeskripsikan Program Perkuliahan KBM Menggunakan Pendekatan STSE.	72
3.5.3.2. Mendeskripsikan Efektifitas Program Perkuliahan KBM Menggunakan Pendekatan STSE pada Keterampilan Berpikir Evaluatif Mahasiswa Mahasiswa Calon Guru Kimia	72
3.5.3.3. Mendeskripsikan Efektifitas Program Perkuliahan KBM Menggunakan Pendekatan STSE pada Keterampilan Pemecahan Masalah Mahasiswa Mahasiswa Calon Guru Kimia	73
3.5.3.4. Mendeskripsikan Tanggapan Mahasiswa tentang Keunggulan dan Keterbatasan Program Perkuliahan KBM Menggunakan Pendekatan STSE.....	73
 BAB IV. TEMUAN DAN PEMBAHASAN.....	74
4.1. Program Perkuliahan Menggunakan Pendekatan <i>Science-Technology-Society-Environment</i> dan Strategi Inkuiri Reflektif (STSE-IR) Pada Mata Kuliah Kimia Bahan Makanan (KBM) Bagi Mahasiswa Calon Guru Kimia	74
4.1.1. Hasil Studi Deskriptif Profil Perkuliahan KBM di Beberapa LPTK	74
4.1.2. Studi Pendahuluan Keterampilan Berpikir Evaluatif Calon Guru Pendidikan Kimia.....	76
4.1.3. Studi Pendahuluan Keterampilan Pemecahan Masalah Calon Guru Pendidikan Kimia.....	78
4.1.4. Program Perkuliahan KBM Menggunakan Pendekatan STSE-IR.....	80
4.1.4.1. Rasional Program Perkuliahan KBM Menggunakan Pendekatan STSE-IR.....	80
4.1.4.2. Disain Program Perkuliahan KBM Menggunakan Pendekatan STSE dan Strategi Inkuiri Reflektif.....	81

4.1.4.3. Ujicoba Program Perkuliahan KBM Menggunakan Pendekatan STSE-IR.....	87
4.1.4.4. Evaluasi dan Revisi Program Perkuliahan KBM Menggunakan Pendekatan STSE-IR.....	88
4.1.5. Pelaksanaan Program Perkuliahan KBM Menggunakan Pendekatan STSE-IR.....	88
4.1.5.1. Pokok Bahasan Karbohidrat.....	89
4.1.5.2. Pokok Bahasan Protein.	98
4.2. Profil Keterampilan Berpikir Evaluatif Setelah Pelaksanaan Perkuliahan KBM pada Calon Guru Pendidikan Kimia.	107
4.2.1. Profil Keterampilan Berpikir Evaluatif Indikator Mengajukan Pertanyaan pada Pelaksanaan Program Perkuliahan KBM	113
4.2.2. Profil Keterampilan Berpikir Evaluatif Indikator Mengupayakan Pemahaman pada Pelaksanaan Program Perkuliahan KBM	114
4.2.3. Profil Keterampilan Berpikir Evaluatif indikator Membuat Keputusan pada Pelaksanaan Program Perkuliahan KBM.....	115
4.2.4. Profil Keterampilan Berpikir Evaluatif dan Indikatornya pada Pelaksanaan Program Perkuliahan KBM Berdasarkan Prestasi	117
4.3. Keterampilan Pemecahan Masalah Pada Pelaksanaan Perkuliahan KBM pada Calon Guru Pendidikan Kimia,	119
4.3.1. Profil Keterampilan Pemecahan Masalah Indikator Merepresentasikan Masalah pada Pelaksanaan Perkuliahan KBM	123
4.3.2. Profil Keterampilan Pemecahan Masalah Indikator Mengembangkan Pemecahan Masalah pada Pelaksanaan Perkuliahan KBM.	124

4.3.3. Profil Keterampilan Pemecahan Masalah Indikator Membuat Pembeneran pada Pelaksanaan Perkuliahan KBM Menggunakan Pendekatan STSE-IR	130
4.3.4. Profil Keterampilan Pemecahan Masalah Indikator Monitoring dan Evaluasi Masalah dan Pemecahan Masalah pada Pelaksanaan Perkuliahan KBM Menggunakan Pendekatan STSE-IR	130
4.3.5. Profil Keterampilan Pemecahan Masalah dan Indikatornya pada pelaksanaan Program Perkuliahan KBM Berdasarkan Prestasi	131
4.4. Tanggapan Mahasiswa Terhadap Penerapan Perkuliahan KBM Menggunakan Pendekatan STSE-IR.	135
BAB V. Simpulan Dan Saran.....	140
5.1. Simpulan	140
5.2. Saran.....	141
Daftar PUSTAKA	142
Lampiran	157

Daftar Pustaka

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