PENGEMBANGAN BAHAN AJAR KIMIA PADA MATERI HIDROKARBON DENGAN MENGGUNAKAN METODE 4S TMD UNTUK MENGEMBANGKAN *KNOWLEDGE BUILDING ENVIRONMENT*

TESIS

Diajukan untuk Memenuhi Sebagian dari
Syarat Memperoleh Gelar Magister Pendidikan
Program Studi Pendidikan Kimia

Oleh

CITRA OKTASARI
1707147

PROGRAM STUDI PENDIDIKAN KIMIA
SEKOLAH PASCASARJANA
UNIVERSITAS PENDIDIKAN INDONESIA
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Oleh
Citra Oktasari
S.Pd Universitas Sriwijaya, 2017

Sebuah Tesis yang diajukan untuk memenuhi sebagian dari syarat untuk memperoleh gelar Magister Pendidikan (M.Pd) Program Studi Pendidikan Kimia pada Sekolah Pascasarjana Universitas Pendidikan Indonesia

CITRA OKTASARI

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disetujui dan disahkan oleh:

Pembimbing I

Dr. (paed) H. Sjaeful Anwar
NIP. 196208201987031002

Pembimbing II

Dr. Heli Siti Halimatul M., M.Si.
NIP. 197907302001122002

Mengetahui,

Ketua Program Studi Magister Pendidikan Kimia

Dr. Hendrawan, M.Si.
NIP. 196309111989011001

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Citra Oktasari NIM 1707147, Sjaeful Anwar, Heli Siti Halimatul M
Program Studi Pendidikan Kimia, Sekolah Pascasarjana
Universitas Pendidikan Indonesia

ABSTRAK

Penelitian ini bertujuan untuk mengembangkan bahan ajar kimia materi hidrokarbon menggunakan metode *Four Steps Teaching Material Development* (4S TMD) untuk mengembangkan *Knowledge Building Environment* (KBE). Metode yang digunakan adalah *Development Research* (DR) yang terdiri dari tiga tahapan yaitu *Design*, *Development* dan *Evaluation*. Tahapan pengembangan bahan ajar menggunakan metode *four steps teaching material development* (4S TMD) yang terdiri dari empat tahap yaitu seleksi, strukturisasi, karakterisasi dan reduksi didaktik. Hasil pengembangan bahan ajar pada tahap design menghasilkan nilai-nilai KBE yang dapat diintegrasikan ke dalam bahan ajar yaitu *attentiveness, careness, courisity, critical, respect for environment, respect for health* dan *wisdom*. Tahap strukturisasi menghasilkan peta konsep; struktur makro dan *multiple* representasi yang sesuai dengan KBE yang dikembangkan sehingga bahan ajar yang dihasilkan pun berbeda dengan bahan ajar lain yaitu bahan ajar materi hidrokarbon yang mengandung KBE didalamnya. Hasil karakterisasi dari 40 teks yang diujikan pada siswa kelas XI terdapat sebanyak 6 teks yang termasuk kategori sulit dibaca yang kemudian dilakukan reformulasi. Teks dengan kategori sulit direduksi didaktik dengan cara mereduksi penjelasan dan menambahkan fenomena-fenomena berupa gambar-gambar maupun simbol yang relevan. Hasil evaluasi terhadap bahan ajar menunjukkan rata-rata keterpahaman yang diukur dengan tingkat keterbacaan teks bahan ajar sebesar 97,23% dengan kategori tingkat keterpahaman tinggi. Berdasarkan hasil uji kelayakan dapat disimpulkan bahwa bahan ajar yang dikembangkan memiliki kelayakan isi 80,54% (layak), kelayakan kebahasaan 92,86% (sangat layak), kelayakan penyajian 87,50% (sangat layak), kelayakan kegrafikan 95,71% (sangat layak) dan kelayakan muatan KBE 86,67% (sangat layak). Dapat disimpulkan bahwa bahan ajar kimia materi hidrokarbon untuk mengembangkan KBE sangat layak digunakan guru dan siswa dalam proses pembelajaran.

Kata Kunci : Bahan Ajar, Hidrokarbon, 4S TMD, *Knowledge Building Environment*, *Developmental Research*, Pendidikan Kimia

DEVELOPMENT OF CHEMICAL TEACHING MATERIALS ON HYDROCARBON MATERIAL USED 4S TMD METHOD TO DEVELOP KNOWLEDGE BUILDING ENVIRONMENT

Citra Oktasari NIM 1707147, Sjaeful Anwar, Heli Siti Halimatul M
Department of Chemistry Education, School of Postgraduate Studies,
Universitas Pendidikan Indonesia

ABSTRACT

This study aims to develop chemical teaching materials on hydrocarbon materials using the Four Steps Teaching Material Development (4S TMD) method to develop Knowledge Building Environment (KBE). The method used is Development Research (DR) which consists of three stages, namely Design, Development and Evaluation. The stages of teaching material development use the four steps teaching material development (4S TMD) method which consists of four stages, namely selection, structuring, characterization, and didactic reduction. The results of the development of teaching materials at the design stage produce KBE values that can be integrated into teaching materials, namely attentiveness, careness, courtesy, critical, respect for the environment, respect for health and wisdom. The structuring phase produces a concept map; Macrostructure and multiple representations in accordance with the KBE developed so that the teaching material produced is also different from other teaching materials, namely the hydrocarbon teaching material containing KBE in it. The results of the characterization of 40 texts tested on grade XI students were 6 texts that were included in the difficult to read category which were then reformulated. Text with difficult categories is reduced to didactics by reducing explanations and adding phenomena in the form of relevant images or symbols. The results of the evaluation of teaching materials showed the average comprehension measured by the text readability level of teaching materials was 97.23% with a high comprehension level category. Based on the results of the feasibility test it can be concluded that the developed teaching materials have 80.54% content worthiness (feasible), linguistic eligibility 92.86% (very feasible), the feasibility of presenting 87.50% (very feasible), feasibility of graphic 95.71% (very feasible) and the feasibility of KBE 86.67% (very feasible). It can be concluded that the chemical teaching materials of hydrocarbon materials for developing KBE are very appropriate for teachers and students to use in the learning process.

Keywords: Teaching Materials, Hydrocarbons, 4S TMD, Knowledge Building Environment, Developmental Research, Chemical Education

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