PENGEMBANGAN *GAME* EDUKASI BERBASIS INTERTEKSTUAL UNTUK MENGKONSTRUKSI MODEL MENTAL SISWA PADA SIFAT ASAM BASA LARUTAN GARAM SECARA MANDIRI

TESIS

diajukan untuk memenuhi sebagian syarat memperoleh gelar Magister Pendidikan
Program Studi Pendidikan Kimia

oleh

R.A. Eflin Nawang Wulan

NIM 1802803

PROGRAM STUDI

MAGISTER PENDIDIKAN KIMIA

DEPARTEMEN PENDIDIKAN KIMIA – FPMIPA

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Oleh
R.A. Eflin Nawang Wulan

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LEMBAR PENGESAHAN TESIS

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Oleh:
R.A. EFLIN NAWANG WULAN
NIM. 1802803

Disetujui dan disahkan oleh:

Pembimbing I

Dr. H. Wiji, M.Si

Nip. 197003131997031004

Pembimbing II

Tuszie Widhiyanti, M.Pd., Ph.D.

Nip. 198108192008012014

Mengetahui,

Ketua Program Studi Magister Pendidikan Kimia

Dr. Hendrawan, M.Si

NIP. 196309111989011001

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Abstrak

Penelitian dilakukan bertujuan untuk menghasilkan produk *game* edukasi berbasis intertekstual untuk mengkonstruksi model mental siswa pada sifat asam-basa larutan garam secara mandiri. Metode penelitian yang digunakan adalah metode Penelitian dan Pengembangan (R&D) dalam skala kecil. Hasil yang didapatkan berupa *game* edukasi pada konsep sifat asam-basa larutan garam dengan mempertautkan aspek konten, pedagogi, dan multimedia yang telah dinyatakan valid oleh lima ahli dengan latar belakang bidang kimia, pendidikan kimia dan multimedia. Berdasarkan hasil TDM-IAE menunjukkan bahwa *game* edukasi tersebut dapat mengkonstruksi model mental siswa secara mandiri. Pada awalnya sebagian besar siswa memiliki model mental yang salah, benar sebagian, ataupun tidak ada jawaban terkait spesi dalam larutan garam, persamaan kimia untuk reaksi hidrolisis yang melibatkan ion-ion garam, dan alasan suatu garam dapat bersifat netral, asam, atau basa. Setelah menggunakan *game* edukasi dalam jangka waktu tiga sampai dengan delapan hari, seluruh siswa dapat mengkonstruksi model mental yang benar secara mandiri. Pada umumnya guru memberikan respon positif pada cara menjelaskan konsep sifat asam-basa larutan garam, kejelasan karakter/animasi dan video, kemudahan navigasi, dan penerapan prinsip-prinsip belajar. Siswa pengguna memberikan respon positif untuk ketertarikan, keterlibatan, pemahaman konsep, tampilan, dan kegunaan game edukasi.

Kata kunci: *game* edukasi, intertekstual, model mental, sifat asam-basa larutan garam

DEVELOPMENT OF INTERTEXTUAL BASED EDUCATIONAL GAMES FOR CONSTRUCTING STUDENTS' MENTAL MODELS ON THE ACID-BASE PROPERTIES OF SALT SOLUTIONS INDEPENDENTLY

R.A. Eflin Nawang Wulan

Abstract

This research aims to produce an intertextual-based educational game product to construct students' mental models on the acid-base properties of salt solutions independently. The research method used is the Research and Development (R&D) method on a small scale. The results obtained are educational games on the concept of acid-base properties of salt solutions by linking content, pedagogy, and multimedia aspects which have been declared valid by five experts with backgrounds in chemistry, chemistry education and multimedia. Based on the results of TDM-IAE, it shows that the educational game can construct students' mental models independently. At first, most of the students had wrong or partially correct mental models regarding the species in salt solution, the hydrolysis reaction equation involving salt ions, and the reason a salt could be neutral, acidic, or basic. After using educational games for a period of three to eight days, all students can construct the correct mental model independently. Several teachers gave positive responses on how to explain the concept of acid-base properties of salt solutions, clarity of characters/animations and videos, ease of navigation, and application of learning principles. User students gave positive responses to the interest, involvement, understanding of the concept, appearance, and usability of educational games.

Keywords : acid-base properties of salt solutions, educational games, intertextual, mental models

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