PENGEMBANGAN MODEL INKUIRI BEBAS BERBASIS ETNOKIMIA UNTUK MENINGKATKAN KETERAMPILAN BERPIKIR KRITIS DAN LITERASI BUDAYA MAHASISWA PADA MATA KULIAH KIMIA DASAR

KHAERUMAN

ABSTRAK

Penelitian ini bertujuan mengembangkan Model Inkuiri Bebas Berbasis Etnokimia yang valid, praktis, dan efektif untuk meningkatkan keterampilan berpikir kritis dan literasi budaya mahasiswa pada mata kuliah Kimia Dasar. Penelitian ini menggunakan pendekatan *research and development* dengan model ADDIE, yang meliputi tahap *analysis, design, development, implementation,* dan *evaluation*. Konteks etnokimia yang digunakan adalah praktik pewarnaan benang/kain songket Lombok yang berkaitan dengan konsep asam-basa, ikatan kimia, dan laju reaksi. Data dikumpulkan melalui validasi ahli, angket kepraktisan, tes keterampilan berpikir kritis, angket literasi budaya, dan observasi keterlaksanaan model. Subjek penelitian adalah mahasiswa yang menempuh mata kuliah Kimia Dasar. Instrumen penelitian meliputi lembar validasi ahli, angket kepraktisan, tes keterampilan berpikir kritis, dan angket literasi budaya. Data dianalisis menggunakan statistik deskriptif dan inferensial menggunakan MANCOVA dan ANCOVA dengan taraf signifikansi 5%. Hasil penelitian menunjukkan bahwa model yang dikembangkan memiliki karakteristik terdiri atas delapan tahapan, yaitu identifikasi masalah, perumusan hipotesis, perencanaan eksperimen, pengumpulan data, analisis data, penarikan kesimpulan, refleksi dan presentasi, serta penyusunan laporan dan brosur edukasi. Model dinyatakan sangat valid dan sangat praktis. Hasil uji efektivitas menunjukkan bahwa model ini efektif meningkatkan keterampilan berpikir kritis dan literasi budaya mahasiswa, baik secara simultan maupun parsial.

Kata kunci: inkuiri bebas; etnokimia; keterampilan berpikir kritis; literasi budaya; pendidikan kimia

DEVELOPING AN ETHNOCHEMISTRY-BASED FREE INQUIRY LEARNING MODEL TO ENHANCE STUDENTS' CRITICAL THINKING SKILLS AND CULTURAL LITERACY IN BASIC CHEMISTRY

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ABSTRACT

This study aimed to develop a valid, practical, and effective Free Inquiry Model based on ethnochemistry to improve students' critical thinking skills and cultural literacy in the General Chemistry course. This study employed a research and development approach using the ADDIE model, which consists of the stages of analysis, design, development, implementation, and evaluation. The ethnochemistry context used in this study was the traditional practice of dyeing Lombok songket threads/fabrics, which is related to the concepts of acid-base chemistry, chemical bonding, and reaction rates. Data were collected through expert validation, practicality questionnaires, critical thinking skills tests, cultural literacy questionnaires, and observations of model implementation. The research subjects were students enrolled in the General Chemistry course. The research instruments included expert validation sheets, practicality questionnaires, critical thinking skills tests, and cultural literacy questionnaires. The data were analyzed using descriptive statistics and inferential statistics through MANCOVA and ANCOVA at a significance level of 5%. The results showed that the developed model has eight instructional stages, namely problem identification, hypothesis formulation, experimental planning, data collection, data analysis, drawing conclusions, reflection and presentation, and preparation of reports and educational brochures. The model was categorized as highly valid and highly practical. The effectiveness testing indicated that the model significantly improved students' critical thinking skills and cultural literacy, both simultaneously and partially. Therefore, the Free Inquiry Model based on ethnochemistry can be considered an innovative learning model that integrates scientific inquiry, local cultural wisdom, and contextual chemistry learning to enhance students' higher-order thinking and cultural awareness.

Keywords: *free inquiry; ethnochemistry; critical thinking skills; cultural literacy; chemistry education*