

ABSTRAK

PENGEMBANGAN INSTRUMEN ASESMEN KETERAMPILAN MEMODELKAN REPRESENTASI PADA TOPIK IKATAN KIMIA

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Penelitian ini bertujuan untuk mengembangkan instrumen asesmen keterampilan memodelkan representasi pada topik ikatan kimia berbasis kerangka kerja 3D-LAP (*The Three-Dimensional Learning Assessment Protocol*). Instrumen yang dikembangkan dirancang untuk mengukur integrasi tiga dimensi pembelajaran, yaitu dimensi *scientific practices*, *crosscutting concepts*, dan *disciplinary core ideas*. Pengembangan instrumen dilakukan menggunakan model 4D (*Define, Design, Develop, dan Disseminate*) yang dibatasi sampai tahap *Develop*. Validasi ahli dilakukan oleh dosen pendidikan kimia dan guru kimia melalui *expert judgment*. Hasil validasi menunjukkan bahwa instrumen memiliki tingkat kesesuaian isi yang tinggi. Uji validitas empiris menunjukkan bahwa seluruh butir soal memenuhi kriteria valid ($r_{hitung} > r_{tabel}$), dan hasil uji reliabilitas menunjukkan bahwa instrumen memiliki konsistensi internal yang baik. Instrumen asesmen yang dikembangkan memiliki karakteristik soal yang mengintegrasikan representasi makroskopis, submikroskopis, dan simbolis dalam konteks ikatan kimia. Instrumen disusun dalam bentuk soal uraian terbuka yang menuntut kemampuan berpikir tingkat tinggi peserta didik. Subjek uji coba terdiri dari 33 peserta didik kelas XI di salah satu SMA di Lampung. Hasil tanggapan guru menunjukkan bahwa instrumen mudah digunakan, relevan dengan tujuan pembelajaran, serta dapat digunakan untuk menilai keterampilan peserta didik secara komprehensif. Berdasarkan hasil tersebut, instrumen asesmen keterampilan memodelkan representasi berbasis 3D-LAP dinyatakan valid, reliabel, dan layak digunakan dalam pembelajaran kimia di tingkat SMA.

Kata kunci: instrumen asesmen, karakteristik instrumen asesmen, tanggapan guru, keterampilan memodelkan representasi, ikatan kimia.

ABSTRACT

DEVELOPMENT OF SKILL ASSESSMENT INSTRUMENTS FOR MODELING REPRESENTATIONS ON CHEMICAL BONDING TOPIC

By

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This study aims to develop an assessment instrument for representation modeling skills on the topic of chemical bonds based on the 3D-LAP (The Three-Dimensional Learning Assessment Protocol) framework. The instrument developed is designed to measure the integration of three dimensions of learning, namely the dimensions of scientific tactics, crosscutting concepts, and disciplinary core ideas. The development of the instrument was carried out using the 4D model (Define, Design, Develop, and Disseminate) which is limited to the Develop stage. Expert validation was carried out by chemistry education lecturers and chemistry teachers through expert judgment. The validation results showed that the instrument had a high level of content suitability. The empirical validity test showed that all questions met the valid criteria ($r_{\text{count}} > r_{\text{table}}$), and the results of the reliability test showed that the instrument had good internal consistency. The assessment instrument developed has the characteristics of questions that integrate macroscopic, submicroscopic, and symbolic representations in the context of chemical bonds. The instrument is arranged in the form of open-ended descriptive questions that require students' high-level thinking skills. The trial subjects consisted of 33 grade XI students at a high school in Lampung. The results of teacher responses showed that the instrument was easy to use, relevant to learning objectives, and could be used to assess students' skills comprehensively. Based on these results, the 3D-LAP-based representation modeling skills assessment instrument was declared valid, reliable, and feasible to be used in chemistry learning at the high school level.

Keywords: assessment instruments, characteristics of assessment instruments, teacher responses, representation modeling skills, chemical bonds.