

## ABSTRAK

**Muhammad Burhan Anggara, NIM. 8216142004. Pengembangan Instrumen Penilaian Hasil Belajar Kimia untuk Mengukur High Order Thinking Skills (HOTS) pada Materi Kimia Semester Genap Kelas XI SMA.** Tesis. Medan Program Studi Pendidikan Kimia, Pascasarjana Universitas Negeri Medan. 2023.

Penelitian ini bertujuan untuk menganalisis kebutuhan awal instrumen penilaian hasil belajar kimia semester genap kelas XI yang digunakan di sekolah dalam mengukur *High Order Thinking Skills* (HOTS) siswa, analisis instrumen penilaian HOTS berdasarkan validitas isi, hasil analisis item terhadap instrumen penilaian HOTS dengan pemodelan *Rasch*, tingkat kemampuan berpikir tingkat tinggi (HOTS) siswa yang diukur dengan instrumen penilaian HOTS, dan respon siswa terhadap instrumen penilaian HOTS yang dikembangkan. Metode yang digunakan dalam penelitian ini adalah penelitian pengembangan model ADDIE yang terdiri dari tahap *analyze, design, development, implementation, dan evaluation*. Berdasarkan hasil analisis kebutuhan diperoleh bahwa instrumen penilaian hasil belajar kimia yang digunakan di sekolah belum mampu mengukur kemampuan HOTS siswa. Sehingga dilakukan pengembangan instrumen penilaian hasil belajar untuk mengukur HOTS. Hasil uji validitas isi oleh dosen dan guru berada pada kategori valid. Terdapat uji asumsi dalam pemodelan *Rasch*, yaitu asumsi unidimensionalitas dengan *Principal Component Analysis* (PCA) dan independensi lokal yang telah terpenuhi. Hasil analisis item dengan *Rasch* diperoleh 30 dari 40 soal terkategori baik untuk digunakan sebagai alat untuk mengukur HOTS siswa. Instrumen penilaian yang dikembangkan memiliki kemampuan yang baik dalam mengukur HOTS siswa dengan perolehan 54,39% (kurang), siswa dengan perolehan 36,84% (sedang), dan 8,77% (tinggi). Respon siswa terhadap penggunaan instrumen HOTS dalam bentuk *googleform* berada pada kategori sangat baik. Produk berupa instrumen penilaian hasil belajar kimia yang dikembangkan valid dan memenuhi persyaratan kualitas soal yang baik serta dapat digunakan untuk mengukur kemampuan HOTS siswa dan dapat digunakan secara *online*.

**Kata Kunci:** HOTS, instrumen, rasch model, ADDIE.

## ABSTRACT

**Muhammad Burhan Anggara, NIM. 8216142004. Development of Chemistry Learning Outcomes Assessment Instruments to Measure High Order Thinking Skills (HOTS) in Chemistry Matter Even Semester Class XI SMA.** Thesis. Medan Department of Chemistry Education, Postgraduate of State University of Medan. 2023.

This study aims to analyze the initial needs for an instrument for assessing chemistry learning outcomes for even semester grade XI used in schools for measuring High Order Thinking Skills (HOTS), the feasibility level of the HOTS assessment instrument based on content validity, the results of item analysis on the HOTS assessment instrument using Rasch model analysis, the level of students' HOTS which measured by the HOTS assessment instrument, and students' responses to the developed HOTS assessment instrument. The method used is ADDIE which consists of some stages such as analyze, design, development, implementation, and evaluation. Based on the results of the needs analysis, it was found that the chemistry learning outcome assessment instrument used in schools had not been able to measure students' HOTS abilities. Thus, a learning outcome assessment instrument was developed to measure HOTS. The results of the content validity test by lecturers and teachers obtained in the valid category. There are assumptions test in Rasch model, namely the assumption of unidimensionality with Principal Component Analysis (PCA) and local independence that have been met with the model. Then on the results of item analysis with Rasch, 33 out of 45 questions were categorized as good to be used as a tool to measure students' HOTS. The assessment instrument developed has a good ability to measure students' HOTS with the acquisition is 54,39% (low abilities), students' HOTS with the acquisition is 36,84% (moderate abilities), and 8,77% (high abilities). Then the students' responses to the usage of HOTS instrument in the form of a googleform application were in the very good category. This study produces a product in the form of a valid chemistry learning outcome instrument and can be used to measure students' HOTS abilities and can be used online.

**Keywords:** HOTS, instrument, rasch model, ADDIE