

## ABSTRACT

**Anis Yunita, NIM 4191131001 (2019). Development of a Four-Tier Diagnostic Instrument to Determine the Level of Students' Concept Understanding on the Subject of Reaction Rate in High School.**

This study aims to develop a four-tiered diagnostic test instrument that is feasible and valid for use in identifying the level of concept understanding of students in class XI IPA on the subject of reaction rates in high school. The population in this study were all students of class XI IPA SMA Swasta Persiapan Stabat with sampling through random sampling technique. The method used in this research is research and development (R&D) referring to the ADDIE development model. Small-scale trials were conducted to determine the feasibility of the test instruments developed based on validity, reliability, difficulty level, differentiating power, and the functioning of distractors. The research results obtained: (1) Stabat Preparatory Private High School has never used a four-tier diagnostic test instrument to identify students' level of concept understanding due to the unavailability of the instrument; (2) The test instrument developed has met good qualifications with the assessment of five expert validators. The reliability coefficient is 0.77 which shows a high reliability category; (3) The average result of the analysis of teacher responses to the four-tier diagnostic test instrument is 92.5% which indicates that the test instrument is classified as very good; (4) Analysis of student readability questionnaires showed that the average results of student responses to the four-tier diagnostic test instrument were 84.29% so that they were included in the very good criteria; (5) the results of the small-scale test analysis of 20 items obtained 14 questions in the valid category and 6 questions in the invalid category.

**Keywords:** Development, Assessment Instrument, Concept Understanding, Four-Tier Diagnostic Test, Reaction Rate.

## ABSTRAK

**Anis Yunita, NIM 4191131001 (2019). Pengembangan Instrumen Diagnostik *Four-Tier* Untuk Mengetahui Tingkat Pemahaman Konsep Siswa Pada Pokok Bahasan Laju Reaksi Di SMA.**

Penelitian ini bertujuan untuk mengembangkan suatu instrumen tes diagnostik berformat *four-tier* yang layak dan valid digunakan dalam mengidentifikasi tingkat pemahaman konsep siswa kelas XI IPA pada pokok bahasan laju reaksi di SMA. Populasi dalam penelitian ini adalah seluruh siswa kelas XI IPA SMA Swasta Persiapan Stabat dengan pengambilan sampel melalui teknik *random sampling*. Metode yang digunakan dalam penelitian ini adalah *research and development* (R&D) mengacu pada model pengembangan ADDIE. Uji coba skala kecil dilakukan untuk mengetahui kelayakan dari instrumen tes yang dikembangkan berdasarkan validitas, reliabilitas, tingkat kesukaran, daya pembeda, dan keberfungsian distraktor. Hasil penelitian diperoleh: (1) SMA Swasta Persiapan Stabat belum pernah menggunakan instrumen tes diagnostik *four-tier* untuk mengidentifikasi tingkat pemahaman konsep siswa karena ketidaktersedian instrumen tersebut; (2) Instrumen tes yang dikembangkan telah memenuhi kualifikasi baik dengan penilaian dari lima validator ahli. Koefisien reliabilitasnya sebesar 0,77 yang menunjukkan kategori reliabilitas tinggi; (3) Hasil rata-rata analisis respon guru terhadap instrumen tes diagnostik *four-tier* sebesar 92,5% yang menunjukkan bahwa instrumen tes tergolong dalam kriteria sangat baik; (4) Analisis angket keterbacaan siswa menunjukkan bahwa rata-rata hasil tanggapan siswa terhadap instrumen tes diagnostik *four-tier* sebesar 84,29% sehingga termasuk dalam kriteria sangat baik; (5) hasil analisis uji skala kecil dari 20 butir soal diperoleh 14 soal dalam kategori valid dan 6 soal dalam kategori tidak valid.

**Kata Kunci:** Pengembangan, Instrumen Penilaian, Pemahaman Konsep, Tes Diagnostik *Four-Tier*, Laju Reaksi.