

INTISARI

MODEL RESPON BERTINGKAT TEORI RESPON BUTIR UNTUK RESPON POLITOMUS ORDINAL

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Teori respon butir merupakan metode analisis butir soal yang memperhatikan hubungan antara sifat laten (kemampuan) dan respon peserta terhadap butir soal dalam tes. Model respon bertingkat merupakan salah satu model respon politomus dalam teori respon butir dengan respon bertingkat. Pada penelitian ini, instrumen tes (kuesioner) kemampuan *self-efficacy* siswa diisi oleh siswa sekolah menengah pada bulan Januari 2025. Model respon bertingkat pada penelitian ini, akan diestimasi berdasarkan pada distribusi normal dan sifat kelas laten. Estimasi parameter butir dan kemampuan menggunakan estimasi maksimum likelihood marginal dan algoritma ekspektasi-maksimisasi. Berdasarkan hasil analisis model dari model yang diestimasi berdasarkan distribusi normal, diperoleh estimasi masing-masing kemampuan *self-efficacy* siswa dikarenakan adanya independensi lokal. Kemudian hasil analisis model dari model yang diestimasi berdasarkan distribusi kelas laten, memberikan fleksibilitas dalam distribusi kemampuan dan hasil estimasi kemampuan siswa sudah masuk kedalam kelas-kelas laten tertentu yang memudahkan pengkategorian kemampuan *self-efficacy* siswa. Kemudian, instrumen tes (kuesioner) *self-efficacy* akurat untuk mengukur siswa dengan tingkat *self-efficacy* sedang dan terdapat 7-11 butir soal yang sebaiknya dievaluasi atau dieliminasi dari instrumen tes karena tidak cukup baik dalam memberikan informasi tingkat *self-efficacy* siswa.

Kata Kunci: Teori Respon Butir, Model Respon Bertingkat, Estimasi Maksimum Likelihood Marjinal, Algoritma Ekspektasi-Maksimisasi, Normal, Kelas Laten, *Self-Efficacy*



ABSTRACT

GRADED RESPONSE MODEL OF ITEM RESPONSE THEORY FOR ORDINAL POLYTOMOUS RESPONSES

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Item response theory is a method of item analysis that considers the relationship between latent traits (abilities) and participant responses to test items. The graded response model is one of the polytomous response models in item response theory with graded responses. In this study, the student self-efficacy test instrument (questionnaire) was completed by secondary school students in January 2025. The multilevel response model in this study will be estimated based on the normal distribution and latent class properties. Item and ability parameters were estimated using marginal maximum likelihood estimation and expectation-maximization algorithm. Based on the results of the model analysis of the model estimated based on the normal distribution, the estimation of each student's self-efficacy ability is obtained due to local independence. Then, the results of the model analysis of the estimated model based on the latent class distribution provide flexibility in the distribution of abilities, and the estimated results of student abilities have entered into certain latent classes that facilitate the categorization of students' self-efficacy abilities. Then, the self-efficacy test instrument (questionnaire) can be accurately measured for students with moderate levels of self-efficacy, and there are 7 to 11 items that should be evaluated or removed from the test instrument because they are not good at providing information about students' self-efficacy levels.

Keywords: Item Response Theory, Graded Response Model, Marginal Maximum Likelihood Estimation, Expectation-Maximization Algorithm, Normal, Latent Class, Self-Efficacy