

Factors influencing mathematics achievement of junior high school students in DIY and DKI Jakarta Provinces: Comparative study with multilevel modeling

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ABSTRACT

Mathematical skills are one of the most important skills for students, especially in facing the era of the Industrial revolution 4.0. This study aims to determine the factors that affect students' mathematics achievement in the Special Region of Yogyakarta (DIY) and the Special Capital Region (DKI) Jakarta based on the 2018 Program for International Student Assessment (PISA) survey data. The method used is the inferential statistical method using two-level multilevel modeling to accommodate diversity within and between student and school levels. Multilevel modeling is a technique for dealing with structured data. The response variable in this study is the students' mathematical achievement. The predictor variables included gender, socioeconomic status, growth mindset, mother's higher education, father's higher education, learning facilities at home, learning effort, self-confidence, students' goals, and students' competitive spirit. The results showed that parental support, student effort, and students' competitive spirit were significant predictors and had a positive effect on students' mathematics achievement in Yogyakarta and DKI Jakarta. Learning facilities at home and students' goals were significant predictors but had a negative effect on students' mathematics achievement in DIY and DKI Jakarta.

Kata Kunci: *multilevel, math achievement, PISA*