Simulation of low-high method in adaptive testing

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ABSTRACT

The era of disruption significantly engineered a classic testing system into an adaptive testing system where each test taker takes a unique test. However, the carrying capacity of the adaptive testing system engineering is experiencing obstacles in terms of the method of presenting the test questions. The study aims to introduce the low-high adaptive tracking method with the item response theory approach, where the difficulty level of the questions is adapted to the test takers' abilities. The number of test questions in the question bank is 400 questions. Data analysis used the Bilog-MG program. The range of the difficulty level of the questions and the ability level of the test takers was determined [-3.3]. The initialization of the ability of each test taker is set flexibly. The test taker's response uses the pattern of all wrong, all true, and normal responses. The research results show that the low-high method with the IRT approach matches the pattern of the method of giving adaptive test questions. The low-high method requires about 17 test questions to find the ability of the test takers. Another characteristic of the low-high method is that if the responses of the test takers' three to five questions are all correct, then the calculation of divergent abilities is positive, and if the responses of the test takers' three to five questions are all wrong, then the calculation of convergent abilities is negative. Teachers can use the low-high method to design and assemble adaptive tests in schools electronically and manually.