

Title: Determining Mathematical Item Characteristics Corresponding With Item Response Theory Item Information Curves

Preliminary Research Report

Abstract:

Tests in undergraduate mathematics courses are generally high stakes, and yet have low reliability. The current study aims to increase the reliability of such exams by studying the qualities of test items that determine the ability of the item to contribute to the information of the test. Using a three parameter item response theory model, 695 items contained in 25 different tests for 5 different first-year undergraduate mathematics courses have been analyzed to determine the ability of each item to contribute to the corresponding test's reliability. During the conference presentation, the speakers will solicit input from the participants regarding the types of qualities of these items that may contribute to their information index. These qualities may include cognitive, mathematical content, linguistic, or other descriptions.

Keywords: Assessment, test writing, item response theory