Cognitive Diagnostic Assessment of Student’s Mastery Level of Mathematics Skills in the Upper Three Grades

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ABSTRACT

The purpose of this research was to assess students’ mastery level in mathematics in the upper three grades of primary education, from the perspective of cognitive diagnostic assessment; which relies on the scores of attributes rather than on students’ total test score. Quasi-experimental methodology was used in the study. A mathematics test (34 items) was administered to a random sample (N= 296) of students in grades fourth, fifth, and sixth, within ten schools; randomly selected from the primary schools in Bahrain. The general mastery level of students, by sex and grade, was above average, but did not reach the mastery level (60%), on both the total score and the six attributes; except with one attribute, related to analysis and inference, where the mastery level was above the minimum. The results showed that the reliability coefficient of test scores, and all of the six attributes was high. In addition, there was a strong positive correlation between the total test scores and those of the six attributes. The results indicated the importance of focusing on mathematics attributes and their scores, instead of relying on the total test score; when judging students’ mastery level, and making decisions about the remediation of their weakness in math skills, as attributes, and their success, especially at the national test level.

Keywords: Primary education, mathematics, mastery, attribute, reliability

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