Item banking for Grade 9 Mathematics: the Application of Item Response Theory

Nu Nu Khaing[1] and Su Mon Aye[2]

Abstract

In education, tests are generally used to evaluate the qualities of students. To measure the accurate achievements of students, the reliable tests are required. Many reliable items can be obtained from item bank. The aim of the study is to construct an item bank for Grade 9 Mathematics Achievement Test. There were 240 objective items in the item bank. All items were calibrated by using Item Response Theory (IRT). Next, three practical tests (Form A, Form B and Form C) were developed by using good items from the item bank in order to study how to construct new tests from item banking. These tests were administered to 1617 Grade 9 students in Yangon Region. As the result, the value ranges of item parameters of three practical tests are quite similar with their value ranges before taking from the bank. Therefore, it is confirmed that the item bank can be used to construct many new Mathematics achievement tests without administering the field test.

Key words: Item bank, Item response theory (IRT), Item parameters, Mathematics

1. Assistant Lecturer, Dr., Department of Educational Psychology, Yangon University of Education
2. Senior Assistant Teacher, B.E.H.S (3), Tharkayta Township, Yangon