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Application of Item Response Theory as a Modern Statistical Tool Totest Item Development and Analysis

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Abstract: *In the educational and psychological testing, there are two major theories through which tests can be developed, validated and ultimately used for assessing examinee's performance. These are classical test theory (CTT) and item response theory (IRT) and their corresponding models. Item Response Theory (IRT) as a test theory came into existence to provide probabilistic approach to surmount some of the inherent limitations of the classical test theory and maximize objectivity in educational assessment. Item response theory (IRT) is a quantitative approach to testing the reliability and validity of an instrument based on its items. It has statistics for evaluating individual items from a quantitative perspective. The purpose of this paper is to describe in details, the application of item response theory in test item development and analysis. The reason for the application of IRT is to have test items that will yield a reasonable degree of reliability. The statistics used in this respect are – item difficulty parameter, which is a measure of the proportion of testees who responded to an item correctly; the item discrimination parameter, which is the measure of how well the items discriminate between examinees with high and low levels of knowledge or ability and pseudo-guessing parameter, which expresses the probability that an examinee with low ability can be able to get an item correctly. The acceptable range of values of the aforementioned parameters were also discussed.*

Keywords: Item Response Theory, Statistical Tool, Test, Analysis.

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