



ITEM PARAMETER ESTIMATES OF UNIFIED TERTIARY MATRICULATION MATHEMATICS EXAMINATION USING ITEM RESPONSE THEORY 3 – PARAMETER LOGISTIC MODEL

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AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Item response theory has become a unique methodological framework for reviewing response data from assessments in education and other fields of study. This study attempted to assess the Item parameter estimates of Nigeria's unified tertiary matriculation mathematics assessment instrument using item response theory 3 – Parameter logistic model and determined the conformity level of the items of the instrument to the revised Bloom's taxonomy of educational objectives. The descriptive validation design was applied in the study. The population of the study comprised the 3, 320 SS 3 students registered for 2020 Unified Tertiary Matriculation Examination (UTME) who opted for mathematics in the public secondary schools in Abia State out of which 40 students were selected. Simple random sampling and purposive sampling techniques were adopted in selection of the samples using multistage procedure. Mathematics Assessment instrument used in the 2017, 2018 and 2019 UTM examinations were the instruments for data collection. This was made up of 120 (40 items for each year) multiple choice items, each having a single stem with four options including one correct answer and three distractors. *b*, *a* and *c*-parameters of the individual items of the instruments were established. The findings of the study revealed that a very high percentage (95% in 2017, 95% in 2018 and 85% in 2019) of the items were of moderate difficulty and discriminated adequately among high and low performing students. More so, the pseudo guessing parameter estimate indicated that there were low level of guessing since a high percentage ((90% in 2017, 92.5% in 2018 and 90% in 2019%)) of the items survived. The researcher recommended among others that examination bodies in Nigeria should concretize the quality of their test items by conducting item analysis using IRT model.

Keywords: Item parameter; tertiary matriculation; mathematics examination; 3-parameter logistic model.

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Mathematics Unified Examination Theory

United States Air Force Academy

A red circular graphic with a gradient, appearing as a stylized arrow or a partial circle, located to the right of the United States Air Force Academy text.

Mathematics Unified Examination Theory:

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