Criterion-Referenced Test Reliability through Threshold Loss Agreement: Fuzzy Logic Analysis Approach

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Abstract : Criterion-referenced tests (CRTs) are designed to measure student performance against a fixed set of predetermined criteria or learning standards. The reliability of such tests cannot be based on internal reliability. Threshold loss agreement is one way to calculate the reliability of CRTs. However, the selection of master and non-master in such agreement is determined by the threshold point. The problem is if the threshold point witnesses a minute change, the selection of master and non-master may have a drastic change, leading to the change in reliability results. Therefore, in this study, the Fuzzy logic approach is employed as a remedial procedure for data analysis to obviate the threshold point problem. Forty-one Iranian students were selected; the participants were all between 20 and 30 years old. A quantitative approach was used to address the research questions. In doing so, a quasi-experimental design was utilized since the selection of the participants was not randomized. Based on the Fuzzy logic approach, the threshold point would be more stable during the analysis, resulting in rather constant reliability results and more precise assessment.