

EVALUATING ONLINE TEST ADMINISTRATION DURING THE COVID-19 OUTBREAK: A RASCH MODEL ANALYSIS WITH A BAYESIAN APPROACH

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The COVID-19 pandemic forced schools around the world to switch to online education with all learning activities taking place in the virtual space. In line with social distancing rules, remote administration of testing has become more favorable during this period, however, the fairness of these online examinations has become a question of debate. This study explores the psychometric characteristics of the online mid-term test in Vietnam as well as students' performance. The research questions were as follows: What are the psychometric properties of the test? Which students are least confident about their true abilities? Were there any students with unusual results? Participants were 470 tenth-grade students in a high school in Vietnam. Due to the COVID-19 restriction measures, students took their mid-term exams online at home. All administrative issues of the assessment were managed via the online assessment platform, and students were observed with the help of the Zoom application. The mid-term test is a kind of summative assessment to assess students' knowledge and skills related the math curriculum. The test included 25 multiple-choice items. All students took the same test items in 45 min, however, items were presented in a random order for individuals accessing the test. We applied the Rasch model measurement and the Bayesian Item Response Theory to examine the test results. Our analyses revealed that the test fitted quite well to the data in the unidimensional model of Rasch measurement (coefficient $\alpha=0.80$, weighted fit=0.80–1.26). 19 students were flagged as being the least confident in their true abilities. We also computed the outfit for every individual across all items. The list of students who had the highest outfit score was flagged by using Rasch measurement. This study is important in the field as it provides a comprehensive analysis of online assessment administration. The approach we applied could also be extended to future research on online administration procedures, as test fairness is still a significant issue in school contexts in the post-pandemic situation.