

Category Data Analysis of Students' Responses Utilizing Latent Class Analysis

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ABSTRACT

In the context of educational assessment and evaluation, various input data can be used, and various alternative types of output variables are expected. The types of input and output variables determine the type of analysis used. One alternative analysis model with input and output data is categorical variables, latent class analysis (LCA) can be used. This research aims to carry out latent variable analysis on student responses to categorical data with the aim of grouping using multivariables.

This research uses student response data on mathematics tests. The data amounted to 30 question items involving 3,353 students who were asked to work on the questions. Data analysis with LCA was carried out using R-studio and Microsoft Excel.

The results of the latent class analysis carried out gave rise to four types of students based on their responses. Two classes show tiered category types (high and low ability) and two classes show unique categories. High ability is called class A, low ability is called class D, and the other two abilities are called class C and class B. The existence of these two unique classes shows that the dimensions of student ability are not homogeneous. What's unique is that overall (all four classes) there are results that show all items have a low probability of answering correctly with a probability <0.4 . There are students who are dominant in one dimension but not dominant in other dimensions. The existence of students with these unique characteristics has consequences so that the preparation of ability measurement tools and programs to improve student abilities can be enhanced with effective learning strategies for identified groups of students, especially in solving mathematics story problems.

Kata Kunci: students' responses, latent class analysis, classification