ABSTRACT

Nurfidhea Dwidelia, 2025. *Development of Higher Order Thinking Skills-Based Questions with Islamic Context Using the Tessmer Model in the Linear Algebra Course.* Supervised by Sukmawati and Sitti Fithriani Saleh.

This study focuses on developing Higher Order Thinking Skills (HOTS)-based questions with an Islamic context using the Tessmer model in the Linear Algebra course. The research aims to produce questions that can train higher-order thinking skills, are integrated with Islamic values, and demonstrate good validity, reliability, difficulty level, and discriminating power. The study employed the Research and Development (R&D) method using the Tessmer development model, which consists of four stages: Preliminary, Self-Evaluation, Prototyping, and Field Test. The research subjects were students of the Mathematics Education Study Program. The instruments used included validation sheets, test instruments in the form of developed questions, and interview guidelines.

The study produced Islamic context-based HOTS questions covering the topics of matrices, determinants, systems of linear equations, vectors in R and R^3, vector spaces, and linear transformations, with cognitive levels C4 and C5. The developed questions were accompanied by a blueprint, answer key. and scoring rubric based on Polya's problem-solving steps. The questions met the criteria of being valid, having very high reliability, a moderate level of difficulty, and good discriminating power. In terms of content validity, the questions achieved a CVI score of 1 for the material aspect. The questions were validated by religious and language experts in terms of islamic context and linguistic quality. The construct validity test results showed that each item had an r calculated value greater than the table value of 0.361. The average Cronbach's Alpha score was 0.921, categorized as very high. The average difficulty index was 0.68 (moderate category), and the average discriminating index was 0.45 (good category).

Therefore, the developed questions not only train students' higher-order thinking skills but also provide stimulation through Islamic values. This study contributes to the availability of HOTS-based questions embedded with Islamic context for the Linear Algebra course. Further research is recommended to develop Islamic context-based HOTS questions at the cognitive level C6.

Keywords: Linear Algebra HOTS, Islamic Context Research and Development.