7th International Conference on Academic Research in **Science, Technology and Engineering**

ICARSTE
13 – 15 March 2025
Berlin, Germany

Research on Test Question Recommendation Method Based on Knowledge Graph

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Abstract

With the widespread adoption of online education, the scale of test question resources has grown rapidly, yet traditional recommendation methods fail to accurately match the personalized learning demands of students. This study proposes a personalized test question recommendation method based on a knowledge graph, combining the semantic relationships between students' cognitive levels and knowledge points to achieve efficient test question recommendations. The research first constructs a clear hierarchical knowledge graph based on junior high school mathematics, and then uses the DINA model and TransR model to analyze students' mastery of knowledge and the proximity between knowledge points, thereby formulating test question recommendation rules. Experiments show that this method can improve the accuracy of test question recommendations and learning efficiency, providing students with personalized and targeted learning support.

Keywords: Knowledge Graph, DINA, Test Question System, TransR Model