

***ANDROID-BASED INTERACTIVE QUIZ GENERATION SYSTEM WITH
SEMANTIC ANALYSIS IMPLEMENTATION USING LONG SHORT-TERM
MEMORY METHOD***

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ABSTRACT

Students' Critical Thinking Skills in Indonesia remain relatively low, as indicated by the results of the Programme for International Student Assessment (PISA), which show that the majority of Indonesian students are below level 2 in mathematical literacy, reading, and science. Furthermore, this issue is supported by research findings indicating that no junior high school students reached the high critical thinking category. This problem stems from suboptimal learning processes in developing students' thinking abilities. To address this issue, this study developed an interactive quiz application with an automatic question generation system. This approach aims to enhance understanding and stimulate students' critical thinking patterns through quizzes. The automatic quiz system was developed using semantic analysis and LSTM, achieving 98% accuracy in Named Entity Recognition (NER) and 97% in Semantic Role Labeling (SRL). Meanwhile, the question generation model achieved a BLEU score of 2%, and the question answering model achieved a BLEU score of 30%. These results indicate that the developed model is capable of understanding context to generate questions and quizzes that can support the development of students' thinking skills.

Keywords: LSTM, Semantic Analysis, Question Generation, Question Answering, Android, PISA, Interactive Quiz, Critical Thinking, NLP