**English Textbook Content Comprehension with LDA to improve the acquisition skills of learners**

**Abstract:** In Bangladesh, rural students exhibit inadequate proficiency in English language. Pupils cannot fully grasp the context of the National Curriculum and Textbook Board (NCTB) provided textbooks. In this research study, an unsupervised topic modeling LDA approach is proposed to comprehend the context of NCTB’s English book. Exploratory analysis is shown to depict significant keywords related to subtle topics in context. It identifies latent topics within lessons that uncover coherent themes from textual data. Extensive analysis is conducted to visualize high impact keywords, co-occurrence patterns, and correlations between extracted topics. It is anticipated that it will improve the curriculum provided by English textbook content synthesis and the acquisition skills of learners. A prototype mobile app is developed that incorporates topic modeling and extracted keywords. Furthermore, a qualitative research survey is undertaken to evaluate its effectiveness on end-users (course instructors at Bangladesh's higher secondary school). The challenges and future potential of LDA extracted content integrated into mobile apps in the learning process are explored. After collecting feedback, word clouds were used to analyze the participants' recommended terms, and the LIWC approach was used to estimate overall sentiment. The LIWC score showed positive sentiment, and the survey process enticed the participants, demonstrating that learners are eager to use the NLP technology driven topic modeling approach in teaching and learning, and there are tremendous opportunities.

**Keywords:** Natural Language Processing (NLP), Topic Modeling, Latent Dirichlet Allocation (LDA), Exploratory Analysis, Textbook Learning, Coherence

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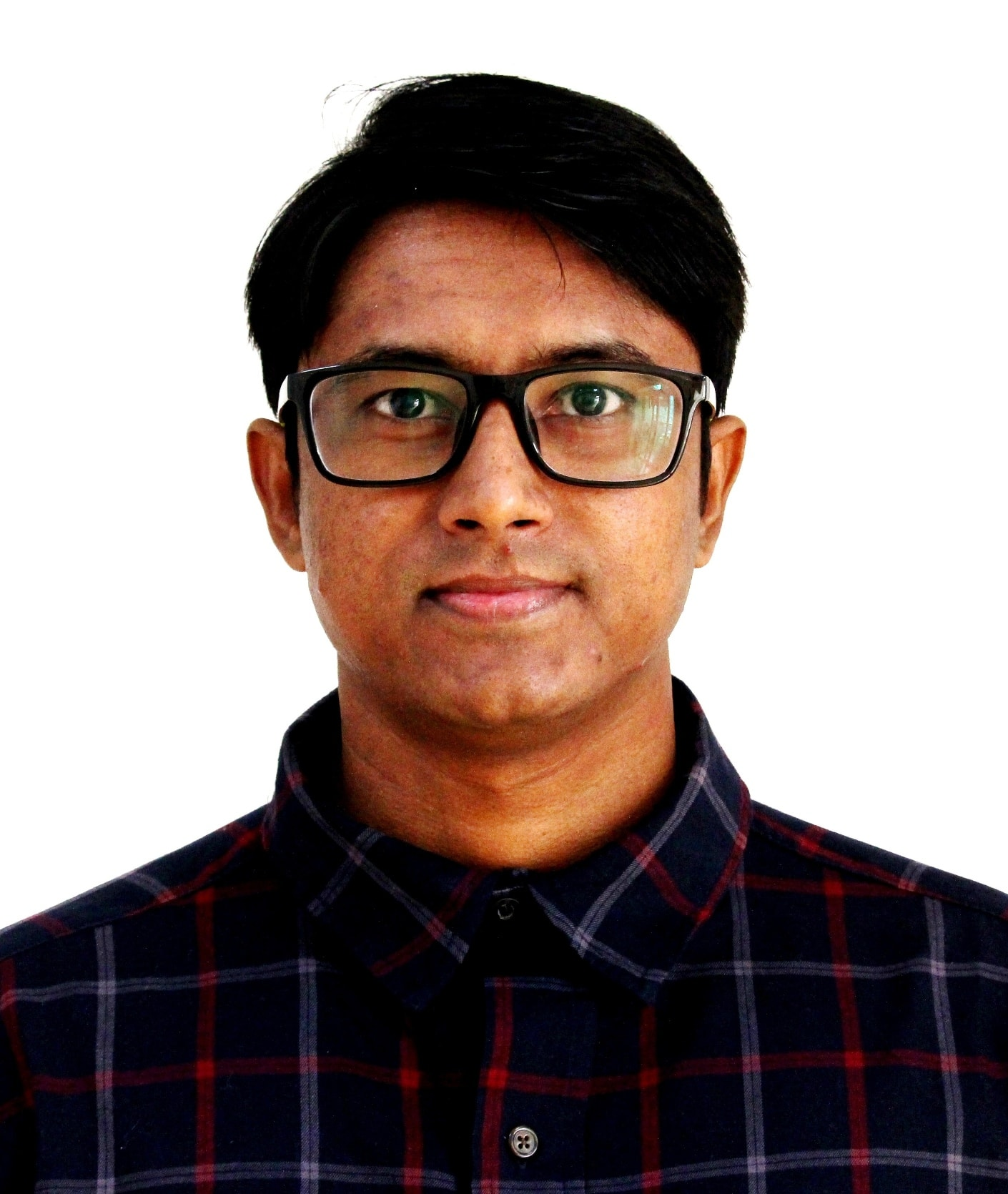
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