

Assessing Malaysian University English Test (MUET) Essay on Language and Semantic Features Using Intelligent Essay Grader (IEG)

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ABSTRACT

Automated Essay Scoring (AES) refers to the Artificial Intelligence (AI) application with the “intelligence” in assessing and scoring essays. There are several well-known commercial AES adopted by western countries, as well as many research works conducted in investigating automated essay scoring. However, most of the products and research works are not related to the Malaysian English test context. The AES products tend to score essays based on the scoring rubrics of a particular English text context (e.g., TOEFL, GMAT) by employing their proprietary scoring algorithm that is not accessible by the users. In Malaysia, the research and development of AES are scarce. This paper intends to formulate a Malaysia-based AES, namely Intelligent Essay Grader (IEG), for the Malaysian English test environment by using our collection of two Malaysian University English Test (MUET) essay dataset. We proposed the essay scoring rubric based on its language and semantic features. We analyzed the correlation of the proposed language and semantic features with the essay grade using the Pearson Correlation Coefficient. Furthermore, we constructed an essay scoring model to predict the essay grades. In our result, we found that the language featured such as vocabulary count and advanced part of speech were highly correlated with the essay grades, and the language features showed a greater influence on essay grades than the semantic features. From our prediction model, we observed that the model yielded

better accuracy results based on the selected high-correlated essay features, followed by the language features.

Keywords: Artificial intelligence, automated essay scoring, intelligent system in education, machine learning, MUET, natural language processing

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