Feeding Two Birds with One Scone: Using AWE to Enhance Writing and Creativity among Pre-university Students

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Abstract— The artificial intelligence (AI) revolution has redefined the practices of teaching and learning writing in academia. AI tools being so accessible to students appear to have desirable effects for self-learning, yet they are also capable of veering them off course. This paper is a pilot study to reveal the potency of employing Automated Writing Evaluation (AWE), an AI-based tool with the application of natural language processing (NLP) to analyse and generate feedback on various aspects of writing in English language writing instructions to improve writing proficiency and creative performance. Pre-test for writing and creativity were administered to eleven CEFR B1 second language learners. Upon using an AWE tool as formative assessment, post-tests and interview protocol were conducted to obtain a richer analysis of the data. The results indicate improvements in writing and creativity scores. The participants believed that the use of AWE particularly improved their writing proficiency due to these features: unlimited revision, interactivity, immediate feedback. This study serves as a springboard for writing teachers to incorporating AI tools in their writing lessons while acknowledging the potential of creativity to be stimulated in those lessons.

Keywords— Automated Writing Evaluation, Artificial intelligence, Natural language processing, Writing proficiency Creativity

I. INTRODUCTION

Utilisation and adoption of the artificial intelligence (AI) in education is becoming prevalent for various purposes. At the institutional level, AI is able to assist the administrations of assessments and analysis of relevant data to make data informed decisions. Instructors, on the other hand, are able to innovate their teaching approaches with AI-based technologies and platforms for meaningful learning and quality education [1]. In the language learning context, influences of AI is evident through AI-powered technologies such as intelligent tutoring systems, natural language processing applications, language learning analytics and language chatbots, which utilise the machine learning techniques, functions and adaptability to generate human-like language exercises for personalised language learning experiences. These technologies are also able to create interactive and engaging language learning experiences for learners, and ease instructors' tasks for effective instructions [2,3].

Automated writing evaluation (AWE) is another AI powered technology commonly utilised in writing classes. It is a system that can be used to analyse and evaluate learners' written work for immediate scoring and feedback [4,5]. The AWE system has been developed, used and researched for over a decade, and its validity and effectiveness are still being studied both from the instructors' and learners' point of view [4,5,6]. Arguments on the effectiveness of AWE use in writing classes include the validity and trustworthiness of the automated scores [6,7], effectiveness of student engagement in the writing process especially for high proficiency learners [5,7], accuracy of the grammatical aspects generated by the system [5,7], and the appropriate pedagogical strategies to be adopted by teachers for effective instructions [5,6].

Despite the extensive research on AWE [5], one important variable which may yet to be investigated and linked to the use of AWE in writing classes is its ability to judge and enhance creativity [4]. Writing is a process, which requires idea generation and development of a narrative or account highly dependable on creativity. Trusting this process to an AI-based technology may affect the outcomes in terms of learners' writing performance and indirectly their creative talent. This paper therefore reports a pilot investigation on the utilisation of AWE on pre-university students' writing and creative performance.

II. RESEARCH METHODS

This pilot study used a mixed-methods approach, employing pre-tests and post-tests in experiential teaching for eight weeks. The quantitative data from the tests were synthesised with the interview protocol's qualitative data to gain richer information and to reduce the limitations inherent from each method [8].

A. Participants

The sample encompasses eleven students from different academic backgrounds who enrolled in a pre-university