



THE EMPLOYMENT OF ARTIFICIAL INTELLIGENCE (AI) POWERED CHATBOTS AND VOICE ASSISTANTS TO IMPROVE ENGLISH SPEAKING PROFICIENCY: IMPACT ON UNDERGRADUATES IN SRI LANKA

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Consequences of globalization and the rapid digital transformation of the world have elevated the necessity of second language learners to excel in English speaking skills to compete in academic and professional settings. The major objective of this study was to investigate the effectiveness of Artificial Intelligence (AI) powered tools in enhancing students' fluency in English speaking. The incorporation of AI powered chatbots and voice assistants represents a new approach that caters to this knowledge gap. Furthermore, this study explored the efficacy of these tools in improving oral competence through interactive and constructive opportunities to interact with the English language. The research sample consisted of 120 undergraduates in disciplines of Business and Information Technology from the University of Kelaniya, Sabaragamuwa University and Informatics Institute of Technology (IIT) representing both state and private university sectors. The study was conducted during a period of six weeks. The mixed method approach was utilised, including surveys, focus group conversations and recorded AI assisted conversations focused on perceptions of students, levels of engagement and improvements in oral proficiency. As per findings of the study, AI powered tools have positively impacted the fluency in speaking, vocabulary building, and confidence in language communication. All three universities evidenced that AI powered tools offer learners with immediate and real-life opportunities for communicative competence reducing over-reliance on classroom based and teacher-centered speaking activities. In relation to vocabulary acquisition, AI powered applications were employed during the intervention sessions and informally during peer learning activities. Results depicted a lower level in vocabulary acquisition deriving limitations owing to the lack of technological infrastructure and free access to AI tools. In terms of pronunciation, AI powered voice assistants such as SIRI and Google Assistant promoted accurate pronunciation through instant feedback and technologies in speech recognition. Furthermore, interviews with selected students from the sample evidenced that the unavailability of cultural barriers and fear of judgement upsized the confidence level in speaking in English and the constant engagement with the language. The integration of AI technology in ESL pedagogy in Sri Lankan universities was identified as a key requirement to fulfil the knowledge gap and the global professional demand for undergraduates.

Keywords: Artificial Intelligence, chatbots, English speaking proficiency, voice assistants

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INTRODUCTION

The ability to communicate effectively in English has become a crucial skill in the academic and professional spectrums in global and local settings. Irrespective of institutional and constitutional suggestions and changes taken to improve English language proficiency among Sri Lankan students, less focus is given to enhance speaking proficiency in English which remains the most challenging competency for students. It is obvious that Generation Z (Gen Z) students are largely exposed to technological appliances and competencies, and the knowledge in English language is interconnected with them. The major objective of this study is to investigate the effectiveness of AI powered tools in enhancing students' fluency in English speaking. The incorporation of AI powered chatbots and voice assistants represents a new approach that caters to this knowledge gap. The researcher has selected ChatGPT, SIRI, and Google Assistant as platforms to enhance English speaking proficiency as these platforms provide simulated conversations close to real life while providing instant feedback for the recipient. The role of technology in language learning has become a widely improved discipline in the world with the gradual improvements in mobile assisted learning (MALL) and AI integrated education platforms. Studies worldwide manifest that AI powered applications contribute to vocabulary acquisition among English speakers; yet, it is not examined in Sri Lanka. Therefore, this study aims to explore the impact of AI powered tools to enhance speaking proficiency focusing on the impact in improving fluency, vocabulary acquisition, pronunciation, and confidence in communicating in English. Moreover, it explores perceptions and experiences of undergraduates in using AI powered tools such as ChatGPT, SIRI, and Google Assistant for improving English speaking proficiency.

METHODOLOGY

The study incorporated the mixed method approach as the applicable methodology to investigate the impact of AI powered chatbots in improving English language proficiency of undergraduates. The research sample consisted of 120 students equally selected from University of Kelaniya, Sabaragamuwa University, and Informatics Institute of Technology (IIT). These selected participants were from disciplines of Business Management and Information technology degree programmes with different levels of English language proficiency. Participants were selected owing to the willingness to participate and their varying levels of English language proficiency. The study was conducted for six weeks, and the participants were monitored during the usage of AI tools such as ChatPGT, SIRI, and Google Assistant through structured speaking tests, role plays, and informal conversations.



Students used AI tools to complete pronunciation exercises, answer daily conversation prompts and respond to scenario-based questions. The major data collection of the study was focused on pre and post intervention teaching assessments, surveys on perceptions of students and focus group discussions to capture qualitative insights into experiences and challenges. Moreover, quantitative data were analysed using descriptive statistics and qualitative data were examined through the coding method on themes to identify recurrent patterns of the data to derive comprehensive insights regarding the research phenomena.

RESULTS AND DISCUSSION

Major findings of the study were categorised under three key areas related to speaking proficiency in English.

a) Fluency in Speaking

According to the table, students were evaluated through a pre-prepared speech assigned. The researcher evaluated each student through the average count of words spoken by the students before and after AI intervention into the English language classroom. Students were assigned with a pre-prepared speech activity. They were advised to practise the speech using the voice dictation feature in Google Assistant. While students were engaged with the task, the researcher clearly monitored during practise session to employ the voice to text transcription and measured the amount of words uttered per minute. Students were given 2 weeks to practise, and when they presented the task, the examiner measured the words per minute (WPM) uttered by the student.

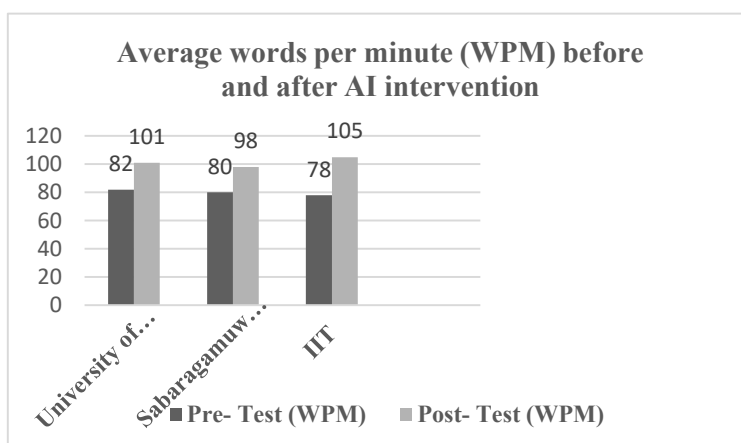


Figure 1: Average words per minute before and after AI intervention

Results indicated that all three universities experienced a significant improvement in the fluency in speaking. Undergraduates at IIT had evidenced the highest improvement (34.6%) and the major reason in this regard was the exposure to a greater level of digital literacy and more tech-integrated learning culture as per the feedback of students. Lower level of improvements in two state universities suggested the limited access to AI tools in learning settings and lack of familiarity with the accurate usage of AI tools.



b) Vocabulary usage

In this regard, 80 students from all three universities were employed in the study. Students were observed for 6 weeks and the researcher documented their conversations and the employment of academic vocabulary through collaborative tasks and focus group discussions. The participants were instructed to engage in collaborative speaking tasks and focus group discussions to employ ChatGPT as a conversational partner. Irrespective of the topic they were assigned to, the participants were instructed to use ChatGPT to find synonyms, antonyms, and contextual vocabulary suggestions. As the second phase of the activity, students were drawn to a debatable state where they mediated ChatGPT to stimulate their own ideas into more critical and real time information. The vocabulary usage of students was evaluated on the variety and appropriateness of words that students employ during focus group discussions, debates, role plays, and impromptu speeches before and after AI intervention. Results of this intervention affirms the research by Ruan et.al (2029) that upsizes the impact of AI powered conversational tools to foster vocabulary acquisition of students through the exposure to diversified lexical choices and encouraging contextual experimentation of words.

c) Confidence in using AI in communication

According to Fathi (2024), AI chatbots has the tendency to reduce anxiety of learners in speaking the language by providing risk free, anonymous practise sessions. In this regard, the participants engaged in anonymous conversations with ChatGPT on various topics such as hobbies, current affairs, new business trends or technological tools etc. The chatbot provided risk free practise sessions devoid of peer pressure and criticism. As per the feedback of the participants, it has elevated confidence in expressing opinions and clarifying information by asking questions. The second part of the activity was amalgamated with daily conversation practises in which the participants were asked to ask simple questions from Google assistant or SIRI: 'What is the weather today? Tell me a famous joke in Sri Lanka? Translate this into English' etc. Surveys conducted before and after 6 weeks of the semester depicted significant developments in the confidence of the participants.

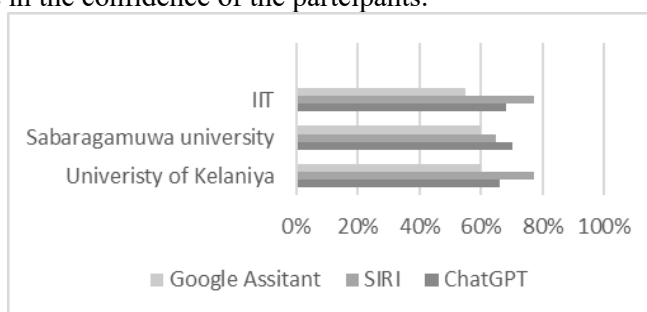


Figure 2: Confidence in using different AI powered tools for communicating in English

The sample from Sabaragamuwa University presented 70% in utilising ChatGPT for improving speaking proficiency than the University of Kelaniya and IIT that had 66% and 68% respectively. On the other hand, the University of Kelaniya and IIT recorded 77% in using SIRI in conversational practise. There was a low level (55%) of enthusiasm in the IIT sample in employing Google Assistant to boost confidence



in speaking in English. The major reason that they highlighted was the simple interface of SIRI and offering of more authentic and real time practice than Google Assistant. Furthermore, the participants highlighted the reluctance to communicate in English owing to criticisms and judgments from peers. As AI chatbots and voice assistants are anonymous, it provides a psychologically safe space for students to make mistakes and rectify them. Moreover, feedback from surveys revealed that many undergraduates appreciated the constant availability of AI tools that are refrained from time restrictions and traditional classroom experiences.

RECOMMENDATIONS

The main recommendation is to integrate AI supported speaking modules to the university curricula by expanding digital language labs and providing students with the access and systematic exposure to mobile based AI applications that significantly enhance the English-speaking proficiency of undergraduates. Furthermore, it is needed to equip lecturers with knowledge and skills to employ these tools into language teaching practices. The existing limitation to this study is that the existing AI powered tools has a default orientation to British or American English. To address this, it is essential to observe any possibilities to develop AI models on Sri Lankan English phonetic patterns, vocabulary employment and culturally specific communicative norms. In conclusion, the positive reception of AI tools among undergraduates from state and private universities upsizes the feasibility of modern technologies into the tertiary education of Sri Lanka. Moreover, another limitation to the study is that it focused on two disciplines, Business and Information Technology owing to the limited time frame.

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