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AI IN LEARNING ENGLISH: ENHANCING ENGLISH SKILLS THROUGH THE USE OF AI-POWERED LANGUAGE LEARNING TOOLS

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ABSTRACT

The study sought to investigate AI powered language learning in the development of English learning. With a total of 48 participants and a descriptive mixed study approach, the findings suggested that most learners with intermediate proficiency used tools such as ChatGPT, Duolingo, and Grammarly to improve their language learning. The participants also agreed that human interaction was still necessary in language learning. The study was limited by the sample size and also revealed the importance of a different learner needs in the use of AI such as improving grammar and fluency. The study suggests an examination of the long-term impacts of AI powered language tools in language acquisition.

KEYWORDS: AI-Powered, language learning, English proficiency

1. INTRODUCTION

From the integration of artificial intelligence (AI) and machine learning technologies into language learning, there has been a substantial transformation in the language learning space. According to Erbas et al. (2021), these innovative approaches have been instrumental in both teaching and learning assistance, while Ahmadi (2018) recognizes the improvement in language learning skills using artificial intelligence. In an article about maximizing learning efficiency, Graepel (2022) discusses the potential of natural language processing and artificial intelligence in shaping individual learning trajectories within the educational platform. Based on the article, natural language processing is noteworthy in the in-depth analysis of textual data to improve insights about how student learn and their learning preferences. Subsequently, an adaptation of AI helps the construction of personalized learning strategies that are tailored to individual needs. Graepel (2022), in particular, focuses on the importance of real-time feedback and interactive engagement sessions in language learning experience and how AI is instrumental for educational policies and system improvements in the educational platform.

The tangible benefits of using AI include enhancement in vocabulary acquisition, increased comprehension of grammar, and improved conversational fluency specifically when compared to conventional classroom instruction (Khasawneh, 2023; Madhavi et al., 2023; Sharadgah & Sa'di,

2022; Takahashi, 2020). Despite these advantages, Parsakia (2023) highlights the concerns around the overreliance on AI tools for learning. Detriments such as diminished critical thinking, reduced independence in problem-solving, and concerns with peer interaction among learners are worrying for the population of learners exposed to the tools (Danry, 2023; Parsakia, 2023). For instance, there is a high likelihood that AI tools propagate historical inequalities in learning instructions when provided with personalized learning information. On the other hand, AI language students could experience reduced inequalities, particularly given possible bias from native instructors and peers and the ability to learn without judgment and microaggressions about their language proficiency.

The increasing dominance and integration of AI in English language learning has the potential to provide personalized learning, adapting to the unique needs of diverse learners (Madhavi et al., 2023). Despite its increasing dominance, the effectiveness of AI language learning tools in enhancing English has not been fully explored. The aim of the present study was to build upon existing research to determine the place of AI-powered learning in the development of English language skills. Specifically, the main objectives of the study included understanding user experiences and perception of AI-powered language learning, the effectiveness of AI-powered language learning compared to conventional learning, and identifying the features required for effective English learning using AI. This study hypothesized that AI language learning tools provided personalized learning experiences which were adapted to the unique needs of individual users, resulting in improved language acquisition. The null hypothesis, on the other hand, stated that the use of AI-powered language learning tools does not result in improved English language learning skills compared to conventional classroom-based instruction.

MATERIALS AND METHODS

General Research Background

This study employed a descriptive mixed-methods approach, combining qualitative and quantitative strategies in the examination of the impact of AI-powered language learning in the development of English language skills. The quantitative perspective sought to assess the participants' level of English proficiency, frequency of using technology to learn English, and their previous experiences with AI-powered language learning tools. The qualitative aspect of the survey sought to explore the perceptions of the participants around the potential of AI to replace human teachers, experiences of language learning and human interaction, and the strengths and limitations of AI-powered language learning. The study setting was a language-learning educational setting with participants learning English as a subsequent language.

Participants

A total of 48 participants were involved in this study. Out of the 48, 42 participants comprehensively participated as the other six opted out of this study and some withdrew from the study. The study had provided informed consent with the clause on voluntary participation which allowed the refusal of participation without any obligation (Dahal, 2024). The participants' ages ranged from 30 to 55, with

a mean age of 36.2 while the gender consisted of 55.2% female and 44.8% of male participants. Most participants had intermediate English proficiency levels and had achieved university education. The participants were recruited from an individual language learning class and voluntarily accepted to take part in the study.

Materials

As noted by Braun et al. (2021), qualitative surveys provide rich and contextual information. The qualitative aspect of this study comprised an online survey intent on exploring the experiences of English language learners with AI language learning tools. The survey consisted of open-ended questions that complemented the qualitative approach, allowing the participants to share their views on AI language learning compared to conventional learning, aspects of learning and human interaction as well as the effectiveness of AI technologies in learning English. The quantitative part of the survey was also covered in the questionnaire assessing demographic information of the participants, levels of English proficiency are the frequency of use of technology to learn English. The survey also required quantitative information on the tools used in AI-powered language learning and the important features of the tools. Having both qualitative and quantitative data was paramount in the collection of data and the comprehensive understanding of AI-powered language learning in English development. Because quantitative surveys are objective, having qualitative information complemented the final results of the study (Nardi, 2018).

Research Design

This research comprised a descriptive perspective and employed the mixed methods approach in the investigation of AI-powered language learning in the development of English language skills. The descriptive research design was chosen because of the potential to obtain an in-depth understanding of language learning using AI-powered tools through the identification of patterns, trends, and relationships in the variables. The descriptive approach additionally allows the analysis of patterns and relationships without manipulating the study setting (Atmorwadoyo, 2018; Erickson, 2017). To implement the descriptive approach, semi-structured questionnaires were used to collect survey data on user experiences and the perceived effectiveness of AI-powered language learning tools. A combination of the descriptive design and mixed approach was rationalized from the capability of the research perspectives to provide a comprehensive overview of the status of AI-powered language learning. In particular, this study did not seek to establish causality since the main aim was to describe the language learning characteristics of the participants and the AI features contributing to language learning. The independent variable consequently is the AI-related language learning method while the dependent variables are user experiences and English language proficiency. The particular descriptors of the user experience as a dependent variable included engagement with language learning tools, satisfaction, and perceptions of the effectiveness of AI language learning. The descriptors of English language proficiency, on the other hand, included the level of English proficiency, recommendation of language learning tools, and features that are important in language learning.

Data Analysis

Analysis of data happened using descriptive statistics and thematic analysis. Descriptive statistics were used to summarize the quantitative data from the survey while thematic analysis was used to identify things and patterns from the qualitative data acquired in the semi-structured interview. The summary of quantitative data in descriptive analysis allowed the researcher to provide participant perceptions and their effectiveness of the various features of AI language learning which contributed to the learning trends and patterns of data among English language learners using AI. According to Kemp et al. (2018), relationships can be deduced from descriptive analysis, and this was evident from the comparison of language proficiencies and the current tools used by the participants. Descriptive statistics also provide an opportunity to interpret findings based on previous research and the patterns and relationships in current research (Muñoz et al., 2018; Sidel et al., 2018). This perspective allowed the researcher to compare previous literature and findings with the current perspective of English language learning within the context of AI-featured language learning tools.

To strengthen the descriptive analysis, the application of thematic analysis was paramount to enable the participants to share their experiences using their individual perspectives that would not have been evident from the quantitative measures. Terry et al. (2017) argue that thematic analysis can help in the navigation of complex phenomena and identify unprecedented insights. From the statement of the problem, it was determined that AI learning remains complex especially given the conflict between assisting learning and the potential detriments of propagating learning inequities and reducing the motivation and intent for critical self-learning. The thematic analysis approach therefore allowed the researcher to explore the phenomenon of AI learning, especially through responses around the possibility of AI replacing human teaching and the components of human interaction in learning. Both the use of descriptive evaluation and thematic analysis improved the trustworthiness of the findings. Reliability was established using test-retest where a subset of the participants were requested to participate twice in the survey (Mueller & Knapp, 2018). These participants took the survey within a 3-week interval to ensure the consistency of their responses and assuage reliability. Content validity was established by engaging two language education experts and an IT expert with 2 years of experience in AI technology research. The quantitative data was additionally triangulated with the qualitative findings to improve the credibility of the research.

Procedure

Recruitment of participants took place in a singular setting of an English language learning program. The researcher opted to use convenience sampling because of access to the participants and purposive sampling as the potential recruits of the study were learners of the English language who had probably used AI to assist in learning. Peer referrals were instrumental in recruiting individuals and flyers were used to inform the potential recruits about the study with contacts on how to access the researcher. Following the recruitment of participants, the researcher provided an informed consent form outlining the purpose of the study and that it was voluntary so that the participants were free to choose to participate or withdraw from the study at any time (Foe & Larson, 2016). The measures taken to ensure

confidentiality and privacy included the use of anonymity and this was described in the consent form to ensure that the participants were aware of the protection of their information before proceeding with the study. To ensure a full understanding of the form, the researcher recruited three peers to help with translation, especially for participants with pre-intermediate English proficiency.

The first phase of data collection involved an online survey and most participants completed the survey in less than 20 minutes. The second phase of data collection involved a subset of the participants who received similar questions with the expectation that their responses would improve the reliability of the data collected. The participants completed the survey at their own convenience and locations and this was important in ensuring that the responses were relatively free from bias.

RESULTS

At the onset of the study, it was hypothesized that AI language learning tools provide personalized learning experiences adapted to the unique needs of individual users, which results in improved language acquisition. The first question sought to determine the English proficiency levels of the participants. Out of the 48 participants, 36 responded to the question with most participants having intermediate proficiency in English at 66.7%. This was followed by advanced proficiency at 16.7%, and beginner proficiency at 13.9%. The study also sought to understand how often their participants used technology to learn English and determined that most of the participants used technology with 40% citing very often and 31.4% stating that they often used technology in their English learning. 77% of the respondents reported that they had used AI-powered language tools before while 22.2% had not. The participants further highlighted the types of AI powered language tools that they had used before. Some had not used any tools, while most had used ChatGPT. Some respondents also mentioned that they had used Duolingo, Grammarly and Cambly. For a significant number of the participants, there was the use of two or more AI-powered language tools, such as ChatGPT and Duolingo or Duolingo and Grammarly.

Most participants agreed that AI powered language tools could not replace teachers at 66.7%, whereas 33.3% of the respondents believed that there was a possibility that the tools could replace human teachers.

Among those who answered that AI-powered language tools could not replace teachers; it was reported that human interaction involved flexibility in responses which could not be fully adopted by artificial intelligence. Another participant also mentioned the preference for human speech as opposed to artificial intelligence and that for one to achieve a unique mastery of language, one had to talk to a real person. The participants found that speaking with the human instructor was essential in improving spoken language skills and developing natural abilities for conversation. It was also reported that interacting and exchanging opinions with a human being made it easier and enjoyable to learn language skills, therefore, making human interaction better and unique. One respondent articulated that despite the importance of technologies, it was important for people to depend on individual learning because

there is a possibility that the technologies could ‘disappear one day’. Other respondents reported social interaction and human explanation in a way that only other human beings could understand, therefore, making it difficult and impractical for AI to replace human interaction in language learning. This aspect of personalized feedback described the flexibility of human responses and tailoring feedback to the individual and they were speaking to while responding and discussing social aspects, identifying how interaction allowed flexibility in the exchange of communication and the development of interpersonal skills.

In your opinion, how effective are AI-powered language learning tools compared to traditional language learning methods?

35 responses

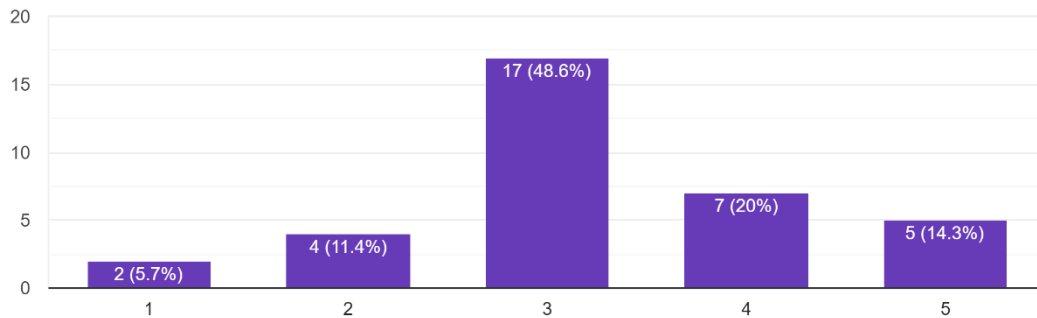


Figure 1: Effectiveness of AI-Powered language learning tools compared to traditional language learning methods.

In accordance with Figure 1, most respondents believed that AI powered language learning tools were very effective compared to traditional language learning methods. The question on the use of AI powered language tools to find information also revealed that most of the participants used AI tools in seeking information. Findings from the study also reported that 33.3% of the participants felt that grammar correction was the most important feature for an AI language tool. This was followed by 22.2% of the participants who believed that immediate suggestions from the artificial intelligence tools was important while 16.7% found vocabulary usage as an important AI power language feature. Assessment of spoken language and instant feedback on pronunciation were also found important by 11.1% of the participants followed by those who found that language practice was important and those who found all of them important. 85% of the participants ultimately reported that they would recommend AI powered language learning tools to others.

Which features do you think are important for an AI-powered language learning tool

36 responses

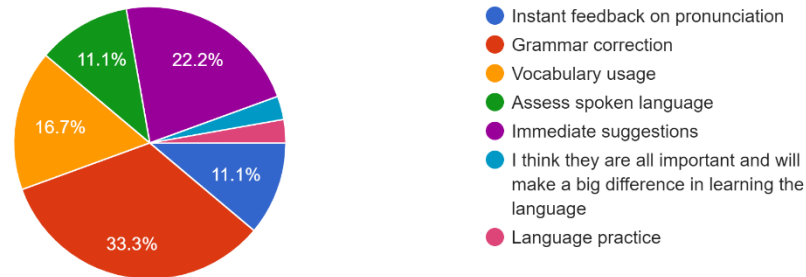


Figure 2: important features for an AI powered language learning tool.

DISCUSSION

The study hypothesized that AI language learning tools are used to personalize learning experiences and adapt to the unique needs of individual users for improved language acquisition. This was evident from the use of AI learning technology for languages among learners with different proficiency levels of the English language, the use of different AI powered language tools and the perception tools. The findings verified that the language tools were used for personal learning experiences and the unique needs of different learners. However, this study did not establish improved language acquisition from the findings. For the establishment of improved language acquisition, a different research design or analysis of the findings that were retrieved would have been paramount in establishing the relationship or causality.

English Proficiency and Use of AI Technology

In accordance with the findings, the majority of the participants had an intermediate level of English proficiency with smaller percentages of the study population at the advanced and beginner levels of learning English. This would suggest that the participants had a diverse range of language skill levels which would relate to one of the objectives of the study to identify personalized learning using AI tools. As noted by Generoso and Arbon (2020), while having intermediate English level is important, there are still issues with limited communication or because the speakers may struggle with full expression of ideas. In addition, learners at the intermediate English level have difficulty understanding complex information and could struggle in professional settings which causes a significant barrier for career advancement where English is a primary language (Generoso & Arbon, 2020). The necessity of the language learning tools is, therefore, evidence based on the proficiency levels of the participants who may have communication or professional needs hence the use of AI for improving English.

In comparison with the English proficiency levels, most of the participants reported that they used technology in their language learning at over 70% usage, therefore, highlighting the unique role of

technology in current language acquisition. As noted by Zou et al. (2020) in a study of using artificial intelligence technology to improve English language speaking for learners with different first languages, it was established that most learners found artificial intelligence English language learning applications paramount for improving fluency and vocabulary. However, the study also reported that the learners had concerns about the accuracy of speech and feedback about language from the application. Similarly, Crompton et al. (2024) found that the use of AI in English language learning made it easier for both teachers and students to improve teaching and retention of English, hence better acquisition. Given the challenges of most of the participants are they intermediate level of proficiency in English, the use of AI language tools signifies improved communication and comprehension of complex information, especially with features such as explanation of vocabulary in ChatGPT and the matching of pictures and words in Duolingo which helps in learning English.

Use of AI-Powered Language Tools

Most of the respondents reported that they had used AI-powered language learning tools with the most common tools being ChatGPT, Duolingo, Grammarly, and Cambly. According to Kim et al. (2023), ChatGPT as an AI tool emulates human-like conversations because of its chat features which have continued to provide personalized responses hence making it an effective tool for practicing and learning language. The AI tool has also been improved to offer more information, such as curriculum information and stages to follow in learning English. The tool can also suggest exercises to improve learning English (Kim et al., 2023). Learners can type queries such as market vocabulary which would help an English learner at the beginning level to pick up words that they can use if they find themselves in the market setting.

The Duolingo app also assists with language learning by providing translation exercises, matching, pairing, and listening exercises to improve language learning (Ajisoko, 2018; Nushi & Eqbali, 2017). For learners struggling to express themselves, using a word in the native language for translation or a picture will be valuable in improving language learning. The evidence from the literature, therefore, supports the findings on the use of language learning tools because of their capabilities, such as chat features and learning exercises that improve language acquisition. The relationship between English proficiency and AI learning tools is also established from the findings because most of the participants were at the intermediate level and had used AI to improve learning.

Perceptions of AI Tools and Human Interaction

The respondents illustrated a substantial disagreement on the replacement of human teachers with AI tools. In particular, the respondents emphasized the value of human interaction in the development and improvement of language skills as well as the reception of personalized feedback. In the study, the qualitative finding suggested that AI could not fully replicate the interpersonal aspects of language learning that human teachers offer. Fang et al. (2024) argue that language learning tools are supplementary to language acquisition because of their limitation in fully replicating human characteristics in the teaching platform. However, Crawford et al. (2024) contend that artificial

intelligence has already substituted humans in higher education with the introduction of remote learning. The study additionally highlights the effects of the substitution, including loneliness because of the limitation in social interaction and illegitimate student success.

In comparison with the findings, most of the participants sustained that human interaction was complex and that it would remain when technology was absent thus making it important not to rely on AI as an ultimate language instruction compared to conventional human instruction. However, it is important to take into account the opinions of the participants who felt that language learning could be achieved purely using AI language tools. It could be argued that the innovative dynamic of artificial intelligence could lead to complete non-human teaching in the future. Nevertheless, natural language processing may not allow AI to reach human intelligence because of the dependency on data and not human intelligence, such as aspects of creativity which are limited to the human mind. The complexities of human elements could also be significant limitations in learning. As argued by Tao et al. (2019), artificial intelligence does not yet experience human emotions that could affect teaching and learning or political conflict and structures of learning that have contributed to inequities because of human history.

Features of AI Language Tools

The features identified from the findings illustrated that correction of grammar was most important for the better part of the participants followed by the provision of immediate suggestions by AI tools. The findings also illustrated that assistance with vocabulary, instant feedback, and the assessment of spoken language were valuable to the language learners. The importance of the feature of correcting grammar resonates with the study by Park (2019) on grammar, checking where the author discussed that this is one of the most important perspectives in the evaluation of English texts. Apart from Park (2019), Graepel (2022) discusses natural language processing in artificial language intelligence where the systems can understand and consequently interact with humans' specific language. The system understanding is founded on machine learning algorithms that accumulate and analyze significant data to recognize patterns and predict, therefore learning from these data patterns. Translation is a subsequent and unique AI tool especially for second language learners. Similar to natural language processing, translation in tools such as Duolingo happens with existing information and machine learning in the interpretation of data and translating content into multiple languages that is accessible to the wider audience. With increased innovation, Graepel (2022) explains optimization especially with tools such as ChatGPT which can offer the best element from the selection of data. In learning English, grammar correction can be provided through the selection of the best suggestion that quickly improves the learning process of the intermediate or beginner learner. Erbas et al. (2021) additionally emphasize that the generation of learning happens very fast which is also important for language learning and easy adaptation. The systems with vocabulary and assessment of spoken language resonate with language fluency which is an improved feature in AI language learning based on neural machine translation, language generation, and natural language understanding (Manning, 2022).

Perceived Effectiveness of AI Language Tools

Most of the respondents reported that they would recommend AI-powered language learning tools to others. This was based on the belief that the tools were very effective when compared to traditional language learning methods. As noted by Erbas et al. (2021), language learning using AI tools is seen as more effective because it is easier than conventional methods. One of the important reasons, as suggested by Kim et al. (2023), is the enhancement of personalized learning experiences through AI language tools where not only access to learning is easier but also tailoring of materials to suit the learner. For instance, ChatGPT provides simplified or complex communication depending on the understanding of the user which means that it attends to the different learning and comprehension styles. Because the user often accesses language tools on their own, the learning is personalized because the teacher does not have to scaffold or provide different methods of instruction for different learners.

In the discussion of the challenges of human learning, Tao et al. (2019) recognized the challenges that human instructors may go through when attending to the different needs of learners. For instance, a teacher will have to review the work of a student before providing feedback. At times, it takes longer to identify where a student is struggling, especially if the particular topic has not been tackled. For AI language learning, there is real-time feedback which is beneficial for both learners and instructors to identify areas that need correction. The learner has the ability to rectify immediately and proceed to the next step of learning, especially if they understand the feedback well. Provision of real-time feedback may also enable the learner to find alternative ways of understanding such as using pictures or videos in cases where the written instruction remains unclear.

CONCLUSION

The purpose of this study was to explore AI learning in the development of the English language. The study found significant use of AI learning tools among most learners with intermediate English proficiency and the findings are important in the improved learning of language and the integration of technology assistance. An important contribution to theory is from the findings of human interaction and AI. Despite the advantages of technological assistance in learning, the value of human experiences is an important source of theoretical conflict and improvement that can be studied more to understand better interaction between humans and technology for unique contributions to learning. From this study, it can be surmised different proficiency levels and learning needs are important considerations for learning that have been addressed by technology. In the context of seeking better human technology interaction, AI sufficiently complements human teaching and intelligence to make it easier for learners with different needs to understand long language. The findings, therefore, offer a practical implication for the design of AI-powered language learning tools particularly in the form of tailored support and feedback. It is also important to note that AI limitations enable human beings to participate in the comprehensive contribution to learning despite the great milestones that have been achieved by innovative artificial intelligence. In the study by Crawford et al. (2024), some of the negative effects on reliance on AI included loneliness and illegitimate success. An examination of the long-term

impacts of AI learning is necessary to tailor the improvements of assistive technology. While this study was limited by the sample size and the self-report of some measures, the insights of different language learning features and human interactions are insightful in the comprehension of the role of technology in language education and how different technological and human elements interact to improve language learning.

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