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Investigating The Use of Artificial Intelligence and Digital Technology in English Language Teaching in Higher Education

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Abstract

This study explores the implementation and integration of artificial intelligence (AI) and digital technology in English language teaching (ELT) in higher education. English language teaching systems have undergone a significant transformation from traditional to digital media settings. This transformation has expanded dramatically since the COVID-19 Pandemic in 2019. Integrating AI and digital media into ELT results in many changes to the media used for teaching and learning, as well as to adaptive learning. The changes include the media and resources that they use in the teaching and learning process. It also changes how lecturers teach and how students learn. These changes are experienced not only by the lecturers as facilitators but also by students as language learners. This study is important in improving students' ability to utilise AI and digital technology to enhance their English language proficiency. This study employs a qualitative approach, using a systematic literature review, to investigate the integration of artificial intelligence and digital technology in English teaching and learning in higher education. It is found that AI and digital technology provide significant impact on English language teaching and learning. Furthermore, this study can improve understanding and insight into implementing and integrating digital technology and artificial intelligence in English language teaching and learning in higher education by optimising their use in ELT and addressing the issues encountered when utilising them.

Keywords: *Artificial intelligence; Digital technology; Adaptive learning; English Language Teaching; Higher Education*

INTRODUCTION

The higher education (HE) system has transformed significantly because of the development of artificial intelligence (AI) and digital technology (Ahmad et al., 2022; Crompton et al., 2024). Artificial intelligence and digital technology have influenced many sectors of life, particularly education (Crompton et al., 2024; Tavares et al., 2022). In this study, digital technology refers to innovative and varied media and sources implemented in the teaching and learning process, which can be conducted offline, online, or in a hybrid learning environment (Gusman et al., 2023; Prayogo, 2022). This study focuses on English language lecturers and students utilising AI and digital technology in higher education institutions.

This study aims to investigate the use of AI and digital technology in English language teaching (ELT), particularly focusing on media and the strategies used by lecturers and students in the teaching and learning process (Alshumaimeri & Alshememry, 2024). The integration of AI includes access to a wide range of resources and open discussion during the teaching and learning process (Du & Gao, 2022). AI also enhance the lecturers' and students' strategies and enables the use of digital technologies in the teaching and learning process (Mohamed, 2023). Prior to the COVID-19 pandemic, the majority of students participated in in-person learning environments, engaging directly with their instructors and peers.

However, during the pandemic, there was a significant shift toward online education, necessitating a transition to virtual learning platforms to ensure the continuity of education

(Pokrivcakova, 2023). Following the pandemic, higher education institutions have maintained their commitment to teaching and learning by embracing hybrid learning models (Chen & Wang, 2022). Hybrid learning, which integrates both offline and online educational methodologies, has emerged as a significant trend in the realm of teaching and learning (Choi & Chung, 2021). This study employs a qualitative approach by systematically reviewing the literature. Meanwhile, the research question of this study is how lecturers and students implement and integrate AI and digital technologies into English teaching and learning in higher education. Hence, this study is essential to improve the use of AI and digital technology by optimising their benefits and addressing the associated issues.

LITERATURE REVIEW

The literature review provides a thorough investigation and analysis of existing research relevant to this study. It focuses on the fundamental characteristics of English teaching and learning while exploring the application of artificial intelligence and digital technologies in English Language Teaching (ELT). This review aims to illustrate the substantial role of the developments in enhancing educational practices, encouraging learner engagement, and improving instructional effectiveness in language learning. This literature review explains English and digital competencies for lecturers and students. It examines both the similarities and differences among offline, online, and hybrid learning. It also reviews the use of AI and digital technology in English language teaching, particularly in higher education.

Artificial Intelligence and Digital Technology

Artificial Intelligence refers to the machine learning or robots that assist human work (Chang et al., 2023). Digital technology is defined as utilising technology devices with internet access, such as laptops, tablets, or smartphones, which are handheld and portable (Aldhafeeri & Male, 2015). Digital technology and internet access are the core requirements for delivering ELT. With the integration of advanced digital devices and internet connectivity, both lecturers and students are well-positioned to enhance their teaching and learning experiences. For example, in the context of online education, e-learning, or virtual learning, all instructional activities are conducted via the internet, utilising digital technologies to facilitate the educational process (Dumbraveanu, 2021).

ELT facilitates the curriculum design, evaluates the teaching and learning program and evaluates students' understanding of the ELT process (Caprara & Caprara, 2022). Governments, educators, and stakeholders design and develop suitable curriculum content for all levels of education to achieve educational goals (Ngoasong, 2022). Curriculum content, assessment, and evaluation are paramount within the framework of English Language Teaching (ELT). Consequently, it is essential for both governments and educators to carefully consider the structure and design of the curriculum and instructional materials. These measures are aimed at facilitating students' understanding of the lessons delivered. (Ngoasong, 2022; Yuan et al., 2019). There are several adaptive learning approaches, including online, hybrid, and offline learning.

Online Learning

Online learning offers many advantages, including greater flexibility, effectiveness, and efficiency (AlHadid et al., 2022). Lecturers and students have the opportunity to negotiate the timing and application methods used in their studies. Additionally, online learning incorporates adaptive approaches that leverage a variety of digital technologies and online application

platforms. For instance, lecturers and students use machine learning to assist the teaching and learning process. Also, they can utilise translation tools to understand unfamiliar words, phrases, sentences, and paragraphs. However, both lecturers and students also face challenges associated with online learning (Akram et al., 2021). The challenges of online learning include issues with internet connection, a lack of digital technology devices, and a lack of understanding (Chen & Wang, 2022).

Hybrid Learning

The hybrid learning approach combines offline and online teaching and learning activities supported by advanced technology (Lalima & Dangwal, 2017; Lazar et al., 2020). This approach has significantly advanced the transformation of traditional offline learning into a digital format. Hybrid learning offers numerous advantages, including enhanced comprehension of lessons delivered by instructors and fostering an environment conducive to discussion during in-person sessions. Also, hybrid learning may fill the gap between audio-visual and kinaesthetic students by using stories in the digital educational format (Galvis & Carvajal, 2022). This learning approach represents a new level of flexibility, transforming the experience of online and offline learning.

Offline Learning

Offline learning refers to direct interaction in delivering teaching and learning activities between lecturers and students, including providing immediate feedback and spontaneous discussion in the classroom (Handayani et al., 2024). Students can immediately ask the lecturers questions in the classroom when they have difficulty understanding English lessons. It becomes a more interactive learning atmosphere compared to studying online. Furthermore, face-to-face learning facilitates social interaction and collaboration among students. As a result, offline learning has been shown to enhance students' language skills, particularly before the COVID-19 pandemic.

RESEARCH METHODOLOGY

This study utilises a qualitative research methodology. Various approaches to qualitative research exist, including ethnography, phenomenology, case study, and grounded theory (Creswell, 2017). Qualitative research refers to exploring and understanding the human and social problems faced by groups, societies and organisations (Miles, 2014). The features of qualitative research include studying individuals' lives, representing people's perspectives, and contributing new knowledge or insights into existing concepts (Yin, 2011). An additional characteristic of qualitative research is the utilisation of research questions to refine and focus the objectives of the study (Creswell, 2018). Data collection and data analysis are non-numerical forms that can be identified from human and social phenomena (Creswell, 2018). Furthermore, qualitative research provides a thorough description of how to analyse and interpret data. There are many methods for collecting data, such as observation, interviews and documents (Yin, 2011). Data for this study were collected through a systematic literature review. Data were analysed using thematic analysis.

In a systematic literature review, the author follows the PRISMA stages. They are identification, screening, eligibility, and inclusion criteria. 72 articles found related to English teaching and learning. After considering screening, eligibility, and inclusion criteria, 29 articles can be used as primary data. The data are classified into Scopus-indexed and non-Scopus-

indexed journals. The Scopus-indexed is illustrated in Table 1. Meanwhile, the non-Scopus index is illustrated in Table 2.

Table 1. Scopus Index References

Authors	Year
Ahmad et al.	(2022)
Albahri et al.	(2023)
Aldhafeeri & Male	(2015)
AlHadid et al.	(2022)
Alshumaimeri & Alshememry	(2024)
Bailey et al.	(2022)
Cahyadi et al.	(2022)
Caprara & Caprara	(2022)
Chan & Lee	(2023)
Chang et al.	(2023)
Chen & Wang	(2022)
Choi & Chung	(2021)
Crompton et al.	(2024)
Du & Gao	(2022)
Galvis & Carvajal	(2022)
Handayani et al.	(2024)
John & Yunus	(2021)
Lazar et al.	(2020)
Magyar et al.	(2022)
Mohamed	(2023)
Tavares et al.	(2022)
Yuan et al.	(2019)
Zhao et al.	(2022)

Table 2. illustrates non-Scopus index references. Non-Scopus index references include book and proceeding.

Table 2. Non-Scopus Index References

Authors	Year
Akram et al.	(2021)
Creswell	(2017, 2018)
Dumbraveanu	(2021)
Gusman et al.	(2023)
Lalima & Dangwal	(2017)
Miles et al.	(2014)

Furthermore, a proportion of the indexed references is illustrated in Figure 1.

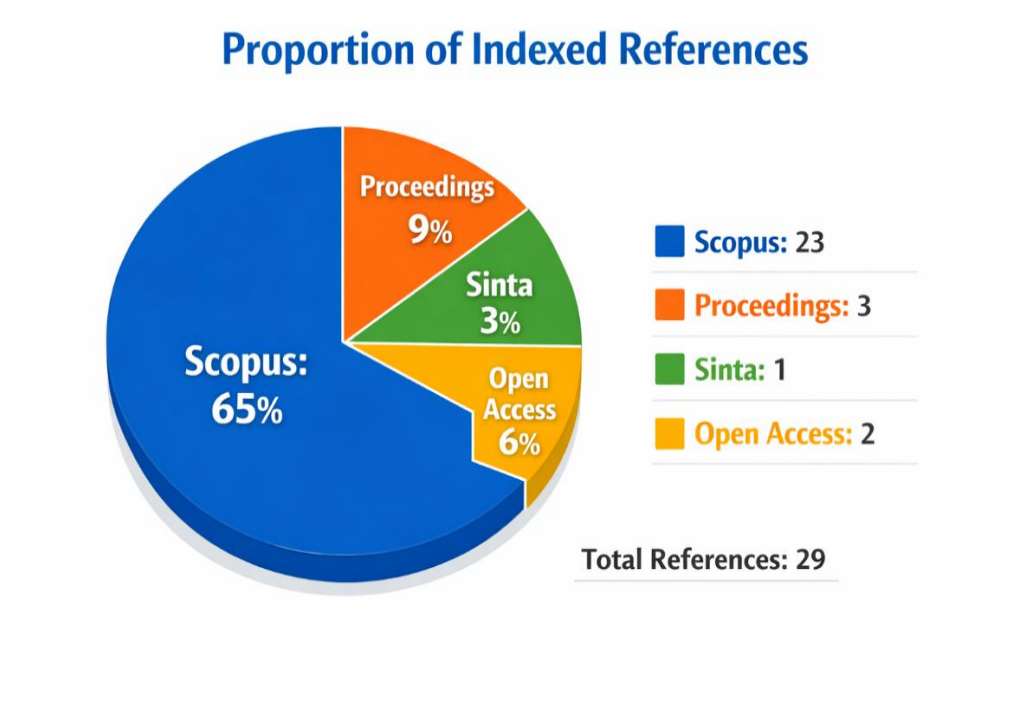

Figure 1. **A Systematic Literature Review**

DISCUSSION

This study explores how lecturers and students experience the use of AI and digital technology in ELT in higher education. Based on the data, the study found many changes in the utilisation of AI and digital technology in ELT. There has been significant advancement in the collaborative efforts of lecturers, students, administrators, and stakeholders to effectively address challenges and prioritise the enhancement of English language teaching and learning through the utilisation of AI and digital technology. This focus is further strengthened by the integration of artificial intelligence and digital technologies, which hold great promise for improving language proficiency and achieving more effective educational outcomes. This study identified two key themes based on the analysed data.

The Transformation of Teaching and Learning Methods

The transformations and challenges of utilising digital technology can be seen among academicians who generally use AI devices and platforms in English teaching and learning (Akram et al., 2021). Lecturers and students have access to a wide range of resources, including e-journals, e-books, and conference proceedings, directly from their personal devices. This convenience allows them to explore relevant academic materials anytime and anywhere. Additionally, they can easily synchronise their coursework with various applications and online platforms, such as learning management systems or collaborative tools. This integration not only enriches their educational experience but also fosters a deeper understanding of the subjects they are studying, creating a more interactive and engaging learning environment.

The transformations from the conventional to the digital era offer many educational platforms that are challenging for lecturers and students in ELT (Albahri et al., 2023). Educational platforms can significantly enhance students' creativity and learning experiences in English. These platforms, such as Duolingo, Kahoot, Zoom, and various AI tools, enable students to engage in self-directed learning. AI can also support English teaching and learning activities by automating grading and providing feedback for both teachers and students. (Crompton et al., 2024).

In addition to educational platforms, social media has grown substantially and impacted users. Social media refers to a collection of internet-based platforms utilised in the digital technology era (Zhao et al., 2022). It can be used for online communication, content creation, idea sharing, and assignment submission. It is currently more popular than traditional educational platforms. Many social media apps are now available on smartphones, facilitating English teaching, such as improving speaking skills (John & Yunus, 2021).

The integration of laptops has the potential to significantly enhance English language teaching at the university level. Administrators, educators, and students can leverage these digital tools to streamline their work and transition from traditional methods to more innovative, technology-driven approaches (Aldhafeeri & Male, 2015). Another digital device that is used in the ELT process is a projector. It transforms conventional teaching and learning methods into digital methods.

Optimising of Using Artificial Intelligence and Digital Technology

The transformation of digital technology in English teaching and learning enhances the ELT process, making it more effective and efficient. This transformation includes teaching and learning methods, accessibility, and an automation system. By adopting digital technology in conducting online learning, the effectiveness of the ELT process can be improved (Bailey et al., 2022). Lecturers and students can participate in learning activities from home or anywhere.

Additionally, digital technology makes teaching and learning English more flexible, particularly during the COVID-19 pandemic. It means that lecturers can teach students on campus or online. Then, they can utilise virtual learning platforms such as Zoom and Google Meet to conduct online learning. Hence, it is more flexible for both lecturers and students regarding affordable time and place, and accessible resources (Cahyadi et al., 2022).

The integration of digital technology in English teaching and learning also enriches students' English vocabulary. They improve their vocabulary by reading electronic sources and listening to English sources (Magyar et al., 2022). They can also use AI and translation tools to understand the meanings of new vocabulary. So, understanding a wide range of vocabulary can enhance students' English skills, such as speaking, listening, reading and writing.

Moreover, the integration of artificial intelligence and digital technology into English Language Teaching (ELT) has notably advanced students' English-speaking skills. By utilising educational and social media platforms, learners can enhance their pronunciation and overall speaking proficiency. For example, they can access English language tutorial videos on platforms such as YouTube, which serve as valuable resources for improving their verbal communication skills. Also, they can utilise AI-powered language tutors and get real-time feedback (Chan & Lee, 2023). Likewise, they can communicate in English via their social media platforms, such as WhatsApp, Facebook, and Instagram.

CONCLUSION

In conclusion, this study found that integrating artificial intelligence and digital technologies into the teaching and learning of English in higher education affects the experiences and skills of both lecturers and students. It serves as a valuable resource for both lecturers and students, enabling effective use of AI and digital tools in English language education. The study provides flexibility regarding the timing and location of instructional activities, allowing convenient access to current information and research to enhance meaningful knowledge acquisition. Furthermore, lecturers can explore a comprehensive range of resources related to English language instruction. This research is essential for advancing teaching methodologies in improving students' proficiency in English language skills.

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