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Utilizing Artificial Intelligence Technologies in Saudi EFL Tertiary Level Classrooms

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Abstract: This study focuses on the employment of AI technology in regular, day-to-day activities, such as when Google Translate or Bing Translator are encouraged alongside various programs and applications. It also evaluates and empirically demonstrates the subjects of writing with AI technologies, computer-assisted language learning (CALL), machine translation (MT), and automatic evaluation systems (AESs) in order to offer solutions for enhanced communication training in Saudi Arabia's EFL system. Word tune is an artificial intelligence (AI)-driven writing assistant that can understand the writer's ideas and suggest alternative rewrites (e.g., shorten, expand). This program assists writers of English as a foreign language to maintain a steady flow and acquire useful English expressions. This research made use of questionnaires as a method for collecting data and then ran those responses through SPSS for analysis. The use of artificial intelligence (AI) technology in English as a foreign language (EFL) settings has been shown to facilitate the English language learning (ELT) process and to keep both teachers and students up to date on recent technological developments. This exploratory investigation demonstrated that all digital and AI-powered devices have the potential to assist in teaching and learning. Consequently, the pedagogical component of future education can be developed using an AI framework.

Keywords: Technological Knowledge, Computer-Assisted Language Learning, Technology-Enhanced Language Learning, Computer-Mediated Communication, Automatic Evaluation Systems.

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1. Introduction

The world as we know it today is more like a global community because countries and continents are engaging in more trade and business together, as well as education and tourism. People can now work or live in other countries thanks to the increased use of computers and other associated technology. Web browsing and electronic mail are vital in the modern world. Technology is no longer a choice but a necessity in today's world. The dominating force in our lives now is technology. Technology has made things simpler and more efficient.

This study makes an effort to draw attention to the impact that AI technologies have and their function in the ELT process, both in terms of pedagogical and educational concerns. Regarding the use of AI technologies in EFL classes, both EFL teachers and students at the tertiary level, particularly in Saudi Arabia, are likely to face several obstacles. These obstacles are especially likely to be encountered in Saudi Arabia. As a result, this research has been carried out to obtain responses to the following questions:

i. Why is it essential to employ artificial intelligence (AI) technology in English as a Foreign Language (EFL) classrooms?
ii. What are some of the obstacles that students and teachers of English as a foreign language are likely to face while utilizing AI?
iii. Are there any instances of successfully implementing AI into the EFL process that has been documented anywhere in the world?

2. Literature Review

2.1 Tips And Tools for Writing in The Digital Age

Since its widespread use began in the 1980s, academics have employed digital writing as a topic for research in applied linguistics and studies of acquiring a second language. The term "digital writing" can apply to various actions, such as engaging in online communication, blogging, communicating on social networking sites, and writing with word processors (Kirschenbaum, 2017). Moore, Rutherford, and Craw conducted a study with English as a Foreign Language (EFL) postsecondary students in Canada utilizing various research methodologies to investigate the effects of digital writing tools on writing proficiency (2016). Researchers found that having

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students utilize a digital writing tool to improve their writing skills is practical; however, qualitative data showed that this was less beneficial than having teachers give feedback in person. Perry (2021) did a literature review on the usefulness of digital self-access resources (including writing resources) for L2 users and found that the tools had a significant amount of efficacy when they were used within the context of a well-structured program.

On the other hand, the researcher saw a need for more information on significant long-term acquisition improvements among the participants in the study. It was a finding that was made concerning the participants. Hamouma and Menezla (2019) highlight the solid positive link between students having good digital literacy (including digital writing tool literacy) on the one hand and students developing their English academic writing performance on the other. It was found in a study involving eighty students studying English as a foreign language (EFL). Through the utilization of digital writing tools, these students were able to improve their English academic writing skills. Even among students who speak English as their first language, Purcell et al. (2013) found that digital technologies positively impacted students' creative writing. It was true even for students who had a native level of English proficiency. Participants in the poll numbered 2,462 educators. Examining the factors that affect students' writing was carried out using a mixed-methods strategy. This strategy comprised quantitative survey data and qualitative interview data acquired in depth. According to the study's conclusions, modern digital writing platforms like Google Docs, which have extensive features, have the potential to revolutionize the writing process because of their versatility.

It is essential to consider the possibility that using digital aids, software applications, or other forms of technology in the learning process will have a detrimental impact on the results of the learning process. It is possible that the results of the learning process could be negatively affected by using these types of technology. Research subjects who took part in (Tight's 2017) examination of Spanish language students' employment of digital writing tools commented that novice writers frequently needed better work. The researcher is confident that extra instructional input is required to improve the efficacy of the technologies currently being utilized. The findings of the study support this view. To gain a deeper understanding of how two Chinese students of English as a second language make use of technology in their writing, Kessler (2020) employs a qualitative research approach. We used the case study methodology, and the data gathering methods comprised user interviews, triggered recollections, process logs, and recordings of user interactions. According to the findings of multiple researchers, there is a knowledge gap between students and teachers regarding the digital writing tools currently available to pupils. These tools include Google Docs, Microsoft Word, and Apple Pages. For example, people who participated in the case study incorporated writing strategies that did not specifically relate to the target language (e.g., Google Search). The educators' Technological Knowledge (TK) is called into doubt when essential language support capabilities are lacking (for instance, checking collocations or predictive text aid). TK is an integral part of the structure that underpins TPACK, which stands for Technological Pedagogical Content Knowledge (Niess, 2011). Suppose educators in any field want to incorporate technological tools in their curricula. In that case, they need to have a solid understanding of the technologies already prevalent in their respective fields and the tools most applicable to their teaching focus. Only then can they effectively incorporate technological tools into their lessons.

2.2 Word Tune

Word tune is a digital writing helper powered by artificial intelligence that gives users the ability to highlight text and select from various rewriting possibilities. Users can also share their writing with other users through Word tune. Altering the structure of the statement or changing individual words to synonyms that continue to convey the idea that was intended are possible solutions. This technology makes use of machine learning techniques, also known as Natural Language Processing, which educates the computer to comprehend and write natural writing based on extensive databases of previously written material. Word tune is powered by technology that utilizes artificial intelligence, which analyzes the user's writing and offers suggestions for how it should be redone to make it sound less like it was taken from the Internet.

Internet users can either use the web-based editor or download Word tune as a browser extension (from the Chrome Webstore or the Edge plugin, respectively). Both options are available to users. The extension is made available to users free of charge. Users can access the application through a browser extension, enabling it to work with many web-based services. A few examples of these services are Gmail, Google Docs, Facebook, Twitter, LinkedIn, WhatsApp (web version), and Slack. However, this list is incomplete. There are a significant number of additional services. The user can access any web-based writing program so long as the application is compatible with the user's browser (e.g., Google Docs, Gmail). On top of the highlighted text section, there will be a circle drawn in purple with the letter 'W' superimposed on top of it. If the user selects some text first, then clicks this button, a list of several versions of the material will be displayed for them to choose from. Wordtune offers its users various rewriting options, such as a standard rewrite, an informal tone, a formal tone, condensed text, and extended text. Users can select the option that best suits their needs.

Word tune is now only available in the English language; however, it can translate text written in various languages. When writing in English as a second language, having access to this translation option can be especially

helpful for picking content written in a different language and gaining ideas for rephrasing in the English language. Currently, the translation tool can support a total of sixteen different languages, some of which are Spanish, Mandarin Chinese, Arabic, Hindi, Korean, and Hebrew. This list also includes the language known as Russian.

A person can choose between purchasing something in one of the three price tiers. The free edition only allows users to read a maximum of twenty recommended rewrites of sentences every day. Users who have upgraded to a premium account can rewrite an unlimited number of sentences and select from a selection of different rewrite modes. In addition, premium account users have access to a broader range of rewrite modes (casual and formal). In addition to that, a student will also receive access to superior customer service with this purchase. Under the Premium for Teams plan, teams with more than five members can have their charges aggregated into a single payment.

2.3 CALL: What Is It and What Are Its Goals?

It is possible to conceive of computer-assisted language learning, more commonly referred to as CALL, as a method that tries to use computer technology in learning or teaching foreign languages. The use of this approach is one example of the broader category known as technology-assisted language learning (TELL). "Such a technology, which may be located in the majority of current residences, has far-reaching ramifications for the field of education and is becoming increasingly prevalent in schools" (Davis, 2006). According to Warschauer and Healey (1998), the widespread availability of computer-mediated communication (CMC) and the Internet around the turn of the millennium have been the factor that has had the factor that has had the most significant impact on the way that computers are used to teach and learn languages. With the advent of the Internet, computers have migrated from a tool for processing and presenting data to a tool for communication. It is supported by the fact that they currently perform both of these functions. Consequently, they are now considered to have a vital function not only in the workplace but also in the lecture hall.

Students can expand their vocabularies, oral communication skills, and visual communication abilities through practice with the utilization of multimedia instruction and language laboratories equipped with computers (Salaberry, 2001). If what Salaberry asserts regarding computer-assisted instruction (CAI) is correct, then teachers can monitor, record, evaluate, and assess the linguistic progress of their students. Electronic dictionaries, often known as digital dictionaries, have the potential to provide users with several beneficial features, such as suggestions for grammar and style, synonyms, and antonyms. Because computers can now produce spoken language, the road has been paved for the development of online language training and coaching (Salaberry, 2001).

According to several experts and practitioners (Salaberry, 1999; Rost, 2002), computers have considerable benefits in today's language training. Students of a language can get the agency to take command of their language learning through CALL. Students of a second language can use the versatility afforded by modern computer technology, software, and the language-learning programs offered by these tools by attending fewer classes and devoting more time to independent study. Learners of a second language can benefit in this and other ways through participation in language learning programs.

On the other hand, CALL is not a phenomenon that occurs in a vacuum and is not devoid of its detractors. According to Davis (2006), one of the most significant problems that could arise from implementing technology in language schools is the possibility that it would lead to the industry being dominated by computer programmers, software developers, hardware producers, and technicians, which is one of the most significant problems that could arise from implementing technology in language schools. Likely, the high cost of computer software and programs, the absence of technical assistance from practitioners, and poor attitudes on the part of both students and teachers are contributing factors to the deterioration of the current situation.

2.4 Machine Translation (MT)

2.4.1 Syntax-Based Machine Translation

Microsoft and the world's billions of people who do not understand English place a high importance on translating information from English into as many non-English languages as possible. This goal is to make the information accessible to many people. For the Treelet Translation System to achieve this objective, it uses an English language parser. Existing implementations of this technology at Microsoft range from the live translation system, which is used for information relating to computers, to the website that is used for Microsoft Support. Both of these applications make use of the same technology. Both the inflections of individual words and the sequence in which words are placed within this system have undergone significant development as a direct result of the ongoing study conducted.

2.4.2 Phrase-Based MT

A sizeable portion of the most cutting-edge MT systems must utilize grammar, dictionaries, or parsers as their work instruments. These so-called "phrase-based" systems try to learn translations of random word sequences by comparing them to literary works written in a language that is analogous to the language they are attempting to translate. We have demonstrated how to locate better translations in a shorter amount of time compared to earlier

systems by enhancing the techniques utilized to narrow down the search for the most appropriate translation in this kind of system. Because of this, we were able to locate more accurate translations.

2.4.3 Word Alignment

Machine translation (MT) is a method of translation that works by analyzing massive amounts of data that have already been translated. Systems that use MT to translate perform translation by analyzing this data. Finding word alignments or word correspondences in the data that has been translated is a critical step for the bulk of the algorithms that are currently being used during training. This stage can also be finding word matches. Both the discriminative and the generative approaches to word alignment have been made better due to the ground-breaking research that our team has been conducting. As a direct consequence, alignment algorithms have improved in terms of effectiveness while keeping the same high-quality standard.

2.4.4 Language Modeling

The availability of a comprehensive n-gram language model is crucial to the accomplishment of a high-quality MT system. Because they are educated only on data from the language they are destined for, translation algorithms can select the natural and understandable content in the target language. The work that MSR has done in the area of language modeling has been compiled into MSRLM, which is an open-source software toolkit that is now available to the general public. In addition to being scalable, the toolkit is quick; it can train a 5-gram model using more than a billion pre-tokenized words in less than three hours on a single machine.

It determines the quality of a translation problematic. According to Koehn (2004), it is difficult to establish the quality of a translation since it needs to be clarified which aspects of the translation should be considered. If the translation is to be deemed successful, the message that was intended to be given by the original text must, without a doubt, be expressed precisely in the translation. Putting all of the subtleties into words, on the other hand, is a challenging undertaking, and translators usually add new emphasis through their reading of the text. In addition, it is preferable to have an output that is easy to read and comes across as natural. Accuracy and fluency are two essential characteristics to consider when determining the overall quality of machine translations.

According to Hoppe (2005), who references Arnold, the following are a few problems associated with MT: (2003: 1-2). It is illogical to presume that the translations will be faultless in every respect, including the presentation, because translations are notoriously tricky to do right. This anticipation is founded on an overly simplistic understanding of the range of possibilities. Due to this reason, the finished result should be evaluated by a human translator as soon as it has been completed once it has been completed.

On the other hand, we ought to be ready for a text that is free of grammatical faults and maintains, at the very least conceptually, the same meaning as the original material. In other words, we should expect flawless text. The appropriate approximation is a consequence of variations in the selection of words utilized by various languages. In the following sections, we will delve even deeper into the specifics of this topic.

Second, there is the potential for problems if the primary source utilizes different phrasing. It is common for translators to construct new vocabulary in the target language to represent a new event in an accurate manner. It is illogical to think that computers can complete these duties, given that we have shown that computers need to learn or develop inventive solutions to issues.

To continue with the point made in the previous section, the culture from which the source text was produced will likely not be represented in the cultural phenomena included in the target text. Translators often assume the role of "cultural mediators" by incorporating additional background information into the final product (Arnold, 2003, p. 2). On the other hand, one cannot make the same assertion about submitting such a request to a computer. In light of these factors, examples of machine translation must be approached with a decent level of healthy skepticism because machine translation is not perfect. "Translation is not inherently a language operation," as Kay (1997) stated.

2.4.5 Automatic Evaluation Systems (AESs)

The evaluation of the input information and the provision of automatic revision opinions are both handled by Automatic Evaluation Systems (AESs), which are powered by big data and natural language processing technologies (such as automatic speech recognition and word sense disambiguation, amongst others). It has been demonstrated that English as an Additional Language (EAL) speaking AESs, such as English 60 Junior and Eye talk, can significantly improve students' fluency, frequency, and pronunciation in English. The context in which students of English as a second language are most likely to employ these systems is that of writing and speaking in English (EFL). It has been shown that the commercial software Criterion and Pigai, which both use AESs in EFL writing, improve the precision of writers and motivate students to spend more time editing their drafts. Both of these applications make use of AESs. A person can submit one of these applications by coming here (Bai & Hu, 2017; Gao, 2021).

Similarly, it has been shown that English as an Additional Language (EAL) listening AESs can do the same (Ahn & Lee, 2016). When applied to the Common European Reference Framework for Language Learning structure, AESs can also be used in English as a Foreign Language (EFL) instruction (covid-19). It is made

possible by integrating online testing with systems for automatic response and grading (Zitouni, 2022). Even yet, the introduction of AESs is likely to be met by educational experts with a degree of guarded optimism at the very least. People have the opinion that automatic evaluation systems (AESs) cannot replace human raters in English as a foreign language (EFL) writing instruction because of factors such as low accuracy (Liu & Kunnan, 2016), a lack of high-quality comments on collocation errors and syntactic use (Gao, 2021), frustrating levels of recognition, and a lack of convenience (Bai & Hu, 2017; Qian et al., 2021). However, other people disagree (McCrocklin, 2019). Additional technical work needs to be done to improve the accuracy of assessments performed by AESs. In addition, teachers need to fully deploy the potential of AESs to increase their effectiveness in a variety of EFL contexts which will help raise teachers' acceptance of AI (Du & Gao, 2022).

3. Methodology and Study Population

In this study, a descriptive-analytical research methodology was utilized. An analysis of the data obtained from a questionnaire administered to a sample group of twenty tertiary-level instructors who teach English as a foreign language at the department of English & Translation, College of Science & Arts Ar Rass, Qassim University, Saudi Arabia, was carried out. These instructors are located in Saudi Arabia. As presented in Table 3 in appendix (I), the twelve questions were given to each of the twenty members of the group. This questionnaire functioned as the data-gathering instrument. Every one of the responders, when working in an official setting, teaches English both as their area of expertise and as a second language to students. In order to verify the accuracy of the questionnaire's responses, it was sent out to a total of five experts. As a direct consequence, the questionnaire items were modified in response to the feedback provided by the reviewers. The instrument's purpose was to determine respondents' opinions towards the use of technologies that incorporate artificial intelligence in tertiary-level EFL programs in Saudi Arabia. Each inquiry required a response based on a five-point scale similar to the Likert scale, with response options ranging from Strongly Agree to Strongly Disagree with the statement being posed.

4. Results, Analysis, and Discussion

4.1 Analysis

As it has been demonstrated in Table 1, the tool handled all twelve of the questionnaire items in an appropriate manner, which resulted in data that was either nearly unanimously supportive or slightly contradictory. As a consequence of this, the study contributes to the existing literature, which is in agreement on a few points, including the fact that AI technology can be used to improve the language skills of EFL learners at the tertiary level, but that the success or failure of such an endeavor is heavily influenced by factors related to the performance of professors as well as the collaboration and motivation of EFL learners. Despite this, academics may need more professional skills to employ AI, particularly in EFL classrooms, even though this is a crucial topic. In other words, the training that professors receive needs to be upgraded for them to deploy AI technology effectively in their classrooms.

4.2 Discussion

Instructors' responses to items (1) and two explain strong agreement among the students with the statement that employing AI in EFL classrooms could reduce learners' reliance on hardcopy texts. The statement says using AI technology could pose several challenges to instructors and learners since it requires technology-based knowledge, speedy internet connection, and financial capabilities.

Instructors' responses to questions (1), (8), and (9) show they need to be sure about the role of AI in considering individual learner differences; the emergence of AI changes the EFL instructors to become facilitators and directors of the educational process. The implementation of AI assists learners in making appropriate educational decisions.

Table 1: Questions Responses

Q #	SA	A	NS	Dis	SD	Mean	S. D	%	T-Test	Sam. D	QR
12	8	10	2	0	0	4.3	5.32	86	1.093	Strongly Agree	1
6	8	9	2	1	0	4.2	3.83	84	1.401	Strongly Agree	2
11	7	9	3	1	0	4.1	1.05	82	4.677	Agree	3
2	5	10	3	2	0	3.9	3.50	78	1.149	Agree	4
10	6	8	4	2	0	3.9	3.74	78	1.075	Agree	5
7	7	7	1	3	2	3.7	2.81	74	1.113	Agree	6
5	4	9	4	2	1	3.65	2.79	73	1.043	Agree	7
4	5	8	2	3	2	3.55	2.28	71	1.078	Agree	8
1	3	8	4	3	2	3.35	2.43	67	0.644	Not Sure	9
9	3	5	6	3	3	3.1	2.40	62	0.186	Not Sure	10
8	2	4	8	5	1	3.05	2.94	61	0.076	Not Sure	11

3	1	2	3	9	5	2.25	2.86	45	-1.173	Disagree	12

Note: SA: Strongly Agree. A: Agree, NS: Not Sure. Dis: Disagree, SD: Strongly Disagree, S.D: Standard Deviation. Sam.D: Sample Direction. DR: Question Rank.

In items (2), (4), (5), (7), (10), and (11), instructors display an agreement with their details; they agree with the information and explain that AI provides feedback to both instructors as well as learners, in addition to the item says that utilizing AI technology is capable of demonstrating background information about EFL learners' personalities. Participants agree that using AI liberates learners from the single traditional learning methodology, and AI technology meets the needs of differently-abled learners. Participants also agree with the concept, which explains that applying AI could augment motivation in EFL learners to participate in classrooms effectively; besides, AI could help learners access educational materials anytime and everywhere without being confined to classrooms.

The lowest mean of all responses appears in item (3), which shows disagreement among the instructors with the item displaying that there is flexibility in presenting the educational material via AI.

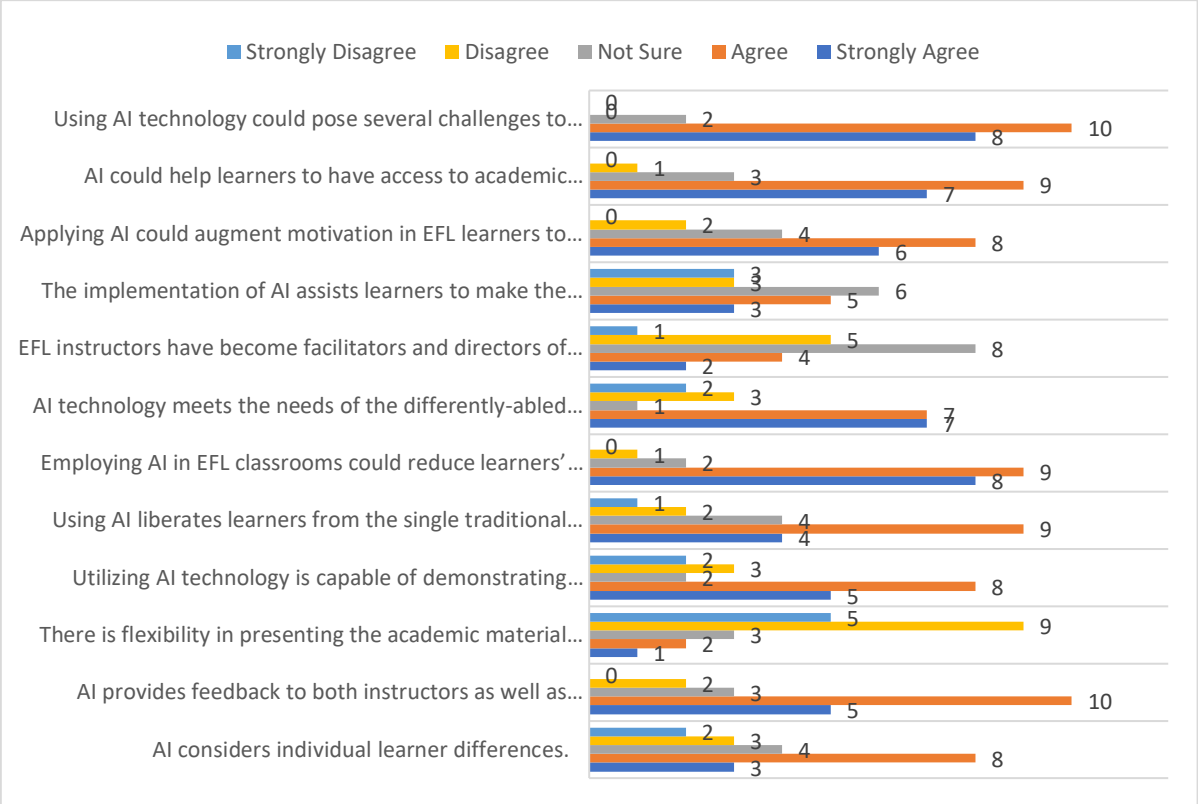

Figure 1: Questions Statistical Analysis

4.3 Results

Artificial intelligence (AI) software makes it more likely that the desired educational objectives will be achieved by highlighting particular ideas through spoken communication. AI helps English as a Foreign Language students enhance their critical thinking, debate, and argumentation skills. In addition to facilitating contact between EFL teachers and students in language classrooms, artificial intelligence must build strong ties and rapport between EFL teachers and students. AI might be used to encourage students to join in and engage in classroom activities, which would ultimately improve their overall performance, particularly their oral communication abilities.

As it has been shown in Figure 1, Question 12 has the highest mean, which shows strong agreement among the respondents with the statement that "Using AI technology could pose several challenges to both instructors as well as learners since it requires technology-based knowledge, speedy internet connection, and financial capabilities." Question 3 (There are flexibility and challenges in providing educational material via AI) displays the lowest mean in addition to statistical significance between the replies to it. The question asks whether AI presents educational material with flexibility and difficulties. It indicates that the respondents agree with the non-flexibility of utilizing AI to offer academic topics.

5. Conclusions

A human educator teaches information to other humans and inanimate objects such as smart devices and other electronic gadgets. This exploratory research revealed that all digital and AI-powered objects could assist in EFL education and teaching. Consequently, the pedagogical component of future education can be developed utilizing a framework for artificial intelligence. This research also demonstrated how to use AI technology in an all-orchestrated fashion for English as a Foreign Language (EFL) students. Students learning English as a second language may find that incorporating artificial intelligence technologies into every aspect of society is to their advantage. In addition to this, the study provided information regarding AI as well as a knowledge base example that researchers in the future can utilize.

6. Recommendations

1. Utilizing AI technologies in EFL because they enable students to gain access to educational resources whenever and wherever they want, rather than being constrained to classrooms only.
2. Taking advantage of the fact that students are addicted to their AI-operated devices to boost their motivation to learn English as a foreign language to participate successfully in classroom activities.
3. Implementing AI technologies to liberate students from the monotony of solely relying on traditional instructional strategies.
4. Increasing the understanding of both EFL teachers and students regarding AI technology to keep up with the most contemporary educational practices being used worldwide.
5. Urging the appropriate authorities to take decisive action toward improving English as a Foreign Language instructors' professional training.

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Appendix (I)
The Questionnaire

Items		Responses				
		Strongly Agree	**Agree**	**Not Sure**	**Disagree**	**Strongly Disagree**
1	AI considers individual learner differences.					
2	AI provides feedback to both instructors as well as learners.					
3	There is flexibility in presenting the academic material via AI.					
4	Utilizing AI technology is capable of demonstrating background information about EFL learners' personalities.					
5	Using AI liberates learners from the single traditional learning methodology.					
6	Employing AI in EFL classrooms could reduce learners' reliance on hardcopy texts.					
7	AI technology meets the needs of the differently-abled learners.					
8	EFL instructors have become facilitators and directors of the educational process only due to the emergence of AI.					
9	The implementation of AI assists learners to make the appropriate educational decisions.					
10	Applying AI could augment motivation in EFL learners to effectively participate in classrooms.					
11	AI could help learners to have access to academic materials anytime and everywhere without being confined to classrooms only.					
12	Using AI technology could pose several challenges to both instructors as well as learners since it requires technology-based knowledge, speedy internet connection, and financial capabilities.					