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مجلة البحوث المستدامة في العلوم الإنسانية

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The Influence of Using Artificial Intelligence in Learning English Language for Non-specialist Students
Case study: College of Engineering Technology-Houn

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Abstract*:*
Artificial Intelligence (AI) has revolutionized the process of learning English, providing students with innovative tools and personalized learning experiences. Through AI-powered applications, learners can practice pronunciation, expand their vocabulary, and improve grammar with instant feedback. This paper investigates the influence of artificial intelligence technology on non-specialist students' learning of English through its applications, unique benefits, and the services it provides to the students. A quantitative research methodology was employed. The data collected through questionnaires, which were distributed to a purposively selected group of students in the College of Engineering Technology at Houn. The data were analyzed by the statistical program SPSS and the Microsoft program Excel. The literature was reviewed to emphasize the significance of integrating artificial intelligence in language learning, identify potential challenges faced by students in their academic endeavors, and summarize prior research in this field. The results of this study indicate a significant impact of artificial intelligence applications on students' learning of the English language. The results also indicate a strong desire and need for the students to learn English in their field. Moreover, the students used many AI tools that support the English language in their study. This study recommended the necessity of engaging artificial intelligence programs in the learning process in teaching the English language. Designing a learning English language syllabus has been included in the results and the recommendations of this study.

Keywords: Artificial Intelligence, English language, Learning, Non-specialist students, influence

الملخص:
لقد أحدث الذكاء الاصطناعي ثورة في عملية تعلم اللغة الإنجليزية، حيث وفر للطلاب أدوات مبتكرة وتجارب تعليمية مخصصة. من خلال التطبيقات المدعومة بالذكاء الاصطناعي، يمكن للمتعلمين ممارسة النطق، وتوسيع مفرداتهم، وتحسين القواعد مع الحصول على ملاحظات فورية .تبحث هذه الورقة في تأثير تكنولوجيا الذكاء الاصطناعي على تعلم الطلاب غير المتخصصين للغة الإنجليزية من خلال تطبيقاتها، وفوائدها الفريدة، والخدمات التي تقدمها للطلاب .تم استخدام منهجية بحث كمية .تم جمع البيانات من خلال استبيانات تم توزيعها على مجموعة مختارة عمدًا من الطلاب في كلية التقنية الهندسية – هون .تم تحليل البيانات باستخدام البرنامج الإحصائي SPSS وبرنامج Microsoft Excel.تمت مراجعة الأدبيات لتأكيد أهمية دمج الذكاء الاصطناعي في تعلم اللغة، وتحديد التحديات المحتملة التي يواجهها الطلاب في مساعيهم الأكاديمية، وتلخيص الأبحاث السابقة في هذا المجال .تشير نتائج هذه الدراسة إلى تأثير كبير لتطبيقات الذكاء الاصطناعي على تعلم الطلاب للغة الإنجليزية .تشير النتائج أيضًا إلى رغبة قوية وحاجة لدى الطلاب لتعلم اللغة الإنجليزية في مجالهم . علاوة على ذلك، استخدم الطلاب العديد من أدوات الذكاء الاصطناعي التي تدعم اللغة الإنجليزية في دراستهم .أوصت هذه الدراسة بضرورة دمج برامج الذكاء الاصطناعي في عملية التعلم في تدريس اللغة الإنجليزية .تم تضمين تصميم منهج لتعلم اللغة الإنجليزية في نتائج وتوصيات هذه الدراسة.

الكلمات المفتاحية: الذكاء الاصطناعي، اللغة الإنجليزية، التعلم، الطلاب غير المتخصصين، التأثير.

1. Introduction

Envision a world where education is not merely a standardized process, but also a journey designed to meet each student's unique needs and aspirations! This is not a concept to envision; it is the current state of education, made possible by the advancement in artificial intelligence (AI). The significance of AI in the field of education is undeniable, as it has fundamentally changed the way we teach and learn. Pathak. S, (2024).

To begin with, the historical concept of artificial intelligence is traced back to John McCarthy, a prominent inventor recognized as the father of artificial intelligence. Besides this title, he was a distinguished computer scientist. McCarthy not only coined the term "Artificial Intelligence" but also introduced his conceptions at a scientific conference held at Dartmouth College in the summer of 1956, where he defined it as the science and engineering of creating intelligent machines (Hashisho,2022).

According to the Oxford Dictionary, the definition of artificial intelligence is "the study and development of computer systems that can copy intelligent human behavior". Stryker et al (2024) formulated the definition of artificial intelligence as a type of technology that allows computers and machines to simulate human learning, understanding, problem solving, decision making, creativity, and autonomy.

In recent times, as Peter et al (2024) stated that a significant transformation in the education field has been driven by the integration of artificial intelligence technologies. AI is not only reshaping traditional teaching methods but also revolutionizing our entire learning experience. In contrast, education has typically followed a standard method where students learn the same material at the same speed. The advancement of technology and the growth of digital platforms have greatly facilitated the processes of teaching and learning English. This evolution has created new opportunities for learners to develop their English-language skills proficiency.

It is crucial to mention that Ayala-Pazmiño (2023) has stated that the integration of AI in education has received significant attention from both scholars and educators alike, with many viewing it as a groundbreaking tool that can improve the quality of learning. One of the significant benefits of artificial intelligence is its ability to customize the educational experiences for individual students. To further support, as Kelleher and Tierney (2018) cited, artificial intelligence has an amazing ability to create tailored learning experiences for learners, taking into account their individual needs, interests, and abilities. As claimed by Wang. T (2008). As technology advances at a swift rate, it is important for teachers to stay updated with the latest trends that can improve student learning. They must use the latest technology to achieve their duty of teaching English in an effective and efficient manner.

2. Statement of the problem

In the previous years, there was widespread use of technology in different fields, including artificial intelligence, as it has become an important element and is used in many fields, including learning English. Many students prefer learning English according to their needs, interests, and fields. In general, learning the English language in schools or universities includes many issues such as syntax, literature, phonology, etc. Some students who are not interested in these elements will feel disappointed and learn with less motivation. On the other side, the Labor market requests play a great role in determining the student's studies.

The traditional curriculum stands as a big impediment to getting a good quality of education. Some of these syllabi need to be updated to be able to follow the improvement of using technology in the learning process as a whole and learning languages specifically. Learning English involves focusing on the specific

language needs of learners in particular fields, such as business, medicine, engineering, or tourism. The approach differs from general English learning as it adapts language instruction to meet specific professional or academic needs. Also, when resources of curriculum are available, they may not be updated to reflect the latest industry trends or practices, leading to outdated or irrelevant content. Learners may be less motivated if they do not see the immediate relevance of what they are learning to their professional or academic goals. This is particularly true if the course content does not directly relate to their daily work or studies.

Moreover, Teachers may require ongoing training and development to stay updated with the specific terminology and practices in the fields they are teaching. Many English teachers may lack the necessary background in the specific fields their students are studying. This can lead to difficulties in providing accurate and relevant instruction.

In some cases, learners or institutions may not have access to the necessary technological tools that could facilitate English language learning, such as industry-specific software, online resources, or specialized language labs. For instance, engineering students who do not need to learn or study syntax, morphology, semantics or linguistics, etc, need some tools to help them in their study. As a result, they are looking for ways and methods that assist them in satisfying their desires. Besides, this study centers on the need to understand the major role of artificial intelligence in learning the English language with the aim of continuous improvement and achieving the goals of English language proficiency.

3. Objectives of the study

The aims of this study are outlined in the subsequent points below:

1. To show the significance of integrating artificial intelligence into the process of learning the English language.
2. To focus on the role of artificial intelligence in customizing English language learning for individual learners' needs.
3. To illustrate the influence of artificial intelligence applications in enhancing learning the English language.
4. To discover the extension of artificial intelligence in the ability to fulfill the requirements of students.

4. Question of the study

This study explores the impact of artificial intelligence on learning English for non-specialist students, concentrating on several questions that arouse the researcher's passion to reach answers to them, which are as follows:

1.Are artificial intelligence applications capable of enhancing the process of learning the English language?

2.Is it possible for artificial intelligence to improve the learners' ability to master English language skills?

3.Can artificial intelligence assist learners in navigating the difficulties in their specific areas of study?

4.Can students effectively utilize artificial intelligence applications?

5.To what extent is the role of artificial intelligence in learning English for specific purposes?

5. Significance of the study

The importance of this study is to investigate the benefits of using artificial intelligence (AI) in learning English based on the learners' needs or objectives, and illustrate the effect of using this technology in learners' access to the language through artificial intelligence applications. In addition, it acknowledges

the significant capacity of artificial intelligence to enhance students' language skills. The significance of the study can be summarized as follows:

1.It is important for teachers to pay attention to the importance of AI and its capacity to create sophisticated educational programs that can help students reach their academic objectives.

2. In addition, this study is very important for syllabus designers to design the syllabus based on AI improvement and learners' needs.

3.This study will be helpful for the teachers to engage their students in some tasks by using AI applications.

4.The teachers will benefit from this study by emphasizing the impact of AI applications and using them to enhance students' motivation and improve their learning of the English language.

5.This study will help the students to discover the capacity of AI applications to promote and develop their English language skills.

6.Inspectors will be interested in and encourage the teachers to use AI in the learning process.

Based on Claned (2024), artificial intelligence can improve educational tools, this allows the creation of lesson plans to tailored to each student's needs, goals, and objectives.

6. Literature review

Previous studies on the effectiveness of integrating artificial intelligence into education in general, with a focus on English language learning, are based on the learners' needs.

6.1 Benefits of Using Artificial Intelligence in Education

According to Al-Tkhayneh et al. (2023), several studies discussed the benefits of Artificial Intelligence in education, including those by Al-Bakri (2021), Al-Mashaqba (2020), Huang (2019), Barak and Dori (2019). These studies supported the positive effect of artificial intelligence on students' learning in different areas such as language learning, teaching science, technology, engineering, and mathematics. Artificial intelligence enhances the relationship between teachers and students by creating a good environment for communication and facilitates the personal learning process by providing efficient and safe information.

Vall & Araya (2023) noted that learning English as a foreign language can benefit both teachers and students by using Artificial Intelligence tools. These tools help teachers to achieve this task easily and in a short time with real feedback. Students can use these tools easily to learn the language based on their level and abilities. Artificial intelligence plays a great role in supporting and facilitating personal learning. Both teachers and students can improve their performance by using artificial intelligence tools.

6.2 Advantages of Artificial Intelligence in Language Learning

Based on Singh R (2024), technology is allowing incredible things for humans today, with new advancements made every day, including artificial intelligence (AI), which, in its integration in education, represents a groundbreaking approach to tailoring learning experiences to meet the individual needs of students. Several benefits of employing AI in language learning are outlined as follows:

6.2.1 Personalized Learning

According to Jian M (2023), artificial intelligence has made a significant shift in education by increasing its advanced technology in general and personalizing learning in specific. AI has emerged as a powerful tool to support personalized learning experiences by changing the learning approaches and instructional strategies. Personalized Learning is designed to cover learners' needs and their differences based on their styles (Pane et al, 2017).

In addition to Jian M (2023), Artificial Intelligence system has a strong ability to analyze a large amount of data and create thoughts that are closely related to the learners' needs, equally with their level. AI has the capacity to determine which suitable learning styles are for the learners and where they find difficulties (Chen et al., 2018). Artificial intelligence tools have facilitated personalized learning with high performance by personal educators, offering instant feedback, answering questions, and offering references due to their learning (Winkler & Söllner, 2018).

6.2.2 Personalized Curriculum Design

According to Claned (2024), artificial intelligence can enhance educational tools by enabling the creation of lesson plans tailored to each student's needs, goals, and objectives.

Through machine learning techniques, these tools can help identify the individual learning preferences and abilities of students, allowing AI systems to offer personalized learning materials, assignments, or activities that align with their goals. In addition, these tools have natural language processing abilities, enabling learners to analyze and understand written information from sources like textbooks and lecture transcripts. This enables the tools to extract key concepts, summarize content, and create study aids such as flashcards or concept maps, ultimately enhancing learners' understanding of academic materials.

6.2.3 Available at All Times

Numerous studies have been conducted on how artificial intelligence offers learners continuous access to assistance whenever and wherever they need it According to Singh T (2024), this 24/7 availability outside the boundaries of the school or educational premises helps students who study at irregular hours or are living in a different time zone. However, based on Herson R (2023), when students are learning a language, practice is the key to success. Therefore, students need to be able to reinforce their vocabulary and fluency by using the language.

It is essential to highlight that AI chatbots like ChatGPT answer students' questions in real-time, reiterate their answers according to the student's demands, and even provide them with multiple supporting resources. Besides, they are very quick in responding and easy to operate, and have very quickly become the most used tools by both students and teachers, Singh T (2024).

As stated by Vernersson (2024), the importance of the role of artificial intelligence lies in programs and applications being available all the time, offering personalized help with homework, explaining difficult concepts, and answering all the questions. Consequently, this feature ensures that students are able to learn at their own pace and provides a better individual learning experience.

6.2.4 No Fear of Failing

As reported by District A (2023), language learners often hesitate to speak in front of others due to the fear of making mistakes. AI eliminates this fear by providing a non-judgmental learning environment. Students can practice speaking and writing without the pressure of judgment, helping them to build confidence and fluency over time. This fear-free environment encourages experimentation and active participation in the learning process.

6.3 Using AI to Improve Listening and Speaking Skills

According to Fathi et al (2024), effective communication through speaking is an essential skill for second language learners, as it helps them to interact with both native and non-native speakers in real-world situations (Jabber & Mahmood, 2020; Kohn & Hoffstedter, 2017; li &Chan, 2024). Utilizing AI-powered platforms and applications, learners can go beyond the conventional restrictions of classes, such as small class size, short duration, etc, to receive constructive feedback through mediation, communicate and learn outside class, and improve their speaking skills continuously through interactive speaking activities.

Moreover, Wicaksono et al (2024) stated that AI-powered platforms and applications are particularly useful for enhancing students' listening and speaking skills. They provide an engaging learning environment that imitates real-life situations by using natural language processing (NLP) to analyze and respond to students' utterances (Haspari & Wu, 2022). They have a strong ability to create listening and speaking exercises adapted to interests and level of proficiency of each individual student (Zhou, 2020). Many AI tools can help students enhance these skills in an interactive and personalized manner, Such as tutor AI, Lingostar, Duolingo, Elsa Speak, among others. They act as tutors by providing personalized instruction, target exercises, and authentic practice scenarios with virtual assistants, and assess students' spoken language by comparing their pronunciation and intonation to those of native speakers, and providing real-time feedback and suggestions for improvement (Handini et al., 2022).

6.4 Using Artificial Intelligence in Vocabulary Acquisition.

According to Carmen et al (2024), the acquisition of vocabulary is a fundamental aspect of language learning, particularly in English, which serves students according to their studies or for future work. Traditional methods of vocabulary acquisition often rely on rote memorization and repetition, which can be tedious and ineffective for many learners. With the advancement in artificial intelligence, there exists an opportunity to revolutionize vocabulary acquisition via innovative and personalized approaches. One of the primary advantages of integrating AI into vocabulary acquisition is its ability to provide a personalized learning experience designed for the unique needs and preferences of individual learners. In language, especially English, vocabulary becomes the most important thing in learning a language. Through adaptive machine learning techniques, AI platforms can analyze learners' strengths, weaknesses, and learning styles to deliver customized vocabulary exercise content according to their specific needs and fields. This personalized approach not only increases engagement but also maximizes retention and understanding. AI-based learning apps provide feedback on vocabulary acquisition via various mechanisms that enhance the learning experience for English learners.

6.5 Future of Artificial Intelligence in a Learning Language

As explained by Hamilton et al (2023), the integration of AI into language learning is not just a fleeting trend; it's shaping up to be the bedrock of a new era in language acquisition. This transformative approach promises to harness data and technology to supercharge the learning experience, making it more effective and accessible than ever before. AI evolves rapidly, so it's difficult to predict exactly how it will be used in education years from now. To reiterate, we already know it can be used to:

1.Provide flexibility in adapting content to suit students, taking into account the individual differences and abilities of each student.

2.Enable the students to obtain answers to their questions and inquiries in seconds and at any time.

3.Encourage shy students and persuade them to ask questions without fear of being judged.

4.Analyze records accurately and identify learning gaps that are difficult to explore with human effort, and then correct them.

5.Saving time and effort for students as a result of artificial intelligence taking over many routine tasks efficiently.

6.Provide immediate comments and corrections to students.

7.Add fun and enjoyment to the learning process to enhance students' experience.

7. Methodology and Data Analysis

This section outlines the methodology adopted for this study to investigate the influence of using artificial intelligence on the process of learning English for non-specialist students.

7.1 Research Design

This study relied on a quantitative approach, where data were collected by using questionnaires to assess opinions and trends related to the influence of using artificial intelligence in learning English for non-specialist students. Statistical methods were also utilized as the SPSS program, to analyze the data and draw conclusions.

7.2 Data Collection Methods

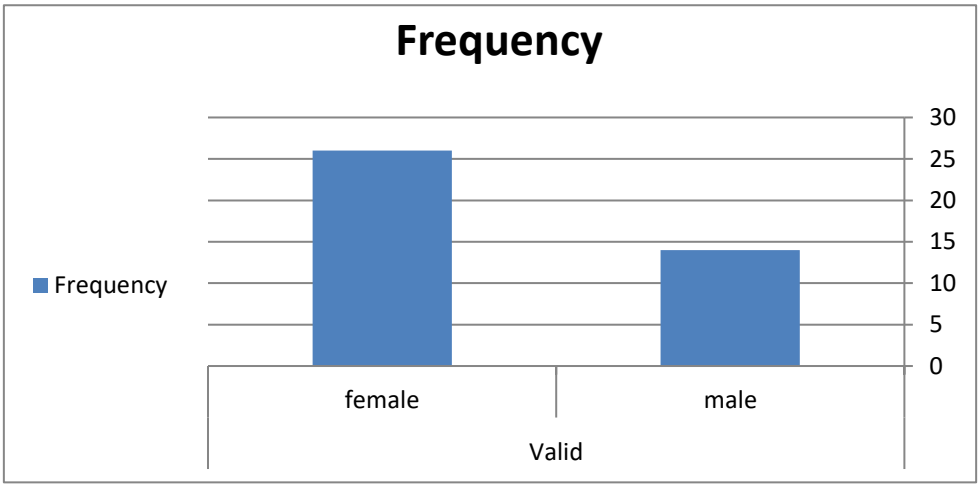
Data were collected by using a questionnaire which was designed to suit the research questions and objectives. The questionnaire included three parts. The first part included the personal information, the second part included twenty (20) questions around the main point of the study, while the third part was an open question about AI applications that the students use in their studying. The questionnaire was distributed to forty (40) students of the College of Engineering Technology- Houn.

7.3 Data Analysis Methods

The data were analyzed by using a statistical software program (IBM SPSS, Statistical Package for Social Sciences) version 20 and Microsoft Excel in order to extract main patterns from participants' responses and draw a chart.

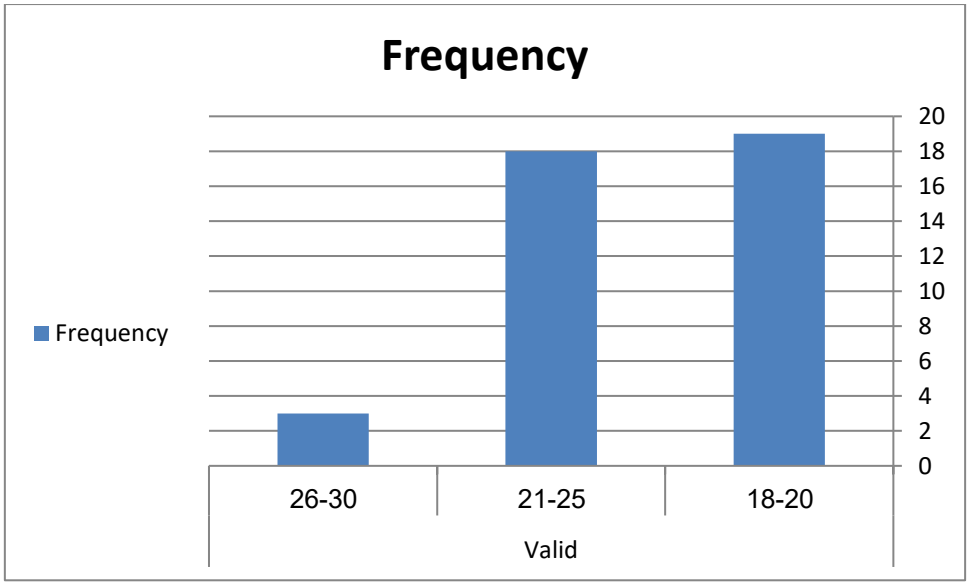
- **Section: I**

First of all, the study clarified the gender of the students as well as the age group targeted via graphs as follows:



Graph (1) Participant Gender

The graphs (1) demonstrate the distribution of participants by gender, with males representing a smaller proportion compared to females. According to the data, females constitute the highest percentage of participants. While the following graph shows the distribution of participants, build up on their ages as follows:



Graph (2) participant Age

The graph (2) shows the distribution of participants according to age groups. It is clear that the predominant age groups in frequency are 18-20 years, 21-25 years, and 26-30 years.

- **Section II**

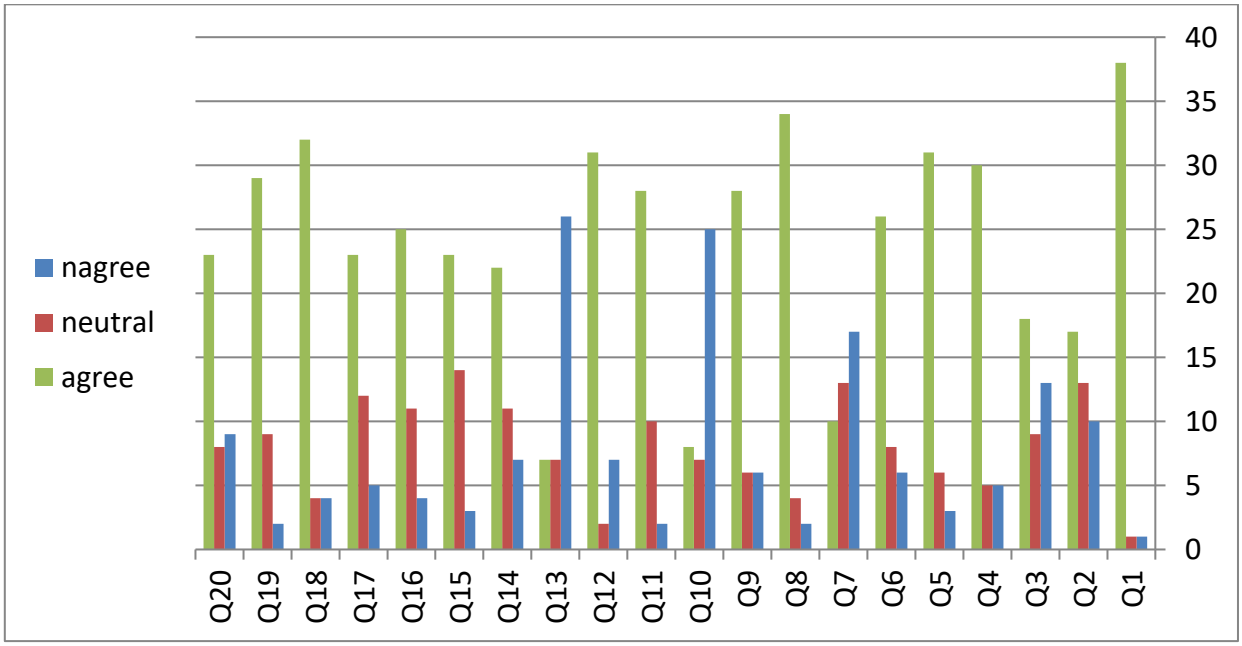
The table (1) illustrates the participants' responses to the questions included in the questionnaire. The questions were designed to cover a variety of issues of interest to participants. The responses were measured by Likert Scale: (Agree), (Strongly agree), (Neutral), (Disagree), and (Strongly Disagree).

Table (1) Participant Responses

N.	Question	Agree	Strongly agree	Neutral	Disagree	Strongly disagree	Range	Mean	Std. Deviation
1	I need to study English for my own purposes.	17	21	1	1		3.00	1.6500	.66216
2	I find it difficult to learn English	12	5	13	10		3.00	2.5250	1.17642
3	I have difficulties pronouncing English vocabulary	14	4	9	12	1	4.00	2.5500	1.31948
4	Smart programs help overcome English pronunciation difficulties	22	8	5	3	2	4.00	1.8750	1.20229
5	My use of smart programs contributed to increasing my desire to learn English	21	10	6	1	2	4.00	1.8250	1.10680
6	The college supports technological education programs	18	8	8	5	1	4.00	2.0750	1.18511
7	The faculty has methods of non-traditional learning (distance education, interactive education)	8	2	13	16	1	4.00	3.0000	1.17670
8	There are specialized laboratories in your department according to the nature of the study	22	12	4	2		3.00	1.6500	.86380
9	There is a library that is convenient in terms of space and equipment	18	10	6	5	1	4.00	2.0250	1.16548
10	Internet service is well available in the library	3	5	7	18	7	4.00	3.5250	1.15442
11	AI applications help me learn English	19	9	10	1	1	4.00	1.9000	1.03280

N.	Question	Agree	Strongly agree	Neutral	Disagree	Strongly disagree	Range	Mean	Std. Deviation
12	Some courses were taught through the information network and artificial intelligence applications	16	15	2	5	2	4.00	2.0500	1.19722
13	Classrooms equipped with modern technology are available in the college where I study	5	2	7	18	8	4.00	3.5500	1.23931
14	Courses have areas for self-learning	19	3	11	7		3.00	2.1500	1.21000
15	The use of smart software contributed to improving my ability to English conversation	15	8	14	1	2	4.00	2.1750	1.12973
16	Smart software can be used in place of classrooms In learning foreign languages	15	10	11	4		3.00	2.1000	1.03280
17	There are no difficulties in using smart programs in learning Foreign languages	18	5	12	4	1	4.00	2.1250	1.18078
18	Use audio programs to learn English	21	11	4	3	1	4.00	1.8000	1.06699
19	AI programs help me improve all English language skills	19	10	9	2		3.00	1.8500	.94868
20	The computer lab has devices to suit the number of students	18	5	8	6	3	4.00	2.2750	1.37724

The graph (3) shows the total responses for agree, neutral, and disagree.



Graph (3) total Responses

According to the data analysis, the responses indicate that there is a high number of answers that support many points, such as using AI in the learning process in general and learning the English language in particular. The responses reflected the students' views on the impact of artificial intelligence on learning English based on their field.

In contrast, there are some responses with a high degree that indicate difficulty in learning the English language and a lack of facilities in their college, such as a lack of equipment with modern technology in the classes. This indicates that the use of technology is widely accepted to improve language skills.
The third part of the questionnaire was an open question about the apps that the students used in their studying. Such as ChatGPT, Elsa Speak, Duolingo, Google Translate, YouTube, Mat Lap, Microsoft Word, Excel, and Poe.

8. Findings

According to the analysis of the collected data, the researcher inserted certain points that can be outlined as the findings of this study, which are as follows:
The vast majority of students exhibit great interest and a deep understanding of the importance of English in achieving their academic goals. While some students encounter difficulties in learning English due to differences in skills and access to resources, others do not face the same challenges. Most students, however, struggle with pronunciation, which may stem from a lack of practical application or limited opportunities for real-life practice. This highlights the importance of programs designed to teach English with clear objectives tailored to learners' needs or future careers, as well as a strong emphasis on using smart programs to overcome pronunciation issues. Many students acknowledged the effectiveness of technological tools—particularly artificial intelligence applications—in enhancing conversational skills, and they strongly supported the role of AI in improving various other skills, including reading, writing, listening, and speaking. Technology was also recognized for making English learning more attractive and enjoyable. In line with this, the college is striving to offer innovative learning opportunities, such as online and interactive education, although the lack of internet services inside the libraries remains a notable limitation.
These findings highlight the significant dependence on technology to facilitate the learning of English, as technological tools such as smart programs and online platforms are essential factors that contribute to improving language skills. These technologies also provide opportunities for self-learning and effective interaction, which helps enhance students' ability to acquire the language more quickly and efficiently.

9. Conclusion

The evidence gathered from this study indicates that the process of teaching English for specific purposes requires continuous development to effectively address the diverse needs of learners. This underscores the necessity of updating curricula and devising teaching strategies that align with learners' individual and professional goals. The integration of technology, particularly artificial intelligence applications, has been shown to significantly enhance the learning experience and better meet learners' needs. The study's findings confirm this, as students demonstrated a clear understanding of the role of English in achieving their academic and specific purposes. Data obtained through questionnaires and statistical analysis further affirm that the use of technology, especially artificial intelligence, positively influences students' motivation to learn English. These findings are consistent with previous research, including the study by Ghafar. Z et al (2023) on the role of artificial intelligence in English language learning, which highlighted the benefits of smart programs in enhancing student engagement and learning outcomes. Nonetheless, the results also revealed challenges related to the insufficient availability of smart programs and artificial intelligence applications, signaling an urgent need for solutions to enhance the effectiveness of technology use—particularly AI—in educational settings.

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