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Investigating the Impact of Artificial Intelligence AI and Technology in English Language Learning

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Abstract: The integration of Artificial Intelligence (AI) and technology in English Language Learning (ELL) is revolutionizing education. This research explores the impact of AI and technology on English language learners at Quest University, Nawabshah. Through a quantitative approach and an online questionnaire, the Researcher delves into students' perceptions and experiences. Technology, encompassing computers, smartphones, tablets, and AI-powered chat bots, plays a pivotal role. The majority of students find technology-enhanced learning engaging and enjoyable, making it easier to practice English outside the classroom. AI-powered tools receive acclaim for increasing motivation, proficiency, and preference over traditional methods. However, the enjoyment of AI chat bots remains diverse.

Keywords: artificial intelligence, technology, English language learning, chat bots.

1. Introduction

The rapid advancement of technology has permeated nearly every facet of our lives, including education. One area where technology has shown considerable promise is in the realm of language learning, specifically in teaching and learning English as a second language. Artificial Intelligence (AI) and various technological tools have become integral components of English Language Learning (ELL), offering innovative ways to engage students and enhance their language acquisition. This research article aims to investigate the impact of AI and technology on English Language Learning using a quantitative approach and an online questionnaire.

The significance of learning the English language cannot be overstated in our increasingly globalized world. English has evolved into a lingua franca, bridging linguistic gaps and facilitating communication across diverse cultures and geographies. As such, proficiency in English has become a valuable asset, opening doors to academic, professional, and social opportunities worldwide. Consequently, the demand for effective English language learning methods has grown exponentially.

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2. Literature Review

The term artificial intelligence was constructed the first in 1956 by John McCarthy. Artificial Intelligence is the science and engineering of making intelligent machines, especially intelligent computer programs [3].

Artificial Intelligence (AI) has become an integral part of our daily lives, playing a vital role in various aspects, both large and small. Its capabilities are far-reaching, from advanced medical diagnoses through deep learning to creating music, literature, and art by analyzing the works of creators. AI excels in generating realistic content, including images and videos, and is instrumental in security measures like facial recognition for data protection. Chat bots powered by AI are enhancing customer communication, while intelligent home systems offer convenience and control over household functions. The applications of AI extend to monitoring environmental conditions and improving workplace safety, gaming, and environmental exploration. As AI continues to advance, it is shaping the future in countless ways, contributing to human development and making our lives more comfortable and efficient [6]. The role of artificial intelligence (AI) in personalized learning within the educational sphere is comprehensively explored. The findings underscore the significant positive impact of AI-driven personalized learning on student learning outcomes, engagement, and motivation, thereby highlighting the potential merits of AI in education, while simultaneously underscoring the critical need for ethical deliberation in its implementation [1].Top of Form

2.1 Technology and Education

Technology is a multifaceted and ever-evolving field encompassing the systematic application of knowledge, tools, processes, and techniques to create, manipulate, and utilize resources, information, and materials for the purpose of solving complex problems, satisfying human needs, and achieving specific goals [5]. It involves the inventive and practical use of scientific principles, engineering skills, and innovative thinking to develop, improve, or optimize products, systems, and methods across various domains [7]. Technology's pervasive influence underscores its capacity to both empower and challenge societies, emphasizing the need for responsible and ethical development and application [2].

One of the key advantages of technology in education is its ability to engage students actively. Interactive multimedia resources, such as online language learning platforms and virtual classrooms, provide students with immersive experiences. These interactive tools make learning English more engaging, fostering increased participation and motivation among learners [4] .

2.2 Research Questions

1. How does the integration of Artificial Intelligence impact the English Language Learners?
2. How does the integration of technology impact the English Language Learners?

2.3 Research Objectives

1. To gain an in-depth understanding of the impact of Artificial Intelligence on English Language Learners.
2. To investigate the role of technology in the process of English Language Learning.

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3. Research Methodology

In this study, quantitative research methods were employed to investigate the impact of AI and technology on English Language Learning (ELL) among students at Quest University, Nawabshah. The data for this research was collected from a sample of 49 students from the English Department. The primary data collection instrument utilized was a structured online survey conducted via Google Forms. The survey consisted of a series of questions designed to assess various aspects of AI and technology integration in ELL, including their perceived impact on language proficiency, learning outcomes, and overall educational experience.

3.1 Data Collection:

The data collection process involved distributing the survey link to students in the English Department at Quest University, Nawabshah, through digital communication channels such as email and social media. Participants were informed about the purpose of the research, the voluntary nature of their participation, and the confidentiality of their responses. They were then given access to the online survey via the provided link.

The survey gathered information on various factors, including the frequency of technology use in language learning, the perceived effectiveness of AI-driven tools, any challenges encountered when using technology in language learning, and students' overall satisfaction with technology-enhanced language learning experiences.

The data collection process aimed to capture the perspectives and experiences of English Department students regarding the integration of AI and technology in their language learning journeys. The collected responses were subsequently analyzed quantitatively to draw meaningful insights and conclusions regarding the impact of AI and technology in English Language Learning at Quest University, Nawabshah.

4. Findings

Table 1: Age of the students

		Frequency	Percent
Valid	Male	39	79.6
	Female	10	20.4
	Total	49	100.0

Table 1 presents the distribution of students by gender. Among the 49 students who participated in the study, the majority, accounting for 79.6% of the sample, are male, while 20.4% are female. This table offers a clear overview of the gender composition within the participant group.

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Table 2: Age of the students

		Frequency	Percent
Valid	Above 20	32	65.3
	under 20	17	34.7
	Total	49	100.0

Table 2 further dissects the age distribution of the students. It categorizes students into two groups: "Above 20" and "Under 20." The findings reveal that 65.3% of the students are above 20 years old, while 34.7% are under 20. This classification allows for a more detailed understanding of the age demographics among the participants.

Table 3: How frequently do you use technology (e.g., computers, smartphones, and tablets) for language learning purposes?

		Frequency	Percent
Valid	Never	1	2.0
	Occasionally	8	16.3
	Sometimes	8	16.3
	Often	8	16.3
	Always	24	49.0
	Total	49	100.0

Table 3 provides valuable insights into the frequency with which students at QUEST University, Nawabshah, utilize technology such as computers, smartphones, and tablets for language learning purposes. The data reveals a diverse range of technology usage patterns among the 49 participants. A small proportion (2.0%) of students reported never using technology for language learning, suggesting that the overwhelming majority of learners engage with digital resources in some form. Interestingly, an equal percentage of students (16.3%) falls into the "Occasionally," "Sometimes," and "Often" categories, indicating a varying degree of technology integration into their language learning routines. However, the most noteworthy finding is that nearly half of the students (49.0%) indicated that they use technology "Always" for language learning. This substantial percentage underscores the pivotal role of technology in facilitating language acquisition and underscores the need for educators and institutions to harness digital tools effectively to enhance language learning experiences.

Table 4: Do you find technology-enhanced language learning more engaging than traditional methods?

		Frequency	Percent
Valid	yes	43	87.8
	no	6	12.2
	Total	49	100.0

In table 4 the majority of students, nearly 87.8%, find technology-enhanced language learning more engaging than traditional methods. They appreciate the interactive and dynamic aspects of digital tools, which boost their interest and motivation. However, around 12.2% of students still prefer traditional methods, suggesting that some find value in conventional approaches. This indicates a need for a balanced approach that combines technology and traditional methods to cater to various learning preferences and needs among students.

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Table 5: Has technology made it easier for you to practice English outside the classroom?

		Frequency	Percent
Valid	yes	46	93.9
	no	3	6.1
	Total	49	100.0

In Table 5, the data shows that a significant majority of students, nearly 93.9%, feel that technology has made practicing English outside the classroom easier. This indicates that digital tools and resources are widely seen as beneficial for extending language learning into real-life situations, ultimately enhancing language skills. On the other hand, a small minority, only 6.1% of students, does not share this perspective and find technology less helpful in this regard. While their number is relatively low, their feedback highlights the importance of addressing any challenges or limitations to ensure that technology serves all students effectively in their language-learning endeavors.

Table 6: Does technology make learning English more enjoyable?

		Frequency	Percent
Valid	yes	47	95.9
	no	2	4.1
	Total	49	100.0

Table 6 shows that an overwhelming 95.9% of students find technology enhances their enjoyment of learning English, indicating that digital tools contribute significantly to their motivation and enthusiasm for language learning. Only a tiny 4.1% do not share this perspective.

Table 7: Has technology increased your motivation to study English?

		Frequency	Percent
Valid	yes	42	85.7
	no	7	14.3
	Total	49	100.0

Table 7 reveals that 85.7% of students acknowledge that technology has increased their motivation to study English. This significant majority indicates that digital tools play a vital role in boosting students' drive and enthusiasm for language learning. On the other hand, a smaller proportion, 14.3%, did not experience an increase in motivation through technology. Recognizing and addressing the concerns of this minority is essential to ensure that technology effectively enhances motivation for all students in their English language studies.

Table 8: Would you choose technology-enhanced learning over traditional methods?

		Frequency	Percent
Valid	yes	42	85.7
	no	7	14.3
	Total	49	100.0

Table 8 indicates that a substantial 85.7% of students would opt for technology-enhanced learning over traditional methods, emphasizing their preference for the interactive and dynamic nature of digital tools in language education. However, 14.3% of students expressed a preference for traditional

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methods. Understanding the reasons behind this minority viewpoint is crucial for creating inclusive learning environments that cater to diverse preferences and needs. This data underscores the importance of a balanced approach that combines both technology and traditional methods to accommodate varied learning styles and preferences among students.

Table 9: How do you feel about your English language proficiency compared to before using technology?

		Frequency	Percent
Valid	improved	39	79.6
	Stayed the same	4	8.2
	Declined	6	12.2
	Total	49	100.0

Table 9 indicates that a significant majority of students, 79.6%, believe that their English language proficiency has improved since incorporating technology into their language learning journey. This positive perception highlights the potential of digital tools in enhancing language skills. However, a smaller percentage, 8.2%, felt that their proficiency remained the same, while 12.2% perceived a decline. Understanding the reasons behind these variations is essential for optimizing technology's impact on language learning outcomes, and it underscores the importance of providing tailored support to all students to ensure continuous progress in English proficiency.

Table 10: Have you used AI-powered chat bots or language learning software for English language learning?

		Frequency	Percent
Valid	yes	36	73.5
	no	13	26.5
	Total	49	100.0

Table 10 shows that a substantial 73.5% of students have utilized AI-powered chat bots or language learning software as part of their English language learning journey, indicating a strong willingness to embrace innovative AI-driven solutions for language education. However, a minority of 26.5% have not yet engaged with such technology. Exploring the reasons behind this difference in adoption rates can provide insights into optimizing the integration of AI-driven tools into language learning to ensure that all students benefit from these resources. This data underscores the growing interest in AI technology in language education and the potential for further advancements in this field.

Table 11: How frequently do you use AI for language learning purposes?

		Frequency	Percent
Valid	Never	9	18.4
	occasionally	7	14.3
	Sometimes	12	24.5
	Often	9	18.4
	Always	12	24.5
	Total	49	100.0

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Table 11 reveals the frequency of students' use of AI for language learning purposes. The data illustrates a varied pattern of engagement: 18.4% of students reported never using AI for language learning, while 14.3% use it occasionally, 24.5% sometimes, and 18.4% often. Additionally, 24.5% of students reported using AI always in their language learning endeavors. This diverse range of responses indicates that students' interactions with AI in language education vary, emphasizing the need for flexible and adaptable AI solutions that cater to individual preferences and needs. It also underscores the growing integration of AI technology into language learning practices, with a significant portion of students actively incorporating AI into their studies.

Table 12: Has the use of AI-powered language learning tools increased your motivation to learn English?

		Frequency	Percent
Valid	yes	40	81.6
	no	9	18.4
	Total	49	100.0

Table 12 demonstrates that a substantial majority of students, 81.6%, perceive AI-powered language learning tools as having increased their motivation to learn English. This strong affirmation underscores the significant role of AI technology in boosting students' drive and enthusiasm for language education. However, a smaller percentage, 18.4%, did not experience a similar increase in motivation. Understanding the reasons behind this minority perspective can provide valuable insights into optimizing the impact of AI-powered tools to ensure enhanced motivation for all students in their English language studies. This data underscores the positive influence of AI in language learning and the potential for further integration and refinement of AI-driven solutions in education.

Table 13: Do you find AI catboats or language learning software more motivating than traditional language learning materials?

		Frequency	Percent
Valid	yes	39	79.6
	no	10	20.4
	Total	49	100.0

Table 13 indicates that a significant majority of students, 79.6%, find AI chatbots or language learning software more motivating than traditional language learning materials. This strong preference highlights the potential of AI-driven tools to inspire and engage students in their language studies. However, a minority of 20.4% did not share this viewpoint and did not find AI catboats or software more motivating than traditional materials.

Table 14: Would you recommend AI-powered language learning tools to others?

		Frequency	Percent
Valid	yes	42	85.7
	no	7	14.3
	Total	49	100.0

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Table 14 indicates that a substantial 85.7% of students would recommend AI-powered language learning tools to others, highlighting their positive experience and satisfaction with these innovative tools. However, a minority of 14.3% would not recommend them. Exploring the reasons behind this difference in recommendation can provide insights into tailoring AI-powered language learning tools to meet the needs and preferences of all students. This data underscores the potential for broader acceptance and adoption of AI technology in language education, as the majority of students express their willingness to endorse such tools to others seeking to enhance their language skills.

Table 15: Has the use of AI chat bots made English language learning more enjoyable for you?

		Frequency	Percent
Valid	Strongly disagree	18	36.7
	Disagree	13	26.5
	Neutral	11	22.4
	Agree	1	2.0
	Strongly Agree	6	12.2
	Total	49	100.0

Table 15 shows how students feel about using AI chat bots for learning English. It reveals that 36.7% of students strongly disagree that AI chat bots make learning English enjoyable, while 26.5% simply disagree. On the other hand, 12.2% strongly agree that AI chat bots enhance their enjoyment of learning English, and 2% agree. About 22.4% of students are neutral, meaning they neither agree nor disagree.

Table. 16: How do you think AI chat bots have contributed to your language proficiency?

		Frequency	Percent
Valid	Enhanced Vocabulary	17	34.7
	Improved grammar	4	8.2
	Better conversational skills	9	18.4
	All the above	19	38.8
	Total	49	100.0

Table 16 tells us how students believe AI chat bots have helped them improve their language skills. About 34.7% of students think AI chat bots have enhanced their vocabulary, while 8.2% believe they've improved their grammar. Additionally, 18.4% feel that AI chat bots have made them better at conversational skills. An even larger group, 38.8%, believes that AI chat bots have contributed to all of these language skills, including vocabulary, grammar, and conversational abilities. So, students generally see AI chat bots as helpful in various aspects of their language proficiency.

5. Discussion

Looking at technology more broadly, which includes computers, smartphones, tablets, and AI; we see that it has become an essential part of how students learn English. They frequently use these digital tools for language learning purposes, with some relying on technology "always." The majority of students find technology-enhanced language learning more engaging and enjoyable than traditional methods. Moreover, technology has made it easier for them to practice English outside the classroom.

This highlights the growing importance of technology in creating interactive and enjoyable language learning experiences.

When it comes to AI, which includes chat bots and language learning software, we found that a significant number of students have used AI for their language studies. Importantly, most of these students reported that AI has boosted their motivation to learn English, and they even prefer AI-driven tools over traditional materials. Additionally, many students believe their English language proficiency has improved through the use of AI technology. This suggests that AI has a positive and motivating influence on students' language learning experiences.

Both AI and technology play a significant role in enhancing English language learning at Quest University, Nawabshah. AI, in particular, has shown promise in boosting motivation and proficiency, while technology as a whole has made learning more engaging and accessible outside the classroom. These findings suggest that incorporating technology, including AI-driven tools, into language education can offer effective and enjoyable learning experiences for students. To maximize the potential of AI and technology in ELL, institutions should focus on enhancing AI integration, tailoring learning experiences to individual needs, and accommodating diverse student preferences. As technology continues its rapid advancement, educators must adapt their approaches to provide comprehensive, effective, and inclusive language education.

6. Conclusion

In conclusion, this research sheds light on the increasingly pivotal role of technology, especially AI, in English language learning among students at Quaid-e-Awam University of Engineering, Science and Technology, Nawabshah. The findings highlight the positive impact of AI-powered tools on motivation, proficiency, and overall enjoyment of language learning. Additionally, technology, including computers and smartphones, has become an essential and engaging resource for students' language studies. However, the diverse perceptions regarding the enjoyment of AI chat bots underscore the need for personalized and refined AI solutions to cater to individual preferences. Based on the key findings, several recommendations can be made. For instance, institutions need to explore further integration of AI-driven language learning tools, recognizing their motivational and proficiency-enhancing potential. Besides, educators need to adopt a balanced approach that combines technology and traditional methods to cater to diverse student preferences.

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