

Yarmouk University Students' Perceptions when Utilizing AI-Driven Machine Translations applications for translating academic texts between English and Arabic

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Abstract

This study investigates the utilization of AI-powered machine translation by students at Yarmouk University for translating texts between English and Arabic. It employs the uses and gratifications theory (UGT) to demonstrate the role of these applications in student's academic pursuits. We designed a structured questionnaire to collect insights into students' needs and satisfaction with these tools. The study aims to determine the degree to which these technologies support academic pursuits, encompassing participants from various faculties and majors at Yarmouk University. Based on preliminary findings from this study, Google Translate was the most preferred AI-driven machine translation among students, primarily because of its user-friendly interface and widespread utilization. While these applications satisfy most academic requirements, challenges persist regarding translation accuracy and clarity. Despite positive feedback from students regarding the ease of use, significant hurdles persist in translation quality. This necessitates further enhancement and research in this field.

Keywords: AI translation tools, modern technology, Artificial Intelligence, academic needs, translation.

Introduction

The emergence of artificial intelligence (AI) has revolutionized the world in a relatively short period. It has become an essential component in numerous applications, including machine translation. These AI-powered applications have garnered global recognition across various fields of study and research. Among their most avid users are university students, who increasingly rely on these technologies to bolster their academic pursuits. In this era of modern technology, the world is witnessing a remarkable transformation in all facets of life. Digital innovations and the internet have become indispensable aspects of our daily routines, granting users access to a vast wealth of information and resources that were once inaccessible (Castells 2010, 2738-40). This reality underscores the significance of new technological applications as vital tools for learning, communication, and social interaction (Onyema, Deborah, and

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Alsayed 2019, 4852). In this context, machine translation applications have emerged as groundbreaking tools for language learning and translation. The emergence and integration of AI with various online machine translation platforms has elevated this innovation to new heights, resulting in the development of applications that mimic human cognitive processes (Shukla and Vijay 2013, 32). AI-powered machine translators, such as Google Translation, Microsoft Translator, Apple Translate, iTranslate, and DeepL have evolved from basic language conversion tools to sophisticated systems that leverage cutting-edge technologies, such as deep learning and neural machine translation, key components of AI (Swargiary 2024, 8). Neural machine translation is a recent method in machine translation that aims to develop and train single, large neural network that reads a sentence and produces an accurate translation (Bahdanau, Cho, and Bengio 2015, 1). These advanced technologies have significantly enhanced the quality of translation in terms of accuracy and contextual relevance (Mohammad et al. 2024, 25576).

These applications are incredibly valuable for university students as they provide access to a wealth of knowledge and information, as well as tools for translation and language enhancement (Steigerwald et al. 2022, 990). This is particularly beneficial for students who need to understand academic materials written in foreign languages, such as English. With the rapid advancement in AI technology, these technologies can now deliver high-quality translations that surpass manual methods and statistical machine translation systems, such as Google Translate. This advancement helps to bridge cultural gaps culture and overcome language barriers.

University students face many challenges when researching information and online resources to support their academic pursuits, mainly because of linguistic and cultural barriers. These include difficulties with terminology, understanding academic texts, improving English skills, developing writing skills, and translating texts and papers. Translation apps can help overcome these issues by offering accurate, contextual, and culturally relevant translations through various tools. With AI-powered machine translation using deep learning and neural machine translation technologies, students can bridge language gaps, access a wide range of academic materials, and translate them into their preferred language to meet their academic needs (Zaki and Ahmed 2024, 21).

This study focuses on the utilization of modern AI-powered machine translation applications, which have become an indispensable tool in the lives of university students. The advent of machine translation applications has undeniably revolutionized the way students access and utilize research engines online, as well as other manual or electronic methods for translating texts. AI-powered machine translation provides instant translations of individual words, sentences, or entire texts, making the process quicker, more efficient, and increasingly accurate.

The significance of this study lies in its exploration of the most widely used machine translation application among Yarmouk University students for translating texts between English and Arabic. This investigation aims to shed light on the technological preferences of students, providing insight into their needs and motivations. Additionally, the study delves into the reasons that drive Yarmouk University students to use machine translation applications, examining their usage patterns and habits to understand their interactions with this technology. Furthermore, the research evaluates students' satisfaction with

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these applications and assesses the ease of use they experience when utilizing this technology. The primary research questions guiding this study are as follows:

1. What are the most commonly used machine translation applications among Yarmouk University students, and what are their usage patterns and habits?
2. What motivates students to use these translation applications, what benefits do they derive from them, and how do they assess the accuracy, efficiency, and ease of use?
3. What challenges and obstacles do Yarmouk University students encounter when using these applications, and how do perceptions of ease of use and expected benefits influence their acceptance of these tools?

Literature Review

The emergence of AI-powered machine translation applications has transformed how students approach language learning, translation, and access to academic materials. These applications are no longer just supplementary tools; they have become integral to students' academic lives. They support language learning, translate academic materials, aid in understanding content in foreign languages, enhance writing skills, and facilitate communication. However, despite their many benefits, these applications also pose challenges, particularly in terms of accuracy and quality.

Google Translation and its Evolutions

Google Translate, a leading AI-powered machine translation tool, has recently undergone significant advancements (Zaki and Ahmed 2024, 21). The shift from statistical machine translation to neural translation, a crucial aspect of AI, represents a major advancement. This new technology, utilizing deep learning techniques, has enhanced the accuracy and fluency of machine translation. This advancement has contributed significantly to the widespread adoption of Google Translate. According to Pham et al., Google Translate dominates the machine translation market owing to its widespread use and educational settings (2022, 79). Yanti and Meka elucidated that 96% of the students in their study frequently utilize Google Translate in class to translate texts written in their mother language into English and as a quick dictionary. This demonstrates the widespread adoption of this tool (p. 130, 2019).

Perceptions, Usage, and Limitations of AI-powered Machine Translation

While machine translation is extensively utilized in language learning classrooms for different purposes, its use also raises numerous concerns. Sujarwo discussed the prevalent use of machine translation applications, such as Google Translate and offline dictionaries, among students to aid in understanding unfamiliar words and vocabulary. While these tools offer numerous advantages, Sujarwo argued that overreliance on machine translation may impede vocabulary development and conversational skills. This is attributed to the inherent limitations of these applications, which often provide literal translations lacking in contextual accuracy (2020, 236-37). Briggs delved into the utilization of web-based machine translation by Korean university students within educational settings. The students frequently rely on these applications for quick vocabulary translations, underscoring the convenience

they offer (2018, 16). The study revealed that most students did not fully trust web-based machine translation to complete academic assignments. Discrepancies in trust levels were attributed to the emphasis of the English education system in Korea on receptive skills, such as reading and listening, rather than productive skills like writing and speaking. Notably, students with higher English proficiency trusted web-based machine translation more (ibid.). However, pedagogical concerns have emerged regarding the use of these applications in the classroom. Teachers have observed students becoming disengaged when relying on these tools during lessons (2018, 18).

Machine Translation in Language learning

Language learners leverage these applications not only for vocabulary assistance but also to enhance their writing skills. Hellmich explored the use of machine translation applications in classrooms by novice French language learners. This study revealed that effective writing was supported by an awareness of machine translation limitations as well as careful input and analysis. However, poor input and a focus on efficiency have hindered writing proficiency (2021, 56). Klekovkina and Denié-Higney highlighted the potential of machine translation as a valuable tool in the classroom for enhancing students' writing skills. By enabling students to prioritize the comprehensibility of their input over linguistic accuracy, machine translation can significantly enhance their ability to communicate effectively in both oral and written forms in their target language (2022, 107).

Knowles explored the incorporation of machine translation into language learning using the ADAPT approach. This pedagogical approach promoted in-depth language learning while also addressing students' overdependence on machine translation tools. While many students acknowledge the advantages of these tools, such as grammar correction, spelling assistance, and pronunciation guidance, a minority express skepticism about their utility (2022, 213), indicating a varied perception of the tool among students.

Machine Translation in Translation Education

Regarding translation tasks, machine translation is recognized as a valuable asset. Pastor underscored the numerous advantages of incorporating machine translation and post-editing into undergraduate-level translation education. She maintained that while students recognize the potential of machine translation to enhance productivity and reduce workload, concerns persist regarding its impact on professional quality and the complete replacement of human translators (2021, 55-56). Ustünbas also outlined the advantages of machine translation applications in language learning, emphasizing their utility in improving pronunciation, understanding meanings, and generating sentences across different language skills (2023, 142). Despite positive feedback from students, Ustünbas acknowledged concerns regarding potential cheating and diverse outcomes regarding the effectiveness of machine translation for learners with low language proficiency (2023, 149). He concluded that post-editing machine translation output can enhance self-regulated learning by promoting independent practice and strategy use, as discussed by van Lieshout et al. (2022, 150). Ningrum et al. explored the impact of AI-powered translation applications on academic text translation, focusing on grammar accuracy. Their findings suggest that while these

applications offer valuable assistance in translation tasks, they also present challenges in maintaining linguistic competence, necessitating human intervention for refinement and accuracy (2024, 310).

Emerging AI Models (ChatGPT)

The advent of AI, such as ChatGPT, has revolutionized machine translation. Selim explored the influence of AI language model applications, such as Grammarly and ChatGPT, on EFL students' academic writing. Their study revealed that these applications significantly enhanced students' writing quality by identifying and correcting grammatical errors and providing real-time feedback. Selim argued that this feature supports academic integrity and enhances writing coherence and flow (2024, 21-27). Cheng et al. highlighted that ChatGPT (a language model) offers more accurate translations and excels in translating complex sentences compared with conventional methods. This advancement is crucial in today's globalized world where efficient, real-time translation is in high demand (2024, 378). AI language models, such as ChatGPT contribute to enhancing communication by adapting vocabulary and tone to specific contexts, thereby improving translation accuracy and relevance.

Amaro and Pires elucidated that young adults, who have come of age in the digital era, prefer using AI translation applications, such as Google Translate, DeepL, and ChatGPT. These applications are valued for their swiftness and assistance in deciphering unfamiliar words. However, concerns persist regarding the accuracy of translating complex sentences, particularly when bridging the gap between Chinese and Portuguese (2024, 2-4).

Alqahtani argued that while AI-powered translation applications serve a purpose in swiftly generating rough translations, they often fall short when confronted with intricate linguistic nuances, particularly when translating texts between Arabic and English and vice versa. He asserted that human expertise is indispensable in complementing AI translations, as human translators can offer contextual understanding and nuanced interpretations that AI lacks. The study concluded that a collaborative approach, integrating AI applications with human translators is imperative for achieving precise and more natural translation (2024, 77).

Cross-linguistic Collaboration and Accessibility

Not only language learners and translation students benefit from the use of incorporating machine translation into the academic setting. Steigerwald et al. expounded upon how machine translation enhances accessibility to research and fosters cross-linguistic collaborations (2022, 990). Therefore, machine translation facilitates communication among researchers from diverse disciplines by reducing language barriers, thereby fostering increased collaboration and knowledge exchange across linguistic boundaries (2022, 992).

Conclusion

In summary, AI-powered machine translation applications have revolutionized the academic landscape, providing university students with numerous benefits while also posing challenges. With technological advancements, ongoing research in this field is crucial to address these challenges and optimize the advantages for students.

Research Methodology

This study utilizes a quantitative research design that leverages a structured questionnaire for data collection. A random sampling method was employed to ensure participants were sampled from the diverse student body at Yarmouk University. A total of 286 students were randomly selected from various faculties without focusing on their specific majors. This approach was adopted to assess the general use of AI-powered machine translation applications among students, providing insights into their overall habits and behaviors rather than being limited to particular academic disciplines. The study did not delve into the types of texts translated by students, but rather into the general application and utility of these applications in daily academic contexts. This random sampling method enhanced the generalizability of this study, making the findings relevant to a wider student body.

The data collected were analyzed using descriptive statistics to summarize students' responses and identify common trends. The analysis focused on assessing the overall usage, perceived ease of use, advantages, and challenges associated with the applications, without delving into the specifics of students' majors or types of translated texts. This methodology allowed for an objective evaluation of the general use of these applications among the student population.

One limitation of this study is the failure to consider the specific academic disciplines of the participants, potentially impacting the use and evaluation of the translation applications. Furthermore, neglected the types of texts being translated, which could have provided valuable insights into the effectiveness of the applications. These limitations underscore the need for further research to independently explore these factors and gain a more comprehensive understanding of the utilization of translation applications.

Uses and Gratification Theory

This study utilizes the uses and gratifications theory (UGT), a renowned theoretical framework in communication studies that elucidates how individuals actively engage with various forms of media to fulfill their needs. This theory focuses on the effects of media on passive audiences and emphasizes the audience's active role in interpreting and integrating media into their lives.

Originating in the 1940s with early research by Herzog, UGT delves into why individuals engage with media, such as radio soap operas. Herzog's work identified different types of gratifications, such as emotional release, learning, and wishful thinking (1944, 194). Subsequently, Katz et al. further developed the theory in the 1970s, expanding its application to different types of media (Katz et al. 1974, 28). Their research emphasized that media consumption is not a passive endeavor; rather, it is driven by users' active pursuit of media content to satisfy specific needs, including cognitive, affective, personal integrative, social integrative, and tension release needs (ibid).

UGT is based on several key assumptions. First, it posits that audiences play an active role in media consumption (Katz et al. 1973, 511). According to Rubin, audiences can choose the media that best aligns with their preferences, rendering them less susceptible to the intended influences of media producers (1983, 39). Second, the theory assumes that media users possess an awareness of their needs and can

effectively articulate them, allowing them to make informed choices. McQuail asserted that media consumption is a purposive activity where users are aware of their motivations (2010, 424). Third, the theory suggests that media vies for attention with other sources of gratification, not only within the realm of media but also in non-media activities. This underscores the array of options available for fulfilling human needs, as posited by McQuail (2010, 425).

Originally applied in the field of media, UGT has since found relevance in various disciplines. In the context of machine translation applications, for example, this theory provides a valuable framework for understanding why users gravitate toward platforms, such as Google Translate, iTranslate, and DeepL. Users interact with these applications to fulfill specific requirements, such as overcoming language barriers, enhancing communication efficiency, and facilitating learning in diverse settings. Olohan argued that machine translation applications cater to information-seeking gratifications by enabling users to access content in foreign languages, thereby enriching their knowledge and comprehension of global issues (2020, 15). Furthermore, users utilize these applications to fulfill personal integrative needs, such as honing their language skills, which contribute to their sense of identity and proficiency, as elucidated by Pym (2013, 489). Machine translation satisfies the social needs of users by facilitating communication across different linguistic backgrounds, thereby fostering cross-cultural interactions and collaborations (Garcia 2015, 13). This theory provides valuable insights into the reasons behind the widespread utilization of machine translations and how these tools cater to the diverse needs of users in an increasingly interconnected world.

While this theory has been widely applied in various academic disciplines, it has some limitations. One significant drawback is the overreliance on self-reported data, which can introduce biases and inaccuracies. Moreover, the theory's emphasis on conscious choices in media consumption may overlook the impact of subconscious influences. Despite these limitations, this theory remains a valuable tool for understanding the motivations behind media use in a rapidly evolving media landscape (Ruggiero 2000, 5).

Findings

Validity test

This study conducted a face validity test. A panel of media experts validated the relevance of all items to the research objectives and methodically addressed the key aspects of the subject matter.

Instrument reliability

Internal consistency was tested using Cronbach's alpha to validate the reliability of the instrument, which yielded a value of 0.95. This indicates strong reliability of the results, as presented in Table 1.

Table 1: Cronbach's Alpha for Internal Consistency of the Constructs and Instrument

Factors	Cronbach's Alpha
Motivations and Reasons for Using AI-powered Translation Applications	0.90
Satisfaction Achieved from Using AI-powered Translation Applications	0.94
Expected Benefits of Using AI-powered Translation Applications	0.88
Challenges of Using AI-powered Translation Applications	0.80
Total	0.95

Variable (1): The most frequently utilized AI-powered translation application for translating from English to Arabic.

Students' preferences in using AI-powered translation applications by identifying the most commonly used application are listed in Table 3.

Table 3

Number	Rank	App	Percent	Frequency
1	1	Google Translate	81.8 %	234
2	3	Microsoft Translator	19.6 %	56
3	4	iTranslate	13.3 %	38
4	6	DeepL Translator	9.8 %	28
5	2	Apple Translate	21 %	60
6	5	Other	11.9 %	34
		Total	100 %	286

Based on Table 3, Google Translate emerged as the most frequently used app, with a usage rate of 81.8%, representing 234 individuals from the overall study sample. This preference for Google Translate suggests that most students rely on this application to satisfy their need to translate texts between English and Arabic. This may also reflect the dominance of this application in the AI-powered translation applications market.

Apple Translate ranked second, with a usage rate of 21%, accounting for 60 individuals in the overall sample. This indicates a significant interest in AI-powered translation applications provided by leading tech companies, such as Apple, although it falls short of the popularity of Google Translate.

Microsoft Translate ranked third, with a usage rate of 19.6% and 56 individuals from the sample. While this shows a decent level of acceptance, it does not match the widespread use of Google Translate.

iTranslate and DeepL Translator ranked fourth and fifth, respectively, with usage rates of 13.3% and 9.8%, representing 38 and 28 individuals from the sample, respectively. These rates are relatively low compared with the usage rates of previously mentioned applications, indicating that these applications are not as popular or widely used by students.

The final group comprises other applications not listed in the survey. The results indicate that 11.9% of the sample, which included 34 individuals, use these unlisted applications.

Overall, the data reveal that Google Translate is the most widely used application among those mentioned. This dominance can be attributed to its ease of use, innovative features, and widespread adoption, making Google Translate the leader in the machine translation application market.

Variable (2): Patterns and habits of using AI-powered translation applications

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The patterns and habits of students' utilization of AI-powered translation applications, including the frequency, duration, and period of use, are listed in Table 4

Table 4

Number	Rank	Exposure patterns	Levels	Frequency	Percent
1	1	Extent of use	Always	174	60.8 %
2	2		Sometimes	100	35 %
3	3		Rarely	12	4.2 %
1	1	Duration of use	Less than 30 min	154	53.8 %
2	2		30 minutes to 1 h	102	35.7 %
3	3		More than 1 h	30	10.5 %
1	2	Usage periods	Morning	62	21.7 %
2	3		Afternoon	50	17.5 %
3	1		Evening	174	60.8 %
		Total		286	100 %

Based on Table 4, 60.8% of individuals (174 individuals in the sample) use translation applications regularly. These data highlight a significant reliance on these applications in their daily lives. Additionally, 35% of the sample, or 100 individuals, use these applications occasionally, indicating specific needs for translation at certain times.

However, a small percentage of 4.2%, comprising only 12 individuals from the sample, use these applications rarely. This suggests either a low usage of translation services, minimal need for translation, or the utilization of alternative methods.

Most individuals in the sample use applications for a short period, with 53.8% using the apps for less than 30 min, representing approximately 154 individuals. This suggests quick usage for specific purposes.

Conversely, 35.7% of the sample, or 102 individuals, use the applications for a duration ranging from 30 min to 1 h. This indicates a need for more detailed translations that require a longer time commitment.

Furthermore, 10.5% of the sample, representing 30 individuals, use the applications for more than an hour, reflecting professional or academic needs that demand extended translation times.

Furthermore, based on the survey, translation applications were mostly utilized in the evening, with 60.8% of the sample (174 individuals) engaging in this activity. This indicates that usage is associated with work or study completion at the end of the day. In contrast, the morning and afternoon periods were less desirable, at 21.7% and 17.5%, representing 62 and 50 individuals, respectively. This indicates that translation needs are lower during these periods.

In summary, most students regularly depend on translation applications, and they use these applications for short periods, particularly in the evening, to satisfy their daily translation needs, whether professional or personal.

Variable (3): Assessment of the accuracy of translations provided by AI-powered machine translation applications.

The sample's assessment of the accuracy of the translation provided by AI-powered machine translation applications is presented in Table 5.

Table 5

Number	Rank	Accuracy Evaluation	Levels	Frequency	Percent
1	3		Very Accurate	30	10.5 %
2	2		Accurate	66	23.1 %
3	1		Moderate	156	54.5 %
4	4		Inaccurate	28	9.8 %
5	5		Not Accurate at All	6	2.1 %
		Total		286	100 %

The aforementioned table demonstrates a significant variation in the respondents' assessment of the quality of translation provided by these applications, reflecting their diverse experiences. Notably, over half of the sample, 54.5% (156 individuals), consider the translations provided by these applications to be accurate on average, indicating that most students find the translations sufficient for their basic needs.

Regarding the high accuracy, 23.1% (66 individuals) described the translation as "accurate," whereas 10.5% (30 individuals) found them to be very accurate. This suggests a level of satisfaction among some students with the application's ability to provide reliable and highly accurate translations. In contrast, 9.8% (28 individuals) described the translation as "inaccurate," and 2.1% (six individuals) considered it "completely inaccurate." This indicates that another group of students faces challenges with translation accuracy, potentially leading them to explore alternative applications or solutions.

The findings reflect clear variations in user assessments of the translations provided by the aforementioned applications in terms of accuracy. While most students considered the translations sufficient for their daily needs, a notable group expressed dissatisfaction with the quality of the translations, particularly in terms of accuracy.

Variable (4): Motivations and reasons for utilizing AI-powered machine translation

Students' motivations and reasons for using AI-powered machine translation are listed in Table 6

Table 6

Item	Degree	Standard Deviation	Mean	Rank	Number
Helps in understanding academic texts	Very High	0.742	4.30	2	1
Helps in translating work-related documents or academic projects	Very High	0.809	4.18	3	2
Helps me communicate with individuals who speak different languages	Very High	1.06	3.95	9	3

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Item	Degree	Standard Deviation	Mean	Rank	Number
I use it for entertainment and leisure (to translate movies and music content)	High	1.23	3.48	15	4
Helps me with learning and self-development	Very High	0.901	4.14	6	5
Facilitates my daily tasks (translating emails, chats, and various documents)	Very High	0.875	4.18	4	6
Helps me improve language skills (correcting the pronunciation of vocabulary)	Very High	0.945	4.18	5	7
Saves my time and effort owing to its speed	Very High	0.726	4.44	1	8
Helps me increase the accuracy of my translations, particularly for technical and specialized texts	High	1.08	3.81	11	9
I use it to stay updated with technology and explore modern tools	High	0.964	3.75	12	10
Assists in exam preparation	Very High	0.940	3.98	8	11
I use it to enhance my cultural understanding (by exploring other cultures)	High	1.00	3.85	10	12
Helps me translate research papers written in foreign languages	Very High	0.880	4.06	7	13
Stimulates my creativity (through developing translation projects for stories and literary texts)	High	1.17	3.61	13	14
Facilitates my participation in international educational courses and seminars	High	1.15	3.60	14	15
Total		0.642	3.97		

Based on the aforementioned data, students' responses to the variable related to motivations and reasons for using these applications vary among individuals. For example, the statement "Saves me time and effort owing to its speed" received the highest mean score of 4.44, with a standard deviation of 0.726. This indicates that a significant number of students consider the speed and efficiency provided by these applications as the primary reason for their use. Moreover, the statement "Helps me understand academic texts" placed second with a mean score of 4.30 and a standard deviation of 0.742. This suggests that the applications are crucial in helping students understand complex academic content. The statement "Helps me in translating work-related documents or academic projects" was ranked third with a mean score of 4.18 and standard deviation of 0.809. This suggests that many students depend on these applications to translate content related to their work or academic projects. Furthermore, the statement "Facilitates my daily tasks (translating email, chats, and various documents)" also received a mean score of 4.18, with a standard deviation of 0.875. This highlights that a considerable number of students acknowledged the significance of these applications in simplifying their daily tasks, such as translating emails, chats, and different types of documents. This data underscores the significant role of these applications in students' daily lives. The statement "Helps me improve language skills (correct pronunciation of vocabulary)" was

ranked fifth, with a mean score of 4.18 with a standard deviation of 0.945, indicating that many students utilize these applications to enhance their language proficiency, showcasing a growing awareness of the role of the applications in developing linguistic competence. The statement “Helps me with learning and self-development” ranked sixth with a mean score of 4.14 and a standard deviation of 0.901. This suggests that students view these applications as tools for personal growth, continuous learning, and career advancement, reflecting the widespread use of these platforms for skill enhancement and knowledge acquisition. The statement “Helps me prepare for exams” had a mean score of 3.98 and a standard deviation of 0.940, indicating an increasing reliance on educational technology applications. The statement “Helps me communicate with people who speak different languages” was ranked ninth with a mean score of 3.95 and standard deviation of 1.06. This score underpins the role of these applications in bridging language barriers and fostering cross-cultural communication. The following statement “I use it to enhance my cultural understanding (exploring other cultures)” received a mean score of 3.85 with a standard deviation of 1.00, emphasizing that many students utilize these applications to deepen their knowledge of diverse cultures. Next, the statement “Helps me increase the accuracy of my translations, particularly for technical and specialized texts” received a mean score of 3.81 and standard deviation of 1.08, indicating that the applications provide significant support in enhancing translation quality, particularly for specialized texts. The statement “I use it to stay updated with technology and explore modern tools” had a mean score of 3.75 and standard deviation of 0.964, indicating a strong and growing interest in technological tools. Next, the statement “Encourages my creativity (through developing translation projects for stories and literary texts)” ranked thirteenth with a mean score of 3.61 and standard deviation of 1.17, suggesting that the application stimulates creativity and innovation in the translation field. The statement “Facilitates my participation in international educational courses and seminars” ranked fourteenth with a mean score of 3.60 and standard deviation of 1.15, highlighting the role of the applications in facilitating participation in international educational events. Finally, the statement “I use it for entertainment and leisure (to translate movie and music content)” received the lowest mean score of 3.48 and standard deviation of 1.23, indicating that these applications are not only used for educational and professional purposes but also for entertainment and leisure.

In conclusion, these applications serve various purposes, including academic, professional, and recreational uses, emphasizing the efficacy and speed they offer.

Variable (5): Gratifications attained from AI-powered machine translation applications

The gratifications achieved by students using AI-powered machine translation applications are listed in Table 7.

Table 7

Item	Degree	Standard Deviation	Mean	Rank	Number
Helped me better understand academic texts	Very High	0.779	4.17	3	1
Made it easier to communicate with people who speak different languages	Very High	0.852	3.94	6	2
Enhanced my fluency in English	High	1.02	3.77	10	3
Saved me time and effort in translation processes	Very High	0.689	4.29	1	4

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Item	Degree	Standard Deviation	Mean	Rank	Number
Helped me learn new English words	Very High	0.779	4.19	2	5
Positively impacted my writing skills in English	Very High	0.953	3.94	7	6
Enhanced my ability to read and understand English texts	Very High	0.834	4.06	5	7
Improved my context translation skills (translation that better fits the context)	Moderate	0.943	1.88	14	8
Increased my confidence in English	High	1.02	3.79	9	9
Enhanced my understanding of the culture associated with the English language	High	1.11	3.76	11	10
Enhanced my listening skills	High	1.12	3.76	12	11
Provided additional educational resources that assist in language learning	High	1.05	3.74	13	12
Increased my understanding of study materials that required translation	Very High	0.791	4.16	4	13
Helped me achieve better academic communication	Very High	0.918	3.88	8	14
Total		0.706	3.95		

The aforementioned illustrates the diverse gratifications achieved by students using translation applications. The scores range from moderate to very high levels. The statement “Saved me time and effort in translation processes,” was ranked first, with an average score of 4.29 and standard deviation of 0.689. This score indicates that most students find these applications to be efficient time-savers. The statement “Helped me learn new English words,” ranked second with an average score of 4.19 and standard deviation of 0.779. This score highlights the valuable role these applications play in expanding students' vocabulary. The statement “Helped me better understand academic texts,” ranked third with an average score of 4.17 and standard deviation of 0.779, demonstrating the applications' significant contribution in facilitating students' comprehension of academic texts. The statement “Increased my understanding of study materials that require translation” received an average score of 4.16 and standard deviation of 0.791, suggesting that the applications helped students in studying and understanding academic materials. In contrast, the statement “Improved my context translation skills (translation that better fits the context)” had the lowest score of 1.88 and standard deviation of 0.943. This suggests that students feel that the applications need further improvements regarding translation accuracy, particularly when dealing with texts of varying contexts.

The remaining statements achieved high to very high gratifications, indicating that translation applications are crucial in enhancing students' English language skills, particularly in improving fluency. This, in turn, boosts their self-confidence and understanding of the associated culture.

Therefore, the results presented earlier clearly demonstrate that AI-powered machine translation applications effectively address many of the academic needs of students. These applications provide students with positive gratifications in numerous aspects of language use, such as saving time and effort, enhancing comprehension of academic texts, and expanding vocabulary.

Variable (6): Evaluation of the ease of use of AI-powered machine translations

An evaluation of the ease of use of AI-powered machine translations is presented in Table 8.

Table 8

Number	Rank	Ease of Use Evaluation	Levels	Frequency	Percent
1	1		Very Easy	172	60.1 %
2	2		Easy	102	35.7 %
3	3		Moderate	12	4.2 %
4	4		Difficult	0	0 %
		Total		286	100 %

Based on data presented in Table 8, 60.1% of students rated the applications as "very easy," totaling 172 individuals in the sample, indicating that a majority find the applications user-friendly. Additionally, 35.7% of students, or 102 individuals, rated the ease of use as "easy," suggesting a significant portion also find the applications straightforward but not as user-friendly as the previous application. However, a smaller group of students, accounting for 4.2% or 12 individuals rated the applications as "Moderate." This marginally small percentage indicates that some students face difficulties while using these applications or find it challenging. However, none of the students rated these applications as "difficult," indicating that they are designed to be accessible and user-friendly for all.

In conclusion, most students considered these applications very easy to use, with 95.8% reporting easy to use. This demonstrates the effectiveness of these applications in catering to users with varying levels of technical proficiency.

Variable (7): Benefits of using the applications

The advantages gained by students from using AI-powered machine translation applications are listed in Table 9.

Table 9

Item	Degree	Standard Deviation	Mean	Rank	Number
Enhanced my understanding of academic texts	Very High	0.780	4.22	2	1
Provided accurate translations	High	0.948	3.65	7	2
Enhanced my communication with English-speaking individuals	Very High	0.899	3.86	5	3
Significantly enhanced my overall English language proficiency	Very High	0.887	3.88	4	4
Saved time and effort compared with consulting printed dictionaries	Very High	0.713	4.34	1	5
Boosted my confidence in utilizing the English language	Very High	1.01	3.81	6	6
Served as a valuable resource for knowledge acquisition	Very High	0.947	3.98	3	7
Total		0.679	3.96		

Based on the data presented in Table 9, the statement "Saved time and effort compared with consulting printed dictionaries" ranked first with an average score of 4.34 and standard deviation of 0.713. This indicates that most of the students find these applications to be significantly beneficial in terms of saving time and effort compared with the use of printed dictionaries. The statement "Enhanced my understanding of academic texts", ranked second, with an average score of 4.22 and standard

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deviation of 0.780. This underscores the role of these applications in enhancing students' comprehension of academic content.

The statement "Served as a valuable resource for knowledge acquisition" ranked third with an average score of 3.98 and standard deviation of 0.947. This score suggests that students consider these applications to be a valuable source of knowledge that contributes to their cognitive development. The statement "Significantly enhanced my overall English language proficiency" was ranked fourth, with an average score of 3.88 and standard deviation of 0.887, highlighting the positive impact of these applications on enhancing students' English language proficiency.

The statement "Enhanced my communication with English-speaking individuals" was ranked fifth, with an average of 3.86 with standard deviation of 0.899. This implies that the applications enabled students to engage effectively with English speakers. The statement "Boosted my confidence in utilizing the English language" was ranked sixth, with a mean of 3.81 and standard deviation of 1.01. This demonstrates the significant role these applications have played in boosting students' confidence in their English language abilities. Finally, the final statement, "Provided accurate translations," ranked lowest, with an average of 3.65 and standard deviation of 0.948. This score illustrates that some students had reservations about the accuracy of the translations provided by these applications.

These results demonstrate that the aforementioned applications offer various benefits to students. The applications are not only used to facilitate learning but also to enhance students' self-confidence and serve as a valuable resource of knowledge.

Variable (8): Impact of ease of use and anticipated benefits on the acceptance of translation applications.

An assessment of the impact of ease of use and perceived benefits on the acceptance of AI-powered machine translation applications is presented in Table 10.

Table 10

Number	Rank	Evaluation of Impact on Acceptance	Levels	Frequency	Percent
1	1		Significant Impact	118	41.3 %
2	2		Moderate Impact	142	49.7 %
3	3		Minor Impact	20	7 %
4	4		No Impact	6	2.1 %
		Total		286	100 %

Based on Table 10, the level of impact evaluation categorized as "moderate impact" ranked first, with 49.7% (142 students) recognizing the advantages of using these applications; however, some reservations regarding the ease of use as a factor that could significantly alter their behavior persist. The "significant impact" level ranked second at 41.3% (118 students), indicating that the ease of use and expected benefits of these applications significantly influence their acceptance and frequent utilization. Meanwhile, a "slight impact" level was reported by 7% (20 students), suggesting a minimal impact on

their acceptance of these applications. The "no impact" level accounted for 2.1% (6 students), who reported no influence of ease of use and anticipated benefits on their acceptance of the applications.

These results highlight the significant impact of ease of use and anticipated benefits on students' acceptance of AI-powered machine translation applications, with the majority (91%) perceiving a considerable or moderate impact.

Variable (9): Challenges of utilizing AI-powered machine translation applications

The challenges faced by students when utilizing AI-powered machine translation applications are listed in Table 11

Table 11

Item	Degree	Standard Deviation	Mean	Rank	(Number)
I encounter challenges related to translation accuracy.	Very High	1.06	4.02	1	1
I encounter challenges related to internet connectivity issues.	High	1.12	2.86	4	2
I encounter challenges related to the complexity of using the applications.	High	1.07	2.20	6	3
I struggle to understand the translations provided by the applications.	High	1.08	3.06	2	4
The applications experience frequent malfunctions.	High	1.14	2.46	5	5
I have difficulty contacting the applications' help and support centers.	High	1.26	2.96	3	6
Total		0.805	2.93		

As shown in Table 11, the statement "I encounter challenges related to translation accuracy" ranked first with an average of 4.02 and standard deviation of 1.06. This suggests that most students view the accuracy of translation as a significant challenge that negatively impacts their experience. The statement "I struggle to understand the translations provided by the applications" ranked second, with an average of 3.06 and standard deviation of 1.08. This suggests that students' primary concerns lie in the comprehension and interpretation of the translations offered by these applications. The statement "I have difficulty contacting the applications' help and support centers" ranked third with an average of 2.96 and standard deviation of 1.26. While some students find it challenging to reach out to these centers, it is perceived as a moderate complication compared with the previous challenges. Furthermore, this score suggests that the difficulty in accessing help and support may vary depending on factors, such as the specific application used or the technical skills of individual students. The statement "I encounter challenges related to internet connectivity issues" had an average of 2.86 and standard deviation of 1.12, highlighting it as a concern for some students. This suggests that internet connectivity problems have a noticeable impact on students, with varying severity and frequency among individuals. While some students may frequently encounter connectivity issues, others may experience them less frequently or find them less disruptive. The statement "The applications experience frequent malfunctions" had an

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average of 2.46 and standard deviation of 1.14, indicating that the impact of the problem is significant. While the malfunctions are a concern, they are not considered a major problem by most students. Most students do not find the frequency of malfunctions highly problematic. However, the scores are not considered very low, suggesting that these malfunctions still significantly impact the user experience for some students. Notably, while some students may encounter frequent malfunctions, others may experience them less bothersome. Finally, the statement "I encounter challenges related to the complexity of using the applications" had the lowest average of 2.20 and standard deviation of 1.07, suggesting that this challenge is less impactful compared with the others. The low average implies that most students do not find the applications challenging to use, and this issue is perceived as less impactful compared with other challenges they may encounter face. The moderate level of variability indicated by the standard deviation of 1.07 suggests that while a few students may struggle with using the applications, the majority do not consider it a major problem.

In summary, students encounter significant challenges in terms of translation accuracy and understanding, when utilizing AI-powered machine translation applications, ultimately impacting the effectiveness of their usage.

Validation of Study Hypotheses

A statistically significant correlation was observed between the extent to which Yarmouk University students' use AI-powered machine translation applications and the enhancement of their English language skills.

Table 12

		Skill Enhancement
Degree of use	Pearson's r	.193**
	p-value	.001
	Number	286

* Sig. at (a) < 0.05

** Sig. at (a) < 0.01

- A statistically significant positive correlation was observed between the degree of use of AI-powered machine translation applications and the enhancement of students' English language skills, as shown in Table 12.
- Furthermore, statistically significant differences were observed in the degree of use of AI-powered machine translation applications by Yarmouk University students, which can be attributed to student variables, such as academic degree, faculty, and gender.

Table 13

Variable	t-test	p-value
Gender	.305	.761
College	-1.34	.181
Academic level	1.00	.314

* Sig. at (a) < 0.05

**** Sig. at (a) < 0.01**

The following can be inferred from Table 13:

- No statistically significant differences in the degree of use of AI-powered machine translation applications existed between males and females.
- Similarly, no statistically significant differences in the degree of use of AI-powered machine translation applications existed among students from different faculties.
- Academic degrees had no statistically significant differences in the degree of use of AI-powered machine translation applications.

2- Yarmouk University students faced challenges associated with translation accuracy when using AI-powered machine translation applications.

Table 14

		Challenges in Translation Accuracy
Motivations and Reasons	Pearson's r	-.055
	p-value	.356
	Number	286

*** Sig. at (a) < 0.05**

**** Sig. at (a) < 0.01**

- Based on Table 14, no statistically significant correlation existed between challenges related to translation accuracy and translation use.

Discussion

The previous findings provide significant insights into the use, benefits, and challenges of AI-powered machine translation applications among Yarmouk University students. This study addresses the following three main questions: the most commonly used applications, motivations and evaluations of these applications, and challenges encountered by users.

Regarding the most commonly used applications, the study revealed that Google Translate was the preferred AI-powered machine translation application among students. This preference can be attributed to factors, such as ease of use, innovative features, and widespread utilization. Google Translate's early entry into the machine translation market has established it as a leader in terms of user experience and functionality, contributing to its dominance.

In terms of usage patterns, students primarily utilize these applications in the evening and for short durations. This usage pattern aligns with the need to address instant translation for academic and personal purposes. Google Translate's dominance underscores its significance as a valuable tool in student translation activities, impacting their daily academic and personal tasks.

Moreover, this study underscores the notion that students use AI-powered machine translation applications for academic, professional, and recreational purposes. Most students highlighted the effectiveness of these applications in saving time and effort, enhancing language skills (particularly in English), enhancing their comprehension of academic content, and facilitating the learning of new

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vocabulary. This positive impact on various aspects of language use demonstrates that AI-powered machine translation applications effectively satisfy the needs of many students. Moreover, 95.8% of students found these applications very user-friendly, indicating their suitability for users with varying levels of technological proficiency. Despite the overall positive assessment, the study revealed several concerns regarding the accuracy of translations provided by these applications. While some students found the translation to be accurate and satisfactory, others expressed dissatisfaction with the quality of translations, particularly in terms of accuracy. This highlights the need for improvement in accuracy.

Concerning the challenges and acceptance of AI-powered machine translation applications and understanding the translation provided by these applications, issues, such as translation accuracy and comprehension difficulties were the main concerns reported by students. These concerns significantly impact the effectiveness of these applications. The study also found no statistically significant differences in the utilization of AI-powered machine translation applications based on gender, faculty, or academic degree. This implies that these applications are generally accepted by students from various demographics. However, the lack of a significant correlation between challenges related to translation accuracy and the use of these applications indicates that while accuracy is a concern, it does not necessarily deter students from utilizing them.

In summary, AI-powered machine translation tools, particularly Google Translate, are deeply integrated into both academic and personal lives at Yarmouk University because the utilization of machine translation tools offers numerous advantages, such as saving time and effort, enhancing comprehension, and even aiding in vocabulary acquisition. Despite the user-friendly nature and overall satisfaction with these tools, issues surrounding translation accuracy and comprehension remain the primary concerns of using such applications. Addressing these challenges could potentially enhance the effectiveness of these tools, improve their outputs, and increase user acceptance.

Conclusion

This study has investigated the use, advantages, and disadvantages of AI-powered machine translation applications at Yarmouk University. The findings reveal that Google Translate ranked first due to its usability, innovative features, and easy accessibility. Students used these applications for various academic, professional, and entertainment purposes: saving time, promoting better understanding, and enriching vocabulary.

Despite these advantages, the study has identified key issues regarding translation accuracy and comprehension. Overall, students view these tools as useful, but a notable difference in satisfaction with translation quality was observed. Interestingly, the lack of statistically significant differences in usage patterns across various student demographics suggests a general acceptance of these applications.

Based on the study findings, several avenues for further research can be explored in the field of AI-powered machine translation applications. For example, future studies could delve into the direct impact of translation quality on academic performance and learning outcomes, shedding light on how translation errors influence students' understanding and academic achievements. By focusing on aspects

not covered in the current study, researchers can expand on the existing knowledge and pave the way for more in-depth investigations.

تصورات طلاب جامعة اليرموك حول استخدام تطبيقات الترجمة الآلية المدعومة بالذكاء الاصطناعي لترجمة النصوص الأكاديمية بين الإنجليزية والعربية

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الملخص

تهدف هذه الدراسة إلى تحليل كيف يستخدم طلبة جامعة اليرموك تطبيقات الترجمة الآلية المستندة إلى الذكاء الاصطناعي لترجمة المواد الأكاديمية بين العربية والإنجليزية. تم استخدام نظرية (الاستخدامات والإشباع) لاستكشاف وجهات نظر الطلاب تجاه هذه التطبيقات ومستوى رضاهم عنها. تم جمع البيانات عبر استبيان منظم وزع على 286 طالب وطالبة من مختلف الكليات والتخصصات في مرحلة البكالوريوس. تشير النتائج إلى أن الطلاب يعتبرون تطبيقات الترجمة الآلية المدعومة بالذكاء الاصطناعي أدوات أكاديمية مفيدة، خصوصاً في تعزيز مهارات القراءة وتسهيل فهم المصطلحات المتخصصة. وكان Google Translate هو التطبيق الأكثر استخداماً بينهم، بنسبة 81.8% من المشاركين، حيث اعتبروا سهولة استخدامه، ومميزاته الحديثة، وسهولة الوصول إليه، من أبرز الأسباب التي جعلتهم يفضلونه. ومع ذلك، ورغم تقييماتهم الإيجابية للجودة والراحة، واجه الطلاب تحديات تتعلق بدقة الترجمة ووضوحها ومدى توافقها مع السياق عند استخدام هذه التطبيقات. بشكل عام، تسلط الدراسة الضوء على الإمكانيات التعليمية لهذه التطبيقات المدعومة بالذكاء الاصطناعي، بجانب القيود التي تؤثر على فعاليتها في السياقات الأكاديمية بين العربية والإنجليزية.

الكلمات المفتاحية: الترجمة الآلية، الذكاء الاصطناعي، نظرية الاستخدامات والإشباع، الطلبة الجامعيون، السياق الأكاديمي.

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