

The Correlation Between the Use of AI Translation Tools in Foreign Language Learning and the Positive Performance of Foreign Language Students

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Abstract—This study explores the practical correlation between the use of AI-driven translation tools and the positive performance of foreign language (FL) undergraduates. The aim is to determine how these tools help FL learners improve different aspects of their performance. The study adopted a quantitative approach with a survey design. A sample of 949 FL undergraduates from different universities was engaged in the study through a digitally designed questionnaire. The analysis was conducted using relevant statistical measures, including hypothesis testing. The results indicated that Google Translate and DeepL are the AI translation technologies that are most often used, with utilisation rates of 82.51% and 92.83%, respectively. Additionally, over 88% of the study population affirm that these tools have the potential to significantly enhance their proficiency in FL. The result further indicated that 76% of the study sample accepted that AI tools had impacted their writing abilities. This result emphasises that learners are dependent on these tools for understanding and use them to improve their ability to produce language. The data presented reveals that 90% affirmed that the use of these tools enhanced their comprehension of FL phrases. With a mean score of 3.8 and a statistically significant t-value of 1.92 ($p = 0.001$), respondents have a positive impression of the ability of these tools to expand their lexical and grammatical repertoires. The mean value of 4.1 and the statistically significant t-value of 2.34 ($p = 0.002$) provide scientific evidence in support of the hypothesis that the use of these tools is associated with enhanced academic performance among FL learners.

Index Terms—AI-driven translation tools, foreign language (FL) learning, academic performance, language proficiency, language enhancement

I. INTRODUCTION

A series of studies have been conducted to investigate how students utilise translation tools as an additive strategy for enhancing their understanding of foreign language (FL) vocabulary, particularly in terms of vocabulary acquisition. As evidenced by Maimone (2022), vocabulary learning is one of the areas in which AI translation technologies have been proven to be valid (Al-Amri & Abdul Raufeh, 2016). These tools give learners easy access to accurate translation, smoothening the process of understanding definitions of new terms. As Crossley (2018) stated, the application of this system, which opts for prompt feedback, allows for accelerated progress in gaining vocabulary knowledge and simultaneously contributes to learners' increased sense of confidence, thus helping them engage more actively with the language being learnt. Translation can then be viewed as a process of thought that allows students to gain words and phrases unknown in the target language, thus facilitating effective communication with other people. The grammatical problem remains one of the most obstinate in FL learning (Burkhard, 2022). However, AI translation tools have achieved some significant progress in this field. The software applications offer suggestions for grammar, which relates to context and thus help in eliminating syntactic errors. Korošec (2013) asserted that providing personalised support through these

technologies not only improves the quality of written and spoken language but also enables learners to understand grammatical structures.

The advent of AI technologies in translation has revolutionised how languages are evaluated as a concept (Kessler, 2018). Educators have the ability to develop individualised quizzes and assessments that can accurately measure students' language proficiency skills. The implementation of multiple evaluation approaches ensures that students receive appropriate feedback, helping teachers identify gaps in their pedagogical practices.

A need to conduct this research arises from the necessity of critically exploring the overall impact produced by AI translation tools on FL understanding (Muñoz-Basols et al., 2023). Given the growing spread of these technologies in higher learning institutions and among language learners, it is critical to analyse what makes them more dominant than other alternatives and how their impact on students' academic performance varies by an appreciable degree. The purpose of this study is to provide valuable information for language specialist educators, policymakers, and other stakeholders as they try to elaborate on the complicated relationship in question.

Following the established impacts of AI-powered translation tools on FL education, it is crucial to further investigate the correlation between the positive performance of FL students and the use of these tools in FL learning. These objectives are thus posed to guide the direction of the study:

1. To analyse the frequency of usage of AI-powered translation tools in FL learning.
2. To explore the manner in which AI-powered translation tools enhance the learning of FLs.
3. To establish the correlation between the use of AI-powered translation tools and the positive performance of FL students.

II. REVIEW OF RELATED LITERATURE

A. *Using Translation to Enhance FL Learning; Review of Debates*

The role of translation in FL learning as a method has often been neglected or dismissed due to its perceived 'disutility' in developing communicative fluency. However, one can ask why translation cannot be used as a tool to support the FL learning process. The application of translation activities in language class has been a controversial topic and something that many scholars have written about for years. Significantly, some studies have discredited the use of translation as a pedagogical tool for FL learning. Some of the reasons for the criticism include deviation from basic language skills, the time it takes to use, and its ability to disrupt learners' cognitive processes in FL instructions. Translation activities never seem to be able to accurately measure the level of proficiency as a tool for instruction (Cook & Seidel, 2016). However, despite their long exclusion from language teaching for several decades, translation is gradually regaining its place as an attractive and feasible modality in the classroom (Darancik, 2016). There has been a significant shift in perceptions shown by increases in the number of studies and recognition that translation may bring to learners (Cook et al., 2013).

A translation activity that can be observed in FL learning is the use of contrastive analysis. This method permits the identification of places where interference occurs in terms of grammar between the native language and the target language (Lee, 2023). Talavan (2019) observed that translation could act as a foreign language teaching tool to counter inter-lingual interference through the use of various types of translation activities, including text analysis. A significant piece of evidence in favour of translation being a learning tool derives from the contribution it makes toward acquiring vocabulary. As Alharbi (2023) suggested, AI translation technologies have a vast multilingual database that allows learners to receive accurate word translations, mainly for them to enrich their vocabulary. This particular approach, which is sometimes referred to as 'translation-based vocabulary learning,' relies on a pre-existent knowledge of and familiarity with one's native language for doing away with foreign words or expressions. According to Károly (2014), this tool helps learners understand word meanings better and facilitates the process of more accurate expression of thoughts.

Additionally, translation can become a powerful tool for promoting international competence and linguistic vitality. Interpreting culturally ingrained phrases and idioms enables learners to gain a deeper understanding of language use, as reported by Carré et al. (2022). This practice not only enhances understanding of the culture being studied but also encourages learners to manage cultural differences with greater empathy and competence. The process of translation serves as a tool to conduct intercultural research and actively involves people in the social aspect of language (Floros & Tsagari, 2013).

However, criticism surrounds the use of translation in learning a foreign language. White and Heidrich (2013) stated that there is a claim by some scholars who argue excessive dependence on translation in the process of language learning would not allow learners to acquire authentic communicative competence. It is asserted by Kelly and Bruen (2015) that the consequent tendency to frequently translate from the native language into the FL by learners can, therefore, lead to a shun shaped in awkward phrases, which serves as an obstacle for spontaneous phrase coining.

Despite these criticisms, the current scholarship on this topic reveals that when used with caution and in conjunction with other means of learning a foreign language, translation may enhance the acquisition of a foreign language (Klimova et al., 2023; Maimone, 2022; Burkhard, 2022; Munoz-Basol et al., 2023). The very essence lies in finding an appropriate balance between methods that rely heavily on translation practices and those focusing on the successful conveyance of information.

B. *Impacts of Translation Tools in FL Learning; Review of Findings of Previous Studies*

To clarify the actual role of translation tools in FL learning as a whole, it is important to examine previous studies. The benefits of these quick translation and grammatical correction features in the process of intended content production by students include improving their writing skills as well as boosting self-confidence towards effective language communication. This observation is consistent with the study by Lee (2023), who showed that translation as an effective pedagogical strategy helps learners write, improve their comprehension abilities of texts, and better understand how they think in another language and develop motivation to participate more actively in FL learning. Considering this outlook, Schmitt and Strasser (2022) observed that adopting a retrieval strategy involving the use of keyword mnemonics to remember the meaning associated with FL idioms or words could help students recall those words into made-to-order knowledge in their first language.

Muñoz-Basols et al. (2023) conducted research that assesses the potential use of applied translation as a language learning tool, particularly in using AI technology. The study's results show that incorporating technical translation can have a positive impact on engagement with authentic language resources. This form of involvement promotes the understanding process and encourages critical thinking skills in those learning a language. Pham et al. (2022) studied the differences between high and low achievers in the use of translation as a learning method. The results of the study showed that contrary to their beliefs, high achievers believed that L1 use had negative effects on learners' English proficiency achievements.

The fact that students use dictionaries, notes, electronic translation machines, and so on is a lot of aid to the study process. Pokrivcakova (2019) notes that the use of Internet technology in language classrooms is an inevitable progression and evidence of a shift from behaviourist learning theory towards constructivism. This transition suggests that the best way of learning a language is through each other's interactions and in an authentic environment. Furthermore, the Internet provides an opportunity for authentic interaction whereby students can engage in viewing, analysis, and questioning activities as they develop proficiency in a second language. However, the study by Lee (2023) showed that those who introduced machine translation tools into their language learning had numerous improvements in their command of languages as compared to subjects working without applying these sources.

C. AI-Powered Translation Tools in FL Learning

Numerous AI-based translation tools can be employed for FL education. Al-Awawdeh and Al-Shaboul (2025) insisted that the new technology changed the translation pedagogy. For example, one of them is Google Translate – an AI-based tool for translations. This tool is very dynamic in the sense that it offers translations for over 100 different languages while at the same time providing speech recognition and voice output. This gives it the quality of being flexible to ensure anyone learning a language can benefit from this resource. For instance, the easy access to Google Translate, both its browser format and mobile application, enables students to have easy access to use the tool for several purposes like developing vocabulary, words practising, pronunciation, or quick translation needs. Furthermore, recent developments in neural machine translation have led to improved quality translations, which also offer additional advantages for those seeking language development. Another AI translation app – Duolingo, has considerably changed the world of FL learning. The language learning website Duolingo incorporates AI-tuned translation tasks into its instruction structure. Additionally, the Duolingo user interface employs gamification strategies, such as point-based interactions, to encourage users in sentence and text translation activities, thereby relying on points to achieve target language mastery.

DeepL Translator, an AI-enabled translating tool, is famous for its high accuracy. Alonso-Pérez and Sanchez-Requena (2018) have pointed out that the accuracy of this application in translation is simply incredible. This technology has been praised for its effectiveness in developing translations that are quite similar to human-created content using a neural network-based approach. It provides a solid foundation for language students who aim to become fluent in the correct way. DeepL Translator may not offer the interactive language-learning approach that Duolingo does, but its capabilities demonstrate how AI technologies can aid in learning new languages and understanding complex texts.

Lastly, Microsoft Translator is an AI-based translation tool that comes with numerous features. Carreres and Noriega-Sánchez (2011) discovered that this technology was versatile enough to work for many purposes of language learning, including text translation, voice translations as well as real-time conversations. Since the software is readily compatible with different devices and operating systems, students will continuously benefit from its features. Secondly, Microsoft Translator offers a considerable amount of language and dialect support that is crucial for students learning rarely taught languages. This tool can enhance the way secondary language is learnt in different classrooms since it has a variety of features and flexibility.

Overall, from the above, it is evident that AI-driven translation tools have become very useful resources for students and even people aiming to improve their FL skills. The flexibility of Google Translate, the game-based approach of Duolingo, the high-quality translation accuracy of DeepL, and Babbel's individualized language training all cater to different needs in language learning, while Microsoft Translator provides numerous capabilities. The tools mentioned above, as supported by the referenced study, can be considered to represent some of how AI technology might revolutionise FL learning. They allow learners to actively engage in language learning through innovative and creative means.

III. STUDY METHODOLOGY

A. Approach

This study is quantitative research on the correlation between the use of AI-powered translation tools in FL learning and the positive performance of students. The study gathered numerical data through a survey based on the study research questions.

B. Study Questions

The following research questions, derived from the study objectives, are developed to guide the data collection and analysis:

- a. To what extent do FL students use AI-powered translation tools in enhancing their FL learning?
- b. How do AI-powered translation tools impact and enhance the learning of FL?
- c. How does the use of AI-powered translation tools in learning FL correlate with the positive performance of undergraduates?

C. Hypothesis

Based on the study topic and second research question, the following hypothesis is proposed:

Null Hypothesis: There is no correlation between the use of AI-powered translation tools in FL learning and the positive performance of undergraduates in FL.

Alternate Hypothesis: There is a correlation between the use of AI-powered translation tools in FL learning and the positive performance of undergraduates in FL.

D. Study Community

The study community consists of FL undergraduates drawn across different universities. The participants were picked randomly from a pool of students majoring in FLs who had chosen translation as their minor specialisation. The researchers estimated the participants' FL competence level, which was determined to be upper intermediate. This estimation was based on many factors, including the participants' results in essay writing, their cumulative grade point average (GPA) in FL courses, and the views of their lecturers. While students have the autonomy to choose the topic of their essays, a well-crafted essay must include a thesis statement that succinctly captures the primary argument and the corroborating evidence for the ideas that bolster such assertion. Furthermore, adherence to the fundamental principles of format and grammar has been ensured since the presence of sentence fragments, misspellings, and poor punctuation indicates a work that has been produced casually.

E. Study Sampling

A total of 949 FL undergraduate students participated in the survey. The study participants were selected using simple randomized sampling strategies. The only criterion for participation in the study is to be an undergraduate of FL. The samples were selected using an online survey after a thorough pilot study for evaluation of the validity and reliability of the research questions and questionnaire items. They include 693 (73.02%) female and 256 (26.98%) male undergraduates who are currently studying different FLs across different universities. The complete data on demographic variables from the students are summarised in Table 1 below:

TABLE 1
DEMOGRAPHIC VARIABLES

Variables	Categories	Repetition	Percentage
Gender	Male	N=256	26.98%
	Female	N=693	73.02%
Academic Level	Penultimate year	N=376	39.58%
	Final year	N=573	60.42%
Age Range	20-24 years	N=624	65.75%
	25-29 years	N=249	25.92%
	30 years and above	N=76	8.33%
FL proficiency	Intermediate	N=118	12.43%
	Upper-Intermediate	N=712	75.03%
	Proficient	N=119	12.54%

The demographic characteristics included in the table provide a full overview of the people involved in the research. In relation to the distribution of gender, a notable number of the participants consisted of females (73.02%), while males constituted a lesser still significant share (26.98%). The survey included students in their penultimate year (39.58%) as well as those in their final year (60.42%), ultimately capturing a wide array of educational backgrounds. The analysis of age distribution indicated that a significant proportion of the participants belonged to the 20-24 years age group, comprising around 65.75% of the total sample. A smaller but still noteworthy segment of the participants, accounting for 25.92%, fell within the 25-29 years age range. In contrast, those aged 30 years and beyond were a minority, representing only 8.33% of the participants. The sample consisted of participants at various proficiency levels, including 12.43% at the intermediate level, a substantial majority of 75.03% at the upper-intermediate level, and a lesser proportion at the

proficient level (12.54%). The collection of these demographic data provides a comprehensive overview of the characteristics of the participants in the research, providing a basis for examining the influence of AI translation technologies on FL learning across diverse student profiles.

F. Study Tools

Online questionnaires (created using Google Forms) were used to conduct the study of students' perceptions. The questionnaire was segmented into three main parts. The first is the demographic data, and the second section is composed of 10 questions, most of which are polar questions; these questions were designed to elicit specific information on the students' perspectives on the use of AI-powered translation tools in the study of FLs, based on the first research question. The collected data can be broken down into six sections, which are as follows: students' dispositions and expectations regarding the length of the course; students' experiences with translation assignments; students' perceptions of the significance of English language topics in translation; students' perceptions of the utility of translation skills; the most popular translation ways and materials; translation learning methods; and students' perceptions of the length of the course. The third part of the questionnaire was designed using the Likert scale of accept and reject based on the second research question.

G. Data Analysis Procedure

The analysis is conducted using relevant statistical measures, including the calculation of the percentile values of the responses of the participants. Other statistical measures include the mean and the standard deviations of the values. Also, regression analysis was used in testing the hypothesis proposed in the study.

IV. RESULTS AND DISCUSSIONS

A. Results

It is important to reiterate that two main research questions anchor the data collection and analysis in this paper. The findings derived from the collected data are further submitted in different sections.

a. Results of the Frequency of Usage of AI-Powered Translation Tools in FL Learning

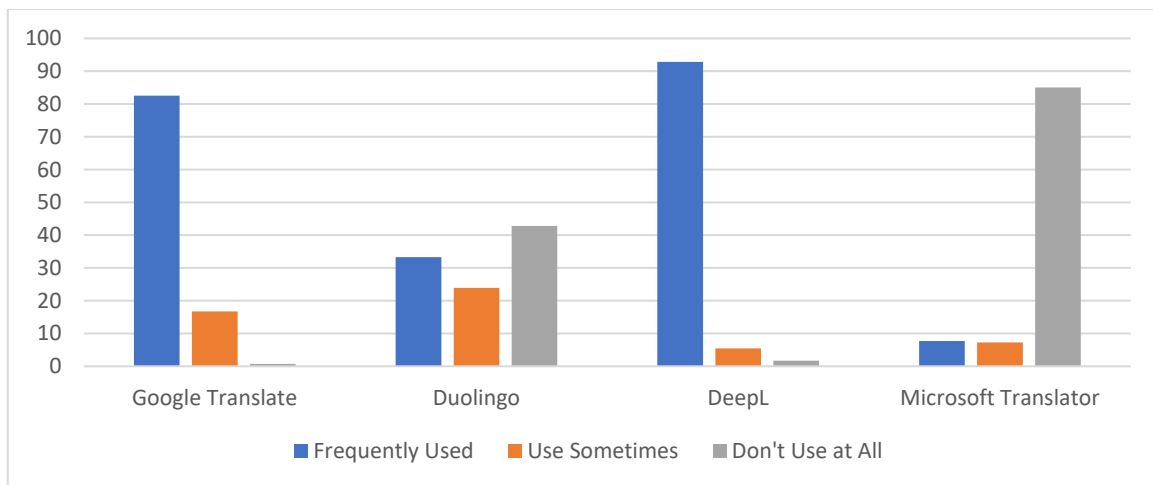


Figure 1. Summary of Findings on the Frequent Use of AI Translation Tools

From the findings presented in Figure 1 above, the results show critical and interesting outcomes regarding the frequency values in the usage of different AI-powered translation tools for enhancing the foreign language learning experience. The understanding of the results of the data is significant to explore the integration of these tools in foreign language learning activities, including the understanding of the implications of using them in FL learning. The abovementioned findings in the chart shed much light on the evolving role of technology in FL learning, therefore encouraging further research and scientific studies into this lively field.

b. Results of the Impacts of AI Translation Tools on Enhancing FL Learning

In order to analyse the relationship between AI translation tools and FL learning, it is important that one gets feedback from students on how these tools have changed their approaches to studying an FL. Table 2 below highlights the derived polar questions for some insights.

TABLE 2
RESULTS OF THE IMPACTS OF AI TRANSLATION TOOLS ON FL LEARNING

Question Items	Yes N	Yes %	No N	No %	Mean	Std. Dev
When studying a Foreign Language, have you ever employed translation tools driven by artificial intelligence?	763	80.5%	186	19.5%	4.05	0.15
Do you think that using AI-powered translation tools can help you expand your vocabulary in a Foreign Language?	832	87.7%	117	12.3%	4.77	0.14
Have AI-powered translation tools influenced your FL writing skills?	718	75.7%	231	24.3%	4.757	0.18
Do you think that using translation tools driven by artificial intelligence improves your ability to understand expressions in the FL?	856	90.2%	93	9.8%	4.92	0.12
Has your ability in speaking a Foreign Language grown as a result of AI translation tools?	792	83.7%	157	16.3%	4.83	0.16
Do artificial intelligence translation technologies aid in your comprehension of intricate Foreign Language grammatical rules?	684	72.1%	265	27.9%	4.72	0.19
Have artificial intelligence (AI)-driven translation technologies improved your ability to interact with real-world FL information, like headline stories or books?	826	87.0%	123	13.0%	4.87	0.14
In studying a Foreign Language, do you depend on AI translation technologies for rapid translations?	803	84.7%	146	15.3%	4.84	0.15
Has your proficiency in speaking a Foreign Language increased as a result of AI-powered translation tools?	785	82.9%	164	17.1%	4.82	0.17
After using AI-powered translation tools yourself, would you advise other language learners to do the same?	845	89.1%	104	10.9%	4.89	0.13

The table above shows in detail how AI-based translation tools are affecting the FL learners' competence acquisition process. These outcomes are of great importance in understanding a wide range of roles played by technology, its influence on learning strategies, and students' results. The statistical information presented in the table reveals general tendencies in FL learning under the condition of modern technology. The advanced and widespread implementation of AI-supported translation tools, along with the observations about positive task meditation impacts on vocabulary acquisition learning, writing skill practice comprehension, idioms, pronunciation ability, and grammatical interpretation, shows a significant impact technology has in language education. This observation presents considerable challenges to teachers and institutions in terms of how the instructional methods should be designed so that AI technologies would deliver benefits while a firm foundation for acquiring FLs is laid.

c. Results of the Correlation between Using AI translation Tools in FL and the Positive Performance of FL Learners

The second research question also aims to determine how the use of AI translation tools is associated with improved performance in FL learners. The table below presents a general overview of the collected data results using a Correlational Table.

TABLE 3
CORRELATION TABLE OF THE TEST OF HYPOTHESIS

Question Items	Mean	Std. Dev	T-value	Std Er	P-value
Employing translation tools driven by AI improves the ability to learn FLs.	4.2	0.9	2.68	0.29	0.001
Using AI translation tools has improved my vocabulary and word choice in FLs.	3.8	1.2	1.92	0.42	0.001
Using AI-powered translation tools has improved my ability to write in FLs.	4.1	0.8	2.34	0.34	0.002
My understanding of intricate grammatical principles in FLs has improved through the use of AI-driven translation tools.	3.6	1.0	1.74	0.48	0.001

The data depicted in the table offer helpful findings on the hypothesis concerning how learning corrective translation technologies for FL shapes better academic performance among undergraduate students. Table 3 presents useful and detailed perspectives on how using AI-driven correctional tools for alternate languages leads to improved achievements by university student learners when compared directly with approaching similar issues based solely on FL specificities. While there are pieces of data confirming this concept in terms of better language learning, vocabulary enhancement, and improved writing skills, correlations with grammar or linguistic knowledge appear to be more complicated. This means that the impact of AI tools on various aspects of language performance may vary, suggesting a need for further research to better understand this complex relationship.

B. Discussion of Findings

The purpose of the presented data is to facilitate an answer to the research questions, test hypotheses, and provide practical field insight concerning a major focal point of the study. The results are explored in various parts. For the first research question, the results are presented in Figure 1 and Table 2. Based on the statistics, it is observed that among the respondents, Google Translate and DeepL are the most frequently used AI translation applications, with usage rates of 82.51% and 92.83%, respectively. The popularity of these platforms can be attributed to various features, including interface user-friendliness, cross-device compatibility, and a variety of language support systems (Jin & Deifell, 2013). The widespread use of Google Translate is in line with its definition as a tool that one can easily get and provides an

excellent solution that meets the need for speedy translations. However, the abundance of DeepL usage implies that a higher level of translation quality is required and corresponds to its application using neural network technology, referred to as one that provides more accurate text while being linguists friendly (Alonso-Pérez & Sanchez-Requena, 2018).

The patterns of Duolingo usage reveal a unique case, demonstrating that almost half (42.79%) of the users do not use the system to enhance their FL learning. While Duolingo is mainly a language learning tool, it does include AI-powered translation features that are built into the educational platform. A considerable proportion of the participants do not use it at all, which can mean their preference for some other language learning tools or approaches. This result highlights the importance of understanding differentiated preferences and needs among language learners, particularly when considering the incorporation of AI-based technologies into instruction (Condinho Bravo, 2008).

Based on the information gathered, it can be observed that Microsoft Translator has a low utilisation rate among respondents, as 85.03% of them did not use this tool at all. This limited acceptance can perhaps be attributed to the fact that there are other established and widely accepted translation tools available, such as Google Translate and DeepL (Stewart, 2008). Additionally, Muñoz-Basols et al. (2023) highlighted the importance of tool recognition and reputation in shaping learners' choice regarding AI translation tools for learning a foreign language.

As analysed by Kessler (2018), the advent of AI translation tools marks a new trend among learners to incorporate technology elements into their language-learning activities. These solutions empower the users with ease and quick access to their translation needs and enable them to interact with real language content. However, it is clear from the variety of use patterns that a generalisable one does not exist. Thus, educators should consider the specific preferences and needs of students when incorporating these tools into their curricula (Floros & Tsagari, 2013). The ongoing line of work in teaching foreign languages over the trade-off between translation quantity and quality is demonstrated by a very notable difference in use patterns observed between Google Translate and DeepL (Korošec, 2013). While Google Translate is popular due to its convenience, the higher adoption of DeepL by the respondents suggests a need for more accurate translations. The aforementioned outcome emphasizes the importance of ensuring both ease and quality when using AI translation technologies for language teaching (Lee, 2023).

The results, however, imply an important potential for the implementation of new teaching methodologies in or among AI-driven translator tools under the FL environment (Pokrivcakova, 2019). Educators could make some accommodations to create opportunities for both regular technology users and non-users by modifying their teaching strategies. The essence of the issue is the proper use of AI translation technologies alongside with all-around content-based language learning process that provides awareness in every facet of foreign language education.

The high prevalence of technology in today's FL classrooms is illustrated by the wide use of AI-powered translation tools, with a rate of 80% among participants, as shown in Table 2. This statistic on language highlights the universal application of these tools while learning foreign languages. This general acceptance should correlate with the growing tendency to incorporate digital resources into language learning methodologies, which emphasises the ease and accessibility made available by such tools (Kessler, 2018). The use of AI-driven translation tools among learners as critical resources that assist in the process of FL learning is becoming a trend nowadays. The inclusion of digital technologies calls for changes in the teaching approaches that educators use and can help them incorporate these resources effectively (Lee, 2023).

In addition, the data suggests that most of the participants, approximately 88%, believe AI-assisted translation systems can increase their skill level in FL. The above positive outlook signifies an attempt to recognise the value of these tools for building skills in foreign languages (Jiménez-Crespo, 2017). The application of these technologies provides the learners with time-efficient vocabulary gauging under a contextual situation, promoting their development in diction. This observation aligns with other researchers who describe technology as a potential means of promoting language learning by providing access to vast amounts of linguistic resources (Carré et al., 2021). However, FL instructors have the chance to capitalise on this positive rosy view by incorporating vocabulary-based AI tasks into their teaching methods.

Secondly, over 76% of the participants confirmed that their ability to write in FL had been affected by AI-based translation tools. It accentuates that learners rely not only on such tools to understand the course material but also implement them to improve their language production. AI technologies are very helpful in supporting anyone who wants to improve their writing abilities by giving sensible advice for grammar and style recommendations. According to this observation, these instructors must reflect on the evolving role of technology in language sharing and teach people how to effectively integrate AI tools within writing exercises (Muñoz-Basols et al., 2023).

Lastly, the statistics demonstrate that about 72% of respondents believe that translation technologies driven by artificial intelligence help them better understand challenging grammatical constructs in foreign languages. AI technologies are regarded by Crossley (2018) as beneficial tools that not only help navigate grammar highlights in FLs but also make the task effective.

The second research question that was based on the hypothesis investigated whether there is a relationship between FL students' performance and AI translation tool use/adoption. The first entry in the result table examines whether AI-driven translation tools are used to enhance foreign language (FL) proficiency. As the results clearly show, respondents' opinions concerning the advantages of these tools for language learning are positive (mean = 4.2; t-value = 2.680). This is compatible with the alternative hypothesis, which corresponds to a relationship between AI utilisation and favourable results. The findings of the present study reveal a positive relationship between FL learning results and AI-supported

translation tools, thereby supporting observations that technology serves as an enhancer rather than a substitute in language teaching (Kessler, 2018). While the effect may not be as strong in this result, it provides further support for a hypothesis suggesting that there is some relationship between AI tool use and better skills in language learning. As indicated by Jiménez-Crespo (2017), the productivity of AI technologies is implied for vocabulary learning, which is a core aspect of language ability.

The third item involves the development of writing competency through artificial intelligence-powered translation technologies. The achieved mean score of 4.1, combined with a significant t-value recorded at 2.34 ($p = 0.002$), offers empirical support for the hypothesis that the use of such tools enhances writing skills. This result gives validity to the alternative hypothesis, which states that the use of artificial intelligence technologies increases writing FL proficiency. The fourth item discusses the influence of AI-based translation technologies on understanding complex grammar concepts. The average score of 3.6 indicates that the participants perceive these tools as relatively beneficial in this context. Nevertheless, the statistically significant t-value of 1.74 ($p = 0.001$) indicates that the effects might not be as strong as initially expected. Although the participants acknowledge that AI technologies help in understanding language, this finding suggests AI's association with performance may not be as relevant. This specific aspect of the prompted data on the hypothesis generates questions, implying that AI tools may not affect learning grammatical complexities in a linear relationship.

V. CONCLUSIONS

In the course of this study, we have scrutinised several findings related to artificial intelligence-driven translation tools and their impact on positive student achievement in undergraduate education, specifically in foreign language learning. The findings provided valuable insights into the evolving nature of language acquisition in an increasingly digital world. Overwhelming use of AI translation tools was revealed among learners, as evidenced by more than 80% of respondents admitting the application in FL learning. The findings demonstrate the growing relevance of technology in L2, accentuating their positive nature and approachability. There is an increasing conviction among learners that AI-based translation systems are vital tools that help them in their FL learning process. Educators and institutions should be obliged to revisit their teaching techniques by being aware of how important technology has become over the years.

In addition, learners have a positive attitude towards AI tools, as they believe that AI-powered translation devices help enhance their language learning process at various levels. The respondents expressed firm confidence in the significant role of such tools as enhancers, developing vocabulary consciousness, and writing tools, along with general knowledge enhancement about language. This is in agreement with the idea that technology can be used as a means for improving vocabulary learning (Jiménez-Crespo, 2017) and supporting language products by providing hints on grammar and style (Muñoz-Basols et al., 2023). These views emphasise how AI may lead to dramatic shifts in language instruction and leave teachers to consider the adoption of such technologies into their teaching methods.

In conclusion, this study represents a detailed analysis of the role that AI-powered translation tools play in FL learning. The widely accepted and well-used nature of these tools, coupled with positive attitudes from the learner population, goes a long way in proving that such tools have great capacity to improve several aspects associated with language learning. The results of the hypothesis confirm that these tools can positively affect language acquisition, vocabulary learning, and writing skills. However, the relationship between grammatical understanding and the previously mentioned link appears to be more complex. This study highlights the importance of ongoing research aimed at comprehensively understanding the dynamic relationships between AI tools and language proficiency. Finally, this study will give vital directions to educators and institutions on how they can help improve language learning with technology.

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