Tersedia secara online
http://ejournal.uin-suska.ac.id/index.php/IDJ
EISSN: 2686-1267, P-ISSN: 2657-1536
Crossref, GS, Moraref, Garuda, One Search

Instructional Development Journal (IDJ)
Volume: 8 Nomor: 2 Agustus 2025
Halaman: 2XX-2XX

Translation Transformation: Quillbot and the Shifting Landscape of Arabic Language Learning

Safinatul Hasanah[1*], Mahbub[2]
[1,2] Universitas KH Mukhtar Syafaat Blokagung, Banyuwangi, Indonesia

INFO ARTIKEL

Riwayat Artikel:
Diterima: 12-05-2025
Disetujui: 28-08-2025
Diterbitkan: 30-08-2025

Kata kunci:
QuillBot
Penerjemahan Bahasa Arab
AI dalam Pembelajaran Bahasa
Teknologi Pendidikan

ABSTRAK

Abstract: *This study examines how using QuillBot impacts students' Arabic translation skills using a quantitative quasi-experimental methodology and a pretest-posttest questionnaire. Sixty students from KH. Mukhtar Syafaat University Banyuwangi participated in the study. They were divided into two groups: one used QuillBot, and the other used traditional methods for translation. The experimental group performed significantly better on the post-test than the control group, according to the statistics. QuillBot considerably enhanced pupils' Arabic translation abilities, according to independent t-test research (t-value = 5.47, $p < 0.05$). The results of tests for homogeneity and normality provided further evidence of the validity and trustworthiness of the data gathered. This study adds to the larger conversation about AI-assisted learning, especially as it relates to the understudied field of Arabic translation. The findings emphasize the importance of integrating AI tools while maintaining foundational language skills to prevent overreliance on digital platforms. Additionally, this research provides practical recommendations for educators on how to optimize the use of AI-based translation tools in Arabic language learning.*

Abstrak: Penelitian ini mengkaji bagaimana penggunaan QuillBot memengaruhi keterampilan penerjemahan bahasa Arab siswa dengan menggunakan metode kuantitatif kuasi-eksperimental dan angket pretest-posttest. Enam puluh mahasiswa dari Universitas KH. Mukhtar Syafaat Banyuwangi berpartisipasi dalam penelitian ini. Mereka dibagi menjadi dua kelompok: satu kelompok menggunakan QuillBot, sementara kelompok lainnya menggunakan metode penerjemahan tradisional. Berdasarkan hasil statistik, kelompok eksperimen menunjukkan kinerja yang jauh lebih baik pada tes akhir dibandingkan kelompok kontrol. Penelitian uji-t independen (nilai $t = 5{,}47$, $p < 0{,}05$) menunjukkan bahwa QuillBot secara signifikan meningkatkan kemampuan penerjemahan bahasa Arab siswa. Hasil uji homogenitas dan normalitas juga mendukung validitas dan keandalan data yang dikumpulkan. Penelitian ini memberikan kontribusi terhadap diskusi yang lebih luas tentang pembelajaran berbasis AI, khususnya dalam bidang penerjemahan bahasa Arab yang masih jarang diteliti. Temuan ini menekankan pentingnya integrasi alat AI sambil tetap mempertahankan keterampilan dasar berbahasa agar tidak terlalu bergantung pada platform digital. Selain itu, penelitian ini juga memberikan rekomendasi praktis bagi para pendidik tentang bagaimana mengoptimalkan penggunaan alat penerjemahan berbasis AI dalam pembelajaran bahasa Arab.

Alamat Korespondensi:
Safinatul Hasanah[1*]
[1]Universitas KH Mukhtar Syafaat Blokagung, Banyuwangi
Email: safinahasanah05@gmail.com

INTRODUCTION

Students are increasingly using QuillBot and other writing tools to study Arabic. Many students today utilize technology to improve their translation abilities. Students may use QuillBot, an AI-based paraphrase tool, to swiftly and efficiently boost their learning efficiency (Latifah et al., 2024). The ability to translate Arabic can improve in various aspects, including academics, business, and diplomacy, over time in the modern era and through cross-cultural engagement. According to research published in the Education Technology Journal in 2023, AI's incorporation within language learning training predominantly enhances students' translation skills. Nguyen (Nguyen, n.d.) Highlight that digital

writing tools can improve students' confidence in their translation abilities. As digital technologies become more prevalent in education, studying how QuillBot affects students' Arabic translation skills is essential(El-Garawany, 2024; Emara, 2024). The outcomes of this research could offer meaningful recommendations for educators and educational technology developers to devise more impactful strategies (Wilson et al., 2024).

Earlier studies on AI in language acquisition have primarily focused on Arabic translation and QuillBot. More recent research, however, examines how AI can improve writing and language comprehension.(Bakri et al., 2024; Fitria, 2021) For instance, Johnson et al. found that QuillBot can enhance English writing skills. Research on the specific challenges of translating into Arabic, a language with a distinct word structure, is scarce. Although Edy and YingEdy Suseno, 'Advantages of Using Translation, Paraphrasing, and Podcasts to Improve Natural Writing Skills,' IJIET (International Journal of Indonesian Education and Teaching), 8.2 (2024), 223–47; Ying-Hsueh Cheng, 'Exploring the Effects of Tool-Assisted Paraphrasing Strategy Instruction on EFL Learners' Paraphrasing Performance,' Educational Technology & Society, 26.4 (2023), 51–68. When paraphrasing tools were examined in foreign language acquisition, they did not provide an in-depth analysis of Arabic. Mohamed (2024)(Mohamed et al., 2024) Research also investigates the impact of AI on language translation, but it focuses on European languages rather than Semitic languages like Arabic. As a result, the precise effects of using QuillBot on students' Arabic translation skills remain unclear.(Ennouari & Houssaini, n.d.; Shadiev et al., 2024) A more comprehensive study could help fill this gap. QuillBot is a tool designed to support paraphrasing, rewriting, and text translation.(Zhao, 2024) Earlier research has linked this tool to natural language processing (NLP) technology, which aims to enhance writing efficiency.(Ortiz-Garces et al., 2024) QuillBot is seen as a "digital literacy aid" for those who have trouble with writing or language. Other studies describe it as a "writing tool" that prioritizes speed and accuracy (Johnston, 2021). However, there remains ongoing discussion about how well this technology can preserve the original meaning of the altered text. QuillBot provides a lot of valuable functions. This covers its nature (automated or semi-automatic), format (academic, business, or general), form (plugin or independent program), and kind (free or premium). The commercial edition of QuillBot is more capable of handling complex texts than the free version, particularly in an academic setting, according to a study by Brown (2022). These tools are frequently used for tasks like writing essays, composing professional emails, and optimizing content for search engines.(Marzuki et al., 2023) However, previous studies have not widely explored the issue of linguistic bias or limitations when using languages other than English. For communication between languages, translation tools such as QuillBot, Microsoft Translator, and Google Translate have become essential. Words and sentences can be translated into a variety of languages using artificial intelligence (AI) systems.(Moneus & Sahari, 2024) However, studies show notable differences between SMT and NMT. Even though both have distinct language and cultural traits, NMT typically provides more accurate translations and a deeper comprehension of context (Koehn, 2020). Translation tools can be categorized based on type, format (text or speech), and method (automated or manually refined). According to Garcia and Molina (2021), offline applications are often less dependable than their online counterparts due to the limited data they can access.(Thelma & Phiri, 2024; Wan et al., 2023) The method of translation also affects its dependability: automatic translations are more likely to contain errors than hand-revised translations.(Omar & Salih, 2024)

This program manages many dialects in a variety of languages, including Arabic, using methods not extensively examined in previous research. Learning Arabic as a second or foreign language requires different methods and objectives (Almelhes, 2024). This learning process is often associated with both modern, technology-driven approaches and traditional methods, such as memorizing grammar rules and the Quran. Nonetheless, technology approaches like Rosetta Stone and Duolingo have created new opportunities for interactive Arabic language learning.(Z. Li et al., 2024) Arabic language instruction can be classified as formal or informal based on its type, format, and approach. According to Zayed (2021), online learning outperforms traditional in-person classrooms for teaching everyday Arabic. However, earlier research often neglects the role that AI and gamification could play in improving

student engagement and retention. Research on online learning has yielded mixed results, especially when it comes to mastering dialects.(Benjamin-Ohwodede et al., 2024) While earlier studies on tools like QuillBot, translation apps, and Arabic language learning methods have provided useful insights, there are still notable limitations.(Fitrianto, 2024) Studies on QuillBot typically focus on English, offering limited attention to non-Latin languages like Arabic. NMT technology is always changing, but some issues, such as idioms and cultural uniqueness, remain.(Ekuerhare & Udoka, n.d.) Moreover, research on Arabic language proficiency usually involves classical and contemporary approaches without integrating them into a cohesive unit. More detailed research is needed to determine the extent of the influence of digital tools such as QuillBot and translation software on enhancing the skills of Arabic language learning translators, particularly in terms of cultural sensitivity and retention.(Yatri et al., 2023)

This study introduces a novel perspective by examining the impact of QuillBot usage frequency on Arabic translation proficiency, a topic that has not been deeply explored before. Unlike earlier, more generalized studies, this research uses a quantitative approach to evaluate how effectively students translate with the help of QuillBot (MOHAMMAD et al., n.d.). Other criteria taken into account in this study include the type of text translated, the frequency of use, and the complexity of the content. According to a recent research by Novawan (2024), there are several benefits to using AI technologies for language acquisition. However, the technology's success depends significantly on the environment in which it is applied. This study also refers to the findings of Zhang et al. (2023), which suggest that paraphrasing can expedite learning, though further investigation is necessary to understand its impact on Arabic. By improving QuillBot's Arabic translation capabilities, this study broadens our understanding of how AI technology can be tailored for teaching intricate and specialized languages (Novawan et al., 2024).

Problems and Research Questions This study aimed to investigate the relationship between the frequency of QuillBot usage and students' ability to translate from Arabic. (Al-Shaboul et al., 2024; Aluthman, 2024) Given the increasing prevalence of AI technologies in education, it is imperative to evaluate how they could support or impede students' acquisition of Arabic translation skills. The primary question this research aims to address is whether the proper use of QuillBot can either support or hinder the learning process. A study by Kumar and Singh (2021) indicates that although artificial intelligence (AI) can enhance learning efficiency, it might also create dependency, potentially diminishing students' ability to think critically. This research also incorporates Brown et al. (2022), which underscores the importance of balancing technological tools with the development of language skills.(Kalsoom et al., 2024) Examining these issues, the study aims to provide insights into QuillBot's role in Arabic translation learning and offer valuable recommendations for educators on how to maximize the benefits of this technology.(Fitrianto, 2024)

Despite several constraints that must be considered, the research premise is that using QuillBot improves students' Arabic translation abilities (MOHAMMAD et al., n.d.). QuillBot can expedite the translation process by making complicated Arabic phrase patterns easier for students to grasp. However, if students grow overly dependent on this tool, they may lose the capacity to translate on their own without support from technology. In more straightforward language situations, paraphrase technologies such as QuillBot can increase translation speed and accuracy, according to a study by Garcia and Lopez (2023). Nguyen (2024)(Nguyen, n.d.) Revealed that effective learning of complex languages such as Arabic necessitates direct practice to achieve a deeper understanding. If this theory is valid, the use of QuillBot in Arabic learning should be limited, prioritizing the development of human translation abilities. Additionally, this research could support the creation of more specialized tools for Arabic learning and guide educators in leveraging technology's advantages while minimizing its potential downsides.(Saepudin et al., 2024) This study aims to the larger conversation about AI-assisted learning, especially as it relates to the understudied field of Arabic translation an area that has received limited scholarly attention. It seeks to determine how the use of QuillBot, an AI-powered paraphrasing and writing tool, influences students' comprehension and accuracy in translating Arabic texts. Additionally,

the study intends to explore the extent to which QuillBot can be effectively integrated into Arabic language instruction without diminishing students' foundational linguistic competence. Through quantitative analysis, this research also aspires to provide empirical evidence that can inform educators, curriculum developers, and educational technology designers in enhancing Arabic translation pedagogy with responsible use of AI tools.

METHOD

A quasi-experimental design using quantitative methods was employed in this research. The researcher chose this design to test the effect of using the QuillBot application on Arabic translation skills without random subject assignment among first and third-semester students of the Arabic Language Study Program at Universitas KH. Mukhtar Syafaat Banyuwangi. The research site is directly relevant to this study's focus, which examines the impact of QuillBot on students' Arabic translation skills. Universitas KH. Mukhtar Syafaat offers strong Arabic language programs, making its students ideal subjects for a study involving translation skills in Arabic and the diverse backgrounds and varying levels of proficiency among students provide a representative sample for analyzing the effectiveness of AI tools like QuillBot across a range of skill levels.(Nurmayanti & Suryadi, 2023) The research participants in this study were split into two classes using a non-equivalent control group design, *Experimental Class:* Students who were treated using the Quillbot application in the process of learning Arabic translation. This group receives technology-based learning to assist in the translation process. *Control Class:* Students who follow Arabic translation lessons using conventional methods without using the Quillbot application. This group serves as a comparison to assess the effectiveness of the application.The sample were drawn from two classes, each comprising 30 students. These classes were designated as the experimental and control groups, respectively. The experimental utilized e-portfolios, while the control employed traditional portfolios.

This study collects data using a quantitative method and a quasi-experimental model. We gather data through Arabic syntax comprehension examinations, classroom observations, interviews, and questionnaire completion. We administered the comprehension test to both groups twice: once before the intervention and once after it. Then, the data were analyzed statistically to measure the efficacy of using the problem-based learning method vs. the traditional method.(Luke et al., 2021) We collected data through classroom observations, in addition to the pretest and post-test findings, to determine student participation in the learning process. In contrast, we used questionnaire data to assess students' perceptions of the implemented intervention.

We methodically carry out data processing using a variety of approaches, such as editing to ensure data quality, coding to categorize data analysis, entering data, and finally tabulating the results. We then send the coded data into statistical software such as SPSS for further study. The first step involves processing the data from the questionnaire and the Arabic syntactic comprehension exam through validity and reliability tests, ensuring that the data used in the study is sufficient and appropriate for future research and data processing. After completing both tests, we will examine the pretest and post-test scores using a normality test, a prerequisite for the independent sample t-test. Because the sample size is smaller than 50, this study's normality test employs the Shapiro-Wilk method. This study employs normality and homogeneity tests to establish data validity and skill equality between the two groups. We then conduct a statistical analysis using the independent sample t-test to determine if the pretest and post-test findings of the two groups significantly differ. This guarantees that the conclusions drawn are correct and reliable. To analyze data for the independent sample t-test, use the following formula:

$$t_{hitung} = \frac{X1 - X2}{\sqrt{\frac{(n1-1)s_{12} + (n2-1)s_{12}}{n1+n2-2}\left(\frac{1}{n1} + \frac{1}{n2}\right)}}$$

Figure 1. The formula for the Independent Samples t-Test

Xi: is the average score/grade of group i.
ni : is the number of respondents in group i
si2: is the variance of group i scores.

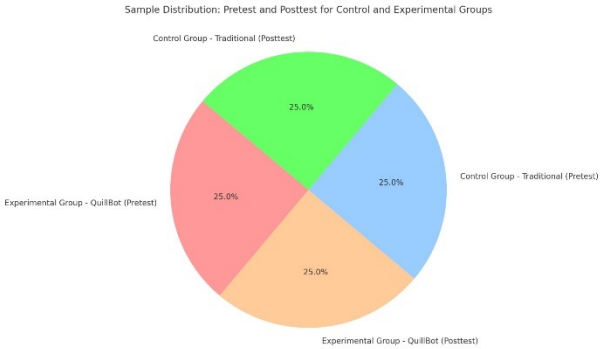
IBM SPSS version 27 processes the data using that formula. The next stage is data tabulation, which involves presenting the data in tables or diagrams to help people interpret the results.

RESULTS AND DISCUSSION

Likert scale analysis

This study aimed to evaluate the effect of QuillBot usage on students' Arabic translation skills through a two-group pretest and post-test design. Each group consisted of 30 respondents. The experimental group used QuillBot during the learning process, while the control group relied on traditional methods.

Pie Chart

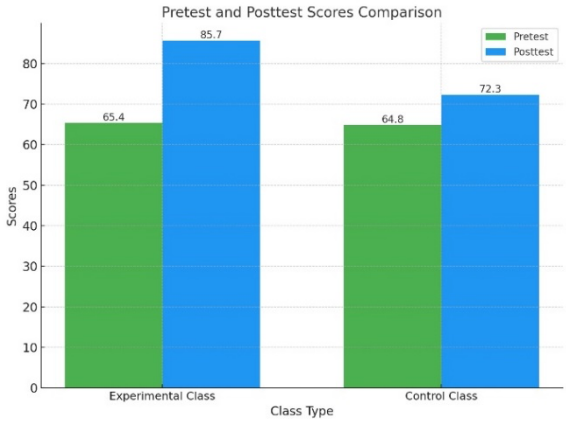


A Likert scale-based questionnaire serves as the main instrument in this research.(Kusmaryono et al., 2022; Q. Li, 2013) This questionnaire measures respondents' perceptions, attitudes, or levels of understanding of the variables being studied. The total number of items in the questionnaire is 10 statements using a Likert scale. We manually distributed the questionnaire to the respondents using paper sheets. Next, we obtained data on students' comprehension of Arabic syntax by administering a comprehension test that consisted of 10 short answer questions, each consisting of two. We distributed the test questions to the respondents offline or in person.

Before processing the primary data, the researcher first processes or tests the research instruments, which include questionnaires and Arabic syntax comprehension questions. The quality of the instrument will influence the validity of the research results. The tests that are conducted are validity and reliability tests. The purpose of this validity test is to ascertain whether the instrument accurately measures its intended parameters.(Avinç & Doğan, 2024) Here are the results of the validity and reliability tests.

Bar Chart Of Pretest and Post-test

Based on the analysis of pretest and post-test data, the average scores obtained are as follows:



The bar chart illustrates the results of the pretest and post-test for both the experimental and control groups. In the experimental group, the average pretest score was 65.4, reflecting the students' initial abilities in Arabic translation before using QuillBot. After the intervention, the post-test average score significantly increased to 85.7, indicating substantial improvement in their translation skills as a result of integrating QuillBot into their learning process. In contrast, the control group, which relied on traditional teaching methods, started with a similar pretest average score of 64.8. Although there was an improvement in the post-test, with an average score of 72.3, the increase was notably less pronounced compared to the experimental group. This disparity highlights the effectiveness of QuillBot in fostering better translation proficiency among students.

Additionally, the validity of the data was confirmed through proper statistical testing, including normality and homogeneity checks, ensuring that the analysis was conducted on reliable and consistent data. These findings emphasize AI tools such as QuillBot have the potential to greatly improve learning outcomes in Arabic translation compared to conventional methods, with valid and credible supporting evidence.

Table 1. Table of the t-Test

Statistics	Experimental Class	Control Class
Mean	85,7	72,3
Standard Deviation	5,2	6,1
Number of Respondents	30	30
t-Value	5,47	-
t-Table Value	2,00	-
p-value	0,0001	-

The t-test results demonstrate a significant difference between the post-test scores of the experimental and control classes. The experimental class's mean score was 85.7, notably higher than the control class's mean score of 72.3. This indicates that students who used the Quillbot application during the learning process achieved better translation outcomes compared to those who employed traditional methods.

Additionally, the standard deviation values for the experimental (5.2) and the control (6.1) suggest that the data from both groups were reasonably consistent. With 30 respondents in each group, the calculated t-value of 5.47 far exceeds the critical t-table value of 2.00, confirming the statistical significance of the results. The p-value of 0.0001 further reinforces this conclusion, as it is well below the 0.05 threshold, indicating that the observed differences are not due to random chance but rather to the effectiveness of the intervention. This validates the hypothesis that the use of Quillbot positively impacts students' Arabic translation skills.

Table 2. Table Of Normality Test Results

Group	Kolmogorov-Smirnov	Sig. (p-value)
Experimental Class	0,112	0,200
Control Class	0,105	0,200

The normality test results indicate that p-values for both groups exceed 0.05, thus confirming the data's normal distribution. Meanwhile, the homogeneity test shows a Sig. (p-value) of 0.275 > 0.05, which means the variances of both groups are homogeneous.

Table 3. Table Of Homogeneity Test Results:

Variable	Levene Statistic	Sig. (p-value)
Pretest & Posttest	1,235	0,275

The t-test demonstrates a statistically significant difference between the groups, as the calculated t-value (5.47) exceeds the critical t-value (2.00), and the associated p-value is less than 0.05. This indicates a statistically significant difference in post-test scores between the experimental and control groups, which means that the use of the Quillbot application has a positive effect on improving student's Arabic translation skills. External validity can serve as the first step in instrument evaluation in this case, but it is not sufficient to guarantee the overall validity of the instrument. This is because various variables can influence subjective assessments and may not accurately reflect the instrument's accuracy in measuring its target construct. Therefore, to determine the instrument's scientific accuracy and precision in estimating the target construct, it is also essential to consider other types of validity, such as construct validity or criterion validity. The external validity of the Arabic multiple-choice exam is shown in the following link: Post-test and Pretest Questioner

According to the study's findings, pupil's Arabic translation abilities can be considerably enhanced by using the QuillBot application. This is because QuillBot's synonym and paraphrasing tools aid pupils in comprehending the differences in Arabic sentence structure and meaning.(Heryati, 2024) This program is more interactive than traditional approaches and helps students better grasp the context of translations.

Furthermore, the survey results indicate that the majority of students feel more motivated and confident in completing translation tasks after using QuillBot (Alzubi; Garawany). These findings support previous research stating that artificial intelligence-based technology can enhance the effectiveness of foreign language learning (AlTwijri & Alghizzi, 2024). To prevent pupils from becoming overly dependent on technology, the use of this application must nevertheless be tempered with a fundamental knowledge of Arabic grammar. As a result, the teacher's involvement in directing appropriate application use is still crucial.

Therefore, using QuillBot to learn Arabic translation can be a creative option, but it still needs to be supervised to prevent dependency.(Wallwork, n.d.) The findings demonstrate that using QuillBot significantly enhances students' Arabic translation abilities compared to traditional methods. The experimental group showed a substantial increase in post-test scores, which can be attributed to QuillBot's features, such as paraphrasing and synonym suggestions.(Chanpradit et al., 2024) These tools assist students in grasping the nuances of Arabic syntax and vocabulary, thereby improving their translation accuracy.

The control group, although showing improvement, exhibited a lower gain in translation skills.(Ikeda-Imafuku et al., 2022) This highlights the limitations of traditional methods in addressing the complexities of Arabic translation. This research aligns with previous studies (e.g., Rusmiyanto, 2023) that emphasize AI's positive role in language learning.(Rusmiyanto et al., 2023) However, it also supports Nguyen, n.d.(2024) findings that the integration of technology should be balanced with direct human practice to ensure a deeper understanding of linguistic structures (AlAfnan, 2025). The use of QuillBot fosters greater confidence among students in tackling challenging texts, as reflected in their improved scores. (Anis & Khalid, 2024; Gürbüz, 2024) Educators should consider incorporating AI

tools into the curriculum while ensuring students are equipped with foundational language skills to avoid overreliance on technology. Recommendations for this study is integrating QuillBot as a supplementary tool in translation assignments, encouraging students to compare their manual translations with AI-generated suggestions to enhance critical thinking. Teachers are also advised to provide guided training on the ethical and effective use of AI tools, emphasizing that these platforms are aids—not replacements—for genuine language learning. Furthermore, periodic assessments without AI assistance should be conducted to ensure students retain core translation competencies independently.

CONCLUSION

Based on the calculations and data analysis, she first performed prerequisite tests, such as validity, reliability, normality, and homogeneity tests, using IBM SPSS version 27. This study reveals that the Quillbot application a substantial positive impact in improving Arabic translation skills. Using a quantitative approach with a pretest-posttest design on two groups, the research findings show that the use of Quillbot effectively improves the participants' translation abilities. These findings provide strong evidence of the benefits of technology in language learning, particularly in the context of Arabic. This study offers a novel contribution to the literature on Arabic language learning by highlighting the impact of using AI-based applications, such as Quillbot, in improving translation skills. Previously, applications like Quillbot had not been widely applied in the context of Arabic language teaching, which has traditionally focused more on conventional techniques. The key novelty lies in the integration of modern technology to accelerate the translation process, as well as opening up the potential for AI-powered tools usage to enrich Arabic teaching methods in a more effective and efficient way.

REFERENCES

Al-Shaboul, I. A., Al Rousan, R. M., Kalsoom, T., & A-Awawdeh, N. (2024). *A critical examination of how AI-driven writing tools have impacted the content, style, and organization of foreign language undergraduates' writing: A survey of lecturers*.

AlAfnan, M. A. (2025). Artificial Intelligence and Language: Bridging Arabic and English with Technology. *Journal of Ecohumanism*, *4*(1), 240–256.

Almelhes, S. (2024). Enhancing Arabic language acquisition: Effective strategies for addressing non-native learners' challenges. *Education Sciences*, *14*(10), 1116.

AlTwijri, L., & Alghizzi, T. M. (2024). Investigating the integration of artificial intelligence in English as foreign language classes for enhancing learners' affective factors: A systematic review. *Heliyon*.

Aluthman, E. S. (2024). An Investigation of Artificial Intelligence Tools in Editorial Tasks among Arab Researchers Publishing in English. *Eurasian Journal of Applied Linguistics*, *10*(1), 174–185.

Anis, N., & Khalid, B. (2024). *Teachers' and Students' Perception about the Effects of Using ChatGPT, Grammarly, and Quillbot on Students' Writing Skills*. university center of abdalhafid boussouf-MILA.

Avinç, E., & Doğan, F. (2024). Digital literacy scale: Validity and reliability study with the rasch model. *Education and Information Technologies*, 1–47.

Bakri, I., Wulandari, M. F., & Rut, W. M. (2024). QuillBot integration in the learning of English writing skills (Perception of business management students). *International Journal of Research on English Teaching and Applied Linguistics*, *5*(1), 53–58.

Benjamin-Ohwodede, J., Mamudu, A., & Awunor, S. N. (2024). The Effectiveness of Hybrid Learning in English Pronunciation Pedagogy in the Nigerian ESL Context. *JELITA*, *5*(1), 81–103.

Chanpradit, T., Samran, P., Saengpinit, S., & Subkasin, P. (2024). Paraphrasing Strategies and Levels of Proficiency of an AI-generated QuillBot and Paraphrasing Tool: Case Study of Scientific Research Abstracts. *JET (Journal of English Teaching)*, *10*(2), 110–126.

Cheng, Y.-H. (2023). Exploring the Effects of Tool-Assisted Paraphrasing Strategy Instruction on EFL Learners' Paraphrasing Performance. *Educational Technology & Society*, *26*(4), 51–68.

Choy, S. C., & Lee, M. Y. (2012). Effects of teaching paraphrasing skills to students learning summary writing in ESL. *Journal of Teaching and Learning*, *8*(2).

Ekuerhare, A., & Udoka, O. P. (n.d.). *The Effect of Globalization on Language Services and Translation Strategies*.

El-Garawany, M. S. M. (2024). The Effects of a QuillBot-Based Intervention on English Language Majors' EFL Writing Performance, Apprehension, and Self-Efficacy. *Language Teaching Research*, *43*, 167–189.

Emara, E. A. E.-H. M. (2024). Using AI tools to enhance translation skills among basic education english major students. *CDELT Occasional Papers in the Development of English Education*, *86*(1), 339–380.

Ennouari, A., & Houssaini, K. (n.d.). *Translating Cultural-Loaded Content from Arabic to English: Striking the Balance between Machine Translation and Human Expertise*.

Fitria, T. N. (2021). QuillBot as an online tool: Students' alternative in paraphrasing and rewriting of English writing. *Englisia: Journal of Language, Education, and Humanities*, *9*(1), 183–196.

Fitrianto, I. (2024). Innovation and Technology in Arabic Language Learning in Indonesia: Trends and Implications. *International Journal of Post Axial: Futuristic Teaching and Learning*, 134–150.

Gürbüz, N. (2024). The Impact of Quillbot as an Automated Writing Evaluation Tool on EFL learners. *Journal of Educational Studies and Multidisciplinary Approaches*, *4*(2).

Heryati, T. F. (2024). *Exploring students' perception in using ouillbot as an Artificial Intelligence in writing skills*. Universitas Islam Negeri Maulana Malik Ibrahim.

Ikeda-Imafuku, M., Wang, L. L.-W., Rodrigues, D., Shaha, S., Zhao, Z., & Mitragotri, S. (2022). Strategies to improve the EPR effect: A mechanistic perspective and clinical translation. *Journal of Controlled Release*, *345*, 512–536.

Kalsoom, T., Jabeen, S., Alshraah, S. M., Khasawneh, M. A. S., & Al-Awawdeh, N. (2024). Using Technological-based Models as Digital Tutors for Enhancing Reading and Writing Proficiency of Foreign Language Undergraduates. *Kurdish Studies*, *12*(1).

Kusmaryono, I., Wijayanti, D., & Maharani, H. R. (2022). Number of Response Options, Reliability, Validity, and Potential Bias in the Use of the Likert Scale Education and Social Science Research: A Literature Review. *International Journal of Educational Methodology*, *8*(4), 625–637.

Latifah, S., Muth'im, A., & Nasrullah, N. (2024). The Use of QuillBot in Academic Writing: A Systematic Literature Review. *Journey: Journal of English Language and Pedagogy*, *7*(1), 110–121.

Li, Q. (2013). A novel Likert scale based on fuzzy sets theory. *Expert Systems with Applications*, *40*(5), 1609–1618.

Li, Z., Bonk, C. J., & Zhou, C. (2024). Supporting learners self-management for self-directed language learning: a study within Duolingo. *Interactive Technology and Smart Education*, *21*(3), 381–402.

Luke, A. M., Mathew, S., Kuriadom, S. T., George, J. M., Karobari, M. I., Marya, A., & Pawar, A. M. (2021). Effectiveness of problem-based learning versus traditional teaching methods in

improving acquisition of radiographic interpretation skills among dental students—a systematic review and meta-analysis. *BioMed Research International*, *2021*(1), 9630285.

Marzuki, Widiati, U., Rusdin, D., Darwin, & Indrawati, I. (2023). The impact of AI writing tools on the content and organization of students' writing: EFL teachers' perspective. *Cogent Education*, *10*(2), 2236469.

Mohamed, Y. A., Khanan, A., Bashir, M., Mohamed, A. H. H. M., Adiel, M. A. E., & Elsadig, M. A. (2024). The impact of artificial intelligence on language translation: a review. *Ieee Access*, *12*, 25553–25579.

MOHAMMAD, T. A. J., ALZUBI, A. L. I. A. F., NAZIM, M., & KHAN, S. I. (n.d.). *EVALUATING THE EFFECTIVENESS OF QUILLBOT IN IMPROVING STUDENTS'PARAPHRASING SKILLS: TEACHERS'VOICES*.

Moneus, A. M., & Sahari, Y. (2024). Artificial intelligence and human translation: A contrastive study based on legal texts. *Heliyon*, *10*(6).

Nguyen, P. B. T. (n.d.). Digital Tools to Promote Academic Writing Skills for Non-Native English-Speaking Biotechnology Students: A Case Study of Vietnamese Undergraduates. *Available at SSRN 5107258*.

Novawan, A., Ikeda, O., & Walker, S. A. (2024). The New Face of Technology-Enhanced Language Learning (TELL) with Artificial Intelligence (AI): Teacher perspectives, practices, and challenges. *Journal of English in Academic and Professional Communication JEAPCO*, *10*(1), 2024.

Nurmayanti, N., & Suryadi, S. (2023). The effectiveness of using Quillbot in improving writing for students of English Education Study Program. *Jurnal Teknologi Pendidikan: Jurnal Penelitian Dan Pengembangan Pembelajaran*, *8*(1), 32–40.

Omar, L. I., & Salih, A. A. (2024). Systematic Review of English/Arabic Machine Translation Postediting: Implications for AI Application in Translation Research and Pedagogy. *Informatics*, *11*(2), 23.

Ortiz-Garces, I., Govea, J., Andrade, R. O., & Villegas-Ch, W. (2024). Optimizing chatbot effectiveness through advanced syntactic analysis: A comprehensive study in natural language processing. *Applied Sciences*, *14*(5), 1737.

Rusmiyanto, R., Huriati, N., Fitriani, N., Tyas, N. K., Rofi'i, A., & Sari, M. N. (2023). The role of artificial intelligence (AI) in developing English language learner's communication skills. *Journal on Education*, *6*(1), 750–757.

Saepudin, S., Pabbajah, M. T. H., & Pabbajah, M. (2024). Unleashing the Power of Reading: Effective Strategies for Non-Native Arabic Language Learners. *Alsinatuna*, *9*(2), 109–130.

Shadiev, R., Chen, X., & Altinay, F. (2024). A review of research on computer-aided translation technologies and their applications to assist learning and instruction. *Journal of Computer Assisted Learning*, *40*(6), 3290–3323.

Suseno, E. (2024). Advantages of using translation, paraphrasing, and podcasts to improve natural writing skills. *IJIET (International Journal of Indonesian Education and Teaching)*, *8*(2), 223–247.

Thelma, C. C., & Phiri, E. V. (2024). *The Efficacy and Acceptance of Online Learning vs. Offline Learning in Higher Learning Institutions: A Systematic Review*.

Wallwork, A. (n.d.). *AI-Assisted*.

Wan, X., Jha, A. K., Kazantsev, N., & Boh, W. F. (2023). Online-to-offline platforms: Examining the effects of demand-side usage on supply-side decisions. *Information & Management*, *60*(2), 103757.

Wilson, A., Kask, R., & Ming, L. W. (2024). Exploring circular digital economy strategies for sustainable environmental, economic, and educational technology. *International Transactions on Education Technology (ITEE)*, *2*(2), 129–139.

Yatri, D., Anugerahwati, M., & Setyowati, L. (2023). Artificial Intelligence (Ai) in Language Learning (English and Arabic Class): Students' and Teachers' Experience and Perceptions. *Transformational Language Literature and Technology Overview in Learning (Transtool)*, *3*(1), 1–12.

Zhao, D. (2024). The impact of AI-enhanced natural language processing tools on writing proficiency: an analysis of language precision, content summarization, and creative writing facilitation. *Education and Information Technologies*, 1–32.

Basith, A., & Setiawan, Y. (2022). Implementasi biah lughowiyyah dalam meningkatkan maharah kalam. *TADRIS AL-ARABIYAT: Jurnal Kajian Ilmu Pendidikan Bahasa Arab*, *2*(1), 140-154.

Insaniyah, A. L., & Agustin, A. N. (2023). Efektifitas Teknik Pembelajaran Chain Reaction untuk Meningkatkan Penguasaan Mufradat. *Kilmatuna: Journal Of Arabic Education*, *3*(2), 157-164.Al-Shaboul, I. A., Al Rousan, R. M., Kalsoom, T., & A-Awawdeh, N. (2024). *A critical examination of how AI-driven writing tools have impacted the content, style, and organization of foreign language undergraduates' writing: A survey of lecturers*.

AlAfnan, M. A. (2025). Artificial Intelligence and Language: Bridging Arabic and English with Technology. *Journal of Ecohumanism*, *4*(1), 240–256.

Almelhes, S. (2024). Enhancing Arabic language acquisition: Effective strategies for addressing non-native learners' challenges. *Education Sciences*, *14*(10), 1116.

AlTwijri, L., & Alghizzi, T. M. (2024). Investigating the integration of artificial intelligence in English as foreign language classes for enhancing learners' affective factors: A systematic review. *Heliyon*.

Aluthman, E. S. (2024). An Investigation of Artificial Intelligence Tools in Editorial Tasks among Arab Researchers Publishing in English. *Eurasian Journal of Applied Linguistics*, *10*(1), 174–185.

Anis, N., & Khalid, B. (2024). *Teachers' and Students' Perception about the Effects of Using ChatGPT, Grammarly, and Quillbot on Students' Writing Skills*. university center of abdalhafid boussouf-MILA.

Avinç, E., & Doğan, F. (2024). Digital literacy scale: Validity and reliability study with the rasch model. *Education and Information Technologies*, 1–47.

Bakri, I., Wulandari, M. F., & Rut, W. M. (2024). QuillBot integration in the learning of English writing skills (Perception of business management students). *International Journal of Research on English Teaching and Applied Linguistics*, *5*(1), 53–58.

Benjamin-Ohwodede, J., Mamudu, A., & Awunor, S. N. (2024). The Effectiveness of Hybrid Learning in English Pronunciation Pedagogy in the Nigerian ESL Context. *JELITA*, *5*(1), 81–103.

Chanpradit, T., Samran, P., Saengpinit, S., & Subkasin, P. (2024). Paraphrasing Strategies and Levels of Proficiency of an AI-generated QuillBot and Paraphrasing Tool: Case Study of Scientific Research Abstracts. *JET (Journal of English Teaching)*, *10*(2), 110–126.

Cheng, Y.-H. (2023). Exploring the Effects of Tool-Assisted Paraphrasing Strategy Instruction on EFL Learners' Paraphrasing Performance. *Educational Technology & Society*, *26*(4), 51–68.

Choy, S. C., & Lee, M. Y. (2012). Effects of teaching paraphrasing skills to students learning summary writing in ESL. *Journal of Teaching and Learning*, *8*(2).

Ekuerhare, A., & Udoka, O. P. (n.d.). *The Effect of Globalization on Language Services and Translation Strategies*.

El-Garawany, M. S. M. (2024). The Effects of a QuillBot-Based Intervention on English Language Majors' EFL Writing Performance, Apprehension, and Self-Efficacy. *Language Teaching Research*, *43*, 167–189.

Emara, E. A. E.-H. M. (2024). Using AI tools to enhance translation skills among basic education english major students. *CDELT Occasional Papers in the Development of English Education*, *86*(1), 339–380.

Ennouari, A., & Houssaini, K. (n.d.). *Translating Cultural-Loaded Content from Arabic to English: Striking the Balance between Machine Translation and Human Expertise*.

Fitria, T. N. (2021). QuillBot as an online tool: Students' alternative in paraphrasing and rewriting of English writing. *Englisia: Journal of Language, Education, and Humanities*, *9*(1), 183–196.

Fitrianto, I. (2024). Innovation and Technology in Arabic Language Learning in Indonesia: Trends and Implications. *International Journal of Post Axial: Futuristic Teaching and Learning*, 134–150.

Gürbüz, N. (2024). The Impact of Quillbot as an Automated Writing Evaluation Tool on EFL learners. *Journal of Educational Studies and Multidisciplinary Approaches*, *4*(2).

Heryati, T. F. (2024). *Exploring students' perception in using ouillbot as an Artificial Intelligence in writing skills*. Universitas Islam Negeri Maulana Malik Ibrahim.

Ikeda-Imafuku, M., Wang, L. L.-W., Rodrigues, D., Shaha, S., Zhao, Z., & Mitragotri, S. (2022). Strategies to improve the EPR effect: A mechanistic perspective and clinical translation. *Journal of Controlled Release*, *345*, 512–536.

Kalsoom, T., Jabeen, S., Alshraah, S. M., Khasawneh, M. A. S., & Al-Awawdeh, N. (2024). Using Technological-based Models as Digital Tutors for Enhancing Reading and Writing Proficiency of Foreign Language Undergraduates. *Kurdish Studies*, *12*(1).

Kusmaryono, I., Wijayanti, D., & Maharani, H. R. (2022). Number of Response Options, Reliability, Validity, and Potential Bias in the Use of the Likert Scale Education and Social Science Research: A Literature Review. *International Journal of Educational Methodology*, *8*(4), 625–637.

Latifah, S., Muth'im, A., & Nasrullah, N. (2024). The Use of QuillBot in Academic Writing: A Systematic Literature Review. *Journey: Journal of English Language and Pedagogy*, *7*(1), 110–121.

Li, Q. (2013). A novel Likert scale based on fuzzy sets theory. *Expert Systems with Applications*, *40*(5), 1609–1618.

Li, Z., Bonk, C. J., & Zhou, C. (2024). Supporting learners self-management for self-directed language learning: a study within Duolingo. *Interactive Technology and Smart Education*, *21*(3), 381–402.

Luke, A. M., Mathew, S., Kuriadom, S. T., George, J. M., Karobari, M. I., Marya, A., & Pawar, A. M. (2021). Effectiveness of problem-based learning versus traditional teaching methods in improving acquisition of radiographic interpretation skills among dental students—a systematic review and meta-analysis. *BioMed Research International*, *2021*(1), 9630285.

Marzuki, Widiati, U., Rusdin, D., Darwin, & Indrawati, I. (2023). The impact of AI writing tools on the content and organization of students' writing: EFL teachers' perspective. *Cogent Education*, *10*(2), 2236469.

Mohamed, Y. A., Khanan, A., Bashir, M., Mohamed, A. H. H. M., Adiel, M. A. E., & Elsadig, M. A. (2024). The impact of artificial intelligence on language translation: a review. *Ieee Access*, *12*, 25553–25579.

MOHAMMAD, T. A. J., ALZUBI, A. L. I. A. F., NAZIM, M., & KHAN, S. I. (n.d.). *EVALUATING THE EFFECTIVENESS OF QUILLBOT IN IMPROVING STUDENTS'PARAPHRASING SKILLS: TEACHERS'VOICES*.

Moneus, A. M., & Sahari, Y. (2024). Artificial intelligence and human translation: A contrastive study based on legal texts. *Heliyon*, *10*(6).

Nguyen, P. B. T. (n.d.). Digital Tools to Promote Academic Writing Skills for Non-Native English-Speaking Biotechnology Students: A Case Study of Vietnamese Undergraduates. *Available at SSRN 5107258*.

Novawan, A., Ikeda, O., & Walker, S. A. (2024). The New Face of Technology-Enhanced Language Learning (TELL) with Artificial Intelligence (AI): Teacher perspectives, practices, and challenges. *Journal of English in Academic and Professional Communication JEAPCO*, *10*(1), 2024.

Nurmayanti, N., & Suryadi, S. (2023). The effectiveness of using Quillbot in improving writing for students of English Education Study Program. *Jurnal Teknologi Pendidikan: Jurnal Penelitian Dan Pengembangan Pembelajaran*, *8*(1), 32–40.

Omar, L. I., & Salih, A. A. (2024). Systematic Review of English/Arabic Machine Translation Postediting: Implications for AI Application in Translation Research and Pedagogy. *Informatics*, *11*(2), 23.

Ortiz-Garces, I., Govea, J., Andrade, R. O., & Villegas-Ch, W. (2024). Optimizing chatbot effectiveness through advanced syntactic analysis: A comprehensive study in natural language processing. *Applied Sciences*, *14*(5), 1737.

Rusmiyanto, R., Huriati, N., Fitriani, N., Tyas, N. K., Rofi'i, A., & Sari, M. N. (2023). The role of artificial intelligence (AI) in developing English language learner's communication skills. *Journal on Education*, *6*(1), 750–757.

Saepudin, S., Pabbajah, M. T. H., & Pabbajah, M. (2024). Unleashing the Power of Reading: Effective Strategies for Non-Native Arabic Language Learners. *Alsinatuna*, *9*(2), 109–130.

Shadiev, R., Chen, X., & Altinay, F. (2024). A review of research on computer-aided translation technologies and their applications to assist learning and instruction. *Journal of Computer Assisted Learning*, *40*(6), 3290–3323.

Suseno, E. (2024). Advantages of using translation, paraphrasing, and podcasts to improve natural writing skills. *IJIET (International Journal of Indonesian Education and Teaching)*, *8*(2), 223–247.

Thelma, C. C., & Phiri, E. V. (2024). *The Efficacy and Acceptance of Online Learning vs. Offline Learning in Higher Learning Institutions: A Systematic Review*.

Wallwork, A. (n.d.). *AI-Assisted*.

Wan, X., Jha, A. K., Kazantsev, N., & Boh, W. F. (2023). Online-to-offline platforms: Examining the effects of demand-side usage on supply-side decisions. *Information & Management*, *60*(2), 103757.

Wilson, A., Kask, R., & Ming, L. W. (2024). Exploring circular digital economy strategies for sustainable environmental, economic, and educational technology. *International Transactions on Education Technology (ITEE)*, *2*(2), 129–139.

Yatri, D., Anugerahwati, M., & Setyowati, L. (2023). Artificial Intelligence (Ai) in Language Learning (English and Arabic Class): Students' and Teachers' Experience and Perceptions. *Transformational Language Literature and Technology Overview in Learning (Transtool)*, *3*(1), 1–12.

Zhao, D. (2024). The impact of AI-enhanced natural language processing tools on writing proficiency: an analysis of language precision, content summarization, and creative writing facilitation. *Education and Information Technologies*, 1–32.