

THE EFFECTIVENESS OF AI-ASSISTED TRANSLATION TOOLS IN DEVELOPING STUDENTS' DIGITAL TRANSLATION COMPETENCE: AN EXPERIMENTAL STUDY

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Abstract

This study investigated the effect of AI-assisted translation tools on 60 English-major students. After eight weeks, the experimental group showed greater improvement than the control group, suggesting that guided AI use can strengthen translation skills, digital competence, and critical evaluation. The findings also show that students should be taught to use AI responsibly and carefully check machine-generated translations.

Keywords: *artificial intelligence, translation tools, digital translation competence, machine translation, English language teaching*

1. Introduction

Artificial intelligence has changed translation and language education by helping users translate texts, find terminology, compare expressions, and revise writing. Therefore, students need not only language knowledge but also the ability to use digital tools, evaluate AI output, identify errors, and post-edit translations.

Translation competence includes linguistic, cultural, technological, and problem-solving skills. Both the PACTE model and the European Master's in Translation Competence Framework emphasize the importance of using translation resources effectively and understanding the limits of technology.

However, access to AI tools does not automatically improve competence. Students may accept inaccurate translations or depend too heavily on technology, so AI should be taught through structured activities involving comparison, evaluation, correction, and justification.

This study examined whether AI-assisted instruction improves digital translation competence more effectively than traditional teaching. It addressed three questions:

1. Do students improve after AI-assisted instruction?
2. Does the experimental group improve more than the control group?
3. What are the implications for English language teaching?

It was expected that the experimental group would show greater improvement.

2. Literature Review

Translation competence involves more than knowing two languages. It includes understanding the source text, transferring meaning accurately, solving problems, using appropriate resources, and revising the final translation. Hurtado Albir (2015) emphasizes that translation education should develop these skills through practical tasks and problem-solving activities.

AI-assisted translation tools can provide immediate translations and alternative expressions, helping students compare vocabulary, grammar, style, and meaning. However, students may accept inaccurate output without checking it. For this reason, Ducar and Schocket (2018) recommend teaching students to use machine translation critically instead of completely banning it.

Previous studies show that guided machine translation can support language learning. Tsai (2019) found that Google Translate helped students prepare English drafts, while Chang et al. (2024) reported improvements in writing correction and revision. Kirchhoff (2024) also argues that students should compare AI translations, identify errors, and decide when human judgment is needed.

Overall, AI tools can support translation learning when they are used through structured activities and teacher guidance. However, more experimental studies comparing AI-assisted and traditional instruction are needed.

3. Methodology

3.1 Research Design

The study used a pre-test–post-test design with an experimental group and a control group. Both groups completed the same assessment before and after eight weeks of instruction.

The experimental group used AI-assisted translation tools, while the control group followed traditional translation methods. The numerical data in this paper are simulated and should be replaced with real research data.

3.2 Participants

The study included 60 second-year English-major students with intermediate or upper-intermediate English proficiency.

The students were divided into two groups:

Experimental group: 30 students

Control group: 30 students

Both groups studied similar texts and received the same amount of classroom instruction.

3.3 Research Instrument

A Digital Translation Competence Test was used to measure students' skills. The test was worth 100 points and assessed:

Assessment area	Maximum score
Translation accuracy	35
Digital tool use	20
Terminology searching	20
Evaluation and post-editing	25
Total	100

Students translated a short text, identified terminology problems, explained their resources, and corrected errors in an AI-generated translation. Two teachers assessed the work using the same criteria.

3.4 Experimental Procedure

The experiment lasted eight weeks, with two 90-minute lessons each week.

The experimental group learned how to use AI translation tools, compare different outputs, search for terminology, identify errors, and post-edit translations. Students first prepared their own translation, compared it with an AI-generated version, and then produced an improved final text.

The control group used traditional methods such as dictionaries, grammar references, teacher explanations, and independent translation exercises. They did not receive special training in AI-assisted translation.

3.5 Data Analysis

The average pre-test and post-test scores of both groups were compared. A statistical test was used to check whether the difference between the groups was significant.

4. Results

The results are presented below.

Group	Students	Pre-test average	Post-test average	Improvement
Experimental	30	58.0	72.7	14.7
Control	30	58.4	65.3	6.9

The groups had almost equal pre-test scores, which means that their starting levels were similar. Both groups improved after eight weeks, but the experimental group made much greater progress.

The experimental group improved by 14.7 points, while the control group improved by 6.9 points. Statistical analysis showed that this difference was

significant. Therefore, AI-assisted instruction was more effective than traditional instruction alone.

5. Discussion

The findings show that AI-assisted translation instruction had a positive effect on students' digital translation competence. The experimental group improved more because students could compare their own translations with AI-generated versions and notice differences in vocabulary, grammar, meaning, and style.

Post-editing was also important. Students did not simply copy AI output. They checked terminology, corrected mistakes, improved unnatural expressions, and explained their decisions. In this way, AI supported learning instead of replacing student thinking.

The control group also improved, showing that traditional methods such as dictionaries, teacher feedback, and grammar instruction remain useful. AI should therefore be combined with traditional teaching rather than used as a replacement for teachers.

The study has several limitations. The data are simulated, the sample is relatively small, and the experiment lasted only eight weeks. Future studies should use real data, larger groups, several institutions, and longer research periods.

6. Implications for English Language Teaching

The results suggest that AI literacy should be included in English language courses. Students need to understand that machine-generated translations may sound natural but still contain mistakes.

Teachers can ask students to translate a text independently and then compare their version with an AI translation. This can help students notice differences in grammar, vocabulary, meaning, and register.

Post-editing should also become a regular classroom activity. Students should check translation accuracy, terminology, grammar, style, missing information, and cultural appropriateness.

Assessment methods should also be updated. Teachers can use supervised translation, oral explanations, editing tasks, and process reports instead of assessing only the final translation.

Students must also learn responsible AI use. They should avoid uploading private information, acknowledge AI assistance when required, and remain responsible for their final work.

7. Conclusion

This study examined whether AI-assisted translation tools could develop students' digital translation competence. Both groups improved, but the experimental group achieved much better results.

The findings suggest that AI tools are most effective when students are taught to compare, evaluate, and correct machine-generated translations. AI should not replace

language knowledge, independent thinking, or teacher feedback. Instead, it should support the development of translation skills, digital literacy, and critical judgment.

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