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ARTIFICIAL INTELLIGENCE AND DIGITAL TRANSLATION TOOLS IN ENGLISH LANGUAGE EDUCATION: ENHANCING STUDENTS' TRANSLATION COMPETENCE

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Abstract

Artificial intelligence (AI) and digital language tools are changing how English language learners produce, revise and evaluate translations. This article examines the pedagogical contribution of ChatGPT, DeepL, Google Translate and Grammarly to the development of students' translation competence, with particular attention to digital literacy, post-editing, critical evaluation and learner autonomy. A structured narrative review was conducted using ten foundational and representative sources published between 2003 and 2024, including translation-competence frameworks, digital-literacy frameworks and empirical studies of machine translation, generative AI and automated writing feedback. The thematic synthesis indicates that these tools can strengthen bilingual and linguistic awareness, expand lexical and phraseological options, accelerate feedback, support contrastive analysis and create authentic opportunities for post-editing. However, learning gains depend on instructional design. Uncritical use may produce automation bias, weakened source-text analysis, loss of authorship, inaccurate terminology, culturally inappropriate choices and privacy or academic-integrity problems. The article therefore proposes a human–AI translation cycle in which students first analyse and draft independently, then compare outputs from multiple tools, verify evidence, post-edit, justify decisions and document tool use. It concludes that AI should be treated neither as a prohibited shortcut nor as an autonomous translator, but as a fallible cognitive and linguistic resource embedded in explicit competence-based pedagogy.

Keywords: *artificial intelligence; ChatGPT; DeepL; Google Translate; Grammarly; digital literacy; machine translation literacy; translation competence; English language education; post-editing*

1. Introduction

The rapid development of neural machine translation, automated writing evaluation and generative artificial intelligence has altered the ecology of English language education. Students can now obtain an instant translation from Google Translate or DeepL, request

alternative renderings and explanations from ChatGPT, and apply grammar, clarity and style suggestions through Grammarly. These tools reduce the time required to generate target-language text and make sophisticated language support available beyond the classroom. Their accessibility, however, creates a pedagogical paradox: the same technology that can scaffold learning can also replace the cognitive operations that translation tasks are intended to develop.

Translation in language education is not simply the substitution of words across languages. It requires comprehension of the source text, control of linguistic form, sensitivity to purpose and audience, cultural and pragmatic judgement, research ability, technological skill, revision and strategic problem solving. The PACTE model conceptualises translation competence as a system of interrelated subcompetences, while the European Master’s in Translation framework places translation competence at the centre of broader language and culture, technology, personal and interpersonal, and service-provision competences (PACTE Group, 2003; European Commission, 2022). These models are particularly relevant in an AI-rich environment because students must decide not only how to translate, but when and how to delegate parts of the process to digital systems.

The educational issue is therefore not whether students will use AI and translation tools, but whether they will use them in ways that make their reasoning more visible and more accurate. A competent learner should be able to select an appropriate tool, formulate an effective query or prompt, compare alternatives, identify errors, verify terminology, protect sensitive data, acknowledge assistance and retain responsibility for the final text. These abilities connect translation competence with digital literacy and machine translation literacy (Bowker & Buitrago Ciro, 2019; Vuorikari et al., 2022).

This article analyses how ChatGPT, DeepL, Google Translate and Grammarly can be integrated into English language education to enhance students’ translation competence. It addresses three questions: (1) What distinctive affordances do the four tools offer? (2) Which dimensions of translation competence can they support, and what risks do they create? (3) What instructional and assessment design can convert tool use into measurable learning? The article argues for a process-oriented, human-supervised model based on independent drafting, multi-tool comparison, post-editing, verification, reflection and transparent attribution.

2. Literature Review

2.1 Translation competence as a multidimensional construct

Translation competence has been described as expert knowledge that enables a person to produce an acceptable target text under specific communicative conditions. The PACTE model includes bilingual, extra linguistic, knowledge-about-translation, instrumental and strategic sub competences, together with psycho-physiological components. Its most

important pedagogical implication is that translation quality depends on coordinated decision making rather than linguistic knowledge alone. Strategic competence is central because it activates other resources, identifies problems and evaluates provisional solutions (PACTE Group, 2003).

The 2022 EMT framework reflects the contemporary language-services environment. It organises competence into five areas: language and culture; translation; technology; personal and interpersonal competence; and service provision. Technology is not separated from translation practice; students are expected to use search engines, corpora, terminology tools, translation environments and machine translation critically. The framework also stresses quality assurance, data literacy, ethical behaviour and the ability to explain professional decisions (European Commission, 2022). For English language education, these expectations can be adapted to learner level: even non-professional students can learn to analyse purpose, detect mismatches, verify claims and justify revisions.

AI changes the observable form of competence. When a machine can generate a fluent draft, surface accuracy alone becomes an unreliable indicator of student ability. Competence must increasingly be demonstrated through process evidence: source-text analysis, problem identification, comparison of alternatives, explanation of errors, terminology research, post-editing and reflection. The object of assessment shifts from “Can the student produce a polished sentence?” to “Can the student control and account for the decisions that produced the sentence?”

2.2 Digital literacy and machine translation literacy

Digital literacy is broader than operational skill. DigComp 2.2 frames digital competence through information and data literacy, communication and collaboration, digital content creation, safety and problem solving; it also provides examples related to AI, misinformation, privacy and responsible participation (Vuorikari et al., 2022). Applied to translation, digital literacy includes locating reliable bilingual evidence, evaluating source credibility, understanding the limits of automated output, managing files and versions, protecting personal or confidential text, and disclosing the use of tools.

Machine translation literacy is a more specialised form of digital literacy. Bowker and Buitrago Ciro (2019) describe it as the knowledge and judgement required to understand what machine translation can and cannot do, prepare input appropriately, evaluate output and use the technology ethically. This concept rejects both technological determinism and blanket prohibition. A machine translation system is neither neutral nor uniformly accurate: performance varies by language pair, genre, domain, sentence structure and available training data. Learners therefore need calibrated trust rather than trust or distrust in absolute terms.

Earlier research already showed that machine translation could function as a bad model, a good model, a vocational tool and a computer-assisted language-learning resource, depending on task design (Niño, 2009). More recent systems produce much more fluent output, which increases usefulness but also increases risk. Fluency can conceal semantic errors, omissions, unsupported additions, register mismatches and culturally inappropriate choices. Consequently, the ability to interrogate convincing output is now a core educational outcome.

2.3 Pedagogical affordances of the four tools

Google Translate and DeepL are primarily neural machine translation systems. They are useful for rapid whole-text translation, lexical exploration, back-translation, pronunciation support and contrastive analysis. Google Translate offers broad language coverage and high accessibility, making it a common entry point for learners. DeepL is often valued for natural phrasing and context-sensitive alternatives in supported language pairs. An empirical pilot study found that purposefully guided use of DeepL was perceived as useful for applied English learning and supported vocabulary and language awareness (Poláková & Klímová, 2023). Research on machine translation in EFL writing also indicates that comparison with MT output can reduce lexico-grammatical errors and support revision when students actively edit rather than copy (Lee, 2020).

ChatGPT differs from conventional machine translation because it supports dialogue. A learner can specify audience, genre, register and constraints; request several alternatives; ask for an explanation of a phrase; compare literal and communicative versions; or challenge the model to identify weaknesses in its own output. In language education, this interactivity supports personalised examples, simulated feedback and metalinguistic explanation (Kohnke et al., 2023). At the same time, ChatGPT may generate plausible but inaccurate explanations, alter meaning, invent context or produce inconsistent outputs. Educational reviews therefore emphasise verification, teacher guidance and explicit training in responsible use (Lo, 2023).

Grammarly operates mainly at the target-text revision stage. It detects or comments on grammar, punctuation, spelling, clarity, concision, tone and style. For translation learners, this can reduce the cognitive burden of surface editing and draw attention to recurring English-language problems. In a mixed-methods university study, students were generally more satisfied with Grammarly-supported feedback, but the authors concluded that it was not accurate enough for independent use and should be combined with human guidance (O’Neill & Russell, 2019). Grammarly therefore supports linguistic accuracy, but it cannot determine whether the English text faithfully represents the source or meets the translation brief.

The tools are most educationally powerful when used together but assigned different roles. Google Translate and DeepL can supply comparable machine-generated target texts; ChatGPT can generate contextual alternatives and explanations; Grammarly can support final

language editing. The student remains responsible for source-text interpretation, evidence checking, selection, post-editing and ethical disclosure.

Table 1. Comparative pedagogical profile of selected AI and digital translation tools

Tool	Primary function	Pedagogical contribution	Main risks	Competence emphasis
ChatGPT	Conversational generation, translation, explanation and revision	Prompted alternatives; genre/register adaptation; metalinguistic dialogue; simulated feedback	Hallucinated explanations; meaning drift; fabricated evidence; over-delegation of reasoning	Strategic, linguistic, pragmatic, research and AI literacy
DeepL	Neural machine translation and alternatives	Natural target-language options; phrase comparison; post-editing practice	Uneven language-pair/domain performance; fluent but subtle semantic error; automation bias	Bilingual, linguistic, technological and revision competence
Google Translate	Accessible multilingual neural machine translation	Rapid comprehension; broad language coverage; back-translation; contrastive analysis	Literal or context-insensitive choices; copying; weak genre control; privacy concerns	Bilingual mediation, vocabulary, technological and evaluation skills
Grammarly	Automated English writing feedback	Grammar, mechanics, clarity, tone and style feedback during revision	False positives; prescriptive standardisation; no source-text fidelity check; dependence	Target-language accuracy, editing and self-monitoring

3. Methodology

This study used a structured narrative review and thematic synthesis. The design was selected because the topic combines established competence frameworks with rapidly

developing educational technologies, while the user-specified reference limit required a focused rather than exhaustive review. Ten foundational and representative sources published between 2003 and 2024 were selected. The corpus included: two translation-competence frameworks; two digital or machine-translation literacy sources; four empirical studies concerning machine translation, DeepL, Google Translate or Grammarly; and two reviews or analyses of ChatGPT in language or general education.

Sources were included when they met at least one of the following criteria: (a) defined translation competence or digital competence; (b) examined machine translation or AI in foreign-language learning, translation or writing; (c) provided evidence directly relevant to ChatGPT, DeepL, Google Translate or Grammarly; or (d) addressed critical, ethical or pedagogical conditions of tool use. Commercial comparisons, promotional materials and studies with no clear educational relevance were excluded from the analytical core.

The analysis proceeded in three stages. First, each source was coded for the competence dimension addressed: linguistic/bilingual, extralinguistic and cultural, instrumental/technological, strategic, revision/quality assurance, and ethical/digital. Second, reported benefits and limitations were grouped by tool. Third, recurring pedagogical conditions were synthesised into a staged instructional model. Because this is a literature-based article, the “results” represent patterns in the selected evidence and a theoretically grounded pedagogical proposal; they are not original experimental effect estimates.

4. Results

4.1 Tool use can strengthen translation competence when it externalises comparison and revision

The synthesis identified the strongest learning potential in tasks that require students to compare their own draft with one or more machine-generated alternatives. This comparison makes linguistic and translational problems visible. Students can notice collocations, article use, tense, word order, cohesion and register, while also identifying cases in which the machine’s fluent wording distorts meaning. DeepL and Google Translate are especially useful for side-by-side post-editing; ChatGPT adds the possibility of requesting constrained alternatives or explanations; Grammarly supports a final target-language check.

The benefit is not the machine output itself but the diagnostic activity around it. Learners develop competence when they label errors, explain why an option is better, consult evidence and revise according to a translation brief. This aligns with findings that guided machine-translation use can support writing revision and language awareness (Lee, 2020; Poláková & Klímová, 2023). It also reflects the early observation that MT can serve productive roles in language learning when learners are taught to pre-edit, post-edit and evaluate output (Niño, 2009).

4.2 Different tools support different competence dimensions

Linguistic and bilingual competence receives the most direct support. All four tools expose learners to target-language vocabulary and structures. Google Translate and DeepL provide immediate cross-linguistic mappings; ChatGPT can explain semantic distinctions or generate examples; Grammarly highlights surface errors. Nevertheless, linguistic improvement is strongest when students retrieve and reuse corrected forms rather than accept them passively.

Strategic competence is developed through tool selection and problem solving. Students must decide whether a difficulty concerns terminology, syntax, cultural reference, genre, tone or source-text ambiguity, and then select a suitable resource. For example, a technical term may require a specialised corpus rather than ChatGPT; a register problem may benefit from several prompted reformulations; a grammar problem may be checked with Grammarly but confirmed in an authoritative source.

Instrumental and technological competence includes prompt design, use of settings, version control, comparison across systems and documentation of revisions. Digital and ethical competence includes checking the reliability of online evidence, avoiding the upload of confidential material, recognising bias, acknowledging AI assistance and preserving authorship. These dimensions correspond to the technology and professional responsibility emphasised in EMT and to the information, safety and problem-solving components of DigComp (European Commission, 2022; Vuorikari et al., 2022).

Cultural and pragmatic competence receives less reliable automated support. AI systems may produce conventional-sounding target text without understanding local institutions, humour, implicature, identity, power relations or the communicative consequences of a translation. ChatGPT can generate cultural explanations, but those explanations require independent verification. Human discussion, authentic parallel texts and teacher feedback therefore remain essential.

4.3 The principal risks are automation bias, cognitive offloading and invisible authorship

Automation bias occurs when students accept a machine suggestion because it is fluent, confident or technologically produced. The risk is especially high for intermediate learners who can recognise grammaticality but cannot reliably evaluate nuance or factual accuracy. A second risk is cognitive offloading: if students translate the entire source through a tool before analysing it, the machine’s first proposal can anchor subsequent decisions and reduce independent problem representation.

A third risk concerns authorship and assessment validity. A polished target text may reflect the tool’s competence rather than the student’s. ChatGPT can also generate explanations that

appear to demonstrate understanding even when the student has not performed the analysis. Process documentation, oral defence, tracked revisions and in-class baseline tasks are therefore required to distinguish assistance from substitution.

Other risks include inaccurate terminology, register flattening, loss of stylistic individuality, privacy violations, biased output and unequal access to premium features. Grammarly may encourage standardised concision even when a genre requires rhetorical complexity; machine translation systems may perform unevenly across languages and domains; and generative AI may invent reasons for a translation choice. These limitations confirm that automated feedback should supplement rather than replace informed human judgement (Kohnke et al., 2023; O’Neill & Russell, 2019).

4.4 A six-stage human–AI translation learning cycle

The thematic synthesis produced a six-stage cycle designed to preserve independent reasoning while exploiting digital support. The sequence is shown in Figure 1. The order matters: students encounter AI only after analysing the source and producing at least a partial independent draft. This reduces anchoring and creates a basis for meaningful comparison.

Figure 1. Human–AI translation competence cycle

Stage 1 requires analysis of the source, audience, purpose, genre and potential translation problems. Stage 2 requires an independent draft or decision log. In Stage 3, students generate alternatives with one or more tools and record the prompt, settings and output used. Stage 4 requires comparison and verification through dictionaries, corpora, parallel texts or authoritative sources. Stage 5 consists of post-editing and written justification of major changes. Stage 6 requires reflection on what the tool did well, what it did poorly and what knowledge the student can transfer to a new task.

The cycle transforms AI output into data for learning. It also allows teachers to assess both product and process. A student who rejects a fluent AI translation for a well-supported reason demonstrates more competence than a student who submits a polished but unexplained output.

Table 2. Suggested classroom sequence and evidence of competence

Phase	Student task	Permitted tools	Required evidence	Primary assessment focus
1. Baseline	Analyse brief and translate a short section independently	Dictionary/corpus as specified	Annotated source; initial draft; problem list	Comprehension, bilingual control, problem identification

2. Comparison	Generate outputs from two systems and identify divergences	Google Translate, DeepL, ChatGPT	Saved outputs; comparison matrix; error labels	Critical evaluation and MT literacy
3. Post-editing	Revise for meaning, terminology, cohesion, register and accuracy	All approved tools; Grammarly for target-text editing	Tracked changes; consulted sources; rationale	Strategic competence and quality assurance
4. Reflection	Explain accepted and rejected suggestions	No new generation during reflection	Brief reflective commentary; disclosure statement	Metacognition, ethics and autonomy
5. Transfer	Complete a new but related translation with reduced support	Limited or staged access	Final text plus oral or written defence	Retention and independent transfer

5. Discussion

5.1 From product accuracy to process accountability

The findings suggest that AI integration should change the unit of instruction and assessment. Traditional translation assignments often evaluate only the final target text. In an AI-rich environment, the final text is insufficient evidence because multiple tools can generate acceptable prose in seconds. A competence-based approach must include the trace of decision making: what the student noticed, which resources were selected, what was accepted or rejected, and how uncertainty was resolved.

This does not mean every task requires exhaustive documentation. Documentation can be scaled to level and purpose. Beginners may highlight five machine errors and explain two revisions; advanced students may produce a terminology log, quality-assurance report and client-oriented rationale. The common principle is accountability. Tool use becomes educational when it is visible, bounded and linked to criteria.

5.2 The teacher’s role: designer, calibrator and expert interlocutor

AI does not eliminate the teacher’s role; it changes it. Teachers must design tasks in which automated output creates a problem to solve rather than an answer to submit. They also calibrate trust by demonstrating both strong and weak outputs, selecting texts that reveal typical system limitations, and modelling verification with dictionaries, corpora, parallel texts and domain sources.

Teacher feedback should prioritise higher-order dimensions that tools handle inconsistently: fidelity, communicative purpose, cultural implication, terminology, genre, rhetorical effect and ethical judgement. Grammarly can identify a possible article error, but the teacher helps the learner understand why the error recurs. ChatGPT can propose three translations, but classroom discussion determines which one serves the brief and what assumptions each option carries. Human interaction remains the main site for negotiating meaning and disciplinary standards.

5.3 Assessment design and academic integrity

A practical assessment system can combine controlled and open-tool components. Controlled tasks establish what students can do independently. Open-tool tasks assess professional-like competence in resource use, post-editing and quality assurance. Oral defence, short viva questions, revision histories and annotated screenshots can validate authorship more effectively than unreliable AI-detection scores.

Rubrics should separate at least five dimensions: (1) source-text comprehension and fidelity; (2) target-language quality; (3) terminology and research; (4) strategic use and evaluation of tools; and (5) ethics, transparency and reflection. A student should not receive full credit for a flawless target text if the process shows uncritical copying, just as a student should not be penalised merely for using an approved tool responsibly. Policies must specify permitted functions, required disclosure and consequences for undeclared substitution.

5.4 Digital inclusion, privacy and linguistic diversity

Responsible integration also requires attention to access. Premium versions may provide better context windows, document handling, terminology controls or style feedback. Courses should not make achievement depend on paid features that some students cannot access. Institutions can provide licensed tools, design tasks around free functions or evaluate the reasoning process rather than platform-specific capabilities.

Privacy must be taught as part of translation competence. Students should not upload personal records, unpublished research, examination material, client documents or other confidential content to public systems without authorisation. Texts can be anonymised or replaced with pedagogical samples. Finally, teachers should discuss linguistic diversity: automated systems may privilege dominant varieties and standardised styles. Students need permission and analytical vocabulary to preserve legitimate regional, disciplinary or authorial variation rather than automatically accepting every “improvement.”

5.5 Implications for English language curricula

Translation activities can be integrated into English courses even when professional translator training is not the goal. At lower levels, students can compare short sentences, identify obvious mismatches and build vocabulary notebooks from verified examples. At

intermediate levels, they can post-edit paragraphs, compare register and explain grammar corrections. At advanced levels, they can manage genre-specific projects, create terminology resources, evaluate multiple AI systems and defend decisions according to a translation brief.

Curricula should therefore include explicit learning outcomes for AI and MT literacy: students can describe tool limitations; choose an appropriate resource; construct a constrained prompt; compare outputs; verify terminology; edit for fidelity and style; disclose assistance; and reflect on transfer. These outcomes connect language learning with employability and responsible digital participation without reducing translation to software operation.

6. Conclusion

ChatGPT, DeepL, Google Translate and Grammarly can enhance students' translation competence, but their value is conditional. They offer rapid access to alternatives, feedback and linguistic input; they can make contrastive analysis, post-editing and revision more frequent; and they can support learner autonomy outside scheduled class time. Yet fluent output can obscure error, weaken independent analysis and compromise authorship when tools are used as substitutes for thinking.

The central pedagogical principle is guided human–AI collaboration. Students should analyse and draft before consulting AI, compare more than one output, verify claims and terminology, post-edit according to a translation brief, justify important choices and document assistance. Assessment should reward evidence-based decision making and ethical transparency, not merely surface polish.

Translation competence in the digital age is therefore hybrid: it combines language and cultural knowledge with strategic judgement, technological control, quality assurance and digital responsibility. English language education should neither ban these tools categorically nor adopt them uncritically. It should teach students to use them as fallible resources under human control. When the learner remains the accountable decision maker, AI can expand practice and feedback while preserving the cognitive work through which genuine translation competence develops.

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