

Enhancing Professional Language Competence Through AI Translation in LSP Courses

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Abstract:

This paper explores the role of artificial intelligence (AI) translation tools in Language for Specific Purposes (LSP) education. It examines the pedagogical affordances, such as terminology acquisition, comprehension support, learner autonomy, and professional readiness, as well as the challenges, including accuracy issues, and potential over-reliance. Drawing on recent scholarship, the study highlights strategies for integrating AI translation effectively in LSP courses, such as fostering machine translation literacy, and designing reflective tasks. The findings suggest that AI translation, when critically and responsibly incorporated, can enrich professional language competence and better prepare learners for multilingual professional environments.

Keywords:

LSP education, AI translation , professional competence, affordances ,limitations .

1.Introduction:

In recent years, the integration of Artificial Intelligence (AI) into education has reshaped the way languages are taught and learned. Among the most widely used tools are AI-driven translation systems, such as Google Translate, DeepL, and AI-powered large language models, which provide instant access to multilingual resources. While initially designed for general communication, these technologies are increasingly

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finding their way into Language for Specific Purposes (LSP) courses, where learners must acquire professional linguistic competence tailored to specialized fields such as business, law, medicine, or diplomacy.

LSP learning differs from general language acquisition in that it prioritizes accuracy, specialized terminology, and the ability to communicate effectively in professional and intercultural contexts. This raises important questions about how AI translation can be harnessed in ways that support, rather than hinder, the development of professional competence. On one hand, AI translation offers learners immediate exposure to domain-specific vocabulary, models of professional discourse, and opportunities for autonomous exploration of authentic materials. On the other hand, concerns arise regarding overreliance on machine output, the potential fossilization of errors, the limited pragmatic and cultural sensitivity of AI systems, and lack of critical engagement with texts.

This paper addresses these issues by examining how AI translation can enhance professional language competence in LSP courses when used as a pedagogical resource. It draws on existing research and pedagogical practices to identify the main benefits and limitations of AI translation in professional learning contexts. More specifically, the study seeks to:

1. Clarify the theoretical and pedagogical foundations for integrating AI translation into LSP learning.
2. Review the current state of research on AI translation in language education, with emphasis on professional domains.
3. Explore the affordances and challenges of AI translation for LSP learners in acquiring specialized vocabulary and communicative competence.
4. Propose strategies for effective use of AI translation in LSP classrooms.

2. Theoretical Framework

The exploration of AI translation in Language for Specific Purposes (LSP) learning requires a grounding in three main areas: The nature of LSP education, the concept of professional language competence, and the role of AI translation technologies within pedagogical frameworks.

2.1 Language for Specific Purposes (LSP)

Language for Specific Purposes (LSP) refers to language teaching and learning that is directly oriented toward the communicative needs of learners within professional, academic, or vocational contexts. Unlike general language instruction, which prioritizes broad communicative competence, LSP emphasizes functional competence within specialized domains such as medicine, law, business, engineering, or diplomacy. The central objective is to enable learners not only to understand and produce texts in the target language but also to engage effectively with the discourse

conventions, genres, and terminologies that structure communication in their chosen field (Cabr , 1999; Gunnarsson, 2009).

The LSP approach is grounded in the notion of situated learning , whereby language acquisition is linked to authentic tasks and professional practices. This orientation reflects a constructivist pedagogy, in which learners construct meaning through interaction with real-world materials rather than decontextualized linguistic drills (Hutchinson & Waters, 1987). As Hyland (2006) emphasizes, the discourse of specialized domains cannot be reduced to vocabulary lists alone; it requires mastery of pragmatic norms, textual genres, and the socio-professional context in which communication takes place.

In practice, LSP courses often balance linguistic accuracy, terminology acquisition, and genre awareness. For instance, legal English classes may focus on contractual clauses, while medical English courses emphasize patient charts, case reports, and clinical protocols. The diversity of fields underscores the adaptability of the LSP framework, which can be tailored to meet the evolving demands of globalized professional communication.

In recent years, the rise of digital technologies and AI-based tools has significantly reshaped LSP pedagogy. Learners now have unprecedented access to authentic professional texts and corpora, while instructors can incorporate machine translation (MT), terminology management systems, and corpus-based analysis into teaching. This shift challenges traditional boundaries between language instruction and professional practice, as students are increasingly required to develop not only linguistic proficiency but also digital and technological literacies (Bowker, 2020; Kenny & Doherty, 2022).

In sum, LSP represents a dynamic field at the intersection of language, professional discourse, and applied linguistics. Its integration with AI translation technologies, as explored in this paper, highlights both the opportunities for enhancing learner access to specialized knowledge and the pedagogical challenges of ensuring accuracy, appropriateness, and critical use.

2.2 Professional Language Competence

One of the central objectives of LSP education is to develop learners' professional language competence, which encompasses not only linguistic accuracy but also pragmatic, stylistic, and domain-specific appropriateness. AI translation tools can contribute to this goal by exposing learners to professional discourse in authentic communicative situations, thus facilitating awareness of register, tone, and genre conventions. For example, business students may use AI translation to draft professional correspondence, while medical students can analyse AI-generated translations of clinical protocols.

Research indicates that professional competence in specialized contexts requires more than lexical equivalence; it involves an understanding of communicative norms,

institutional practices, and intercultural expectations (Cabr , 1999; Gunnarsson, 2009). AI systems, by providing initial translations, can scaffold learners' production of texts in professional registers, but their limitations-such as overly literal renderings or culturally inappropriate choices- necessitate guided pedagogical intervention. As Pym (2013) argues, competence development in a translation-rich environment must include evaluative and adaptive skills, enabling learners to critically assess and refine AI outputs.

Furthermore, Bowker (2020) stresses that machine translation literacy plays a crucial role in helping learners distinguish between suitable and unsuitable outputs in professional settings. This aligns with Kenny and Doherty's (2022) view that translation technologies, when critically embedded in pedagogy, can narrow the gap between classroom practices and workplace communication. Thus, AI translation can serve as both a linguistic resource and a pedagogical tool for enhancing professional language competence, provided that learners are trained to engage critically and reflectively with the technology.

2.3 AI Translation Technologies

AI translation has evolved rapidly over the past two decades. Early machine translation systems relied on rule-based approaches, later replaced by statistical models, and more recently by neural machine translation (NMT) and large language models (LLMs). Modern AI translation systems (e.g., DeepL, Google Translate, ChatGPT-based tools) produce increasingly fluent output, often capable of capturing nuances of professional discourse. However, limitations remain, particularly in handling specialized terminology, idiomatic expressions, and culturally embedded meanings.

From a pedagogical standpoint, AI translation can serve as:

- A resource for accessing and comparing authentic professional texts.
- A foundation that supports learners in decoding complex input and producing target-language output.
- A motivator for critical thinking when students are encouraged to analyse, post-edit, and reflect on AI-generated translations.

2.4 Pedagogical Perspectives on Technology Integration

Several educational frameworks help situate AI translation within LSP pedagogy. The Technological Pedagogical Content Knowledge (TPACK) model emphasizes the need to balance technological tools, subject-matter expertise, and pedagogy (Mishra & Koehler, 2006). Similarly, constructivist learning theories highlight the value of learner autonomy, collaboration, and critical reflection when engaging with technology. Within this perspective, AI translation should not replace human learning processes but rather support them through guided, reflective use.

3. AI Translation in Language Learning: A Literature Review

The increasing sophistication of AI translation tools has attracted considerable attention in applied linguistics and language education research. While early debates were dominated by concerns about accuracy and academic integrity, more recent studies have shifted toward examining how such tools can be integrated into teaching practices, particularly within specialized domains. This section reviews existing research on AI translation in language learning, focusing on its role in general language education, its relevance to LSP pedagogy, its benefits, and its challenges.

3.1 AI Translation in General Language Learning

Machine translation (MT) tools have long been regarded with scepticism in language teaching, often perceived as shortcuts that undermine authentic learning. However, studies such as Clifford et al. (2013) and Niño (2020) suggest that when used critically, MT can promote vocabulary acquisition, raise language awareness, and foster metalinguistic reflection. Neural machine translation (NMT), introduced around 2016, marked a turning point by producing more fluent and contextually accurate output compared to earlier statistical systems (Bahdanau et al., 2015). More recent research explores how learners engage in post-editing tasks, where students critically analyse MT output, correcting errors and reflecting on translation quality (Bowker, 2020). This practice aligns with constructivist approaches, transforming MT from a passive aid into an active learning resource.

3.2 AI Translation in LSP Contexts

While fewer studies focus specifically on LSP, emerging research demonstrates its growing importance. LSP learners often deal with specialized terminology and professional genres that are not always accurately rendered by MT systems (Gaspari & Hutchins, 2021). Yet, AI tools provide valuable exposure to authentic professional registers. For instance, in legal LSP courses, students can use MT to analyse contracts, while in medical contexts, AI tools can help learners understand multilingual patient information leaflets (Corpas Pastor, 2019). These applications suggest that AI translation can function as a bridge between classroom learning and professional realities, provided that learners develop critical skills to evaluate output reliability.

3.3 Benefits of AI Translation for LSP Learning

Research highlights several pedagogical affordances of AI translation in professional learning environments:

Vocabulary acquisition and terminology management: Learners gain rapid access to domain-specific terms, which can be compared across languages (Niño, 2020).

Scaffolding comprehension: Complex professional texts become more accessible, allowing learners to focus on discourse conventions and content rather than decoding difficulties (Bowker & Buitrago Ciro, 2019).

Learner autonomy and motivation: AI tools empower learners to work independently, encouraging exploration of authentic materials relevant to their professional interests (Corpas Pastor, 2019).

Exposure to professional discourse: MT provides opportunities to engage with authentic documents and registers, aligning language learning with real-world practices.

3.4 Challenges and Limitations

Despite these advantages, the literature also identifies critical limitations that must be addressed in pedagogical contexts:

Accuracy issues: AI translation often struggles with technical jargon, ambiguous phrasing, and low-resource languages, leading to potential miscommunication in professional settings (Gaspari & Hutchins, 2021). Pragmatic and intercultural

limitations: Tools may produce grammatically correct but pragmatically inappropriate output, ignoring register, politeness, or cultural nuances (Kenny & Doherty, 2022).

Overreliance and passivity: Students risk bypassing active learning if they rely on MT as a substitute rather than a support, reducing opportunities for critical reflection (Niño, 2020).

3.5 Emerging Pedagogical Perspectives

Recent scholarship advocates for critical integration of AI translation in curricula. Rather than banning such tools, educators are encouraged to design activities that involve evaluating, post-editing, and reflecting on MT outputs (Bowker, 2020; Kenny & Doherty, 2022). This shift reflects a broader movement in language pedagogy from prohibition to critical engagement, where AI translation is treated as both a linguistic resource and a learning object. In LSP contexts, this approach is especially relevant since learners must develop the skills to assess translation quality in professional environments where AI systems are increasingly prevalent.

4. Pedagogical Affordances of AI Translation in LSP Courses

AI translation tools offer several pedagogical affordances when thoughtfully integrated into Language for Specific Purposes (LSP) courses. The following sub-sections summarize the principal opportunities identified in the literature and give practical rationale for each affordance.

4.1 Vocabulary acquisition and terminology management

AI translation facilitates rapid access to domain-specific lexical items and supports the creation and comparison of term candidates across languages, which is particularly valuable in LSP contexts where specialized vocabularies matter (Bowker, 2002; Niño, 2020). Learners can use AI output as a starting point to compile term lists, verify collocations, develop professional terminology management and promote transfer to workplace tasks (Bowker, 2002; McAllister, Lavissière, & Cartron, 2023).

4.2 Scaffolding comprehension of professional texts

Machine translation lowers initial comprehension barriers to dense professional texts (e.g., technical manuals, contracts, clinical reports), allowing learners to focus

sooner on discourse features, genre conventions, and pragmatic choices rather than only on lexical decoding (Niño, 2020; Kim & Oh, 2023). In CLIL/translanguaging designs, MT can act as an instructional scaffold that bridges content and language, provided that teachers design follow-up activities that deepen linguistic and pragmatic analysis (Kim & Oh, 2023; McAllister et al., 2023).

4.3 Enhancing learner autonomy

AI translation tools enable learners to explore authentic materials independently and iteratively, which supports self-directed vocabulary study, drafting, and revision activities familiar to professional contexts (Niño, 2020). When combined with well-designed tasks and teacher feedback, these tools can foster learner agency and lifelong learning habits important for professional competence (Kim & Oh, 2023).

4.4 Exposure to professional discourse

By granting access to multilingual professional documents (reports, contracts, patient leaflets, corporate communications), AI translation helps learners encounter authentic registers and genre structures otherwise hard to obtain in the classroom (McAllister et al., 2023). This exposure supports genre awareness and helps learners map linguistic features onto real-world communicative purposes in their field.

4.5 Developing critical language awareness (post-editing and evaluation)

Using AI translation as an object of critique-through post-editing, error analysis, and comparison tasks-promotes metalinguistic reflection and critical evaluation skills. Research on MT post-editing shows that post-editing tasks can improve learners' analytical skills and align classroom practice with professional translation/post-editing workflows, while also revealing limits of automated output (Plitt & Masselot, 2010; Guerberof-Arenas, 2021; Ginovart Cid, 2020). Such activities encourage students to treat AI output critically rather than accept it uncritically.

4.6 Supporting multilingual and intercultural competence

AI translation can be used within translanguaging or CLIL frameworks to leverage learners' L1 and target-language repertoires simultaneously, thereby supporting meaning-making across linguistic resources (Kim & Oh, 2023). Exposure to parallel renditions and cross-linguistic differences also helps develop sensitivity to intercultural pragmatic norms that are essential in professional interactions (Kim & Oh, 2023; McAllister et al., 2023).

5. Challenges and limitations

While AI translation tools present significant opportunities for enhancing LSP learning, their integration also raises pedagogical, linguistic, and ethical concerns. If not used critically, these challenges can undermine the development of professional language competence.

5.1 Accuracy and reliability of output

Although neural machine translation (NMT) systems such as DeepL and Google Translate have achieved remarkable fluency, they are not immune to errors, particularly when dealing with specialized terminology and low-resource languages. Misinterpretations of legal clauses, medical terminology, or technical jargon may not only distort meaning but also carry serious professional risks (Gaspari & Hutchins, 2021; Kenny & Doherty, 2022). Inaccuracies may lead learners to internalize incorrect forms or inappropriate usage, highlighting the need for careful post-editing and teacher mediation.

5.2 Pragmatic and Intercultural Inadequacies

AI translation tends to prioritize grammatical and semantic accuracy but often overlooks pragmatic subtleties such as register, politeness, tone, and cultural conventions. For example, a business negotiation email may be translated literally without capturing the appropriate level of formality or indirectness required in intercultural contexts (Corpas Pastor, 2019). This limitation can result in miscommunication, especially in high-stakes professional interactions, unless learners are trained to critically evaluate and adjust AI-generated output.

5.3 Overreliance and superficial learning

One of the main pedagogical risks is student overreliance on AI translation as a substitute for active learning. Research has shown that uncritical use of MT can discourage independent problem-solving and reduce opportunities for productive language practice (Niño, 2020; O'Neill, 2019). Learners may bypass the cognitive processes involved in drafting, revising, and reflecting on language, leading to superficial competence that does not transfer to authentic professional tasks.

5.4 Pedagogical and institutional barriers

Finally, effective integration of AI translation requires teacher training, institutional support, and curricular adaptation. Many educators lack familiarity with AI translation systems or fear that such tools will undermine traditional teaching practices (Bowker, 2020). Without appropriate frameworks, there is a risk that AI translation will be either banned outright (thus missing its pedagogical potential) or adopted uncritically (leading to overdependence). Striking a balance between these extremes requires professional development and institutional policies that promote critical, reflective use.

6. Strategies for effective integration

For AI translation to function as a meaningful resource in LSP education, its use must be guided by pedagogical strategies that encourage critical engagement, reflective practice, and professional skill development. Instead of banning such tools or adopting them uncritically, educators can design activities and curricula that harness their potential while mitigating their limitations.

6.1 Embedding AI translation in classroom activities

Teachers can integrate AI translation into classroom practice by creating tasks that foreground critical evaluation and reflection. Activities such as translation comparison (human vs. AI), collaborative post-editing, and error analysis encourage learners to identify inaccuracies and consider pragmatic nuances (Bowker, 2020; Ginovart Cid, 2020). Such activities help students move beyond passive consumption toward active learning, transforming AI translation into a catalyst for professional competence.

6.2 Developing post-editing and revision skills

Since post-editing is increasingly part of professional translation workflows, incorporating post-editing exercises in LSP courses can prepare learners for real-world demands. Students can be asked to revise AI-generated texts, focusing on terminology consistency, register, and intercultural appropriateness (Plitt & Masselot, 2010; Guerberof-Arenas, 2021). This not only develops technical accuracy but also strengthens metalinguistic awareness and attention to detail, transferable to professional communication tasks.

6.3 Balancing technology with human-centred learning.

AI translation should complement, not replace, traditional language learning. Teachers can design tasks that require learners to draft texts independently before consulting AI tools, ensuring that creative and cognitive processes remain central to the learning experience (Niño, 2020). This sequencing fosters deeper engagement with professional genres while preventing overreliance on automated systems.

6.4 Training teachers and updating Curricula

Successful integration of AI translation requires teacher training and institutional support. Many instructors need guidance in designing AI-supported tasks and in shifting from a prohibition model to a critical-use model (Bowker, 2020). Workshops, curricular updates, and professional development initiatives can ensure that both educators and learners maximize the pedagogical potential of AI translation.

6.5 Promoting interdisciplinary collaboration

Finally, integrating AI translation in LSP contexts can benefit from collaboration across disciplines. For example, business communication courses can coordinate with translation studies, or medical LSP modules can work with informatics experts to develop domain-specific exercises. Such interdisciplinary approaches enrich the learning process and situate AI translation within authentic professional practices (McAllister et al., 2023).

7. Discussion

The integration of AI translation into Language for Specific Purposes (LSP) education reveals a complex pedagogical landscape where opportunities and risks coexist. The preceding sections demonstrated that, when strategically implemented, AI

translation can enhance learners' exposure to authentic professional discourse, facilitate vocabulary acquisition, and promote autonomy and reflective learning (Bowker, 2020; Niño, 2020). However, the challenges identified such as inaccuracies, pragmatic limitations, and uncritical reflection - highlight the necessity of critical engagement and guided instruction (O'Neill, 2019; Kenny & Doherty, 2022).

From a pedagogical perspective, the discussion underscores that AI translation should be approached not as a replacement for traditional methods, but as a complementary resource. Learners benefit most when AI tools are integrated into tasks that encourage critical comparison, post-editing, and reflection. Such approaches align with constructivist learning theories, where knowledge is built through active engagement with linguistic material rather than passive consumption. This also suggests that the role of the teacher is shifting: educators act less as transmitters of information and more as facilitators of AI literacy and critical evaluation skills (Ginovart Cid, 2020).

Institutionally, the adoption of AI translation in LSP courses reflects broader trends in the digital transformation of higher education. Universities and professional training programmes increasingly recognize the need to equip students with technological competence alongside linguistic competence (McAllister et al., 2023). Yet, institutional readiness remains uneven. This tension suggests that the future of AI in LSP education depends not only on pedagogical creativity but also on policy-making and professional development at institutional levels.

Another key implication concerns professional identity and employability. As industries increasingly adopt machine translation and post-editing in professional workflows (Plitt & Masselot, 2010; Guerberof-Arenas, 2021), students who are trained to use AI translation critically gain a competitive advantage. They not only acquire domain-specific language but also develop transferable skills in evaluating translation quality, managing terminology, and navigating intercultural communication. This sets AI translation literacy as a vital component of professional preparation.

Finally, the discussion points to areas for future research. While studies have begun to explore AI translation in higher education, more empirical evidence is needed to evaluate its long-term impact on learner competence, motivation, and intercultural awareness. In particular, comparative studies across professional domains (e.g., law, medicine, business) would deepen our understanding of how domain-specific requirements shape AI translation use.

Overall, the discussion highlights that the integration of AI translation into LSP learning is not a question of whether to use such tools, but of how to use them effectively. The affordances and challenges presented suggest that the success of this integration will depend on adopting pedagogical strategies that balance technological innovation with critical human-centered learning.

8 .Conclusion:

The exploration of AI translation in Language for Specific Purposes (LSP) education reveals a rapidly evolving landscape where technology, pedagogy, and professional training intersect. The analysis across this paper demonstrates that AI translation tools, when thoughtfully integrated, can serve as powerful resources for enhancing professional language competence. They provide learners with access to authentic professional discourse, support terminology acquisition, facilitate comprehension, and promote autonomy and critical reflection.

At the same time, the discussion of challenges makes clear that AI translation is not a panacea. Issues of accuracy, pragmatic inadequacy, overreliance, and uncritical reflection must be carefully managed to avoid undermining the very competences that LSP courses aim to develop. These limitations underscore the importance of critical engagement, where learners and teachers use AI tools not as shortcuts but as opportunities for deeper learning and professional skill-building.

The pedagogical strategies outlined suggest a path forward: integrating AI translation in classroom activities, incorporating post-editing tasks, balancing technology with human-centred learning, and providing explicit training in AI literacy and ethics. Such approaches not only maximize the pedagogical affordances of AI translation but also align with broader professional practices, ensuring that students are equipped with skills relevant to contemporary workplaces.

In conclusion, the debate over whether to allow AI translation in education is giving way to a more nuanced conversation about how to integrate it effectively. For LSP teaching and learning, this means recognizing AI translation as both a challenge and an opportunity: a challenge because it disrupts traditional pedagogies concerns, and an opportunity because it opens new avenues for authentic engagement with language and professional discourse. Moving forward, further empirical research is needed to evaluate the long-term effects of AI translation on learner competence, intercultural awareness, and employability across different professional domains.

Ultimately, the effective integration of AI translation into LSP education requires a balanced, critical, and future-oriented approach. By doing so, educators can harness the potential of AI translation not simply as a technological aid, but as a motivator for developing the professional linguistic, intercultural, and technological competences that define success in a globalized world.

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