

## EXPLORING LINGUISTIC COMPETENCE IN ACADEMIC TEXT TRANSLATION BY PROFESSIONALS

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### Abstract

This study aimed to explore linguistic competence in academic text translation by professionals, focusing on their awareness, dominant linguistic competence and strategies, and the impact of Machine Translation (MT) and AI-driven software on their workflow. The research utilized the PACTE TC's model (2003), which includes pragmatic, sociolinguistic, textual, grammatical, and lexical sub-competences. A qualitative research design by Creswell & Creswell (2018) with a descriptive method was employed to delve deeply into the subjective experiences of professional translators. The surveys were conducted via Google Form from March to April 2024. The results indicate that the respondents demonstrated high awareness of linguistic competence, particularly in pragmatic, sociolinguistic, textual, grammatical, and lexical aspects. Respondents identified linguistic challenges such as lexical, textual, and sociolinguistic issues. Strategies to overcome these challenges included using online resources, human checks, and continuous learning. The results also show varied attitudes towards MT and AI, with some translators embracing these tools for efficiency and others preferred manual methods. MT and AI were perceived to enhance translation quality, especially in grammar accuracy and efficiency. However, the study's limitations highlight the need for future research on the effectiveness of different MT and AI tools, balancing technological assistance with human expertise, and the impact of training programs.

**Keywords:** *academic translation; AI-driven software; linguistic competence; machine, translation; professional translator.*

### 1. Introduction

The translation of academic texts is increasingly critical in our globalized world, where the rapid exchange of knowledge is often hindered by language barriers. Saroukhil et al. (2018) emphasize that translation is essential in our modern era, particularly as globalization diminishes cultural boundaries and fosters a greater demand for mutual understanding. This is particularly true for academic texts, which require precise translation of scientific terms and scholarly context to ensure that research and knowledge are accessible globally (House, 2015). Professional translators play a vital role in bridging linguistic gaps enabling dissemination of academic knowledge across languages and cultures (Siregar et al., 2022).

The landscape of translation is evolving with the advent of machine-based translation tools and artificial intelligence (AI), which have significantly accelerated translation processes (Wang, 2023). However, these advancements also pose challenges in maintaining accuracy and meaning (Kovacs, 2019). There is ongoing debate about the potential of AI to replace human translators, given claims of AI's proficiency in translation (Das, 2019). Nonetheless, AI is generally seen as a tool to enhance human translation, not replace it (Kishore & Reddy, 2022). The rising demand for academic translations is driven by scholar's aspirations to reach international audiences, requiring precise and culturally sensitive translations of academic texts (Kamalia et al., 2023).

Translating academic texts is inherently complex, involving not just linguistic conversion but also a deep understanding of specialized terminology and scholarly conventions (Kovacs, 2019). This requires high linguistic competence, which includes a comprehensive understanding of both the source and target languages' nuances (Hatim & Munday, 2004). Several models, such as the PACTE Translation Competence Model, highlight the multifaceted nature of translation competence, emphasizing linguistic proficiency as a core component (PACTE, 2003).

Linguistic competence, as defined by Chomsky (1969), involves a deep knowledge of language structure and usage, which is crucial for accurate translation of academic texts (Hatim & Munday, 2004). Despite the significance of linguistic competence in translation, there is a lack of exclusive research focusing on this aspect within the context of academic texts. This study aims to fill this gap by exploring the evolving linguistic competence required by professional translators, the challenges they face, and the impact of technological advancements on their work. The findings will have implications for training and preparation of translators, the quality of academic translators, and the overall understanding of linguistic competence in the field of translation studies.

## 2. Literature Review

Translation is a multifaceted process involving the transfer of meaning across languages, demanding considerations of linguistic, semantic, and pragmatic aspects to accurately convey messages. Nida & Taber (2003) emphasize that effective translation requires selecting appropriate words, sentence structures, and understanding the cultural context. Catford (1965) further elaborates that translation involves adapting and replacing language elements unique to the original text with suitable equivalents in the target language. Newmark (1988) describes translation as a craft, highlighting that it is an art from requiring skill and practice, not merely a mechanical task. Bell (1991) underscores the importance of preserving semantic and stylistic equivalences, ensuring that the translated text maintains the ideas, style, and tone of the original. Baker (1992) focuses on maintaining the underlying messages and communicative functions of the original text, while Venuti (1995) views translation as a cultural practice that necessitates a deep understanding of cultural nuances.

Translation studies, an interdisciplinary field, examines the theory, practice, and implications of translation, interpretation, and localization, drawing from comparative literature, computer science, history, linguistics, philosophy, semiotics, and terminology (Exeter, 2018; Wikipedia, 2023). Munday (2001) notes its multilingual and interdisciplinary nature, encompassing various languages, linguistics, communication studies, and cultural studies. Holmes (2004) categorizes translation studies into pure and applied branches, with pure translation studies focusing on describing and theorizing translation phenomena and

applied studies emphasizing practical applications such as translation training, translation aids, and translation criticism.

Translation competence is crucial for professional translators, encompassing a range of technological, cultural, and linguistic skills (Esfandiari et al., 2015). Beeby et al., (2009) defines it as a fundamental knowledge system essential for translation, characterized by expert knowledge, procedural nature, interconnected sub-competences, and a significant strategic component. Bell (1991) and Kelly (2005) describe it as a comprehensive set of skills, knowledge, and attitudes vital for proficient translation. Wilss (1982, 1996) introduces the concept of “interlingual supercompetence,” combining linguistic, cultural, and situational knowledge, while Campbell (1998) proposes a three-layered model of textual competence, disposition, and monitoring competence. Sofer (1998) outlines ten essential principles for translators, emphasizing language proficiency, cultural awareness, continuous learning, and adaptability.

The field of translation studies has seen a growing interest in understanding translation competence (TC), leading to the development of various TC models. Researchers agree that TC comprises multiple sub-competences, although there is some debate about their specific nature (Göpferich, 2009). Notable models include the PACTE models (2000, 2003), Göpferich model (2009), and the EMT models (2009, 2017). Central to TC is linguistic competence, a foundational element essential for effective translation. Linguistic competence, as defined by Chomsky (1969), involves a deep knowledge of language structure and usage, which is crucial for accurate translation of academic texts (Hatim & Munday, 2004). Beyond mere fluency, it includes a deep understanding of lexical, grammatical, and sociolinguistic elements, ensuring accurate and culturally sensitive translations (Baker & Malmkjaer, 2001).

Another critical component in translation is self-awareness, which allows translators to reflect on their cognitive processes and recognize biases, thereby enhancing their decision-making and translation quality (Campbell, 1998). The importance of linguistic competence is particularly evident in academic text translation, which demands proficiency in specialized terminology, adherence to academic conventions, and the ability to convey complex ideas with clarity (Hatim & Munday, 2004; Nord, 2018).

The evolution of Machine Translation (MT) and Artificial Intelligence (AI) has significantly impacted translation practices. From early rule-based systems to advanced Neural Machine Translation (NMT), these technologies have enhanced translation quality but still highlight the indispensable role of human translators in managing linguistic nuances (Hasyim et al., 2021; Wang, 2023). However, these advancements also pose challenges in maintaining accuracy and meaning (Kovacs, 2019).

The rising demand for academic translation is driven by scholars’ aspirations to reach international audiences, requiring precise and culturally sensitive translation of complex academic texts (Kamalia et al., 2023). Academic texts, characterized by complexity, formality, and objectivity, require translators to possess specialized knowledge and linguistic competence to maintain the integrity and effectiveness of scholarly communication (Samigullina, 2018). Translating academic texts is inherently complex, involving not just linguistic conversion but also a deep understanding of specialized terminology and scholarly conventions (Kovacs, 2019). This requires high linguistic competence, which includes a comprehensive understanding of both the source and target languages’ nuances (Hatim & Munday, 2004).

Several studies have explored various aspects of translator and linguistic competence. Mbotake (2013) and Eser (2015) emphasize the crucial role of linguistic competence in translation performance and propose models to enhance translator education. Abdulrahman & Abu-ayyash (2019) and Yang & Li (2021) provide comprehensive discussions on competences in second language education and translation pedagogy, respectively. Piecuchna (2020) introduces a theoretical model for cosmetic translation competence, highlighting the need for specialized translation skill in niche areas.

Despite extensive research, there remains a gap in understanding linguistic competence in the context of academic text translation by professional translators. This study aims to fill this gap by examining how linguistic competence affects the work experienced translators in academic text, considering recent technological advancements and the evolving landscape of translation. The research will offer insights into the challenges faced by translation, the impact of technology, and strategies to enhance translation practices in the academic domain. The findings will have implications for the training and preparation of translators, the quality of academic translations, and the overall understanding of linguistic competence in the field of translation studies.

### **3. Research Method**

This study employed a qualitative research design as outlined by Creswell and Creswell (2018), utilizing a descriptive method to explore translators' perspectives on linguistic competence in academic text translation. The study considered sub-competences from the PACTE TC model (2003), which includes bilingual sub-competence, focusing on communicative competence in both languages. This encompasses pragmatic, sociolinguistic, textual, grammatical, and lexical aspects. Participants were professional translators with at least five years of experience in translating academic materials, with translation constituting 70% of their annual workload, based on criteria from PACTE (2003).

Data were collected through structured questionnaires. The surveys were conducted via Google Forms from March to April 2024. The questionnaire included sections on linguistic competence awareness, dominant linguistic competencies and strategies, and the impact of machine translation (MT) and artificial intelligence (AI). Responses included Likert-scale questions, open-ended questions, and demographic information.

The data collection process adhered to Creswell (2013) systematic steps, including locating participants, gaining access, purposeful sampling, and collecting, recording, and storing data. To ensure data reliability and accuracy, several validation techniques were employed, including pre-testing the questionnaire, peer review, and triangulation of data sources. Data analysis followed Creswell & Creswell's (2018) framework, involving organizing and preparing data, reading through all data coding, identifying themes, and interpreting and validating the findings.

This comprehensive approach was allowed for in-depth understanding of how professional translators perceive, apply, and adapt linguistic competence in the translation of academic texts, particularly in the context of technological advancements in MT and AI.

### **3. Results and Discussion**

The study examined the insights from professional translators collected through surveys conducted via Google Forms from March to April 2024. The primary objective was to explore various facets of linguistic competence relevant to translating academic texts. The

survey, completed by seven experienced translators, provided detailed perspectives on the challenges encountered during translation and the strategies used to address them. Additionally, the study investigated the impact of machine translation (MT) and AI-powered tools on linguistic competence

The survey comprised several sections, including demographic information, linguistic competence awareness, dominant linguistic competencies and strategies, and the influence of MT and AI. The demographic section covered respondents' age, gender, educational background and years of experience, current occupation, language pairs, proficiency levels, certifications, and specialization fields. This demographic information provides essential context for interpreting the findings and understanding the influence of various factors on linguistic competence. The table below illustrates the demographic information of the respondents.

Respondent	Age Group	Gender	Level of Education	Years of Experience	Current Occupation	Language Pairs	Proficiency in SL	Proficiency in TL	Proficiency Certifications	Details of Certifications	Additional Certifications/Memberships	Specialization Fields
Respondent 1	25 – 34	M	Master's Degree	1 – 5 years	In-house Translators	English-Indonesian	Native-like	Fluent	TOEFL	C1	HPI membership	Literary translation
Respondent 2	25 – 34	M	Bachelor's Degree	6-10 years	Language Teacher	English-Indonesian	Fluent	Native-like	IELTS, UKBI	IELTS (overall 8.0), UKBI (670)	HPI (junior member)	Academic translation
Respondent 3	25-34	M	Master's Degree	1-5 years	Freelance Translator	English-Indonesian	Fluent	Intermediate	TOEFL and UKBI	TOEFL; exoired and UKBI; 569 until 2026	HPI-01-20-3600	Literary translation
Respondent 4	Under 25	F	Bachelor's Degree	Less than 1 year	Freelance Translator	English-Indonesian	Advanced	Native-like	TOEFL ITP, UKBI	UKBI: Unggul TOEFL ITP: 507	HPI Young member	Literary translation
Respondent 5	25-34	M	Bachelor's Degree	Less than 1 year	Other	English-Indonesian	Intermediate	Advanced	IELTS	6.5	No	Literary translation
Respondent 6	35-44	F	Bachelor's Degree	6-10 years	Freelance Translator	English-Indonesian, English-Malay Ambonese	Fluent	Fluent	TOEFL		HPI, AICI	Academic Translation
Respondent 7	35-44	F	Bachelor's Degree	More than 15 years	Other	Mandarin-Indonesian, English-some local languages	Native-like	Native-like	Yes. UKBI, HSK, HSKK, and toefl simulation (for toefl, haven't taken one)	Sangat unggul, hsk6, hskk advance, toefl advance simulation	HPI anggota penuh	Academic translation

**Table 1. Details of Demographic Information**

Among the respondents from the table above, only three professional translators (Respondent 2, 6, and 7) meet the specified criteria of specializing in academic translation and possessing over five years of experience in translation work. These participants represent a subset of the sample population whose insights are particularly relevant to the study's objectives. Their extensive experience in translation, coupled with their specialization in academic texts, positions them as key informants for understanding the complexities and nuances associated with translating scholarly documents.

Respondent 2, aged 25-34 with a Bachelor's Degree, has 6-10 years of experience and works as a language teacher specializing in English-Indonesian translations. His proficiency is supported by certifications such as IELTS and UKBI, and he is a junior member of the HPI, focusing mainly on academic translation.

Respondent 6, aged 35-44, also holds a Bachelor's Degree and has 6-10 years of freelance translation experience. She specializes in English-Indonesian and English-Malay Ambonese language pairs, holding TOEFL certification and memberships in HPI and AICI, with a primary focus on academic texts.

Respondent 7, in the 35-44 age range, with over 15 years of translation experience, specializes in Mandarin-Indonesian-English language pairs. Her certifications include UKBI, HSK, and TOEFL simulation, and she is a full member of HPI, focusing on academic translation.

These respondents' diverse backgrounds enriched the study. For instance, Respondent 2's background as a language teacher offered unique pedagogical insights, while Respondent 6's multilingual proficiency and professional affiliations contributed to a broader understanding of linguistic competence. Respondent 7's extensive experience and deep engagement with the translation profession highlighted industry trends and best practices.

#### 4.1 Linguistic Competence Awareness

The following section presents the findings regarding Linguistic Competence Awareness among professional translators specializing in academic text translation. This analysis sheds light on the translator's perception and self-assessment concerning various aspects of linguistic competence essential for their work.

Aspect	Respondent 2	Respondent 6	Respondent 7
Frequency of Manual Translation	Occasionally	Occasionally	Occasionally
Frequency of Usage of MT and AI	Occasionally	Frequently	Rarely
Awareness Level	Very Aware	Very Aware	Aware
Proficiency in Recognizing and Interpreting Linguistic Nuances	Proficient	Proficient	Proficient
Strategies for Handling Linguistic Competence	Learning for samples of academic texts	Thorough research	Studying topics in both source and target languages
Strategies for Staying Updated on Changing Requirements	Participating in courses and webinars	Research, keeping up with social media trends	Staying tuned to latest updates
Transformation in Linguistic Requirements	Increased emphasis on grammatical accuracy	Structural coherence	Use of sophisticated languages

Table 2. Linguistic Competence Awareness

The survey results provide a comprehensive view of the linguistic competence awareness among professional translators involved in academic text translation. The frequency of manual translation among the respondents is occasional, indicating that while manual translation remains a key component of their work, they supplement it with machine translation (MT) and AI-driven tools to varying degrees. Variation in the frequency of machine translation and AI-driven software usage among the respondents indicates differing preferences and reliance levels. Respondent 2's occasional usage suggests a balanced approach, potentially favoring manual translation for tasks requiring precision. Conversely, Respondent 6's frequent use indicates a heavier reliance, likely driven by efficiency needs. Notably, Respondent 7's rare usage despite extensive experience implies a preference for manual methods, possibly due to confidence in linguistic competence. This discrepancy underscores the importance of considering experience levels and preferences in evaluating

tool impact, suggesting that while they enhance efficiency, manual translation remains crucial for accuracy.

All respondents exhibited a high level of awareness and proficiency in recognizing and interpreting linguistic nuances, which is essential for the precision required in academic text translation. Their strategies for handling linguistic competence include learning from academic text samples, conducting extensive research, and studying topics thoroughly in both source and target languages. This highlights their commitment to maintaining a deep understanding of linguistic intricacies and the specific requirements of academic texts.

To stay updated with the evolving demands in the field, respondents engage in continuous professional development activities. These include participating in courses and webinars, conducting ongoing research, and keeping abreast of trends via social media. Such proactive measures ensure they remain well-informed about the latest developments and standards in academic translation.

Respondents also reported transformations in linguistic requirements, with a growing emphasis on grammatical accuracy, structural coherence, and the use of sophisticated language in academic texts. These changes necessitate that translators continuously refine their skills to meet higher academic standards. For instance, Respondent 2 noted the need for heightened grammatical precision, while Respondent 6 highlighted structural coherence, and Respondent 7 emphasized the use of more sophisticated terminology.

The findings demonstrate that professional translators possess a robust awareness of the linguistic competences required for academic text translation. They employ diverse strategies to effectively address linguistic challenges and stay updated with the latest industry requirements. By integrating manual translation with MT and AI tools and engaging in ongoing professional development, translators ensure their work remains accurate, contextually appropriate, and aligned with current academic standards. This comprehensive approach supports the delivery of high-quality translations that meet the rigorous demands of academic publishing.

## 4.2 Dominant Linguistic Competences and Strategies

Understanding the linguistic competences most frequently relied upon by professional translators when translating academic texts is crucial for this study. This question highlights the specific areas of linguistic expertise essential for accurate and effective translations. By examining why translators depend on competences such as pragmatic, sociolinguistic, textual analysis, grammar, and lexical knowledge, the study can gain insights into the complex nature of academic text translation. This aligns with the PACTE's (2003) TC model of Bilingual sub-competence. This information is valuable for identifying common challenges faced by translators and for devising strategies to enhance linguistic competence in academic translation. The table below illustrates the responses from professional translators regarding the dominant linguistic competences they most relied, challenges they faced and the strategies they encountered.

Aspect	Respondent 2	Respondent 6	Respondent 7
Dominant Linguistic Competence	Grammatical and Lexical	All (comprehensive understanding)	Textual
Frequent Challenges	Lexical challenges	Textual Challenges	Sociolinguistic Challenges
Specific Challenges	Questioning	Messy source texts	General knowledge

	expressions/structures		on various fields
Overcoming Strategies	Online grammar checkers, browsing	Work fast, efficient, review/edit source text	Practice, diversity focus
Example of Linguistic Competence Impacting Translation Quality	Lexical resource competence significantly impactful, utilize Google search.	Localization, cultural understanding	Experience sharpens qualification
Addressing Cultural/Contextual Differences	Not applicable (focus on non-literary texts)	Research, continuous learning, open-mindedness	Find nearest resemblance in meaning
Verification Methods	Google search for accuracy	Use multiple software tools	Multiple perspectives in review
Evaluation of Impact	Significantly impactful	Very important	Client satisfaction as key

Table 3. Dominant Linguistic Competences, Challenges, and Strategies

The analysis of linguistic competence awareness among professional translators reveals a multifaceted approach to tackling the demands of academic text translation. Translators predominantly rely on grammatical, lexical, and textual competences, with a few highlighting the necessity of a comprehensive understanding across all linguistic aspects. These competences are critical for ensuring that translations meet academic standards and reflect the nuances of scholarly discourse.

Grammatical and lexical competences are essential for translators to meet publishers' requirements and ensure the naturalness of the translated texts. Textual competence is equally important, as each academic paper is unique and requires careful consideration of its structure and flow. Challenges encountered by translators vary, including lexical challenges, textual difficulties due to poorly structured source texts, and sociolinguistic issues when dealing with diverse field of knowledge. These challenges highlight the need for a deep understanding of both the source and target languages and their respective academic conventions.

Translators employ various strategies to overcome these challenges. For grammatical and lexical issues, online grammar checker and extensive internet searches for expression accuracy are common practices. Addressing textual challenges often involves working efficiently and, at times, pre-editing the source text to ensure clarity. Sociolinguistic challenges require a broad knowledge base and adaptability, which translators address through continuous learning and practice. This comprehensive approach enables translators to handle a wide range of topics and maintain the integrity of the original text.

The impact of linguistic competence on translation quality is profound, with respondents highlighting various key aspects. One emphasizes lexical resource competence, which involves ensuring that translations sound natural by cross-referencing with English-speaking countries' websites via Google searches. Another underscores the importance of cultural understanding in localization, indicating that translation success involves adapting text to fit the target audience's cultural context. The third notes that industry experience sharpens qualifications, enhancing translation quality through ongoing practice and exposure. These findings suggest that academic translators should adopt a holistic approach,



incorporating lexical verification, cultural localization, and continuous professional development to ensure accurate, culturally relevant and contextually appropriate.

Cultural and contextual differences pose significant challenges in academic text translation. Translators address these issues by conducting thorough research, maintaining an open-minded approach, and continually updating their knowledge. This strategy is vital for ensuring that translations are culturally relevant and contextually accurate, thereby enhancing the overall quality of the translated texts.

To verify linguistic accuracy, translators use various methods, including multiple software tools and internet searches. Reading translations from different perspectives – such as a public reader, an editor, and a professional – also helps ensuring the appropriateness and accuracy of the final output. The evaluation of linguistic competence’s impact on translation quality underscores its significance. High linguistic competence not only improves work efficiency but also leads to higher client satisfaction and greater acceptance of translated texts.

#### 4.3 Impact of Machine Translation and AI on Linguistic Competence

The examination of the impact of machine translation (MT) and AI-driven software on linguistic competence is pivotal in comprehending the evolving landscape of academic translation. The data in the table below delves into the diverse dimensions of MT and AI utilization among professional translators, probing their integration, advantages, and challenges. By scrutinizing these aspects, the study aims to glean insights into the shifting paradigms of translation practices and their ramifications for linguistic competence.

Aspect	Respondent 2	Respondent 6	Respondent 7
Commonly Used Software	Google Translate, Grammarly	Google Translate, chatGPT	Manual method (rarely uses MT)
Integration of Software	Relies on Google Translate for technical words	Uses and reviews edit	Not a fan of MT or AI
Benefits of Using Software	Speeds up work	Faster, more sophisticated terms	Faster worker, but turns the workplace into a disaster
Influence on Decision-making	Ensures grammar acceptability	Significant	Offers different perspectives
Advantages and Disadvantages	Advantages: efficiency; Disadvantages: accuracy	Advantages: speed; Disadvantages: naturalness	-
Strategies for Addressing Challenges	Performs human check before using AI translations	No significant challenges encountered so far	Manual translation preferred
Role in Addressing Linguistic Challenges	Ensures grammatical acceptability	Time-saving, accuracy, access to database	Offers alternative, possibly more suitable words
Perceived Impact on Translation Quality	Positive Impact	Positive Impact	Neutral

Table 4. Overview of Machine Translation and AI Usage in Translation Work

The responses to the question on commonly used machine translation (MT) and AI-driven software reveal a spectrum of practices among respondents, showcasing both acceptance and resistance to technology in academic translation. While Respondent 2 relies on widely available tools like Google Translate and Grammarly for a balanced approach to translation and editing, Respondent 6 adopts a more innovative strategy by pairing Google Translate with ChatGPT, indicating openness to newer technologies. In contrast, Respondent 7, with extensive experience, prefers manual methods, reflecting a traditional approach to translation rooted in trust and expertise. These findings underscore the varied attitudes towards MT and AI in translation, influenced by individual preferences and experiences. While some embrace these tools for efficiency and supplementary capabilities, others prioritize manual methods, highlighting the importance of human judgment in ensuring translation quality. The findings suggest that while MT and AI enhance translation workflows, their adoption varies based on personal preferences and the nature of translation tasks.

Integration of MT and AI into the translation process varies among respondents. While Respondent 2 selectively uses Google Translate for technical terms, Respondent 6 incorporates both MT and AI throughout the translation process, integrating them into their workflow seamlessly. Conversely, Respondent 7 shows a lack of enthusiasm for MT and AI, indicating a preference for traditional manual translation methods. These differing approaches highlight the nuanced ways in which translators incorporate technology into their workflow to enhance linguistic competence.

The perceived benefits of using MT and AI include speed, efficiency, and access to sophisticated language resources. Respondents 2 and 6 cite these advantages, emphasizing the acceleration of work processes and the availability of advanced linguistic features. However, challenges such as accuracy and naturalness are also noted, particularly by Respondent 2, who highlights the importance of human oversight in ensuring translation quality. This juxtaposition underscores the need for translators to balance the benefits and drawbacks of MT and AI to optimize their impact on linguistic competence.

The influence of MT and AI on decision-making processes varies among respondents. While Respondent 2 and Respondent 6 acknowledge their role in ensuring grammatical correctness and offering alternative word choices, Respondent 7 remains neutral, suggesting a minimal impact on their decision-making process. This variability reflects the complexity of integrating MT and AI into translation workflows, where translators must navigate between automated suggestions and manual judgment to maintain translation quality.

The data suggests that while MT and AI offer benefits such as speed and efficiency, they also present challenges related to accuracy and naturalness. The varying degrees of adoption, integration, and perception among respondents highlight the multifaceted nature of incorporating technology into translation work. Ultimately, translators must carefully balance the advantages and disadvantages of MT and AI to enhance their linguistic competence effectively in translating academic.

## 5. Conclusion

The research has provided an elaboration on the linguistic competence awareness, dominant competencies, strategies, and the impact of machine translation (MT) and AI-driven software on the practice of academic text translation among professional translators. The findings reveal that respondents exhibit a high level of awareness regarding linguistic competence, with a strong understanding of pragmatic, sociolinguistic, textual, grammatical,

and lexical aspects, which are crucial for ensuring the quality and accuracy of academic translations.

Respondents demonstrated different dominant linguistic competencies during translation: grammatical and lexical aspects to meet publisher demands, a comprehensive understanding of all aspects, and a prioritization of textual elements to maintain the unique identity of research papers. The primary challenges identified included lexical, textual, and sociolinguistic difficulties, which were addressed through strategies such as research, grammar checkers, and leveraging personal knowledge. These strategies reflect a blend of reliance on both manual methods and technological tools to enhance translation quality.

The integration of MT and AI-driven software varied among respondents. Some used tools like Google Translate, Grammarly, and ChatGPT to speed up their work and ensure grammatical correctness, while others preferred manual methods, expressing skepticism about the reliability and accuracy of MT. The perceived benefits of MT and AI included increased efficiency, faster translation processes, and enhanced accuracy, although disadvantages such as the need for human oversight and occasional inaccuracies were also noted. Overall, MT and AI had a positive impact on translation quality for some respondents, while others remained neutral.

However, the study has limitations. It aimed to gather responses from a larger group of participants but only received completed questionnaires from a smaller number, with only a few meeting the criteria of having a minimum of five years of experience in translating academic texts. Future research should aim to include a larger and more diverse sample of translators to capture a broader range of experiences and practices, enhancing the generalizability of the findings.

Additionally, the depth and detail of responses varied significantly among participants. Future studies should allocate more resources and flexibility for scheduling interviews. The study also primarily focused on a few widely known MT and AI tools, not exploring a broader range of available technologies. Expanding the scope to include more MT and AI tools can provide a comprehensive understanding of their relative effectiveness.

Future research should also investigate the impact of training programs on translator's ability to effectively use MT and AI tools. Understanding how training influences the integration of these technologies can offer guidance on developing support programs for translators. Furthermore, in-depth case studies of individual translators or translation projects can offer richer, more detailed insights into the application of linguistic competences and the specific challenges encountered in academic translation.

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