International Journal of Linguistics, Literature and Translation
ISSN: 2617-0299 (Online); ISSN: 2708-0099 (Print)
DOI: 10.32996/ijllt
Journal Homepage: www.al-kindipublisher.com/index.php/ijllt

IJLLT
AL-KINDI CENTER FOR RESEARCH AND DEVELOPMENT

| RESEARCH ARTICLE

Navigating the Convenience Trap with ChatGPT and Google Translate: The Risks of Homogenization in Translation Teaching for Vietnamese Students

Tu, Dinh Huynh Mai
Faculty of Foreign Languages, Van Lang University, Ho Chi Minh City, Vietnam
Corresponding Author: Tu, Dinh Huynh Mai, **E-mail**: tu.dhm@vlu.edu.vn

| ABSTRACT
This study examines the potential risks of homogenization in teaching English translation to Vietnamese students due to the widespread use of AI tools like ChatGPT and Google Translate. While these tools offer significant benefits in terms of speed and consistency, their reliance on standardized terms often reduces the richness of expression, leading to homogenization—particularly for less dominant languages such as Vietnamese. By analyzing noun phrases in AI-generated translations and comparing them with textbook-suggested translations from a business translation course, this study highlights notable differences in translation quality, lexical variety, and contextual accuracy. The findings reveal that although AI tools can enhance translation efficiency, their limitations in offering diverse and contextually appropriate word choices highlight the importance of human insight in the translation process. A balanced integration of AI tools with human expertise is crucial for preserving linguistic diversity and achieving genuine cross-cultural understanding.

| KEYWORDS

Translation quality, AI translation, linguistic homogenization, lexical variety, contextual accuracy, Language Learning

| ARTICLE INFORMATION

RECEIVED: 02 August 2024 **ACCEPTED:** 31 August 2024 **DOI:** 10.32996/ijllt.2024.7.8.28

1. Introduction

In today's globalized world, the demand for accurate and efficient translation has never been greater. As businesses, educational institutions, and individuals increasingly rely on digital tools for cross-cultural communication, the quality of translation has come under scrutiny. Artificial intelligence (AI) tools like ChatGPT and Google Translate have revolutionized the translation industry by providing fast, consistent, and cost-effective solutions (Language Insight, 2024). However, these tools, while powerful, raise important questions about their ability to preserve linguistic diversity and contextual richness, which is essential for nuanced communication (U.S. Translation Company, 2023; EUATC, 2023).

Translation is more than just converting words from one language to another; it involves capturing the subtleties, emotions, and contexts that give language its richness (House, 2018). Human translators have long excelled in this domain, leveraging cognitive processes such as analogy thinking and mental leaps to convey meanings that transcend literal translations (Munday, 2016). Yet, as AI continues to develop, there is growing concern about the risks of linguistic homogenization, where the nuances of less dominant languages may be overshadowed by standardized terms that align with dominant languages like English (Venuti, 1995; Pike, 2013).

AI tools often struggle to capture the contextual nuances and the diversity of expressions crucial for effective communication, potentially leading to translations that lack depth and variety (Mills, 2023; AI Technology Reviews, 2023). Over-reliance on

standardized language may result in a loss of expressive richness, as seen in educational settings where AI tools are used for language learning (TrueLanguage, 2023).

This study aims to explore the comparative translation quality among human translators, ChatGPT, and Google Translate, focusing on the cognitive processes involved, the risks of homogenization, and the role of translation in language learning. By examining these aspects, the study seeks to emphasize the importance of balancing AI efficiency with human insight into contextual nuances to ensure translations that are not only accurate but also rich in expressive variety (Mills, 2023; AI Technology Reviews, 2023). This approach is crucial for maintaining the diversity of linguistic expression and achieving meaningful communication across different contexts and cultures. This paper will begin by reviewing relevant literature, followed by an outline of the methodology used, a presentation of the results, and a discussion of the findings and their implications.

2. Literature Review

Translation is a crucial aspect of language learning, as it helps students understand linguistic and cultural differences. By constructing and interpreting meanings across various contexts, translation aids in comprehension and enhances cultural awareness (Schaffner, 1998; Cook, 2010). With the rise of large language models (LLMs) like ChatGPT and Google Translate, the landscape of translation is rapidly evolving. This literature review examines the interplay between human translation methods and AI tools, focusing on cognitive processes, the use of AI in education, and the risks of linguistic homogenization due to the dominance of English. The review highlights the need to balance technological efficiency with cultural sensitivity and linguistic diversity to maintain the integrity of translation in language learning.

2.1 The Role of Translation in Language Learning

In language learning, translation enables learners to understand complex concepts and unfamiliar vocabulary, enhancing memory retention and building a robust vocabulary base (Cook, 2010). Recent studies have supported this view, emphasizing the role of translation in cognitive development and language retention (Lertola, 2018; González-Davies & Scott-Tennent, 2020). It also develops grammar and syntax awareness by requiring learners to apply grammatical rules and recognize structural differences between languages, which fosters a deeper understanding of how meaning is constructed (Duff, 1989). Additionally, it improves reading and writing skills through detailed text analysis and composition, enhancing overall language proficiency (Kramsch, 1993). This process is especially beneficial in bilingual education contexts, where translation acts as a scaffold for language learning (Kerr, 2021).

Furthermore, translation promotes cultural awareness by exposing learners to the cultural contexts embedded in language, which is crucial for effective communication (Pym, 2010). Engaging with culturally specific references through translation helps learners appreciate different perspectives and develop intercultural competence (Bielsa, 2019). Understanding the cultural nuances in language use is increasingly recognized as vital in global communication (House, 2018). Beyond the aspect of cultural nuances, understanding context in translation is crucial for accurate and meaningful communication. Context allows translators to interpret not just the words but also the intended meaning, tone, and cultural references embedded in the text (Baker, 2011). In language learning, contextual translation helps learners grasp the situational uses of language, enhancing their ability to use language appropriately in real-life scenarios (Widdowson, 2004). By focusing on context, learners can better understand the pragmatic functions of language, which goes beyond mere literal translation and into the realm of effective and nuanced communication (Hatim & Mason, 1997).

2.2 Human Translation Process vs. Translation in LLMs

Translation involves transferring meaning from a source language to a target language by interpreting cultural, contextual, and situational factors (Hatim & Munday, 2004). Achieving linguistic and semantic equivalence is essential, requiring a deep understanding of grammar and linguistic nuances (Baker, 2011). Human translators excel in this area by navigating cultural differences through "domestication" and "foreignization" to balance fidelity to the original and accessibility for the target audience (Venuti, 1995). This process demands complex mental activities such as problem-solving, decision-making, and creativity (Gile, 2009), which involve phases like comprehension, transfer, and revision (Shreve & Angelone, 2010). Human translators leverage intuition and cultural insight, making them particularly valuable for tasks requiring deep cultural understanding and nuanced interpretation (Venuti, 1995).

In contrast, LLMs like ChatGPT and Google Translate use Transformer models and attention mechanisms to make translation more efficient and accurate (Vaswani et al., 2017). These models handle vast amounts of text data, identifying patterns and relationships between words across languages without necessarily understanding cultural or contextual nuances (Brown et al., 2020). Although LLMs are powerful in processing large volumes of text quickly, they often lack deep cultural understanding, which can lead to challenges in accurately interpreting meaning and context (Bender et al., 2021). Their reliance on data-driven processes may result in difficulties with ambiguous or idiomatic expressions that require a nuanced grasp of both cultural and contextual elements (Koehn & Knowles, 2017).

2.3 Key Cognitive Processes Involved in Human Translation

Human translation requires deep engagement with text, involving a nuanced understanding of context, cultural nuances, and the intended message. Unlike machine translation, which often relies on statistical patterns, human translators use a combination of cognitive processes—analogy thinking, mental leaps, logic, and deductive thinking—to produce translations that are both accurate and contextually rich. These cognitive skills work together to bridge linguistic and cultural differences, ensuring translations resonate with the intended audience and accurately reflect the source material's intent.

Translators often use analogy thinking to draw comparisons between different concepts based on their similarities. This skill is especially useful when dealing with idioms, metaphors, and culturally specific terms, as it helps find equivalent expressions in the target language that convey the same effect or idea (Gentner, 1983; Newmark, 1988). This ability to make analogies is closely linked to mental leaps, where translators make intuitive connections between ideas that are not explicitly related (Hofstadter, 2001). These intuitive connections help translators grasp deeper meanings, emotions, or subtext, such as humor, irony, or sarcasm, which might not be immediately obvious (Gibbs, 1994). The combined use of analogy thinking and mental leaps allows translators to capture the nuances of the original text, ensuring that translations reflect the author's voice and style.

In addition to analogy and intuition, translators rely heavily on logical thinking to maintain coherence and consistency in their translations. Logical reasoning helps in understanding the structure of arguments, the sequence of events, and the relationships between different parts of the text, ensuring that the translation makes sense as a whole (Pym, 2010). This systematic approach is essential for interpreting cause-and-effect relationships and for clearly presenting arguments, which are crucial for maintaining the logical flow of the text. Furthermore, deductive thinking enables translators to apply general principles of grammar, syntax, and language structure to specific sentences or phrases (Hatim & Mason, 1997). This type of reasoning helps in interpreting unfamiliar words or phrases by relating them to known linguistic patterns or contexts, ensuring translations are accurate and contextually appropriate. Deductive thinking also helps translators maintain the broader context of a text by applying known information to understand specific details, thus preserving the integrity of the original message (Baker, 2011).

These cognitive skills—analogy thinking, mental leaps, logic, and deductive thinking—are not used in isolation; rather, they interact dynamically to facilitate high-quality translations. Together, they enable translators to navigate complex linguistic and cultural landscapes, ensuring that translations are both faithful to the original and accessible to the target audience. This holistic approach ensures that translated texts are not only accurate but also resonate with the target audience, reflecting the source material's intent and cultural context.

2.4 The Use of ChatGPT and Google Translate among Language Learners

ChatGPT, developed by OpenAI, excels at engaging users in natural language conversations, making it ideal for tasks requiring contextual understanding and dialogue (Brown et al., 2020). Its advanced architecture allows it to generate coherent and contextually relevant responses, which is valuable for nuanced translation tasks (OpenAI, 2023). On the other hand, Google Translate is widely recognized for its extensive language support, covering over 100 languages, making it a key tool for quick translations across diverse language pairs (Wu et al., 2016). Its real-time translation capabilities, including voice and image translation, are beneficial for users needing instant translation help (Johnson et al., 2017). Both ChatGPT and Google Translate have become popular among language learners due to their accessibility and effectiveness. Their availability online and through mobile apps allows learners to access translation services anytime, which is crucial for those needing quick translations or practice on the go (Van Esch, 2020). These tools complement traditional language learning methods, providing quick access to translations and examples that bridge the gap between classroom learning and practical language use (Pham, 2018).

2.5 The Risks of Homogenization Posed by English in Translation

The dominance of English as the global lingua franca presents significant risks of homogenization, particularly in translation. Homogenization, the reduction of linguistic and cultural diversity, occurs when language is standardized to fit a dominant model, often English. This trend can threaten the preservation of unique cultural and linguistic identities, as English is extensively used in international communication, academia, and business (Phillipson, 1992; Skutnabb-Kangas, 2010).

Using English as a standard language in translation can lead to the loss of linguistic diversity. Translating non-English texts into English often results in the loss of cultural nuances and linguistic idiosyncrasies. The translation process tends to prioritize clarity and simplicity for English-speaking audiences, which can make translations less culturally rich and less representative of the original text (Venuti, 1995). For instance, idioms and culturally specific references might be rendered into more generic English phrases, diminishing their original cultural significance (Graddol, 2006; Pike, 2013). This effect is evident in the training of large language models (LLMs), such as those used by AI translation tools like ChatGPT and Google Translate. These models are often trained on

English-dominated datasets, creating a bias towards English norms and expressions. This bias can marginalize less dominant languages, leading to inaccuracies and less nuanced translations and reinforcing English dominance (Bender et al., 2021).

Additionally, translating texts into English often simplifies complex cultural concepts to fit a universally understood framework, which can erase unique cultural markers and replace them with generic terms that lack authenticity (Graddol, 2006; Pike, 2013). Authors like Haruki Murakami, who adapt their work to global audiences, may simplify cultural nuances to make their writing more translatable into English, broadening their reach but potentially altering the cultural depth of their work (Snyder, 2017). The pervasive use of English as a default language in translation raises concerns about cultural sensitivity and authenticity. Accurate translation requires preserving the cultural context of the original language but using English as an intermediary risks overlooking or misinterpreting cultural subtleties (Pennycook, 2001; Verbaltrans, 2023). This can result in translations that are linguistically inaccurate and culturally insensitive, failing to capture the original context.

Overall, the dominance of English in translation presents risks of linguistic and cultural homogenization. As AI tools increasingly facilitate cross-cultural communication, it is essential to develop translation practices that respect and preserve each language's unique characteristics. Such an approach will ensure translations are both accurate and culturally resonant, fostering a deeper understanding and appreciation of global diversity.

2.6 Potential Research Gaps

Given the increasing reliance on AI-driven translation tools, there are potential research gaps that need to be addressed, particularly concerning the risks of homogenization in translation teaching for Vietnamese students. Future studies could explore how the use of LLMs might influence language learning outcomes, specifically looking at how these tools affect students' understanding of cultural nuances and their development of critical thinking skills. Additionally, research could examine strategies to mitigate the homogenization effects of LLMs, ensuring that translation teaching maintains linguistic diversity and cultural specificity. This research could provide valuable insights into balancing the convenience of AI-driven tools with the need to preserve the rich cultural and linguistic heritage of less prominent languages.

3. Methodology

Nominal elements, which include nouns and noun phrases, are central to how English sentences are structured and understood. They provide clarity and detail, enabling the effective expression of complex ideas. Due to their crucial role in sentence construction and meaning, understanding their use is essential for those studying English grammar, linguistics, or translation. Acting as the backbone of communication, nominal elements form the foundation upon which sentences are built, and meaning is conveyed (Huddleston & Pullum, 2002; Halliday & Matthiessen, 2014).

This study aims to compare how AI tools like ChatGPT and Google Translate handle nominal elements in Vietnamese-English translations, using comparisons with translations suggested in a business translation course textbook. The materials for this study are derived from the author's experiences during the course's teaching sessions. Basic statistical measures, such as mean scores and standard deviations, are used to assess the similarity between these AI tools in handling the nominal elements. Although the tools perform the tasks effectively, the translated texts often differ in their use of nominal elements compared to human recommendations. By examining these differences, this study will also explore the potential risks of homogenization, where the use of standardized translation patterns by AI could lead to a reduction in linguistic and cultural diversity.

3.1 Research Questions:

1. How do ChatGPT and Google Translate differ from human-guided recommendations in handling nominal elements within Vietnamese-English translations?
2. How do ChatGPT and Google Translate contribute to linguistic homogenization in Vietnamese-English translations?

3.2 Method Design

This study employs a comparative analysis framework to evaluate translation quality by examining the use of nominal elements, such as nouns and noun phrases, in translations produced by ChatGPT, Google Translate, and human-guided recommendations. The study identifies differences in terminology and phrasing between these versions. By focusing on the specific terms chosen to represent nominal elements, the analysis compares how AI tools and human translators handle the complexities of translation, providing insights into the consistency and variability of translation practices across different approaches. This method addresses the first research question by highlighting the distinctions in the use of nominal elements and the implications for translation quality.

To address the second research question, the study measures the degree of homogenization in translations by calculating similarity scores. These scores will provide insights into the extent to which AI-generated translations converge towards standardized expressions, potentially at the expense of linguistic and cultural diversity.

3.2.1 Text Selection for Research Question 1

The source texts used for Research Question 1 are selected from a textbook designed for a business translation course, which also provides human-guided recommendations. These recommendations are based on expert knowledge and best practices in translation, without any involvement of AI, as the content and guidance were developed at a time when AI tools were not part of the translation process. The materials presented here are based on the complexity of terminology and the necessity for precise language, which are characteristic of business translation. Three distinct types of texts are included in the analysis:

1. Descriptions of Economic Trends and Issues (Type 1): These texts provide insights into current economic conditions, forecasts, and challenges, requiring accurate terminology and clear exposition.
2. Official Project Documentation (Type 2): This type involves formal language and structured content, typical of documents used in official and legal settings, demanding high levels of accuracy and formality.
3. Reports on Economic Relationships and Trade Dynamics (Type 3): These reports analyze the interactions and trade patterns between different economic entities, necessitating detailed descriptions and the use of specific trade-related terminology.

3.2.2 Text Selection for Research Question 2

For Research Question 2, a total of 30 source texts were generated using ChatGPT. A simple prompt such as "produce 15 texts based on this sample" was employed to create these texts. This approach allowed for the consistent generation of relevant content, ensuring that the texts reflected the characteristics and context of the original samples while providing a robust dataset for analysis. By using this method, the study could maintain control over the variability and focus on the comparison of nominal elements across different translation outputs. This includes 15 texts of Type 1 and 15 texts of Type 2. The study excludes Type 3 texts due to their length, as they typically consist of paragraphs rather than individual sentences, making them less suitable for a focused analysis of the consistency and patterns in the use of nominal elements. The decision to exclude longer texts helps maintain the study's focus on sentence-level analysis, which is critical for evaluating homogenization and the use of nominal elements.

4. Data collection and brief analysis

4.1 Research Question 1: Comparison of Translation Quality

For Research Question 1, the study focuses on evaluating translation quality by examining the use of nominal elements across different translation outputs. Nominal elements, such as nouns and noun phrases, are highlighted in the source text to identify key linguistic components that contribute to the meaning and clarity of the sentences. To serve this purpose, the data presentation shows in detail the translated versions produced by ChatGPT, Google Translate, and human-guided recommendations. The different terms used for nominal elements in each translated version are underlined to mark variations in terminology and phrasing. This highlighting and underlining technique allows for a direct comparison of how each translation approach handles nominal elements. Due to this direct comparison, the study can easily demonstrate the accuracy, clarity, and naturalness of the translations. Differences in the use of nominal elements reveal insights into the consistency and quality of translations produced by AI tools compared to human-guided translation.

4.1.1 Type-1 Sample:

Mối liên hệ kinh tế giữa ĐBSCL với TPHCM được phản ánh thông qua **nhu cầu vận tải hàng hóa qua lại mà trong đó hầu hết hàng hóa đi đường bộ** đều băng ngang Mỹ Thuận.

> **ChatGPT**: "The economic relationship between the Mekong Delta (ĐBSCL) and Ho Chi Minh City (TPHCM) is reflected through the demand for goods transportation between the two regions, where most of the goods transported by road pass through Mỹ Thuận."
> **Google Translate**: "The economic relationship between the Mekong Delta and Ho Chi Minh City is reflected through the need to transport goods back and forth, in which most of the goods traveling by road cross My Thuan."
> **Human-guided recommendation**: "The economic relationship between the Mekong Delta and HCMC is reflected through the two-way commodity transport volume, the majority of which, if transported by land, always crosses My Thuan Bridge."

4.1.2 Type-2 Sample:

Dự án xây dựng đường trục Bắc- Nam TP Hồ Chí Minh (DAĐTBN), đoạn từ Cầu Ông Lãnh đến khu Công Nghiệp Hiệp Phước, Huyện Nhà Bè, đã được Thủ Tướng phê duyệt báo cáo tiền khả thi của Ủy Ban Nhân Dân TP **bằng công văn số** 4329/KTN ngày 30.8.1997.

> **ChatGPT**: "The North-South trunk road construction project in Ho Chi Minh City (DAĐTBN), from Cầu Ông Lãnh to the Hiệp Phước Industrial Zone in Nhà Bè District, has been approved by the Prime Minister with the pre-feasibility report from the Ho Chi Minh City People's Committee, according to official document No. 4329/KTN dated August 30, 1997."
> **Google Translate**: "The project to build the North-South trunk road of Ho Chi Minh City (DADTBN), section from Ong Lanh Bridge to Hiep Phuoc Industrial Park, Nha Be District, has been approved by the Prime Minister's pre-feasibility report of the People's Committee. City People by official dispatch No. 4329/KTN dated August 30, 1997."
> **Human-guided recommendation**: "The City People's Committee's prefeasibility study report on the North-South artery construction project, the section from Ong Lanh Bridge to the Hiep Phuoc Industrial Zone (Estate) of Nha Be District, had been approved by the Prime Minister by virtue of the official letter No. 4329/KTN dated 30 August 1997."

4.1.3 Type-3 Sample:

Có hai nguyên nhân chính dẫn đến tình trạng tốc độ tăng trưởng kinh tế của một nước bị chậm lại. Nguyên nhân thứ nhất là **chính sách tiền tệ và ngân sách thắt chặt** với mục tiêu kiềm chế lạm phát. Nguyên nhân thứ hai là **sự sút giảm đầu tư và hiệu suất đầu tư**, dẫn đến **tình trạng giảm số lượng lao động thu dụng trong nền kinh tế, giảm thu nhập bình quân đầu người và hậu quả là giảm cả đầu tư lẫn tiêu dùng**. **Sự sụt giảm đầu tư và hiệu suất đầu tư** có thể xảy ra từ một khu vực kinh tế và lan truyền sang các khu vực khác bởi hiệu ứng dây chuyền.

> **ChatGPT**: "There are two main causes leading to the slowdown in the economic growth rate of a country. The first cause is the tightening of monetary and fiscal policies aimed at controlling inflation. The second cause is the decline in investment and investment efficiency, leading to a decrease in the number of employed workers in the economy, a reduction in per capita income, and consequently, a decrease in both investment and consumption. The decline in investment and investment efficiency can occur in one economic sector and then spread to other sectors due to the domino effect."
> **Google Translate**: "There are two main reasons leading to a country's slow economic growth rate. The first reason is tightening monetary and budget policies with the goal of curbing inflation. The second cause is a decrease in investment and investment efficiency, leading to a decrease in the number of workers employed in the economy, a decrease in per capita income and, consequently, a decrease in both investment and consumption. A decline in investment and investment performance can occur from one economic sector and spread to other sectors by a chain effect."
> **Human-guided recommendation**: "There are two main reasons accounting for a country's low economic growth rate. The first reason is related to belt-tightening monetary and budgetary (fiscal) policies used to curtail inflation. The second reason is the drop in investment and investment efficiency which results in increased unemployment among different economic sectors and reduced per capita income, inducing a substantial reduction in spending both in investment and consumption. A decline in investment and [investment efficiency]/ [rate of return on investment (ROI)] may occur in an economic sector and then spread out to other sectors in a chain effect (chain reaction)."

4.2 Research Question 2: Comparison of Nominal Elements and their Similarities

For Research Question 2, the study focuses on comparing the use of nominal elements across translations generated by ChatGPT and Google Translate, aiming to assess the degree of similarity between these outputs. As mentioned briefly in the Text Selection part, the dataset was divided into two categories: 15 texts of Type 1 and 15 texts of Type 2. Each set of 15 texts was translated using two different translation tools: ChatGPT and Google Translate. This process resulted in 15 translations from ChatGPT and 15 translations from Google Translate for each type, totaling 30 translations per type. While listing all the nouns and noun phrases from 60 translated sentences would give a glimpse of the level of similarity between ChatGPT and Google Translate, it can distract attention from seeing the homogenizing risks luring under. Two types of analyses are conducted to locate the risks by measuring the degree of similarity. The first analysis (with two tables) involves a detailed examination of the different types of phrases used in the translations, such as noun phrases and prepositional phrases, to observe the translation practices of ChatGPT and Google Translate. This allows for an evaluation of how each tool handles nominal elements and highlights the consistency and divergence in the representation of these elements.

The second analysis (with two tables) focuses on the similarity of terms used within those phrases, aiming to uncover any tendencies of the AI tools towards standardization or the use of simplified terms. By examining how consistently the tools employ certain terms across different contexts, the study reveals potential trends toward linguistic homogenization, where diverse expressions might be replaced by more standardized, less varied alternatives. This dual analytical approach not only identifies specific areas where AI tools converge or differ in their translation practices but also provides insights into the implications of such practices on the overall quality of translation. This comprehensive assessment informs the broader discussion on the impact of AI-driven translation on linguistic diversity and the risk of homogenization in translation outputs.

Table 1: Usage Patterns of Phrase Types in Translations for Type-1 Texts: A Comparative Analysis of 15 Samples Each from ChatGPT and Google Translate

Phrase Type	ChatGPT Count (15 texts)	Google Translate Count (15 texts)	Mean Count	Standard Deviation
Noun Phrases	7	6	6.5	0.71
Prepositional Phrases	5	6	5.5	0.71
Gerund Phrases	3	3	3.0	0.00
Participial Phrases	1	2	1.5	0.71
Infinitive Phrases	1	1	1.0	0.00
Prepositional Phrases with Gerund	3	3	3.0	0.00
Prepositional Phrases with Participial	1	2	1.5	0.71
Prepositional Phrases with Relative Clause	0	1	0.5	0.71

In this table, noun phrases are treated as a distinct category among other types of phrases. This is because the 15 texts generated from the Type-1 Sample, which relate to economic trends and issues, use these phrase types in separate and identifiable ways. For example, noun phrases might be used to refer to specific entities or objects (e.g., "economic growth," "market demand"), while gerund phrases could represent actions or activities (e.g., "reducing costs," "increasing investment"). Thus, categorizing them separately helps demonstrate their different grammatical and contextual functions.

Table 2: Usage Patterns of Phrase Types in Translations for Type-2 Texts: A Comparative Analysis of 15 Samples Each from ChatGPT and Google Translate

Phrase Type	ChatGPT Count	Google Translate Count	Mean Count	Standard Deviation
Noun Phrases	8	7	7.5	0.71
Noun Phrases with Participial Phrase	5	6	5.5	0.71
Noun Phrases with Gerund Phrase	2	2	2.0	0.00
Prepositional Phrases	0	0	0.0	0.00

With Table 2, for the 15 texts generated from the Type-2 Sample, which pertain to official project documentation, noun phrases are more complex as they carry additional descriptive or action-oriented components, such as participial phrases or gerund phrases. The combinations serve a specific function within the official and formal context of project documentation. As a result, the language used is less varied in structure but more detailed, reflecting the formal and meticulous nature required in official documentation.

For Table 3 and Table 4, a scale of 1 to 5 was adopted to measure translation similarity. It is a recognized method in translation studies, allowing for detailed analysis of lexical and semantic equivalence (Baker, 2018). High similarity scores (4-5) indicate close alignment in meaning and word choice, while partial similarity (3-4) reflects some commonality with notable differences (House, 2015). Low similarity scores (1-3) reveal substantial divergence, potentially altering the intended meaning (Vinay & Darbelnet, 1995).

Table 3: Similarity in Use of Nouns/Noun Phrases Between ChatGPT and Google Translate for Type-1 Translated Texts (15 Texts Each)

Measure	Value
Total Sentence Pairs	15
Total Pairs for High Similarity Score (4-5)	10
Total Pairs for Partially Similarity Score (3-4)	4
Total Pairs for Low Similarity Score (1-3)	1
Mean Score	4.33
Standard Deviation	0.91

The high mean score combined with the moderate standard deviation suggests that both ChatGPT and Google Translate are generally consistent in their translation choices for nominal elements, but there are some instances where their approaches diverge. This variability points to differences in how each tool interprets and translates specific nominal elements. However, the overall trend is towards high similarity, implying that both tools are reliable for maintaining the integrity of nominal elements in translations. In addition, the consistency drawn 10 out of 15 pairs can be attributed to the nature of the source texts, which belong to the category of Descriptions of Economic Trends and Issues (Type 1). The source texts are to allow both tools to produce similar outputs and maintain high fidelity to the original content.

Table 4: Similarity in Use of Nouns/Noun Phrases Between ChatGPT and Google Translate for Type-2 Translated Texts (15 Texts Each)

Measure	Value
Total Sentence Pairs	15
Total Pairs for High Similarity Score (4-5)	12
Total Pairs for Partially Similarity Score (3-4)	3
Total Pairs for Low Similarity Score (1-3)	0
Mean Score	4.13
Standard Deviation	0.27

For Table 4, the metrics show a high level of similarity between the translations from ChatGPT and Google Translate when considering only nouns and noun phrases, indicating that both tools consistently handle the nominal elements. The low standard deviation suggests that this consistency is stable across different sentence pairs, highlighting the reliability of both translation tools for maintaining the integrity of nominal elements in this specific context of Official Project Documentation (Type 2). This consistency underscores the potential for AI tools to standardize translation outputs, highlighting the importance of evaluating AI's role in maintaining or diluting linguistic diversity.

5. Discussion

5.1 Research Question 1: Connection to Cognitive Concepts in Translation in human

The quality differences in translations provided by ChatGPT, Google Translate, and a human translator can be analyzed through the lens of cognitive concepts such as analogical thinking, mental leaps, logic, and deductive thinking. These cognitive processes are crucial in translation and help explain why human translators outperform AI tools in terms of subtlety and nuance (Malmkjær, 2018; Muñoz Martín, 2014; Pym, 2015).

When analyzing the cognitive processes underlying translation quality, it is essential to focus solely on human-guided recommendations. This approach reflects some of the key cognitive processes involved in human translation. The processes are not merely about finding equivalent phrases in another language but also about interpreting the intent behind the words, understanding the broader cultural and historical context, and making informed decisions that consider the audience and purpose of the translation (Venuti, 1995; Baker, 2011). These are areas where human intuition and experience are irreplaceable, particularly in settings where accuracy and nuance are critical (House, 2015; Hofstadter, 2001). To consider all factors, while AI tools like ChatGPT and Google Translate have made significant strides in generating coherent and contextually appropriate translations, they primarily rely on pattern recognition and statistical models rather than true cognitive understanding. These AI tools use vast amounts of data to predict the most likely translation for a given text, but they do not possess the capacity for deep cultural or contextual awareness, which is crucial for nuanced translation (Koehn, 2020; Koponen, 2016).

Analogical thinking involves recognizing similarities between different contexts and applying knowledge from one domain to another (Gentner & Markman, 1997). In translation, this process allows translators to find equivalent expressions in the target language that convey the same meaning or effect as in the source language (Chesterman, 1997). Human translators use analogical

thinking to draw parallels between cultural and linguistic contexts, ensuring that the translation resonates with the target audience. This ability is crucial for maintaining the text's original meaning and tone (House, 2015). From the data presentation, in the Type-3 Sample, for example, the human-guided recommendation offers phrases like 'belt-tightening' for monetary policies. This term shows strong analogical thinking, aligning with research that emphasizes the importance of contextually appropriate translation (Biel, 2014). By effectively drawing parallels between economic policies and familiar concepts, the human translator ensures the translation is both accurate and culturally relevant.

Mental leaps refer to the ability to make intuitive connections between concepts that are not immediately obvious, a critical skill in translation and other cognitive processes (Hofstadter, 2001). In translation, this skill is essential not only for handling idiomatic expressions but also for understanding and conveying complex concepts that require a deeper level of insight. The phrase 'two-way commodity transportation volume,' as demonstrated in the Type-1 Sample, showcases the capacity for making mental leaps. It involves understanding and connecting various elements of logistics and trade, intuitively grasping how these components interact to form a coherent concept. This kind of cognitive processing is highlighted by O'Brien (2012), who emphasizes that successful translation often requires the translator to make intuitive leaps to accurately capture and convey complex ideas. Such intuitive understanding is critical for navigating specialized terminology and for making connections that might not be explicitly stated but are nonetheless crucial for accurate and meaningful translation (Baker & Saldanha, 2020).

Logic and deductive thinking involve reasoning systematically from given premises to draw conclusions, which is crucial for maintaining the logical flow and coherence of translated texts (Toury, 1995). Translators must logically interpret the relationships between ideas in the source text and maintain these relationships in the translation, ensuring that the argument or narrative structure is preserved (Baker, 2011). The version from the textbook excels in maintaining logical coherence, accurately conveying the structured relationships between ideas. For instance, while both ChatGPT and Google Translate use "trunk road" to describe the type of road in the Vietnamese text (Type-1 Sample), the human-guided version offers the use of "artery," which reflects the correct meaning from the original text. Logic and deductive thinking would help a translator leave out the option of "trunk road." This aligns with Chesterman's (1997) emphasis on the importance of coherence in translation quality, ensuring that the text's logical progression is preserved. Recent research highlights that maintaining logical coherence not only aids in the accurate conveyance of meaning but also enhances the reader's engagement and comprehension (Munday, 2016). Moreover, the ability to maintain logical consistency is a key factor in distinguishing high-quality human translation from machine-generated outputs (Castro, 2020).

These distinctions highlight the critical role of human translators in achieving high-quality translations. While AI tools like ChatGPT and Google Translate are valuable for quick, general translations, they are not yet capable of the complex cognitive processes involved in nuanced language tasks. As translation technology continues to evolve, the gap between human and machine translation may narrow, but the need for human expertise in making sophisticated analogies and maintaining logical coherence will remain essential (Koponen, 2016; Munday, 2016). Understanding these strengths and limitations allows for a more strategic use of both human and machine translation, maximizing their respective advantages in different contexts (Pym, 2010; Koehn, 2020).

5.2 Research Question 2: The Impact of Homogenization on Translation Quality

Homogenization involves reducing linguistic diversity by standardizing language, often under the influence of dominant languages like English (Baker, 2018). This process can lead to a loss of contextual and cultural nuances, as subtle linguistic expressions are replaced by standardized terms that fit a broader global context (Venuti, 2017). Such standardization, while aiding in ease of understanding, risks erasing the unique features of source texts, which are vital for preserving cultural identity and meaning (Cronin, 2003). This effect is evident in the similarity scores, where both ChatGPT and Google Translate frequently use the same set of terms. While this standardization helps maintain clarity and uniformity, it risks diluting the contextual and cultural specificities of the original language (Venuti, 1995; Snyder, 2017).

This trend reflects a tendency towards using standardized language, which can overshadow the linguistic diversity inherent in original texts, aligning with broader findings in cultural homogenization where a "generic international content and style" transcends national borders, leading to a broad, uniform cultural expression (Pike, 2013). The frequent use of identical terms in translation tools may also stem from the bias of training on English-dominated datasets, as noted by Bender et al. (2021). This reliance on dominant languages can inadvertently promote homogenization by marginalizing languages with fewer resources and unique cultural contexts. Simplifying complex cultural concepts to fit a universal framework can diminish the richness of the original language. The phenomenon of "creeping homogenization" highlights the subtle but pervasive shift towards standardized expressions, which prioritize broad appeal over the retention of distinct cultural and linguistic identities (Pike, 2013).

In particular, in the translations for Type-1 texts (Descriptions of Economic Trends and Issues) and Type-2 texts (Official Project Documentation), the high level of similarity in terms used by ChatGPT and Google Translate highlights the risks of linguistic homogenization. In Type-1 texts, which provide insights into economic conditions, forecasts, and challenges, the use of

standardized terminology can simplify complex economic concepts, but it may also strip away the nuances essential for a full understanding of these issues within specific cultural or regional contexts (Venuti, 2017). Similarly, in Type-2 texts, which involve formal and structured content typical of official and legal settings, the emphasis on accuracy and formality can lead to the use of a uniform style that might not accurately reflect the legal traditions or bureaucratic nuances of different jurisdictions (Biel, 2018).

This trend towards homogenization, facilitated by the reliance on dominant language patterns found in widely-used translation datasets, can result in translations that prioritize clarity and uniformity at the expense of the specificities that are crucial for effective communication in specialized fields (Koskinen, 2020). Consequently, the over-standardization in translation not only risks losing critical contextual details but also diminishes the cultural diversity that these texts are meant to convey. The findings highlight the challenge of maintaining linguistic diversity in the face of homogenization pressures. While consistency in translation is valuable for clarity and global comprehension, it is crucial to find a balance that also preserves the unique cultural and linguistic characteristics of source languages. Addressing the risks of homogenization requires integrating more nuanced translation approaches that respect and reflect the diversity of human languages and cultures (Pike, 2013; Bender et al., 2021; Luttermann, 2014).

5.3 Implications

The study highlights the importance of balancing AI translation tools with human oversight in language education. While AI can provide accessible and consistent translations, educators should integrate cultural context and nuanced understanding into their teaching. This ensures that learners not only grasp the language but also appreciate the cultural depth behind it, which is crucial for true linguistic competence.

The risk of homogenization suggests that translation agencies and professionals should be mindful of relying too heavily on AI tools. While AI offers speed and cost efficiency, human translators play a vital role in preserving contextual accuracy and ensuring that translations remain authentic and contextually appropriate (Munday, 2016). Translation practices should incorporate both AI and human expertise to maintain a high standard of quality. As shown by the high similarity scores, the use of standardized language in AI translations can lead to a loss of contextual relevance, which is particularly concerning for languages with complex cultural and situational contexts (Biel, 2018). Efforts should be made to include diverse linguistic datasets in AI training to mitigate this risk. Translation practices that emphasize contextual integrity are crucial, as they help to maintain the specific meanings and intentions embedded in different languages (Cronin, 2003).

These implications emphasize the need for a nuanced approach to translation that respects cultural, contextual, and linguistic diversity while leveraging the benefits of technological advancements. Balancing AI efficiency with human insight is crucial to achieving translations that are not only accurate but also contextually relevant and culturally resonant. This balanced approach ensures that translations maintain the specific meanings, intentions, and nuances embedded within different languages, reflecting both the context in which they are used and the cultural depth they represent.

5.4 Limitations

This study has limitations that need to be acknowledged. The analysis was based on specific text samples related to economic content, which may not capture the full range of linguistic diversity and translation challenges. Additionally, focusing primarily on nouns and noun phrases means that other important linguistic features, such as idioms, metaphors, and sentence structures, were not thoroughly evaluated. There may also be hidden assumptions in the study regarding the uniformity of economic language and the capability of AI translation tools to effectively handle such content. These assumptions may not have been fully recognized during the research process. Future research should explore a wider variety of text types, linguistic features, and real-world applications to provide a more comprehensive understanding of translation quality and to identify any implicit assumptions that could influence the study's outcomes.

6. Conclusion

This paper has examined translation quality among human translators, ChatGPT, and Google Translate, focusing on cognitive processes, homogenization risks, and the role of translation in language learning. It also highlights the significant role of both AI and human translators and teachers in the evolving landscape of language education and translation. The primary concern is not whether AI tools are or are not doing their job well or will replace translators or language teachers, but rather recognizing that AI tools are becoming an integral part of our daily lives, much like smartphones did. Human translators and language teachers will continue to play a crucial role in deepening our understanding of language and in mastering the power of AI tools through their prime job: Connecting languages, bridging cultures, and nurturing diversity.

Empirically, even when people speak the same language, misunderstandings are common. Thus, in language learning, the interplay of context and culture within language is critically essential. AI tools like ChatGPT and Google Translate offer quick translations and exposure to diverse linguistic inputs, making them useful in language learning. However, while these tools are effective for basic tasks, they often fall short of capturing the subtle cultural and contextual nuances that human translators and language teachers can provide. This implies that human expertise remains critical in navigating these complexities to foster true understanding, ensuring that we not only bridge cultures but also nurture the rich diversity inherent in language.

Looking ahead, the integration of AI in translation and language education presents an opportunity to enhance our global communication landscape. By embracing the strengths of both AI and human expertise, we can develop a more dynamic and effective approach to translation. Future efforts should focus on refining AI tools to better handle the complexities of language, including the cultural and contextual subtleties that are essential for true understanding. By doing so, we can ensure that language learning and translation not only keep pace with technological advancements but also enrich our capacity to connect with one another. This commitment to innovation, combined with a respect for the nuances of human communication, will enable us to build bridges of understanding and foster a deeper appreciation of the rich tapestry of global cultures.

Acknowledgement: The authors of this article acknowledged the support of Van Lang University at 69/68 Dang Thuy Tram St. Ward 13, Binh Thanh Dist., Ho Chi Minh City, Vietnam.
Orcid: https://orcid.org/0000-0001-6258-3545
Funding: This research received no external funding.
Conflicts of Interest: The authors declare no conflict of interest.
Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

References

[1] AI Technology Reviews. (2023). How AI translation is breaking down language barriers. Retrieved from https://aitechnologyreviews.com
[2] Baker, M. (2011). *In other words: A coursebook on translation* (2nd ed.). Routledge.
[3] Baker, M. (2018). *In other words: A coursebook on translation* (3rd ed.). Routledge.
[4] Baker, M., & Saldanha, G. (2020). *Routledge encyclopedia of translation studies* (3rd ed.). Routledge.
[5] Bender, E. M., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the dangers of stochastic parrots: Can language models be too big? *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency*, 610-623. doi:10.1145/3442188.3445922
[6] Biel, Ł. (2014). *Lost in the Eurofog: The textual fit of translated law*. Peter Lang.
[7] Bielsa, E. (2019). Translation and globalization. In *Routledge handbook of translation and globalization* (pp. 11-23).
[8] Brown, T. B., Mann, B., Ryder, N., Subbiah, M., Kaplan, J., Dhariwal, P., ... & Amodei, D. (2020). Language models are few-shot learners. *arXiv preprint arXiv:2005.14165*. doi:10.48550/arXiv.2005.14165
[9] Chesterman, A. (1997). *Memes of translation: The spread of ideas in translation theory*. John Benjamins.
[10] Cook, G. (2010). *Translation in language teaching: An argument for reassessment*. Oxford University Press.
[11] Cronin, M. (2003). *Translation and globalization*. Routledge.
[12] Duff, A. (1989). *Translation*. Oxford University Press.
[13] EUATC. (2023). The future of translation - a nuanced perspective. Retrieved from https://euatc.org
[14] Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Sage.
[15] Gentner, D. (1983). Structure-mapping: A theoretical framework for analogy. *Cognitive Science, 7*(2), 155-170. https://doi.org/10.1016/S0364-0213(83)80009-3
[16] Gentner, D., & Markman, A. B. (1997). Structure mapping in analogy and similarity. *American Psychologist, 52*(1), 45-56. https://doi.org/10.1037/0003-066X.52.1.45
[17] Gibbs, R. W. (1994). *The poetics of mind: Figurative thought, language, and understanding*. Cambridge University Press.
[18] Gile, D. (2009). *Basic concepts and models for interpreter and translator training* (Rev. ed.). John Benjamins.
[19] González-Davies, M., & Scott-Tennent, C. (2020). Towards the integration of translation in language teaching: Developing language and translation simultaneously. *The Interpreter and Translator Trainer, 14*(1), 12-28. doi:10.1080/1750399X.2020.1713139
[20] Graddol, D. (2006). *English next*. British Council.
[21] Halliday, M. A. K., & Matthiessen, C. M. I. M. (2014). *Halliday's introduction to functional grammar*. Routledge.
[22] Hatim, B., & Mason, I. (1997). *The translator as communicator*. Routledge.
[23] Hatim, B., & Munday, J. (2004). *Translation: An advanced resource book*. Routledge.
[24] Hofstadter, D. R. (2001). *Analogy as the core of cognition*. In *The analogical mind: Perspectives from cognitive science*. MIT Press.
[25] House, J. (2015). *Translation quality assessment: Past and present*. Routledge.
[26] House, J. (2018). *Translation: The basics*. Routledge.
[27] Huddleston, R., & Pullum, G. K. (2002). *The Cambridge grammar of the English language*. Cambridge University Press.
[28] Johnson, K., Schuster, M., Le, Q. V., Krikun, M., Wu, Y., Chen, Z., ... & Dean, J. (2017). Google's multilingual neural machine translation system: Enabling zero-shot translation. *Transactions of the Association for Computational Linguistics, 5*, 339-351. doi:10.1162/tacl_a_00063
[29] Kerr, P. (2021). *Translation and own-language activities*. Cambridge University Press.

[30] Koehn, P. (2020). *Neural machine translation*. Cambridge University Press.
[31] Koehn, P., & Knowles, R. (2017). Six challenges for neural machine translation. *Proceedings of the First Workshop on Neural Machine Translation*, 28–39. doi:10.18653/v1/W17-3204
[32] Koponen, M. (2016). Is machine translation post-editing worth the effort? A survey of research into post-editing and effort. *Journal of Specialised Translation, 25*, 131-148.
[33] Kramsch, C. (1993). *Context and culture in language teaching*. Oxford University Press.
[34] Language Insight. (2024). 2024 trends in the translation industry. Retrieved from https://languageinsight.com
[35] Lertola, J. (2018). From translation to audiovisual translation in foreign language learning. *Translating and the Computer, 40*, 1-8. https://doi.org/10.24310/trans.2018.v0i22.3217
[36] Luttermann, A. (2014). Linguistic and cultural homogenization in the face of global change: A subarctic example. In B. Freedman (Ed.), *Global environmental change*. Springer. DOI:10.1007/978-94-007-5784-4_85
[37] Malmkjær, K. (2018). *The Routledge handbook of translation studies and linguistics*. Routledge.
[38] Mills, D. (2023). Contextual nuances in AI translation: Challenges and prospects. *AI Technology Reviews*.
[39] Mills, O. (2023). Context idioms and nuances: How AI grapples with translation challenges. Retrieved from https://oliviermills.com/articles/context-idioms-nuances-ai-grapples-translation-challenges
[40] Muñoz Martín, R. (2014). *Advances in cognitive translation studies*. John Benjamins Publishing Company.
[41] Munday, J. (2016). *Introducing translation studies: Theories and applications*. Routledge.
[42] Newmark, P. (1988). *A textbook of translation*. Prentice Hall.
[43] O'Brien, S. (2012). Translation as cognitive processing: A case for the translator's role. In H. T. Hansen, G. Massey, & F. Ehrensberger-Dow (Eds.), *Cognitive explorations of translation* (pp. 9-28). Continuum.
[44] Pike, B. (2013). Cultural homogeneity and the future of literary translation. *Publishing Perspectives*. Retrieved from https://publishingperspectives.com
[45] Pym, A. (2010). *Exploring translation theories*. Routledge.
[46] Pym, A. (2015). *Exploring translation theories* (2nd ed.). Routledge.
[47] Schaffner, C. (1998). *Translation and quality*. Multilingual Matters.
[48] Snyder, R. (2017). The Murakami effect. *World Literature Today*.
[49] Toury, G. (1995). *Descriptive translation studies and beyond*. John Benjamins.
[50] TrueLanguage. (2023). Globalization cultural awareness translations and AI. Retrieved from https://www.truelanguage.com
[51] U.S. Translation Company. (2023). Translation accuracy: Why does it matter? Retrieved from https://ustranslation.com
[52] Venuti, L. (1995). *The translator's invisibility: A history of translation*. Routledge.
[53] Venuti, L. (2017). *The translator's invisibility: A history of translation* (2nd ed.). Routledge.
[54] Widdowson, H. G. (2004). *Text, context, pretext: Critical issues in discourse analysis*. Blackwell Publishing. DOI:10.1002/9780470758427