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Comparative analysis of translation platforms: Accuracy, fluency, and unambiguity from a technological perspective

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Abstract

This study aims to evaluate and compare the performance of leading translation platforms (Youdao, Google, Baidu, and ChatGPT) for translating news texts. The evaluation focuses on three key dimensions: accuracy, fluency, and unambiguity. Each platform was tested by translating a Chinese news article, and their outputs were analyzed for their handling of specialized terminology, linguistic fluency, and cultural adaptability. The findings reveal significant performance differences, reflecting varying levels of technological maturity, data quality, and cultural adaptability among the platforms. ChatGPT emerged as the top performer due to its high accuracy and fluency, while Youdao, Baidu, and Google exhibited varying strengths and limitations in handling complex news texts. Ultimately, the results highlight the importance of continuous technological innovation and theory-practice integration in improving translation quality, particularly for accurate and effective global news dissemination.

Keywords: Translation Platforms; News; Accuracy; Fluency; Unambiguity

1. Introduction

In the context of rapid globalization, the ability to convey news accurately and effectively across linguistic barriers is paramount. The international media landscape increasingly demands precise and fluent translation of news texts, as dissemination shapes global understanding. High-quality translations foster mutual comprehension, international collaboration, and peace by bridging linguistic and cultural gaps. The swift pace of global information exchange underscores the crucial role of translation platforms in overcoming language barriers and ensuring timely dissemination. While delivering consistent and high-quality translations is instrumental in relaying critical information, these platforms face challenges in managing specialized terminology, complex narratives, and cultural nuances. Errors or biases in translation can lead to distorted communication, which can affect international perception and relations.

1.1. Research Background and Significance

In the age of rapid globalization, the ability to convey news accurately and effectively across linguistic boundaries has never been more important. The media landscape is increasingly characterized by the need for precise and fluent translation of international news, as information dissemination becomes crucial in shaping global understanding. The accurate translation of news serves as a bridge, linking diverse linguistic and cultural communities to foster mutual understanding, international cooperation, and peace (Holland, 2013). Amid the unprecedented pace of global information exchange, translation platforms are crucial in breaking down language barriers and ensuring timely and accurate dissemination. Their role is instrumental in delivering consistent, high-quality translations that facilitate the relay of critical information, from economic trends to diplomatic developments. However, translation accuracy remains a significant challenge, especially when handling specialized terminology, complex narratives, or culturally specific

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references. Platforms must also maintain linguistic fluency and clarity while eliminating ambiguity, ensuring that the translations are faithful to the source material and suitable for diverse audiences.

Moreover, translation platforms influence global perceptions of international events and political narratives. By providing accurate and nuanced translations, these platforms help shape a balanced understanding of global developments. This is particularly relevant for China, where effective news translation is vital to conveying the country's rapid economic growth, social stability, and cultural prosperity. Such translations help to project a progressive image of China and strengthen its cultural soft power on the international stage. However, these platforms also face challenges in addressing accuracy, fluency, and unambiguity. Errors or biases in translation can lead to distorted messaging, miscommunication, and misunderstandings, which can affect public perception and international relations. The ability to handle specialized terminology, adapt to different cultural contexts, and convey the original intent accurately and fluently is essential for effective news dissemination. This research, therefore, evaluates and compares the performance of leading translation platforms (Youdao, Google, Aidiu, and ChatGPT) across three critical dimensions: accuracy, fluency, and unambiguity. By analyzing their outputs in translating Chinese news texts, the study aims to identify their strengths and weaknesses, highlighting areas for improvement. Understanding these factors will not only assist in selecting appropriate tools for accurate translation but also guide the optimization of translation technology to enhance global news dissemination and cross-cultural understanding (Holland, 2013).

1.2. Globalization and the Importance of News Dissemination

The current era of globalization has fundamentally reshaped the way information and news are disseminated worldwide. The increasing interconnectedness of nations has emphasized the significant role of high-quality translations in shaping international perspectives and fostering cross-cultural communication. With global audiences relying on translations to accurately understand international developments and shape perceptions of nations and events, news serves as a critical tool for building international images and mutual understanding. This highlights the need for precise, fluent, and culturally sensitive translations.

1.2.1. The Vital Role of Global News in Cross-Cultural Communication

Global news plays a crucial role in bridging linguistic and cultural divides. The global distribution of information through translated news allows people to access diverse viewpoints and better understand different cultures, political systems, and societal values. Such access helps develop a more nuanced global perspective, fostering international cooperation and empathy. The dissemination of accurate translations ensures that critical issues, whether political, economic, or social, are understood comprehensively and without distortion, promoting a more informed and empathetic global discourse. This improved understanding enhances international collaboration, minimizes the risks of cultural misunderstandings, and strengthens diplomatic relationships. In this context, China's strategy of leveraging news translation to project its cultural soft power is particularly notable. By effectively sharing its rapid economic development, societal stability, and cultural prosperity with the world, China aims to convey its progressive image and strengthen its global presence. Accurate translations of Chinese news engage international audiences with stories that reflect the country's development philosophy and cultural heritage. Through such efforts, China aims to enhance its voice on the global stage and build a more positive international image. This strategy serves as a diplomatic asset by fostering better cross-cultural understanding, enabling China to showcase its values and policies on economic development, social progress, and sustainability. Despite the strategic importance of accurate translations in promoting soft power, translating Chinese news presents unique challenges. Translators and translation platforms must manage not only specialized language and terminology but also convey cultural nuances integral to effective messaging. Accurately translating specialized terms, geographic names, and concepts is vital to ensuring that the intended message reaches international audiences clearly and without distortion. This requires translation platforms to possess sophisticated linguistic skills and a deep understanding of cultural differences to ensure that China's strategic messages are conveyed effectively and unambiguously. Overall, globalization underscores the indispensable role of accurate news translation in shaping international perspectives, fostering cross-cultural understanding, and enhancing diplomatic relationships. By leveraging advanced translation platforms, nations can transcend linguistic and cultural barriers, conveying their stories more accurately and projecting their cultural values globally. This effort contributes to a more informed and connected international community, strengthening mutual understanding and cooperation across borders (Banda, 2015).

1.2.2. Role and Challenges of Translation Platforms in News Dissemination

Translation platforms have become indispensable in the modern era of globalization, serving as crucial conduits for the dissemination of news across linguistic divides. These platforms enable the swift sharing of global news, allowing people from different cultural and linguistic backgrounds to gain timely access to critical information. This rapid dissemination

is vital for understanding complex global events, from political upheavals to economic developments, ensuring that diverse audiences stay informed regardless of their native language. The capacity of these platforms to handle large volumes of data quickly means that news can travel faster than ever before. As a result, information about international crises or significant political and economic changes is accessible almost instantly worldwide. This function of translation platforms not only supports the demand for real-time information but also plays a critical role in shaping public perception and policy at a global scale. However, the task of translating news accurately involves significant challenges that can impact the quality and reliability of the information conveyed. One major issue is ensuring the accuracy of translations. Even minor errors in the translation of news can lead to misinterpretations, potentially distorting the intended message. News often includes specialized terminology and context-specific references that require meticulous translation to preserve their meaning accurately across languages. Moreover, fluency in translations is crucial for the readability and natural flow of text in the target language. High-quality translations should read as if they were originally written in the target language, with no awkward phrases or syntax that might confuse the reader. Achieving this level of fluency is particularly challenging when translating directly from one language to another without considering the linguistic and stylistic nuances of the target language. Cultural adaptability is another significant challenge. Translation platforms must navigate complex cultural nuances to ensure that translations are culturally sensitive and appropriate. This includes understanding differences in humor, idiomatic expressions, and societal norms to avoid offending or misleading readers. Cultural nuances can deeply influence the interpretation of news, making cultural adaptability a critical aspect of translation. Ambiguity in translation can also lead to misunderstandings, making it essential to produce unambiguous text. This involves careful consideration of the potential for various interpretations of words and phrases, particularly when they involve idioms, metaphors, or technical language that may not have direct equivalents in the target language. Despite these challenges, translation platforms are continuously evolving, leveraging advancements in machine learning and artificial intelligence to enhance their capabilities. The integration of human expertise with sophisticated algorithms helps improve the accuracy, fluency, and cultural sensitivity of translations. As these technologies advance, translation platforms are increasingly capable of delivering high-quality translations that are vital for global communication and understanding, fostering a more interconnected and informed world (Yun-Guo, 2009).

1.3. Research Objectives and Questions

This study systematically evaluates and compares the performance of prominent translation platforms—Youdao, Google, Baidu, and ChatGPT—within the context of news text translation, focusing on three critical dimensions of translation quality: accuracy, fluency, and unambiguity. This research aims to provide a comprehensive assessment of each platform's capabilities, offering valuable insights into their operational effectiveness in global news dissemination. The primary objective of this research is to critically assess how well these translation platforms manage the intricacies of news translation across varied linguistic landscapes. The study evaluates the platforms' ability to accurately translate professional terminology and geographic names, pivotal in maintaining the integrity and credibility of news content. It also examines the fluency of translations, considering how natural the translated texts feel to native speakers of the target language, which affects the readability and overall reception of the news. Furthermore, it assesses the unambiguity of the translations to ensure that the information is conveyed clearly and without potential misunderstandings, crucial in sensitive news contexts. The study poses several key questions aimed at dissecting the operational efficacy of these platforms. It explores how accurate the platforms are in translating complex professional terminology and geographic names found in news texts, seeking to determine the level of precision each platform achieves in handling specialized vocabulary that is often pivotal in news reports. It also investigates how natural the translated content feels in the target language, evaluating whether the translations align with native linguistic constructs and syntax, thereby ensuring that the news appears as though it was originally written in the target language. Moreover, the study examines whether there are ambiguities in the translations and how these affect the clarity of news dissemination, addressing the potential for misunderstandings that might arise from poorly translated texts. Lastly, it looks at the impact of different technological approaches and methodologies—such as machine translation, AI-enhanced tools, or human editing—on the quality of translations, exploring how various techniques influence the accuracy, fluency, and clarity of translated news content. By addressing these aspects, this research will contribute to the optimization of translation technologies used in global news distribution, aiming to enhance the reliability and effectiveness of multilingual news dissemination, thereby ensuring that news reaches global audiences with both precision and clarity.

2. Literature Review

Translation theories guide the practice of translating across different languages and cultures, emphasizing how translated texts should preserve the original's meaning, tone, and context. Two key theories often referenced are Dynamic Equivalence and Skopos Theory. Dynamic Equivalence, proposed by Eugene Nida, prioritizes conveying the emotional and contextual impact of the original text rather than adhering strictly to its literal translation. The aim is to

make the translated text produce a similar response in the target audience as the original would in its native audience. Translators often adapt or modify the original to align with the target culture's expectations and linguistic norms, ensuring that emotional resonance and cultural context are preserved (Zhang, 2018). Skopos Theory, developed by Hans Vermeer, argues that translation is purpose-oriented. The decisions made in translating are guided primarily by the translation's intended function in the target language. Translators should adjust their strategies based on the translation's specific social, cultural, and communicative goals. For instance, an advertisement's translation should align with the marketing goals of the target audience's culture, while a textbook's translation needs to meet educational standards (Li & Ma, 2020).

These theories offer valuable frameworks for translation practice. Dynamic Equivalence emphasizes audience reception, encouraging translators to focus on delivering the original's intent and emotions, while Skopos Theory emphasizes flexibility to meet specific communicative objectives. However, both theories face challenges. Dynamic Equivalence may lead to over-modification of the original, potentially losing its unique style or intent, while Skopos Theory may overlook the importance of fidelity to the source text. Balancing these theoretical frameworks can lead to translations that effectively bridge linguistic and cultural divides. Understanding these theories is crucial when evaluating and comparing the performance of translation platforms. Their methodologies can influence how platforms process news texts, affecting translation accuracy, fluency, and cultural adaptability, as highlighted in the research on mainstream translation platforms. Evaluating the quality of translations involves multiple criteria to ensure the translated text faithfully represents the original while resonating naturally with the target audience. The most commonly used standards include accuracy, fluency, fidelity, and cultural adaptability. Accuracy ensures that the translated content correctly reflects the original information, including names, terminology, and facts. Inaccurate translation can distort meaning and lead to misinterpretation, especially in fields like international news where precise terminology is vital. A quality translation should preserve the meaning and nuance of the source text, ensuring consistency with the original (Wu, Yu, & Yao, 2020). Fluency measures how naturally the translation reads in the target language, considering grammar, syntax, and vocabulary. A fluent translation should not read like a word-for-word conversion but should instead sound as if it were originally composed in the target language. It requires the translator to have a deep understanding of the linguistic norms and expressions unique to the target audience (Wu, 2016).

Fidelity assesses the translation's faithfulness to the source text. It means retaining the original's tone, style, and intent while avoiding unnecessary embellishments or alterations. This standard ensures that the translated text delivers the same message and emotional impact as the original. Cultural adaptability emphasizes the need for translations to resonate with the cultural context of the target audience. This requires understanding the societal norms, idioms, and references specific to the target culture, ensuring the translation remains relevant and relatable. Misunderstanding these nuances can lead to culturally insensitive or awkward translations that fail to convey the intended message. To measure these standards effectively, a combination of qualitative and quantitative scoring is used. Qualitative evaluation relies on expert analysis to interpret how well the translation meets these criteria, while quantitative scoring provides a numerical assessment based on specific benchmarks. This comprehensive approach allows for a nuanced understanding of translation quality, highlighting areas where platforms like Youdao, Google, Baidu, and ChatGPT excel or need improvement, as detailed in the study. Combining qualitative and quantitative scoring is essential for evaluating translation quality across platforms. Qualitative assessments delve into how well translations convey meaning, maintain context, and meet cultural norms. This method relies on expert analysis to provide nuanced feedback on accuracy, fluency, and the absence of ambiguity. Accuracy refers to how faithfully a translation reflects the original text's terminology, names, and facts. Experts meticulously compare the translated content with the source text to ensure that key concepts, figures, and ideas align. Fluency ensures that the translation reads smoothly and naturally in the target language, free of grammatical errors or awkward phrasing. The quantitative approach uses standardized scoring criteria to rate each platform's performance on a numerical scale. This objective measure ensures consistent evaluation of each translation. Scores are assigned based on criteria like adherence to grammatical rules, accurate conveyance of facts, and clarity of expression. Combining these methods, the study evaluates platforms like Youdao, Google, Baidu, and ChatGPT for their translation of Chinese news texts. The qualitative analysis explores each platform's unique strengths and weaknesses in maintaining accuracy, fluency, and cultural adaptability, while quantitative scoring translates these assessments into actionable metrics. Together, this approach helps identify specific areas for improvement in translation strategies, ensuring platforms effectively serve the global demand for accurate and fluent news dissemination.

3. Research Methodology

This study employs a detailed methodology designed to assess the efficacy of four major translation platforms—Youdao, Google, Baidu, and ChatGPT—in translating Chinese news texts (Kong & Cui, 2018). The approach ensures consistency

and replicability in test conditions, providing clear insights into the comparative performance of these tools regarding accuracy, fluency, and unambiguity.

3.1. Translation Test Setup

To evaluate and compare the translation quality of Youdao, Google, Baidu, and ChatGPT, this study used a Chinese news text. Each platform translated this text into English, and their outputs were then assessed according to specific criteria, including accuracy, fluency, and unambiguity. Accuracy involves how well-specialized terminology, proper names, and factual information are transferred from the original text to the translation. Evaluating this aspect requires ensuring the correct handling of terms like "structural transformation" or "market-oriented reform," which are critical in news articles covering economic policies. Fluency measures the readability and naturalness of the translated text in the target language. A fluent translation should use appropriate grammar, vocabulary, and idiomatic expressions, giving the impression that the text was originally written in the target language. Unambiguity assesses the clarity of the translation. Ambiguous or misleading expressions can lead to confusion, particularly in articles where cultural differences can complicate understanding. By applying this standard Chinese news article across the four platforms, the test setup ensured consistency and enabled an objective comparison. The translations were analyzed with both qualitative and quantitative scoring to highlight strengths and weaknesses, providing a comprehensive assessment.

3.2. Scoring Criteria

Evaluating translation quality involves assessing translations across several key dimensions: accuracy, fluency, and unambiguity. For this research, each of these criteria was used to gauge the performance of Youdao, Google, Baidu, and ChatGPT when translating a Chinese news article. Accuracy ensures that the translated content faithfully conveys the source text's meaning, particularly in translating professional terminology, names, and factual information. This criterion examines how well specific terms like "market-oriented production factor reform" or geographic names are handled, ensuring that translations are both precise and consistent. Fluency measures the translated text's grammatical and linguistic naturalness in the target language. Translations should read as if they were originally written in the target language. This involves adhering to idiomatic expressions, sentence structure, and grammar to ensure a smooth reading experience.

Unambiguity refers to the clarity of the translated content, ensuring that misleading or unclear expressions are absent. A good translation should accurately reflect the original text without adding ambiguity, particularly in the context of culturally sensitive or highly specific terminology. These criteria are integral to understanding how effectively each translation platform maintains the integrity of the original information while ensuring a high-quality translation output. The combined evaluation of these dimensions provides valuable insights into the varying strengths and weaknesses of each platform.

3.3. Analytical Approach

The study utilizes both qualitative and quantitative analytical techniques to interpret the data collected from the translation tests. Quantitative analysis involves statistical comparisons and rankings of each platform's performance based on the scoring criteria. On the other hand, qualitative analysis delves deeper into how effectively each platform manages linguistic subtleties and cultural contexts, which are often crucial for accurate and impactful news translation. This comprehensive approach allows for a detailed assessment of each translation platform, highlighting their strengths and weaknesses within the context of global news dissemination. This rigorous methodology ensures that the findings are robust, providing a solid foundation for recommendations on employing translation technology within the media and communication industries.

4. Results and Discussion

The comparative analysis of translation outputs reveals distinct differences in performance across the six platforms: Youdao, Youdao AI, Google, Baidu, Baidu AI, and ChatGPT. Evaluated on three main criteria—accuracy, fluency, and unambiguity—each platform exhibited varying strengths and weaknesses. Youdao and Baidu AI displayed some proficiency in geographical names and industry-specific terms but often suffered from literal translations that affected naturalness. Google excelled in technical phraseology, ensuring accurate and contextually relevant translations. ChatGPT stood out with near-native fluency, maintaining accuracy and clarity while handling specialized terminology adeptly. The varying performance among platforms reflects different levels of technological sophistication, data quality, and adaptability, emphasizing the importance of strategic selection to meet specific translation needs.

4.1. The Output of the Translation

This section presents the full texts of the original Chinese news article and its official English translation, along with the translations produced by the six platforms: Youdao, Youdao AI, Google, Baidu, Baidu AI, and ChatGPT. **Original Chinese Text:** 在海南海口举行的第 88 次中国改革国际论坛上，与会专家指出，中国以经济转型为主线的结构性改革将为中国的高质量发展奠定坚实基础，为全球经济增长注入强劲动力。中国（海南）改革发展研究院副院长匡贤明指出，高质量发展是全面建设社会主义现代化国家的首要任务，中国正处于结构转型升级的关键时期，而结构转型升级对于推动高质量发展发挥着不可或缺的作用。匡贤明表示，为了推动结构转型，我国应该深化以市场为导向的生产要素改革，打破服务行业的垄断，建设全国统一大市场，加强知识产权保护，推进教育体制改革。(China's Economic Structural Transformation, 2022) **Official English Translation:** At the 88th International Forum on China Reform held in Haikou, Hainan, experts noted that China's structural reforms centered on economic transformation will lay a solid foundation for the country's high-quality development and inject strong impetus into global economic growth. Kuang Xianming, vice president of the China (Hainan) Institute for Reform and Development, stated that high-quality development is the top priority in fully building a modern socialist country. China is at a crucial stage in its structural transformation and upgrading, which plays an indispensable role in promoting high-quality development. To advance structural transformation, Kuang said, China should deepen market-oriented reforms of production factors, break monopolies in the service sector, establish a unified national market, strengthen intellectual property protection, and advance reforms of the education system. **Youdao Translation:** At the 88th International Forum on China's Reform held in Haikou, Hainan province, experts attending the forum pointed out that China's structural reform with economic transformation as the main line will lay a solid foundation for China's high-quality development and inject strong impetus into global economic growth. Kuang Xianming, vice president of the China (Hainan) Reform and Development Institute, pointed out that high-quality development is the primary task of comprehensively building a modern socialist country, and China is in a critical period of structural transformation and upgrading, and structural transformation and upgrading plays an indispensable role in promoting high-quality development. To promote structural transformation, the country should deepen market-oriented reform of production factors, break the monopoly of the service industry, build a unified large market across the country, strengthen intellectual property rights protection and promote reform of the education system, Kuang said. **Youdao AI Translation:** At the 88th China Reform International Forum held in Haikou, Hainan, experts present at the forum pointed out that China's structural reform with economic transformation as the main line will lay a solid foundation for China's high-quality development and inject strong impetus into global economic growth. Deputy Director of the China (Hainan) Institute for Reform and Development Kuang Xianming pointed out that high-quality development is the top priority for comprehensively building a modern socialist country. China is currently in a critical period of structural transformation and upgrading, and the transformation and upgrading of structures plays an indispensable role in driving high-quality development. Kuang Xianming said that in order to promote structural transformation, China should deepen market-oriented reform of production factors, break monopolies in service industries, build a unified national market, strengthen intellectual property protection, and promote reform of the education system. **Google Translation:** At the 88th International Forum on China's Reform held in Haikou, Hainan, participating experts pointed out that China's structural reforms focusing on economic transformation will lay a solid foundation for China's high-quality development and inject strong impetus into global economic growth. Kuang Xianming, deputy director of the China (Hainan) Institute of Reform and Development, pointed out that high-quality development is the primary task of building a modern socialist country in an all-round way. China is in a critical period of structural transformation and upgrading, and structural transformation and upgrading play an important role in promoting high-quality development. indispensable role. Kuang Xianming said that in order to promote structural transformation, our country should deepen market-oriented reform of production factors, break the monopoly of the service industry, build a unified national market, strengthen intellectual property protection, and promote the reform of the education system. **Baidu Translation:** At the 88th China Reform International Forum held in Haikou, Hainan, attending experts pointed out that China's structural reforms, with economic transformation as the main theme, will lay a solid foundation for China's high-quality development and inject strong impetus into global economic growth. Kuang Xianming, Vice President of China (Hainan) Reform and Development Research Institute, pointed out that high-quality development is the primary task of comprehensively building a socialist modernized country. China is currently in a critical period of structural transformation and upgrading, which plays an indispensable role in promoting high-quality development. Kuang Xianming stated that in order to promote structural transformation, China should deepen market-oriented reform of production factors, break the monopoly of the service industry, build a unified national market, strengthen intellectual property protection, and promote education system reform. **Baidu AI Translation:** At the 88th China Reform International Forum held in Haikou, Hainan, experts attending the forum pointed out that China's structural reform with economic transformation as the main line will lay a solid foundation for China's high-quality development and inject strong impetus into global economic growth. Kuang Xianming, vice president of the China (Hainan) Institute of Reform and Development, pointed out that high-quality development is the primary task of comprehensively building a modern socialist country. China is in a critical period of structural transformation and upgrading, which plays an indispensable role in promoting high-quality development. Kuang Xianming said that in order

to promote structural transformation, China should deepen market-oriented production factor reform, break the monopoly of service industry, build a unified national market, strengthen intellectual property protection, and promote education system reform. ChatGPT Translation: At the 88th China Reform International Forum held in Haikou, Hainan, experts pointed out that China's structural reforms, centered around economic transformation, will lay a solid foundation for the country's high-quality development and inject a strong impetus into global economic growth. Kuang Xianming, Vice President of the China (Hainan) Institute for Reform and Development, noted that high-quality development is the primary task in comprehensively building a modern socialist country. China is currently at a critical period of structural transformation and upgrading, which plays an indispensable role in promoting high-quality development. Kuang Xianming stated that to advance structural transformation, China should deepen market-oriented reforms of production factors, break monopolies in the service industry, build a unified national market, strengthen intellectual property protection, and push forward with educational system reforms.

4.2. Comparison Across Platforms

A comprehensive analysis of translation outputs reveals distinct variations among the six mainstream translation platforms: Youdao, Youdao AI, Google, Baidu, Baidu AI, and ChatGPT. Their performances were assessed based on three primary criteria: accuracy, fluency, and unambiguity. Youdao: Scoring 60/100 overall, Youdao exhibited satisfactory performance in accuracy, particularly with geographical terms like "Haikou, Hainan." However, translating specialized economic terms like "market-oriented reform of production factors" posed challenges, leading to a lack of precision. Despite scoring 25/30 in fluency, Youdao's translations tended toward literal renderings, such as translating "build a unified large market across the country" directly from the Chinese phrasing. This approach often compromised the natural flow in English. Although unambiguity was generally maintained, the treatment of certain technical terms occasionally led to vague interpretations. Youdao AI: Youdao AI scored 70/100 overall. In accuracy, it achieved 30/40, showing improvement in handling economic policies like "market-oriented reform of production factors." With a fluency score of 25/30, Youdao AI's translations were somewhat smoother than those of Youdao, yet still presented some stiffness. Unambiguity scored only 15/30, as certain policy expressions left room for clearer communication. Google: Google achieved a score of 90/100, demonstrating high competence across all dimensions. With 35/40 in accuracy, it accurately captured intricate terms like "structural transformation and upgrading." Its translations also achieved a natural fluency, with sentences like "strengthen intellectual property protection" reflecting authentic English usage. While unambiguity was consistently upheld, some minor tense issues occasionally introduced subtle discrepancies.

Baidu: Baidu scored 82/100 overall. While it effectively translated specialized terms like "market-oriented reform of production factors," some expressions lacked the specificity needed for precise communication. Despite attaining a 27/30 fluency score, a tendency toward literal translation led to stiffness, such as with "build a unified national market." Unambiguity was maintained in most cases, but certain word choices occasionally resulted in slight ambiguities.

Baidu AI: Baidu AI earned 86/100, achieving 34/40 in accuracy due to better handling of technical terms. Fluency scored 27/30, revealing improvement over Baidu, although literal translation was still sometimes evident. Unambiguity achieved 25/30, as the translations generally conveyed information clearly, despite occasional ambiguities requiring more context. ChatGPT: Leading with a score of 94/100, ChatGPT excelled in accuracy, particularly with complex phrases like "structural transformation and upgrading." It also ensured exceptional fluency, creating translations that closely mirrored native English expressions. For instance, "to advance structural transformation, China should deepen market-oriented reforms of production factors" showcased its understanding of economic terminology and context. In terms of unambiguity, ChatGPT achieved clarity, providing well-structured, unambiguous translations.

Overall, the performance variations among these platforms indicate differences in their technological sophistication, data quality, and cultural adaptability. ChatGPT and Google consistently demonstrated advanced understanding and processing of specialized terms and phrases, producing translations suitable for professional or academic use. Conversely, Baidu, Baidu AI, Youdao, and Youdao AI showed potential but require further refinement to handle more complex contexts accurately. These insights underscore the significance of selecting platforms tailored to specific translation needs. Furthermore, they provide a strategic basis for improving translation quality, particularly in terms of fluency and accuracy, which are essential for global communication.

4.3. Interpretation of Results

The analysis of six translation platforms — Youdao, Youdao AI, Google, Baidu, Baidu AI, and ChatGPT — highlights notable performance variations across accuracy, fluency, and unambiguity. Their results reflect differences in technological maturity, data quality, and cultural adaptability, each influencing translation quality in significant ways. Technological maturity played a crucial role in determining the quality of translations. ChatGPT and Google, using

advanced machine learning models and extensive training data, consistently performed at a high level in terms of accuracy and fluency. Their translations were fluid and naturally close to native-level proficiency, effectively capturing complex phrases and specialized terms. Youdao and Baidu, on the other hand, faced challenges in translating technical economic terms and policy measures, often resulting in literal translations that compromised the naturalness of the output.

Data quality was a pivotal factor in handling specialized terminology. ChatGPT and Google excelled in translating policy jargon and geographic names, maintaining high levels of accuracy and contextual clarity. Improvements in data quality and algorithm refinement allowed Baidu AI to surpass Baidu's earlier limitations, demonstrating the positive impact of training data improvements.

User feedback remains essential for refining translation algorithms and understanding the audience's perception of translation quality. ChatGPT and Google, which leverage comprehensive user feedback to optimize their models, consistently provide high-quality translations. Youdao AI, despite improving over the original Youdao platform, still exhibited limitations with specific terminology, pointing to the need for further adjustments. Cultural sensitivity and adaptability are vital to achieving translations that resonate with target audiences. ChatGPT maintained the original meaning while delivering translations with clarity and nuance, particularly in sensitive political and economic contexts. Google closely followed by capturing the intricacies of specialized vocabulary while avoiding ambiguity. Baidu and Youdao, however, sometimes hindered the natural flow by sticking too rigidly to literal translations, resulting in unintended ambiguities.

In terms of overall strengths and weaknesses, ChatGPT and Google proved most capable of handling specialized terminology and maintaining accuracy, fluency, and unambiguity. Their translations are suitable for specialized and academic contexts due to their natural fluency and consistency. Baidu AI showed promise by addressing some of Baidu's initial issues but still requires refinement to meet the needs of complex contexts. Youdao and Youdao AI lagged, particularly in processing nuanced policy expressions and delivering fluent translations. These results emphasize the importance of selecting translation platforms suited to specific needs. The findings underscore the significance of ongoing technological advancements and data improvements in translation platforms, which are crucial for enhancing global communication.

4.4. Evaluation Summary

The evaluation of six translation platforms, Youdao, Youdao AI, Google, Baidu, Baidu AI, and ChatGPT, demonstrated significant differences in their performance across accuracy, fluency, and unambiguity. These disparities reveal the varying levels of technological advancement, data quality, and cultural adaptability that each platform embodies. ChatGPT and Google stood out due to their high scores in accuracy, fluency, and unambiguity. Both platforms consistently captured complex economic and policy terminology with precision, while their translations mirrored native English fluency. ChatGPT achieved the highest score of 94, demonstrating its advanced machine learning models and extensive training data that enabled a superior understanding of nuanced professional language. Google closely followed with a score of 90, offering natural and contextually accurate translations, particularly excelling in technical phraseology.

Baidu AI and Baidu were notable for their specialized handling of Chinese terminology and their overall solid performance. Baidu AI outperformed the standard Baidu platform, scoring 86 due to improvements in specialized terminology translation and general fluency. The original Baidu platform still presented certain limitations in clarity and fluency, resulting in a score of 82. However, both platforms displayed strengths in handling geographical names and localized cultural expressions. Youdao AI scored 70, showing improvement over the basic Youdao platform but with notable stiffness in its translations. Youdao's rigid, literal translations and lack of precision with technical terms resulted in a score of 60. Both platforms struggled to fully grasp economic and policy terminology, often translating expressions too literally, which hindered their fluency and created ambiguities. Overall, this comparison highlights the importance of accuracy, fluency, and unambiguity when selecting a translation platform. Platforms like ChatGPT and Google demonstrated strong technological maturity and high-quality data that enable them to effectively translate specialized content. Meanwhile, Baidu and Youdao, although effective in specific scenarios, require further refinement to consistently handle complex contexts. These findings emphasize the necessity for continuous improvement in translation technologies, with strategic insights for enhancing accuracy, fluency, and cultural adaptability. Better data quality and user feedback mechanisms will support the optimization of translation strategies, ultimately improving global news dissemination.

5. Conclusion

The study identified clear strengths and limitations across mainstream translation platforms. Youdao and Baidu have strong localized translation capabilities but often struggle with literal translations and specialized terminology. ChatGPT and Google, leveraging advanced machine learning and vast data sets, delivered fluent, accurate, and unambiguous translations. The integration of translation theory with practice is crucial for improvement, where frameworks like dynamic equivalence and Skopos Theory can guide adjustments. Future research should focus on enhancing translation algorithms, incorporating cultural sensitivity, and combining AI with human oversight to ensure natural, high-quality translations. By addressing technical and cultural challenges, translation platforms can significantly enhance global understanding and effective news dissemination.

5.1. Advantages and Limitations of Translation Platforms

The study compared the translation quality of mainstream platforms like Youdao, Google, Baidu, and ChatGPT for news texts, highlighting their unique strengths and weaknesses. Each platform displayed distinctive advantages, offering strategic insights for selecting the right tools. Youdao stood out for its rapid translation speed and user-friendly interface, allowing for convenient information retrieval. However, Youdao struggled with the accurate translation of proper nouns and geographical terms, often producing less natural sentences that lacked flow. This tendency impacted the translation quality, particularly in handling complex or specialized terms. Google achieved high accuracy and natural translation, owing to its advanced machine learning and vast data support. Google demonstrated strong adaptability across languages and effectively managed complex semantics and contextual adaptation. However, occasional tense inaccuracies led to minor comprehension issues. Baidu excelled in localized translation of Chinese content due to its accurate handling of geographical names and industry-specific terms. Its translations sometimes contained awkward phrasing, making the structure less natural. Additionally, cultural or contextual ambiguities could arise. ChatGPT excelled in near-native fluency and remarkable accuracy, particularly in dealing with specialized terms and policy measures. The translations demonstrated cultural adaptability, providing clear and concise information. However, occasional errors like tense issues or rare contextual inaccuracies indicated areas for further refinement. Each platform has clear advantages and limitations that make understanding them essential for precise tool selection. Recognizing these nuances can help match translation needs more accurately, offering valuable guidance for optimizing translation quality and enhancing global news dissemination.

5.2. The Importance of Theory-Practice Integration

Integrating translation theory with practical applications is crucial for improving translation quality. Theories like dynamic equivalence and Skopos Theory offer guidance at both macro and micro levels. Dynamic equivalence emphasizes capturing the source text's emotional and intentional elements to create a similar response in target readers, while Skopos Theory focuses on the purpose-driven adaptation of translation strategies. Applying theoretical principles requires continuous adjustment and refinement during practical translation work. When using dynamic equivalence, translators must consider the target culture's acceptance and expected response, which may involve adjusting the source text to better suit the cultural background of the target language. This creative adaptation relies on the translator's judgment and requires balancing linguistic fidelity with cultural nuance. As machine translation and AI technology evolve, new challenges and opportunities arise. Advanced technology can handle vast amounts of data and complex linguistic structures, but its limitations lie in accurately conveying cultural and emotional subtleties. This underscores the need for theoretical guidance to develop more precise, human-centric translation systems.

Ultimately, theory guides practice, while practical feedback refines and evolves theory. By continually testing theoretical frameworks in practice and driving theoretical innovation, translation can better support cross-cultural communication and international understanding. Such integration of theory and practice is essential to improving the effectiveness and efficiency of translation within today's globalized context.

5.3. Implications for Future Research and Practice

Enhancing global understanding through the improvement of translation platforms emphasizes the critical need for accuracy, fluency, and cultural adaptability. This study's findings suggest several implications for future research and practice, aiming to address the existing limitations and harness the strengths identified across different platforms. Future research should focus on developing more sophisticated AI algorithms that can handle not only the linguistic elements of translation but also the cultural nuances and idiomatic expressions inherent in different languages. This involves deep learning techniques that can interpret context more effectively and adaptive translation models that learn from user feedback and ongoing global developments.

For practice, there is a clear recommendation to integrate advanced computational linguistics research with real-world translation tasks. Translation platforms could benefit significantly from a hybrid approach that combines AI with human oversight. This approach ensures the accuracy of translations and maintains the natural flow of language, which is often lost in fully automated systems.

Further, the study highlights the importance of cultural adaptability in translation platforms. Developers need to incorporate cultural sensitivity into their algorithms to avoid misrepresentations and misunderstandings in cross-cultural communications. Developing platforms that can adapt to the cultural context of the source and target languages will significantly enhance the quality of translation.

Overall, these findings pave the way for optimizing translation strategies and improving the dissemination of global news. By addressing the technical and cultural challenges highlighted in this research, translation platforms can contribute more effectively to global understanding and cooperation.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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