

Innovative Research on Translation Quality Assessment Models in the New Era

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Abstract: With the deepening of economic globalization, the significance of translation services in economic, cultural, and technological domains has become increasingly pronounced. Yet, determining how to evaluate the quality of translations and ensure their precision and reliability remains a central concern for both the academic and professional realms of translation. This paper offers an in-depth exploration of current models of translation quality assessment, highlighting their limitations, such as restricted applicability, underutilization of technology, absence of standardized evaluation criteria, and some models being excessively theoretical. To address these challenges, this article, integrating insights from contemporary technology and market demands, proposes innovative perspectives and methodologies to bolster translation quality assessment models from various angles. This encompasses refining assessment models from a multifaceted viewpoint, leveraging cutting-edge technology to enhance evaluation outcomes, expediting the dissemination and application of these models, accelerating the establishment of translation corpus resources, and advancing translation quality assessment tools. Furthermore, with the evolution of artificial intelligence and machine learning technologies, methods and tools for translation quality assessment are also continuously advancing. This paper delves into how to synergize these state-of-the-art technologies to elevate the accuracy and efficiency of translation quality evaluation. By contrasting different assessment methodologies, this article aims to provide a comprehensive guide for translators and researchers, assisting them in selecting the evaluation tools and methods best suited to their needs. In essence, this research seeks to furnish novel insights for the optimization of translation quality assessment models, further driving the progression of translation quality evaluation practices.

Keywords: Translation Quality Assessment, Assessment Model Innovation, Translation Technology

1. Introduction

Translation Quality Assessment (TQA) has perennially stood as a pivotal subject in the field of translation studies, playing an indispensable role in ensuring high-caliber translations. As the march of globalization continues and cross-cultural interactions deepen, the demand for translation has surged. Consequently, the question of how to evaluate translation quality, ensuring its accuracy and adaptability, has burgeoned into a concern shared by both the academic realm of translation studies and its industry counterparts. Historically, the methods and standards for TQA have been in a state of flux, evolving from initial empiricist models to House's [1] assessment model grounded in pragmatics and functional linguistics, Reiss's [2] typologically-oriented assessment framework, and Williams's [3] model rooted in

argumentation theory. The contemporary landscape, characterized by its diverse and technologically infused assessment methods, mirrors the depth and progression of research in TQA. Nevertheless, current models are not without their challenges and limitations—issues such as the subjectivity inherent in some assessment models, constraints in technological applications, and the lack of unified assessment standards remain.

Against this backdrop, this paper embarks on a comprehensive analysis of the present state and shortcomings of current TQA models. Incorporating insights from contemporary technology and market demands, we propose avenues and methodologies to optimize translation quality assessment models, thereby breaking through existing bottlenecks and championing the further development of TQA.

2. Current State of Research on Translation Quality Assessment Models

2.1. Theoretical Overview of Translation Quality Assessment Models

TQA research boasts a rich tradition both domestically and abroad. Given variations in cultural, linguistic, and research backgrounds, there are marked differences in assessment models and their focal points.

2.1.1. Foreign TQA Models

Foreign research in TQA burgeoned around the 1970s [4]. Broadly, it can be categorized into five predominant models:

- (1) The Empiricist model relies on experience and intuition to evaluate translation quality;
- (2) The Equivalence model posits that translations should replicate the original in all respects [5];
- (3) The Reader Response model assesses the quality based on reader reactions;
- (4) The Functional model views the purpose and function of a translation as the primary evaluative criteria;
- (5) The Linguistic model integrates theories and methods from pragmatics, functional linguistics, discourse analysis, argumentation theory, cognitive linguistics, and corpus linguistics for TQA.

On the whole, while nearly all translation theories touch upon quality concerns, few have crystallized into distinct assessment models. Recently, an increased awareness of this gap has emerged. More attention is being given to quality issues within the context of the translation industry, as evidenced in the thematic collections edited by Angelelli & Jacobson [6] and Depraetere [7]. The industrial approach to TQA emphasizes efficiency and pragmatism. A recent development is the multilevel quality scale introduced by the EU's QT21 project in 2014. It amalgamates various human-aided models for assessing machine translation quality, being compatible with all existing industry TQA models.

2.1.2. Domestic TQA Models

Several quality assessment models have been proposed by domestic scholars. For instance, the Equivalence-based model initiated by Xin Xiang Wu and Hong An Li [8], the Mathematical assessment model by Shou Yi Fan [9], and the Optimal Approximation evaluation model by Zheng Kun Gu [10]. Venturing into the 21st century, researchers are emphasizing the construction of objective and scientific models, such as the Pragmatic Marker Equivalence model by Guo Jin Hou [11], the Functional Linguistics model by Xian Zhu Si [12], and the Relevance Theory model by San Ning He [13]. Of particular note is the dynamic TQA model introduced by Jun Song Wang [14] based on the Translation Automation User Society (TAUS), which distinctly references the DQF dynamic quality assessment framework. Additionally, Qing Wang and Xiao Ma [15] have ventured into melding computer technology, linguistics, and

translation studies to propose a machine translation quality assessment method. Recently, Guang Rong Dai and Shang Jun Zuo [16] have advocated for the utilization of corpora to assist TQA, aiming to diminish subjectivity and bolster its persuasiveness.

In conclusion, TQA is multifaceted and intricate, necessitating multilayered analysis and research. Theoretically, both domestic and foreign studies have their unique contributions. While ensuring high-quality translation, the practical application of these models presents limitations. It is imperative to deeply understand and apply these evaluation models, making adjustments based on real-world scenarios.

2.2. Technological Overview of Translation Quality Assessment Models

With the meteoric rise of information technology, particularly artificial intelligence and big data, the translation service arena is undergoing a technological metamorphosis. This transition is reshaping not only translation production but also profoundly impacting TQA.

On one hand, Computer-Assisted Translation (CAT) tools are gradually incorporating TQA functionalities, making them central platforms for assessing translation quality. However, not all CAT tools are equipped with this function. On the other hand, present-day tools like MemoQ, SDL Trados Studio, Memsource, XTM, Smartcat, MateCat, Fluency Now, and Translate 5 have integrated TQA capabilities. Generally, these tools adopt industry-standard TQA criteria, yet there are discrepancies in the number and specific versions of the integrated standards.

Conversely, the quality assurance features of CAT tools predominantly auto-check for technical errors in translations, such as numbers, spaces, tags, punctuation, consistency, and segment lengths. While they can detect these technical errors, they falter when dealing with linguistic errors. For instance, mistakes like translating "match" as "competition" or "features" as "characteristics" often go undetected by these tools.

To sum up, while computer technology has undeniably facilitated TQA, it is fraught with challenges and cannot wholly supplant human review. To guarantee the high quality of translations, human vetting remains an indispensable component.

3. Shortcomings of the Existing Translation Quality Assessment Models

Upon a thorough examination of the current state of research in translation quality assessment models, several limitations of the existing models can be delineated:

3.1. Inherent Limitations in the Models

The diverse range of translation quality assessment models,

although providing a rich canvas for translation studies, inherently brings its own set of limitations. Taking the Empiricist Model as an example, which underscores the translator's experience and intuition, one can see how evaluations can be steeped in individual subjectivity. This can lead to evaluations that, while reflecting a specific translator's perspective, might lack general applicability. For instance, a translator with a background in classical literature might emphasize different aspects compared to someone who specializes in business translations.

The Equivalence Model, on the other hand, is a double-edged sword. While it seeks to maintain parity between source and target texts, in situations where translations span diverse cultures and languages, it can become overly rigid. This can be seen in translating idioms or proverbs. An idiom in English like "Bite the bullet" may not have a direct counterpart in another language, making a literal translation under the Equivalence Model confusing.

Furthermore, many models are specifically tailored to particular languages or cultural backgrounds. A model ideal for translating between English and French, for instance, may not be suitable when dealing with translations between English and Japanese, given the vast linguistic and cultural differences.

3.2. Insufficient Technological Application

The integration of technology in translation has revolutionized the field, yet the tools available often have limited functionalities. Primarily, they excel in identifying technical errors. For instance, while they can easily spot missing punctuation or inconsistencies in number usage, they struggle with more nuanced aspects like style, tone, or cultural appropriateness. An example here would be the translation of humor. Jokes or humorous elements embedded in cultural contexts can easily be lost when translated, even if technically correct.

Additionally, while advanced models, such as the one proposed by Wang Qing and Ma Xiao, offer a comprehensive approach, they can be daunting. This complexity may deter regular translators from leveraging them, especially if they don't have the technical background or access to necessary resources.

3.3. Overly Theoretical Evaluation Models

Research on translation quality assessment has achieved significant theoretical advancements. However, in practical applications, these theoretical models might not always prove to be pragmatic. Some intricate models might appear cumbersome in real-world operations, while simplified models might fail to comprehensively evaluate all aspects of a translation. Thus, identifying an evaluation model that is both practical and comprehensive remains a challenge in translation studies. Moreover, given that translation is a complex cognitive process, overly theoretical models might not accurately reflect the thought processes and decisions of translators in real-world scenarios. This gap between theory

and practice might result in evaluation outcomes that deviate from the actual translation quality.

3.4. Lack of Uniform Evaluation Standards

With a multitude of computer-assisted translation tools available, there's a clear absence of a standardized evaluation criterion. This can lead to inconsistencies in evaluations. For instance, a translation deemed exceptional by one tool might only be considered average by another.

A crucial overlooked aspect is the quality of the source text. If the original material is ambiguous or poorly written, it can adversely affect the translation's quality. For instance, if a source text uses vague terminologies or has ambiguous phrasing, even the best translator might produce a less-than-ideal translation.

Moreover, the global nature of translation means that evaluation methodologies can differ across borders. A standard adopted in Europe might be starkly different from one in Asia. For translators working across multiple regions, this can be a significant hurdle, as they need to constantly adapt to different evaluation benchmarks, potentially impacting their efficiency and output quality.

In conclusion, while current translation quality assessment models have undoubtedly paved the way for better translation practices, there's an evident need for refining these models to cater to the evolving demands of the translation industry.

4. Innovative Approaches to Translation Quality Assessment Models

Translation quality assessment models are a cornerstone of translation research and are indispensable in ensuring that translations meet the highest standards of quality. Recognizing the existing gaps and limitations in traditional models, this article delves deeper into the following avant-garde strategies:

4.1. Refinement of Existing Assessment Models from a Diverse Perspective

Universality in Evaluation Models through Cultural Integration: By expanding upon the foundational principles of existing models, there's a pressing need to factor in the unique translation nuances that arise from different geographical regions and cultural backgrounds. This aims to craft a universally accepted set of evaluation standards. A deep dive into cultural differences guarantees that the assessment remains unbiased and pinpoint accurate.

Interdisciplinary Insights to Broaden Research Horizons: By harnessing knowledge from fields such as psychology, sociology, and even anthropology, researchers can gain a more profound understanding of the cognitive and emotional intricacies that a translator undergoes. By weaving these insights into the assessment matrix, the evaluation becomes holistic and all-encompassing.

Setting Standards for Emerging Fields: The digital age has ushered in novel translation domains like AI-driven

translation and immersive virtual reality translation. Given their nascent stage, it's crucial to carve out bespoke assessment standards that mirror the swift technological and societal shifts.

4.2. Leveraging Advanced Technologies to Enhance the Efficacy of Assessment Models

Natural Language Processing for Precise Quality Checks: Implementing machine learning and deep learning techniques to develop large-scale corpus-based natural language processing models can automate the detection and correction of linguistic errors and style variations in translations, ensuring the accuracy of the evaluation.

Knowledge Graphs for Deeper Semantic Insights: Structured representation of entities, concepts, and their relationships from the source text through knowledge graphs can offer a better understanding of the translated text's semantic information. Comparing discrepancies between the original and translated knowledge graphs can enhance the accuracy of the assessment.

Big Data for Large-scale Translation Assessment: Analyzing a vast array of translated works to identify critical factors influencing translation quality can help in forming a more precise evaluation metric system. Leveraging data mining and machine learning can also provide tailored improvement suggestions for each translator, fostering rapid skill enhancement.

Virtual Reality for Simulated Assessment: Constructing a virtual reality environment to emulate actual translation scenarios and audience feedback can serve as a practical evaluation tool. This immersive approach can help translators understand potential challenges in real-world scenarios, promoting continuous skill refinement.

4.3. Promotion and Application of Assessment Models

Enhanced Advocacy and Outreach for Assessment Models: A concerted effort to champion cutting-edge assessment models via academic symposiums, workshops, and digital platforms can amplify their reach. This ensures that a broader spectrum of researchers and practitioners are well-acquainted with these avant-garde models, paving the way for their universal acceptance.

Technical Support and Training: By rolling out tools and instructional modules that align with contemporary assessment models, users can seamlessly grasp the nuances of evaluating translation quality. A commitment to perpetually update the technical support infrastructure guarantees its relevance in the face of industry evolution.

Creating Platforms for Discussion on Assessment Models: The inception of specialized online communities or discussion boards can serve as a melting pot for users to exchange their evaluation experiences and wisdom. This not only accelerates the dissemination and application of assessment models but also nurtures a culture of collective learning.

Standardization and Normalization of Assessment Models:

By intensifying research endeavors, the translation community can inch closer to a robust, methodical, and scientific suite of evaluation standards. Engaging proactively in global dialogues and partnerships, and assimilating pioneering foreign evaluation ideologies can expedite the global evolution of domestic translation quality assessment models.

4.4. Promoting the Cultivation of Translation Quality Evaluation Talent

Every era bears its own responsibilities. In the era of the great rejuvenation of the Chinese nation, translation quality evaluation talents should not only focus on the degree of language conversion, i.e., enhancing professional competence, but also possess a global perspective, humanistic spirit, national consciousness, ethnic sentiment, and interdisciplinary knowledge.

- (1) **Professional Competence:** In addition to improving basic bilingual skills, the cultivation of translation quality evaluation talent should enhance the ability to ensure and evaluate translation quality through technological empowerment, meeting the vast demand for quality assessment in the translation market.
- (2) **Global Perspective:** Training programs should encourage trainees to think from a global perspective, recognizing and utilizing international translation quality assessment standards and models.
- (3) **Humanistic Spirit:** Training programs should advise students to employ the Marxist dialectical view, enabling trainees to critically assess translation content quality under different ideologies and systems.
- (4) **National Consciousness:** Trainees should be encouraged to establish their own national stance. During the quality assessment and assurance process of translating from Chinese to other languages, they should be able to distinguish non-equivalent information, especially grasping the nuances of political terms and cultural viewpoints unique to China.
- (5) **Ethnic Sentiment:** Trainees should be encouraged to continuously learn the language and culture of the Chinese nation to correctly handle non-equivalent linguistic and cultural phenomena in the translation process.
- (6) **Interdisciplinary Knowledge:** Strengthen trainees' knowledge in common areas such as politics, economics, culture, and technology, while cultivating their cross-cultural awareness, ensuring a broader career path for translation quality evaluation talents.

4.5. Accelerating the Construction of Translation Corpus Resources

“Corpora play an irreplaceable role in translation quality assessment research, and data from corpora are often more persuasive than incidental introspective data” [16]. In the future, the optimization process of translation quality assessment models should accelerate the construction of

high-quality translation corpus resources.

(1) Determine the Domain of Translation Corpus

Currently, the translation field has made detailed classifications of translation types, resulting in numerous vertical domains such as judicial translation, English newspaper Chinese proper nouns, and general technical specifications for corpora. The frequency of these vertical domains indicates the demand for translation in that domain. Therefore, the first step in optimizing the translation quality assessment model is to determine the vertical domain to be constructed.

(2) Establish a Collaborative Resource Building Mechanism

The overall design and management of corpus resource construction cannot be separated from the academic wisdom and theoretical guidance of professional teachers. However, the main body of corpus resource construction should not only include teachers and experts in and out of the translation industry but also involve students or online volunteers. A learning community for the construction of high-quality translation corpus resources should be established, leveraging the roles of both professional and non-professional translators in a shared resource construction mechanism.

(3) Utilize Modern Technology to Assist in Quality Corpus Resource Construction

In the era of big data and artificial intelligence, various technologies empower the translation industry. Therefore, when building a translation corpus, one can use technologies like big data crawlers to quickly capture useful high-quality translation resources from the internet, while ensuring the quality of the captured resources, enhancing the role and significance of corpus resource construction.

4.6. Improving Translation Quality Assessment Tools

Based on the research and analysis of current translation quality assessment tools, this report advocates improving existing translation quality assessment tools from the following perspectives:

(1) Truly Understand the Applicability of Different TQA (Translation Quality Assessment) Standards, clearly defining the influencing factors of assessment parameters, drawing insights from academic research in this area.

(2) Closely Monitor Industry Development and Changes in the Translation Ecosystem, shifting from a purely literary mindset. With the help of CAT (Computer-Assisted Translation) software platforms and TQA quality assessment standards, transition from traditional qualitative evaluations to quantitative evaluations, achieving a unity between the two.

(3) From the Perspective of Translation Technology Development, enhance the user-friendliness of computer-assisted translation tools. For instance, expand the range of interface languages for computer-assisted translation tools; optimize the complexity of computer-assisted translation tools to reduce user stress.

(4) From the Perspective of Translation Technology Tool Promotion, tailor advertisements or training videos to the needs of different translators, organize free seminars; provide translators with free trial software and, if possible, extend the free trial period for users.

5. Conclusion

This research has embarked on a comprehensive exploration and detailed analysis of translation quality assessment models in the current landscape of the language services industry. One of the most striking observations is that despite a plethora of studies conducted both within national borders and on the international stage regarding translation quality assessment, there remain glaring challenges with existing models. Among the most prominent of these challenges are their often overly theoretical constructs, a notable gap in the adoption of state-of-the-art technologies, and an unsettling inconsistency in their assessment criteria.

For instance, when looking at several prominent models, one could note that they tend to prioritize linguistic accuracy over the preservation of cultural nuances. While linguistic precision is undeniably vital, it is equally important to ensure that translated content resonates with its intended audience. A mere literal translation might disregard idiomatic expressions or cultural contexts, leading to potential misunderstandings.

To effectively address these challenges, this study has laid out several groundbreaking strategies. The first of these strategies is the proposed refinement of existing assessment models from a richly diversified lens. By integrating insights from various cultural backgrounds and diverse disciplines, there is a stronger promise of ensuring that assessment results are both objective and precise. For example, a translation for a Japanese business document might be evaluated differently when viewed from a Western corporate culture perspective as opposed to a traditional Japanese business etiquette viewpoint.

Further, in today's rapidly advancing technological landscape, there's an undeniable advantage in leveraging the latest technologies. By emphasizing the adoption of cutting-edge tools like natural language processing, knowledge graphs, and even immersive technologies like virtual reality, we can significantly heighten the applicability and efficiency of these models. For example, using virtual reality, a translator can immerse themselves in the cultural and environmental context of a text, providing a deeper understanding and thus, better translation.

The ultimate goal should be a broadened uptake of these improved assessment models. To realize this vision, it's vital to ramp up initiatives that promote and disseminate these models. There's a growing need for dedicated platforms where stakeholders can exchange insights, gain technological training, and drive the standardization of these assessment tools.

Peering into the future, it's crucial to delve deeper into how

these optimization strategies fare in real-world translation scenarios. Trials and pilot programs in actual translation agencies can provide invaluable feedback. Additionally, with the burgeoning growth of fields like artificial intelligence and big data analytics, their potential integration into translation quality assessment models holds immense promise. For instance, predictive analytics could highlight problematic translation areas even before a human reviewer assesses them.

To truly be at the forefront of this domain, we must intensify our international collaborations. By drawing from pioneering concepts from abroad, and simultaneously showcasing our domestic research breakthroughs, there's an opportunity to bolster our position and influence on the global stage.

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