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Original Paper

Strategies for Applying Machine Translation in MTI Translation Teaching

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Abstract

Machine Translation (MT) should be integrated into Master of Translation and Interpreting (MTI) translation teaching more intelligently. This study focuses on the practical application of MT in MTI translation teaching, aiming to overcome challenges such as the rigidity in traditional teaching models, the monolithic methods for translation quality assessment, and the shortage of qualified teachers. Through an analysis of the current status of MTI translation teaching, this paper proposes strategies like utilizing MT for multi-modal teaching, conducting post-translation quality assessment training with MT, and implementing teacher training with MT tools. The results indicate that these strategies not only significantly improve teaching quality and efficiency but also promote innovation in teaching models. This paper offers novel insights into the MTI translation teaching method and provides solid support for the deep integration of MT with educational practice, thereby ushering in an important pathway for cultivating outstanding translation talents in the new era.

Keywords

machine translation, MTI translation teaching, teaching strategies

1. Introduction

"Ever since Machine Translation (MT) emerged in the mid-1950s, diverse aspects of automatic translation systems have witnessed groundbreaking evolution, leaving a durable impact on educational and professional fields worldwide, including on foreign language education and translation education" (Omar & Salih, 2024: 1). In the current era of information explosion, the rapid development of MT is profoundly altering the landscape of language learning and teaching. This is particularly significant in the context of Master of Translation and Interpreting (MTI) translation teaching, where the application of MT tools is especially crucial. This paper aims to delve into the practical application of MT within

MTI translation teaching and analyze its far-reaching impact on teaching models, quality assessment, and faculty development.

As globalization accelerates, the need for cross-language communication rises, with MT playing a pivotal role in eliminating language barriers and facilitating information flow. The concept of computers being used for translation, initially proposed by Weaver and British engineer Andrew Donald Booth in the "Memorandum on Translation", has verified in the 21st century. With language ceasing to be a hindrance, the possibilities for knowledge expansion are boundless. This vision has motivated numerous scientists and engineers in the field of MT exploration.

This study delves into the application of MT in translation teaching. MTI translation teaching, as a critical element in nurturing the future backbone of the translation industry, is seen as pivotal for educational innovation when combined with MT. The integration of machine translation in the education sector enables precise teaching through personalized learning diagnostics, showcasing distinct effectiveness in catering to varied educational requirements (Tafazoli et al., 2019). This study proposes a series of solutions to the issues present in traditional translation teaching. For instance, the utilization of MT tools to construct a multi-modal teaching and the reinforcement of students' translation skills and theoretical knowledge through practical activities are suggested. Furthermore, this paper explores how MT tools such as SDL Trados Studio, Google Translate, DeepL, etc., can be employed to optimize the post-translation quality assessment process and enhance teacher training for the use of MT tools, thereby improving teaching quality and efficiency. The findings of this research will offer valuable insights into the field of translation teaching and provide ideas for the scientific application of MT in MTI translation teaching.

2. Overview of Machine Translation

"Machine translation, or MT, also known as computer translation or automatic translation, is an emerging interdisciplinary field that integrates linguistics, mathematics, and computer technology" (Peng, 2006: 123). As an important branch of natural language processing, machine translation focuses on the study of how to use computer technology to accurately translate one natural source language into another natural target language. This intricate process involves a deep understanding of linguistic rules and structures, mathematical modeling, algorithm design, and computational capabilities. Since the groundbreaking Georgetown-IBM experiment successfully translated a Russian sentence into English in the early 1950s, machine translation has garnered significant attention. From rule-based approaches to statistical methods, the evolution has led to the prominence of Neural Machine Translation (NMT).

NMT is an important implementation of MT, serving as a deep learning-based translation technology. It utilizes neural network models to predict text sequence probabilities and generate translations. NMT systems such as Google Translate, Microsoft and Systran are "currently dominating the paradigms of machine translation" (Rivera-Trigueros, 2022: 595), "since they are more reliable than earlier generations of MT, and their output can be adjusted by benefiting from human intervention. This

intervention is referred to as Machine Translation Post Editing (MTPE)" (Omar & Salih, 2024: 2). The progress of MT has not only boosted translation efficiency but also enhanced translation quality. The impact of this progress on the career development of translation professionals, especially MTI students, has got significant industry attention in recent years.

3. Current Status and Existing Issues in MTI Translation Teaching

The 21st century is an era of globalization with rapid development of information technology and there are more and more close exchanges among countries. Under this background, the importance of translation is self-evident, and MTI translation teaching, which is closely related to it, has also attracted increasing attention. Presently, MTI translation teaching emphasizes refining practical skills, particularly in written translation and interpretation. "In the domain of MTI education, the primary focus areas in translation teaching are methods and models of interpreting and translating, updating teaching materials and research, and training translation teachers" (Lv & Qian, 2023: 60). Traditional teaching methods emphasize interaction between teachers and students, aspiring to enhance students' practical operational levels through short-term training involving simulated translation projects and internship experiences. The core mission of MTI translation teaching is to cultivate young talents with translation capabilities, ensuring they can complete various translation tasks and ultimately deploy these talents with excellent translation skills into different markets. However, the actual outcomes of translation teaching often fall short of expectations, with a scarcity of translation professionals in the market. According to the survey: "Employers believe that the main deficiencies of MTI graduates lie in the 'lack of professional knowledge' 'insufficient learning and practice' and 'the need to improve comprehensive quality', among others." Many graduates are rejected in job applications due to inadequate translation abilities, insufficient professional knowledge, and poor communication and collaboration skills. All these issues and other challenges place MTI programs in dilemma, and necessitate having a pedagogical reform in translator training. At present, our translation teaching is faced with three major issues: the rigidity in translation teaching models, the monolithic methods for translation quality assessment, and the shortage of professional teaching staff.

3.1 Rigidity in Translation Teaching Models

As Ding and Liu noted: "The majority of universities in our country still adhere to traditional and singular foreign language teaching models, failing to break free from outdated concepts and practices in foreign language talent cultivation, particularly in the training models for translation talent" (2022: 100). When delving into the current state of MTI translation teaching, there is a pervasive issue: traditional teaching models are often teacher-centered, adopting a "force-feeding" approach. The traditional classroom involves a didactic performance by the teacher who believes that he/she has access to the "correct" translation, thus exerts every effort to fill in gaps in the students' knowledge so that they can also come up with the "correct" translation. In such a classroom, the teacher's job is clearly to "teach" (to pass on knowledge), while the students' job is to "learn" or absorb the teacher's

knowledge. Under this model, teachers dominate, while students passively receive knowledge, hindering their initiative and creativity. This phenomenon not only limits students' development potential but also affects the overall quality of translation teaching.

Specifically, traditional MTI translation teaching relies too heavily on teacher explanations and demonstrations, with teaching activities often following a fixed pattern, lacking sufficient flexibility and innovation. This results in students mechanically memorizing translation techniques and knowledge without truly understanding the underlying principles and methods of application. Moreover, the rigid teaching model also makes it difficult for students to adapt to complex and variable translation scenarios, leaving them overwhelmed when faced with actual translation tasks.

3.2 Monolithic Methods for Translation Quality Assessment

Within the traditional paradigm of translation teaching, the methods for translation quality assessment primarily relies on automated evaluation methods based on reference translations. The essence of this method is to compare students' translations with established standard reference texts, thereby gauging their translation quality. The focus of assessment typically encompasses the fluency, accuracy, coherence, and appropriateness of the language. As Chatzikoumi states: "Human evaluation metrics are classified according to the criterion of whether human judges directly express a so-called subjective evaluation judgment, such as 'good' or 'better than', or not, as is the case in error classification" (2020: p137). Traditional teaching methods also often employ a deductive method, imparting theoretical knowledge followed by translation practice. Although this method is operationally robust, its monolithic teaching process sometimes fails to spark students' interest in learning, thus affecting the effectiveness of teaching. To enhance teaching outcomes, some educational institutions have shifted towards inductive teaching methods, integrating various teaching models such as group discussions, collaborative learning, case analysis, and translation evaluation, enabling students to deepen their understanding of theory through translation practice and better apply theory to practice. While traditional assessment methods retain their effectiveness in certain contexts, they also face numerous challenges. For instance, an over-reliance on reference translations may overlook the creativity and cultural adaptability of translation. Additionally, the subjectivity of assessment criteria can lead to instability in evaluation results.

3.3 Shortage of Qualified Teachers

A report on MTI education indicates that although the construction of the teaching staff is gradually expanding, there is still a deficiency in specialized and practical faculty, with a tendency for a disconnect between theory and practice. Data from the article (Cui et al., 2017) concluded that the composition of the teaching staff is extremely unbalanced. Among the 304 interviewed MTI teachers, only 63.49% have a background in translation, 25.33% have a background in linguistics, and a mere 2.69% come from non-linguistic backgrounds. Most teachers have obtained their teaching qualifications through short-term professional training, but there is a critical issue of a lack of integration between theory and practice, often leaving them feeling overwhelmed in their teaching

duties. Additionally, when using computer-assisted software for translation teaching, teachers usually spend most of their time building corpora and terminology databases. Besides, the exploitation of corpora in the context of the practice of specialized translation does not involve reading a single text in detail, but reading different words, chunks or segments that occur frequently in the various texts in a corpus. However, due to the lack of unified standards and normative guidelines, the versatility of these resources is significantly reduced, resulting in low practical utilization rates. The shortage of faculty in the field of MTI translation teaching is manifested not only in numbers but also in the inadequacy of quality and structure. Although a certain proportion of teachers possess a background in translation, many of them lack the necessary industry experience, which limits their effectiveness in teaching practical translation skills. Moreover, teachers also demonstrate significant deficiencies in applying the latest translation technologies and tools, which, to some extent, hinders students' understanding of and adaptation to the latest developments in the translation industry.

4. Strategies for Applying Machine Translation in MTI Translation Teaching

Yu argued that: "human translators are good at, and AI translates radically different skills to the core of MTI students core competitiveness is the key to the current MTI teaching reform" (2024: 69). The traditional, singular model of translation teaching has long been inadequate to meet the demands of the big data era. Due to the market's shift towards diversification, translators are required not only to possess interdisciplinary knowledge and cross-cultural communication skills but also a spirit of teamwork. "The development of machine translation has reshaped the work patterns and business models of the translation industry, leading to a rapid transition from initial manual translation to efficient and affordable machine translation" (Ding & Liu, 2022: 100). Therefore, translation graduates must fully master translation technology to maintain an invincible position in the rapidly developing market of machine translation. Based on this, universities must adjust their training strategies and innovate the traditional model of cultivating translation talent to adapt to market development. In recent years, numerous domestic universities have reformed their MTI programs, introducing innovative teaching methods, incorporating new teaching tools to enrich course content, and cultivating multiple batches of MTI teaching teams, all aimed at enhancing students' professional skills and promoting the industrial and professional development of translation talents.

4.1 Utilizing MT for Multi-modal Teaching

In the current context of English language teaching, the innovation of pedagogical models is particularly crucial. Traditional methods of teaching, overly reliant on teacher explanations and mechanical student exercises, are proving to be inadequate in the new era. The integration of machine translation with translation instruction is essential to foster innovation in teaching methodologies and models. By harnessing artificial intelligence technology, multi-modal, interactive, and intelligent platforms for translation teaching and learning can be developed. Utilizing deep learning technologies to analyze students' learning behaviors, more personalized learning content and assessments can be

provided for them.

Multi-modal interaction refers to the exchange of information through various sensory systems, such as visual, auditory, and tactile. Visual materials generated by machine-assisted translation software, including audiovisual images, can be incorporated as part of MTI translation teaching. For instance, traditional MTI teaching typically focuses on textual interpretation and analysis, providing students with information solely in written form. On this basis, by further presenting images or videos related to the text content can enrich the teaching model. The author's concept here involves using large language models similar to ChatGPT-4; when entering text into the operation bar, commands are issued simultaneously, such as: "Please generate 2D scene images and 3D video footage related to the above text information, and list their associations in a tabular format." With materials supplied by MT tools, students can engage in practical translation training. Under such pedagogical models, the translations produced are no longer confined to a single version. Such classroom practices allow students to reasonably access and utilize large language models. In the process of training these models, they can also clarify the dynamic visual associations between texts with the aid of machine translation. With machine translation producing logically coherent sensory information, students can participate in complete translation practices under prepared conditions. Furthermore, under the "multi-modal teaching model assisted by machine translation", people can further conduct training on the quality assessment of machine translation. Such classroom practices not only enhance students' professional skills but also effectively unearth their critical abilities. At the same time, teachers can guide the students to analyze the importance of translators throughout the translation process. Through periodic comparative analysis, the strengths and weaknesses of the teaching model can be identified, which is beneficial for conducting higher-quality translation teaching. This teaching model not only exercises students' linguistic logical abilities and mastery of professional techniques but also improves the teaching quality of MTI translation instruction to a certain extent.

4.2 Conducting Post-Translation Quality Assessment Training with MT

In terms of machine translation quality assessment, the widespread application of MT has brought its quality evaluation into focus. This includes the design of MT quality evaluation models, manual assessment of MT quality (Torné et al., 2021), and comparisons between human and machine evaluations (Chatzikoumi, 2020). Within MTI translation instruction, to enrich course content and address the issue of a singular approach to translation quality assessment, further training in post-translation quality assessment utilizing MT can be built upon the foundation of "multi-modal teaching models assisted by machine translation". This training aims to deepen students' understanding and editing skills regarding MT output and to cultivate their ability to assess quality using diverse tools and standards.

To be specific, post-translation quality assessment training should simulate real translation work scenarios. Students may use initial translation version generated by MT systems, during which teachers should guide them in selecting appropriate MT tools such as SDL Trados Studio, Google Translate,

DeepL, etc., for preliminary translation version, understanding the strengths and limitations of different systems. Subsequently, students are required to conduct an initial assessment of the translation quality of MT output, identifying obvious errors and flaws. At this stage, assistance from automatic evaluation tools, such as BLEU and TER, can provide objective and fair standards. These tools offer immediate feedback, aiding students in identifying and correcting common translation issues, thereby enhancing their translation quality. Furthermore, teachers can combine manual assessments to guide students in considering translation quality from perspectives of linguistics and cultural adaptability. Students then proceed with further polishing and correction to meet established quality standards. Peer review among students, offering appropriate feedback and insights, can effectively enhance their collaborative abilities and critical thinking. Finally, teachers should evaluate and provide feedback on the students' revised translations, highlighting strengths and areas for improvement. Teacher feedback should be specific and constructive. Throughout this process, teachers may refer to industry standards such as T/TAC-20161 set by the Translators Association of China, ensuring that students' training is closely connected to professional practice.

Furthermore, post-translation quality assessment training must encompass the evaluation of translation quality across different types of texts. For instance, academic texts, legal documents, and marketing materials each possess unique linguistic features and quality requirements. Through such categorized training, students can learn to adjust assessment standards and strategies according to the type and purpose of the text. It is important to note that post-translation quality assessment training should be a progressive process. As students' abilities improve, teachers can gradually introduce more challenging tasks and advanced assessment techniques. In this way, students will not only master basic assessment skills but also adapt to the ever-evolving demands of the translation industry.

In summary, incorporating post-translation quality assessment training assisted by MT tools into MTI translation instruction can overcome the limitations of a singular assessment approach and effectively enhance students' professional skills, laying a solid foundation for their future career development. The implementation of this training method requires teachers to have the relevant professional background and teaching skills, and schools should also provide the necessary technical support and educational resources. Only in this way, the quality and effectiveness of MTI translation instruction can be ensured to reach the best state.

4.3 Implementing Teacher Training with MT Tools

In MTI translation teaching, teacher training is a pivotal element in enhancing the quality and effectiveness of teaching. Especially today, as the application of MT matures, the implementation of teacher training using MT tools becomes increasingly significant. Initially, the training should set clear objectives, namely, to improve teachers' proficiency with MT tools to understand the application of MT in translation teaching, and to effectively integrate it into teaching practices. MT teaching tools include computer-assisted translation software like Trados, MemoQ, online translation platforms, corpus tools like AntConc, and terminology management tool TermBase. The content of the training should

encompass operational skills of MT tools, translation quality assessment, and analysis of teaching cases. Combining theory with practice, the training should be reinforced through interactive formats such as workshops, simulated classes, and group discussions, thereby enhancing its practicality and engagement. Additionally, remote teaching through online platforms should be utilized, offering flexible learning times and spaces.

The construction and enhancement of the teaching staff face numerous challenges, requiring diversified strategies to strengthen teachers' professional qualities and practical abilities, and to bridge the gap between theory and practice. Educational institutions are encouraged to shift their focus from just short-term workshops to a more comprehensive approach that nurtures teachers' growth over time. This means schools and colleges should make sure teachers have ongoing chances to learn and grow professionally. For example, they could be part of real-world translation projects that help them get hands-on experience with MT. Universities, in particular, need to step up their game in training the main translation teachers. They should bring in pros from the translation industry to teach the latest tech and methods. To make sure teachers are really top-notch, schools could team up experts from different fields like translation, language studies, and computer science to work together. This way, they can come up with course materials that are not only informative but also really useful. It's also important to have clear rules and standards to make teaching with MT tools more effective. Schools could work together to create big collections of texts and lists of terms that everyone can use. This could be done through online platforms where teachers can share and update what they teach. Finally, schools should regularly check if the teaching is working well, making sure that teachers are skilled with MT tools and that what they teach is what the industry needs. Regardless, the MT-assisted teaching model has brought new developmental opportunities and challenges to English translation instruction. Through innovation in teaching models, updates in course content, strengthening of teacher training, and improvements in assessment methods, MT tools can be better utilized to enhance students' English application abilities and overall quality.

5. Conclusion

The rapid advancement of science and technology has established MT as a critical component in the learning and practice of translation. "However, the complex issues inherent in language and the need for a flexible cross-cultural awareness and uniquely human sentiment ensure that MT cannot completely replace human translation" (Zhu & Guan, 2019: 44). As MT takes over the most basic and tedious aspects of text conversion, human translators are freed to focus on tasks that require higher technical content and greater initiative. Therefore, what prople are likely to embrace is an era of "human-machine collaboration". In the future, the goal of translation training will no longer be professional translators alone, but rather a symbiosis of "translation+technology" that understood both translation and technology. Looking ahead, Educators should further explore how to integrate MT technology into MTI translation instruction to cultivate students' technical application skills, while not

forgetting to emphasize the importance of a deep understanding of language and cultural sensitivity. Additionally, it is necessary to delve into the limitations of MT in handling complex texts and cross-cultural communication and to discuss how the combination of artificial intelligence and human wisdom can overcome these challenges. Given the rapid progress of MT, MTI translation teaching must continually innovate teaching methods, focusing on developing students' critical thinking and creative abilities, constructing a diverse and integrated teaching system, developing an excellent teaching staff, and building a high-quality translation technology resource platform to meet the challenges of the future translation industry. In summary, the application of machine translation in MTI translation teaching presents both opportunities and challenges. Its potential should be fully recognized while not overlooking its limitations. By leveraging the strengths of both machine translation and human translation, we can better cultivate a new generation of translation professionals, contributing to the flourishing development of the language services industry. Future research should persist in exploring the integration models of machine translation and MTI translation teaching, seeking effective ways to enhance translation efficiency while ensuring translation quality.

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