Challenges and Countermeasures of Translation Teaching in the Era of Artificial Intelligence

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Abstract. The development of artificial intelligence has greatly improved the quality of machine translation (MT), bringing great changes to translation business and translation teaching in universities. At present, teachers and students of translation study do not have enough knowledge about the latest development of MT, and rarely integrate MT into translation practice. Outdated teaching methods and poor use of translation technologies fail to cultivate talents needed by the translation industry. The teaching of translation should make corresponding changes according to changes of practice in language service by updating teaching methods, incorporating MT and related translation tools and technologies into teaching, establishing a diversified translation evaluation system so as to further improve students' post-translation editing ability and language competence.

Keywords: Machine Translation, Translation Teaching, Post-translation Editing

1. Introduction
In today's world, the rapid development of science and technology promote the advance of artificial intelligence technologies, and the field of translation, connected closely with application of artificial intelligent tools, has undergone radical changes in past decades. As the demand for language service is growing rapidly, various translation tools are emerging, and machine translation technology is developing even more rapidly. The technology, deemed as impossible and producing non-readable results decades ago, is now gradually coming into practical use by translators to accelerate translation process.

Nevertheless, excellent linguistic experts are still badly needed for high-end language service, especially in processing materials of specialized fields. The development of technology has posed challenges to the teaching, and the previous translation teaching mode is no longer able to cultivate students into professionals and meet students’ needs for further study. Therefore, it is urgent to adjust the English translation teaching mode in universities to adapt to the technological environment. We should make full use of the advantages of new technologies and develop a new English translation teaching mode to improve students' language competence and lay a solid foundation for students’ future development.
2. Latest Development of Artificial Intelligence in Translation

With increasing communication, demand for translation grows increasingly faster, and sometimes it exceeds the processing capacity with traditional means. Therefore, constant efforts are being made in the field of MT to find a way out. In the past three decades, MT has roughly undergone through three stages of development, namely, rule-based MT, statistics-based MT and deep learning MT based on multi-layered artificial neural network (MT below refers to development in the third stage). Google translation, which has now been upgraded to neural machine translation, adopts a new algorithm taking into account the context of translated contents. The new system achieves a dramatic improvement over previous phrase-based translation production systems. It has been proved after testing that errors could be reduced by more than 55%-85% in the process of translation across main pairs of languages. Researchers predict that MT will make further progress in areas such as multi-turn dialogue translation and passage translation as the development of contextual representation and logic reasoning capabilities will continue to expand the knowledge scope of natural language.

The surge of global translation demand and the limitations of traditional translation itself give an opportunity for the development of MT. Google, Youdao, Sogou and Baidu have all started to dig into artificial intelligence translation. The development of artificial intelligence has brought a qualitative leap to the field of MT, and the quality of MT has gradually improved. Shiyibao, a third-party translation evaluation agency, launched a competition between MT and human translation. The results were quite surprising: the score of well-trained translators (45 points for translators) were lower than that of MT (55 points for MT). The progress of MT has made it possible for this type of intelligent translation replaced some low-level translation tasks, but at the same time, the post-translation editing mode of MT has gradually been accepted as possible in professional fields. Many translators have integrated MT into the translation process as an early part of translation process. The mode of combining MT with post-translation editing is rapidly developing, as it can make full use of both the speed of MT and the accuracy of human translation [1].

3. Problems of Translation Teaching in Universities

Among the subdivision of English majors in universities, translation is the one that is mostly closely connected with market. The rapid development of translation technology has brought about great changes in translation practice, which also poses great challenges to translation teaching. According to research and interviews, we found that the following problems generally exist in English translation teaching in universities at present.

3.1 Outdated Teaching Methods

In translation teaching, especially in explaining and commenting translated texts, teachers dominate the class most of the time, and there is not much effective communication and exchange between teachers and students. Many teachers still try to have students understand, translate or recite the translation word by word, resulting in lack of motivation in students. Students rely mainly on teachers' comments and revision after translation practice, but teachers' feedback, quite time-consuming, is very limited. The effective communication between teachers and students is thus very limited, so students' effective translation practice is not much enough in a school year. Many students often feel that they do not make any improvement in their linguistic proficiency. Since many students need to take certificate examinations or postgraduate examinations, there is an urgent need to improve the amount of effective translation practice, but it is difficult for the current translation teaching to meet their requirements.

3.2 Poor Use of Translation Technologies and Tools

New technologies are constantly being introduced to the market, but schools have always been unable to keep pace with the market. Of course, many schools also make corresponding changes according to market demand, but schools often tend to adopt mature technologies, which means the tools or software they use somewhat lag behind the market. As the application of tools is not based on practical
operations, students will meet many problems in actual use. In the application of computer-aided software such as Trados, Passolo, Transmate and Snowman etc. in teaching, the biggest problem is that these softwares could only prove their value in practice, but not in teaching. Without accumulation of relevant translation memory and term databases, students could only learn basic operation, far away from actual operation. The MT technology is updated quite quickly. Quite a number of teachers cannot keep up with the latest development and thus have insufficient knowledge of intelligent-based MT. On the other hand, relevant training, which can help one combine MT with teaching, is rarely offered at present.

4. Coping Strategies

To address the problems mentions above, translation teaching can be optimized and reformed from the following aspects.

4.1 Updating Translation Teaching Modes

Since there are abundant information resources on the Internet, students can understand the translation and gain knowledge without relying on the teacher's personal knowledge, so the traditional teacher-led teaching method should also be changed. Generally speaking, improvement could be made on two sides. On one hand, methods of applying search engine and acquiring desirable materials should be introduced to students so that students will learn how to rely on the Internet and themselves instead of teachers to revise the translation. On the other hand, students should be encouraged to pick up knowledge in advance by using various platforms to support classroom teaching, setting apart the class time for direct teacher-student communication and exchange. The proportion of classroom activities such as translation explanation can be appropriately reduced, and the student-led classroom teaching method can be introduced to give full play to students' enthusiasm and initiative in translation lectures and students are encouraged to make peer evaluation, so as to activate students' participation in class and after class and effectively improve the quality of translation teaching.

4.2 Appropriate Adoption of MT in Translation Practice

In a questionnaire survey on post-translation editing strategy for E-C translation of scientific and technical texts based on SDL Trados 2014 Google Translate plug-in, 15% of the interviewees think Google Translation is very useful and 40% think it is useful; 65% of the people think it is easier to do post-translation editing in the test [2]. The data reflects that in actual translation practice, MT can assist human translators in translation tasks and significantly improve the efficiency of translation. Monterey Institute of International Studies in the United States already offers courses related to MT, such as "Introduction to MT" and "Advanced Machine-Assisted Translation" etc., and the School of Applied Linguistics and Intercultural Studies in Dublin City University also offers courses like "Translation Technology" and "Computerized Terminology". More courses on computer-assisted translation have been introduced to the curriculum. In 2017, Translation Automation User Society(TAUS) released a report, Nuncest Tempus: Redesign Your Translation Business, Now!, in which it is pointed out that professionals offering language service should transform from the role as translators to the one engaged in proofreading, creative translation and post editing. Many big companies, like Google, TAUS have their own post-editing team. All indicate that MT plus post-editing has become and will be the main working mode for professional translators, [3] which the translation teaching should pay attention to and try to adjust their teaching content according to the change.

On the premise that students already have sufficient linguistic knowledge, MT can be appropriately introduced into students’ translation practice, which push their practice closer to real translation operation where many primary translation tasks have now been replaced by MT. Technological competence as another important element includes the efficient and swift use of software tools which are implemented for documentary search or translation assistance [4]. Proper guidance should be given to students as most of them have poor understanding of the development of artificial intelligence
in the translation field. First of all, they should have an in-depth understanding and knowledge of what MT can do and cannot do. At present, there exist many kinds of MT in the market, comparison and comment should be made on the advantages and disadvantages of various MT, such as comparing the results of various MT, comparing the results of MT and human translation, pointing out the common shortcomings of MT, so that students can understand the principle and development of MT and have a correct understanding of the auxiliary role of MT in translation.

In undergraduate study, it is advocated that MT should be better introduced in the senior year in view of students' language proficiency. Students should be more encouraged to edit the results of MT. "MT testing", a means to identify MT, should also be added at the same time to avoid students' over-reliance on MT in the translation practice.

4.3 Establishing a Diversified Translation Evaluation System

Teachers' feedback in translation evaluation often fail to balance the requirements of quality and quantity, which is a major factor affecting the improvement of translation teaching quality. Nowadays, systems targeting at solving the problem have been developed to meet the needs of translation teaching. Various platforms with intelligent functions have been developed to aid translation teaching, such as automatic translation grading system, parallel comparison of students' translations and peers' evaluation.

The online intelligent review system has realized the online review of essays, which is based on the principle of comparing and mapping students' personal writing with the preliminaries in the standard preliminaries database. Now such a teaching trend is also gradually extended to translation teaching. Some schools have adopted online platforms such as Shiyibao to launch automatic grading for students’ translation. The functions of automatic grading and automatic feedback of translation results can offer instant diagnosis and evaluation of students' translations, which can greatly improve students’ enthusiasm and effectiveness in their independent translation, greatly promoting the improvement of translation teaching. At the same time, the platform's functions make possible a multiple evaluation mechanism integrating automatic feedback, teacher's assessment and peers’ comment. In this way students' translations can experience multiple revisions and polishing. The parallel comparison of multiple translations on the network allows translators to compete on the same stage, allowing students to learn from other translates versions and thus truly realizing the purpose of promoting learning through translation.

With comprehensive use of automatic detection, automatic grading, peer’s evaluation and teachers' comments, etc. in the process of translation evaluation, MT and human translation are compared, commented, revised and polished, which enables students to recognize the shortcomings of MT and further improve the ability of identifying language problems and revising their translation.

4.4 Strengthening the Training of Post-Translation Editing Ability

The post-editing mode of machine translation can improve translators' working efficiency, and it has been widely used in global language service industry. Many large companies have their own post-editing teams, such as SDL International, Microsoft, TAUS and so on. Translation majors in universities should also keep up with the times and strengthen training for post-editing ability. Zhu Yifan suggested that if universities cannot offer a separate course on post-editing due to lack of teachers, the module of post-editing can be implanted in machine-assisted translation or localized courses [5].

MT produce frequent errors, and experts point out that classification of errors in a MT output is a very first step [6]. Some scholars study automatic methods proposed for error identification in MT. The final goal is to automatically correct the most common repetitive errors in raw MT output, allowing human post-editor to focus on the essential changes [7]. Generally speaking, the problems involved in MT output are usually the processing of ambiguity and irrational grammar. In order to solve the problems in MT, post-translation editors are required to acquire a great deal of relevant knowledge, such as linguistics knowledge, cross-linguistic cultural background knowledge, and
expertise in related fields, etc. While linguistic competence was deemed a prioritized competence and was highly ranked, the inclusion of this competence in courses which aim at preparing the students for the translation task is essential [8].

In current translation teaching, it may not be possible to achieve the above goals, but it is possible to strengthen the training of post-translation editing abilities for students, in terms of order adjustment, translation of terminology, slang, idioms, polysemy, proper nouns, etc. When students correctly recognize the strengths and weaknesses of MT, they will know better how to further revise and improve the translation. Through such translation practice, students will understand more deeply the importance of improving language quality and enhancing their own linguistic ability. Since few universities at home and abroad have set up post-translation editing as an independent course, some large enterprises such as TAUS and SDL currently introduce post-translation editing on their official websites and provide post-translation editing training and certification services,[9] which can be used as teaching reference. Human translation has unique and irreplaceable advantages in handling literature translation, and materials difficult to comprehend or material with special cultural background [10].

At the same time, the operation of relevant software and technology should be enhanced to improve the efficiency of post-editing. On the one hand, teachers should closely follow the development and use of post-translation editing tools, and introduce some cloud translation platforms such as Lanting Translation and Aitman Cloud Translation in the course to improve the efficiency of post-translation editing.

5. Conclusion
Artificial intelligence has improved the principle of MT and enhanced the quality of MT. Teachers and students of translation study should clearly understand that intelligent technology as a tool cannot replace practitioners in language service industry, but will exert impact on those practitioners who do not master functional tools to aid their practice. Facing the challenges brought by the intelligent era, teachers and students of translation study should keep pace with the times, make every effort to adapt to the language ecological environment of human-computer coexistence, actively embrace the development of new technologies, enhance the ability to use intelligent tools, and maximize the social benefits from the development of language intelligence. At the same time, we should also see that the development of intelligent tools will eliminate low-level services in the language service industry, which is an inevitable law of development. We should take the challenge of intelligent tools as an opportunity to promote development, strengthen the cultivation of linguistic ability and cross-cultural communication ability, and try to be a person that cannot be replaced by intelligent machines.

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