

Research on the School-Enterprise Collaborative Education of MTI of Medical Colleges

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Keywords— *school-enterprise cooperation; Master of Translation and Interpreting program; Medical institutions*

Abstract— *The refinement of the Master of Translation and Interpreting program within medical colleges and universities can significantly bolster intellectual support for collaboration and exchange in the medical field. This article elucidates the prevalent challenges in the existing translation master's program in medical institutions, including the lack of distinctive teaching materials, a monotonous instructional approach, and the delayed adaptation to emerging translation technologies. It further recommends the development of specialized in-house materials tailored to the medical field, the adoption of innovative teaching methodologies, and the adept integration of translation technology through a synergistic school-enterprise collaboration model, aimed at enhancing the training quality for translation master's candidates within a corporate-academic collaborative framework.*

I. INTRODUCTION

In higher medical educational institutions, forging cooperative relations between schools and enterprises significantly contributes to the educational and training journey of students. The initiative of the Master of Translation and Interpreting (MTI) stands as a testament to the benefits derived from the integration of the university-enterprise cooperation and industry-university-research model, a sentiment echoed in the annual conference of 2016¹. The school-enterprise collaborative education model presents a myriad of advantages for students. Training graduate translation students in the medical domain is pivotal for fostering effective communication. In China, nurturing graduate translation students in the medical field intertwines with the dissemination of traditional Chinese medicine culture and the global

exchange of medical knowledge. Hence, the establishment of the Master of Translation and Interpreting program (hereinafter abbreviated as MTI) in medical schools is of paramount importance. In 2007, the State Council of China introduced the professional degree of Master of Translation and Interpreting². Subsequently, in 2008, institutions offering master's degrees in translation were authorized to admit new students. Initially, only 15 universities offered the MTI program. However, as of 2023, this number has surged to 316, as per the data from the China Graduate Enrollment Information Network. In 2011, the China National Committee for Graduate Education of Translation and Interpreting devised the *Guiding Training Program for Graduate Education of Translation and Interpreting*, aiming to foster "high-level, application-oriented and

specialized translation and interpreting talents”³. Despite the escalating scale of MTI over the years, a shortfall in specialization, particularly in medical translation, persists. Given the intrinsic link between medical discourse and human health, cultivating adept translation professionals in medical colleges and universities is integral to advancing medical education.

Currently, several challenges hinder the cultivation of Master of Translation and Interpreting (MTI) programs in domestic medical universities and colleges. This study aims to explore these challenges, focusing on aspects such as teaching materials, content, methodologies, and technology utilization. Following a comprehensive analysis of the identified issues, appropriate solutions will be proposed.

The paradigm of collaboration between universities and enterprises aimed at the nurturing of translation professionals presents an inherently symbiotic framework for the language services sector, academia, students, and society at large, thereby illuminating novel prospects⁴. Within the domain of medical schools and higher education institutions, the cultivation of students can attain an elevated level of proficiency, leading to the collective generation of pedagogical materials tailored to the needs of tertiary institutions and the innovative evolution of pedagogical approaches. This collaborative framework serves to enhance the acquisition of translation skills by both students and educators.

II. CURRENT SITUATION OF MTI CULTIVATION

Since its inception in 2007, MTI (Master of Translation and Interpreting) education has undergone 15 years of evolution, witnessing advancements in areas such as teaching material compilation, faculty development, curriculum design, teaching modalities, and translation education technology⁵. Initially, the program commenced with 15 universities, but has now expanded to 316 universities, progressing through eleven phases of university enrollments for MTI programs. Although the number of universities offering MTI is on an

upward trajectory, the first three phases did not include any medical colleges. It was only after the seventh phase that medical schools were granted the authorization to establish MTI programs. Presently, nine medical schools offer MTI, with program durations ranging between 1 to 9 years; notably, four of these institutions initiated enrollments in 2022. This expansion suggests a substantial potential for further development of MTI in medical schools.

Looking ahead, the pervasive adoption of translation technology and software is an inevitable trend within the translation industry⁶. The integration of such technology is also becoming a hallmark of MRRegarding teaching materials, under the auspices of the China National Committee for Graduate Education of Translation and Interpreting, the Foreign Language Teaching and Research Press initiated the launch of an MTI textbook series in 2009. However, during the publication of these textbooks, higher medical colleges had yet to commence MTI student enrollments. As the textbooks weren't tailored for medical schools, there's a palpable need to develop specialized textbooks for medical translation. Currently, the only textbooks available on translation technology are centered around computer-aided translation.

Concerning teaching modalities, the inaugural National Translation Master Education and Industry Seminar advocated for a school-enterprise cooperation program and joint training initiatives. While initially well-received, the practical implementation of this theory has lagged. Predominantly, teaching still adheres to traditional classroom-based models, despite a broad academic consensus favoring a “demand-oriented teaching model of language service”⁷. The extent of school-enterprise cooperation in many domestic universities falls short of practical theories, often manifesting merely at a theoretical level. Due to the infrequent collaboration between schools and enterprises, the majority of MTI teaching remains confined to academic institutions, with only a few instances of enterprises contributing to on-campus training.

Anxiety surrounding artificial intelligence and its

potential to supplant traditional translation peaked with the advent of Chat GPT earlier this year. However, it's imperative for students, as future translation professionals, to proficiently navigate translation technology, thereby contributing to education and society at large. A recent study by Lisa Wang and Gao Mingle⁸ highlighted that within the curriculum of medical translation courses across relevant universities, language proficiency courses are predominant, constituting over 80% of all courses, while translation technology and humanities and ethics courses are notably scarce.

Examining the contemporary landscape in conjunction with the inherent merits of collaborative ventures between educational institutions and business entities, it becomes evident that the synergy of school-enterprise cooperation significantly contributes to the advancement of MTI education⁹. University-enterprise collaborative education proves beneficial for students, teachers, schools, and enterprises alike. It fosters a conducive environment for students to amalgamate translation theory with practical experience, enhance professional skills, and receive robust career guidance. Similarly, the collaborative learning experience allows school educators to exchange expertise with enterprise educators, enriching the educational resources available to students. This symbiotic relationship not only elevates the social recognition of schools and enterprises but also stimulates productive activities. Overall, this educational model is pivotal in nurturing talents in sync with enterprise needs, and in enhancing the quality and efficacy of education and training.

III. DEFICIENCY OF STUDENTS' EDUCATION AT MEDICAL SCHOOL.

3.1 Shortage of Teaching Materials

Primarily, medical schools and universities exhibit a glaring deficiency in the availability of contemporary teaching materials and textbooks. A search for the keywords "Medical English" in the networks of the National Library of China, National Digital Library of China, and National Museum of

Classic Books yields 286 medical books, published between 1980 and 2013. This range of publication dates poses a challenge for educators in finding up-to-date materials to utilize in their instruction. The scarcity of teaching materials persists as an unresolved issue. Moreover, textbooks selected by educators in medical schools often lag in reflecting current medical developments. For instance, the advent of the COVID-19 pandemic in 2019 introduced numerous English terms related to the virus, yet these terms are conspicuously absent in domestic medical English textbooks. This discrepancy highlights the relative dearth and outdated nature of medical English books in China. Given the rapid evolution of medical terminology and technology, outdated textbooks impede translation masters from staying abreast of contemporary medical discourse, which could subsequently hinder their future engagements in medical translation.

3.2 Singularity of Teaching Model

The term "model" was introduced to the realm of teaching by Joyce and Weil in the United States, who systematically studied it. In their work, Model of Teaching, Joyce and Weil¹⁰ elucidate, "A teaching model is a paradigm or plan that shapes curriculum and assignments, guides textbook selection, and directs teacher activities". The teaching model serves as a pivotal component of instructional activities, playing a crucial role in the cultivation of MTI students. During the training process, adherence to traditional indoctrinatory teaching models, at the expense of nurturing students' subjective initiative and classroom participation, stifles the development of critical thinking habits among translation majors. While each educator may have a distinct teaching model, practical constraints such as venue limitations often thwart innovation. Predominantly, MTI lectures in domestic medical schools are conducted on-campus to mitigate potential external risks and leverage available resources such as computers, multimedia technology, and blackboards. This on-campus confinement, although resourceful, inadvertently promotes a monolithic teaching model and outdated instructional methods. Innovating the teaching model

could significantly kindle students' learning interests, thereby enhancing the quality of talent training.

3.3 Slow Updating Speed of Translation Technology

Translation technology updates within China's higher medical colleges are noticeably slow-paced. The sluggish rate of technology adoption in Master's teaching is attributable to several factors. Firstly, there's a marked lack of emphasis by university instructors on imparting translation technology education. Post-graduation, the majority of college educators find themselves ensconced within university environments, burdened with an array of demanding academic and institutional tasks, which leaves scant time for acquainting themselves with new technological advancements. However, as MTI educators, enhancing their proficiency in translation technology is imperative, posing a clear contradiction.

The MTI curriculum in many medical schools is scant on translation technology courses. For instance, in 2023, the graduate course catalog from the Beijing University of Chinese Medicine did not feature any course on translation technology. Numerous medical schools exhibit a similar paucity of courses dedicated to translation technology, with some offering merely a single elective course on computer-aided translation. In the epoch of Artificial General Intelligence (AGI), where artificial intelligence and, by extension, translation technology are advancing at a rapid clip, the importance of translation applications and tools for students engaged in translation tasks cannot be overstated. These tools significantly augment the efficiency of translation endeavors.

The financial allocation within domestic medical colleges and universities heavily favors the advancement of medical sciences over liberal arts. Financial backing is crucial for the acquisition and learning of translation technology. The procurement of technologies like Trados or AI innovations like Chat GPT entails substantial capital investment. Similarly, educators keen on upgrading their translation skills face training costs. With the financial resource allocation from schools predominantly channeled towards medical majors, the financial constraints starkly hinder the progress in translation technology

education. This prioritization towards medical disciplines, albeit aligned with the contemporary developmental imperatives, creates a challenging milieu for fostering a balanced cultivation of MTI. The prevailing financial limitations pose a short-term obstacle. Given the axiom that the economic foundation shapes the superstructure, the paucity of financial support relegates MTI training largely to theoretical realms, making the translation to practical applications an arduous endeavor.

IV. STRATEGY OF SCHOOL-ENTERPRISE COOPERATIVE EDUCATION

4.1 Construction of Self-Composed Teaching Material Through School-Enterprise Cooperation.

In higher medical educational institutions, forging cooperative relations between schools and enterprises significantly contributes to the educational and training journey of students. The initiative of the Master of Translation and Interpreting (MTI) stands as a testament to the benefits derived from the integration of the university-enterprise cooperation and industry-university-research model, a sentiment echoed in the annual conference of 2016. The school-enterprise collaborative education model presents a myriad of advantages for students. A high-caliber education system significantly benefits from robust teaching material construction. During the National Conference on Teaching Material Work, Sun Chunlan emphasized that teaching materials are the cornerstone of education, serving as a fundamental conduit for moral education. In the context of MTI (Master of Translation and Interpreting) student cultivation, the development of teaching materials holds paramount importance. Hence, to augment the quantity and quality of specialized textbooks in medical schools, a collaborative venture between schools and enterprises is advisable for crafting distinctive teaching materials tailored to medical curricula.

In the process of teaching material development, a holistic approach encompassing the fusion of domestic medical knowledge and practical elements,

coupled with insights gleaned from international teaching materials, is prudent. MTI educators in medical schools are well-positioned to comprehend medical texts, courtesy of the collaborative environment with medical faculty and students, and their expertise in English, which facilitates understanding of foreign medical teaching materials. Consequently, they can discern the requisite materials for translation within the healthcare sector. The endeavor is to compile teaching materials that reflect school-specific characteristics while also aligning with the demands of the translation market.

Engagement between schools and enterprises can yield teaching materials that encapsulate school-specific traits, contemporary medical English knowledge, and translations of the latest global medical technologies. In the face of contemporary societal competition, enterprises strive to stay updated, boasting staff well-versed in translation market dynamics. This scenario presents a ripe opportunity for integrating current translation theories and modern medical lexicon into the teaching material framework, thereby fostering medical English translation talents poised for contemporary challenges.

The strategy entails a series of collaborative steps: initial deliberations between schools and enterprises to delineate the knowledge, skills, and emotional objectives of the teaching material; market surveys to ascertain the actual needs and backdrop of medical translation; formulation of a characteristic medical translation syllabus based on teaching material objectives and research findings, clarifying the content and focal points of each unit or chapter. Subsequently, school and enterprise educators collaboratively draft the material content, encompassing fundamental translation theories, practical enterprise project cases, and market research on medical translation needs, ensuring the accuracy, clarity, and readability of the translation materials. Following the initial compilation, a preliminary evaluation of the textbook is crucial, incorporating feedback from students, teachers, and enterprises, leading to revisions and enhancements. Upon finalization, the textbook

undergoes publication and promotion, extending its benefits to a broader spectrum of medical school MTI educators and students.

It's pertinent to note that while the textbook is a pivotal resource, it should not monopolize classroom instruction. Knowledge content should be promptly updated, and enriched by the amalgam of experiences from both the school and enterprise domains.

4.2 Establishing a School-enterprise Cooperative Classroom.

The concept of a school-enterprise collaborative classroom teaching mode is not novel, yet it presents a viable avenue for enhancing student capabilities within Chinese medical schools. This mode mitigates challenges such as security concerns and equipment availability, fostering a synergy between students' theoretical translation studies and practical medical translation endeavors. The collaboration between academic institutions and enterprises not only ensures a safe classroom environment but also facilitates students' interaction with essential enterprise equipment and practical translation issues.

Engaging students in translation projects within enterprises or facilitating visits to medical institutions can immerse them in practical translation experiences and acquaint them with medical practices. This model is instrumental in applying theoretical knowledge to practical work. The operational steps of this model are delineated as follows: initially, students visit the enterprises to grasp the scope of tasks undertaken by medical translators post-employment. Upon returning to school, students, now cognizant of the requisite translation knowledge for a career in medical translation, delve into mastering translation skills, familiarizing with basic medical terminology, and understanding common expressions, all tailored to the needs of medical enterprises.

Subsequently, MTI students engage in assisting enterprise personnel in task completion and partake in actual medical translation projects, thus engendering a cyclical process of knowledge assimilation and application. This not only enhances classroom engagement and diversity but also fortifies students' knowledge base and cultivates critical

thinking abilities. In this paradigm, students transition from passive recipients of knowledge to active constructors of their knowledge systems, aligned with the demands of enterprise projects.

Moreover, MTI students have the opportunity to interact with seasoned translators within the enterprises, gaining insights into the forefront of medical translation and acquiring requisite skills for medical English translation. This interaction significantly augments the professional caliber of medical education, bridging the gap between theoretical knowledge and practical translation experiences. Transitioning from conventional teacher-centered instruction to a collaborative training model encompassing both campus and enterprise resources, this teaching mode epitomizes the symbiosis of educational resources between enterprises and schools.

Through enterprise collaborations, students immerse in real-world projects, encompassing pharmaceutical translation, medical device translation, and drug instruction translation, thereby honing their problem-solving skills in a genuine work environment attuned to business requisites.

4.3 Integrative Learning of Translation Educational Technology

It is only through the amalgamation of Master of Translation and Interpreting (MTI) professional education with industry dynamics that the multifaceted market demands can be met, fostering the cultivation of translation professionals highly sought after in society¹¹. A study conducted by SDL Trados, a leading global translation firm, revealed that approximately 66% of biotech and pharmaceutical corporations consider translation a pivotal strategy in their international market endeavors. Given the substantial demand for medical translation, the assistance of translation technology is imperative for effectively executing various translation tasks. Therefore, it behooves medical schools to accentuate their distinctive medical translation attributes to foster collaborations with pharmaceutical and technology companies, a move also conducive to the

advancement of medical translation.

Within the academic milieu, teachers serve not only as orchestrators of educational activities but also as adept users of educational technology, thus constituting a critical factor in the fusion of educational technology and translation instruction¹². The pace of assimilating translation technology may be hampered if school educators are entangled in a myriad of intricate affairs. Under the collaborative student cultivation model between schools and enterprises, the adoption of a dual-teacher system can be actualized, where enterprise instructors impart translation technology knowledge¹². With a wealth of experience accrued from handling extensive translation tasks through long-term technology utilization, enterprise teachers can seamlessly incorporate translation technology into pedagogy.

Engaging in translation technology learning alongside enterprises enables students to judiciously utilize enterprise resources and foster a close acquaintance with machine translation tools¹³. To nurture translation masters embodying the unique translation characteristics of universities, it is indispensable for medical schools to ensure a robust foundation in language and medical knowledge, translation skills and strategies, complemented with a proficient understanding of specific translation techniques. These include term management tools, text alignment tools, and virtual translation technology such as Virtual Translation Memory (VTM). Acquiring translation technology competency not only elevates translation efficiency but also augments employment competitiveness. School-enterprise collaboration extends a plethora of pragmatic opportunities for students to apply theoretical acumen to tangible medical tasks, thereby enriching the learning experience.

V. CONCLUSION

Following an exploration of the recent developments in MTI education within medical institutions, this paper conducts an analysis of prevailing challenges in contemporary MTI education. These issues encompass the inadequacy of suitable

educational resources within medical schools, a prevailing unidimensional pedagogical approach, and a discernible lag in adapting to modern translation technologies. Subsequently, the article advances remedial strategies, advocating for collaborative initiatives between academic institutions and corporate entities. These strategies include the development of institution-specific educational materials, the establishment of joint academic-industry classrooms, and collective engagement in the acquisition of cutting-edge translation techniques. The joint endeavor in compiling teaching materials and assimilating technology enables students to closely engage with the medical translation sector and the prevailing demands of the translation market. Acquiring contemporaneous insights into medical and health-related information augments the employability prospects of students post-graduation. A distinctive feature of this model is the integration of real-world cases, challenges, and enterprise needs into the academic content and teaching materials, thereby rendering the instructional mode more attuned to practical realities¹⁴. Concurrently, this model alleviates the teaching workload for academic educators, while offering enterprise instructors enhanced opportunities for interfacing with prospective translation talents. The dynamic nature of societal development necessitates a progressive and adaptive stance in MTI education. The landscape of translation educational technology and classroom instructional models is undergoing transformative shifts. It is imperative to remain abreast of epochal developments and technological innovations to nurture the requisite talents for this evolving era.

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