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Challenges and Pathways in College English Translation Teaching: A Big Data Perspective

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Abstract

Big data is playing an increasingly prominent role in education, and its impact on foreign language teaching is twofold—bringing both notable benefits and considerable challenges. As a key component of college English programs, translation courses play an important role in developing students' intercultural communication competence. However, these courses in Chinese higher education face a set of interrelated challenges: teaching materials that are outdated and homogeneous, with a bias toward literary genres; a lack of systematic integration of cultural and linguistic knowledge; insufficient hands-on translation practice and extracurricular activities; and a persistent lecture-based, teacher-dominated pedagogy that allows limited interaction and individualized feedback. In the context of big data, this paper examines these core issues and proposes potential strategies for enhancing translation pedagogy, with the aim of offering a reference for curriculum design and instructional practice. The study may contribute to translation education by providing a basis for further empirical research on data-driven teaching interventions.

Keywords

Big data; college English translation teaching; educational technology; personalized learning

1. Introduction

Since the turn of the 21st century, the world has entered the digital age. With the rapid advancement of technology, big data has emerged and gradually matured. It has achieved remarkable results across various domains of social life, with its role in education becoming particularly prominent. As Yang Xianmin et al. (2015, p. 54) note, "big data serves as a scientific force driving educational innovation, and the educational data collected throughout teaching processes holds significant potential value". The study further emphasizes that the era of technology-transformed education has arrived, and that leveraging informatization to promote educational modernization has become a national strategy. In foreign language teaching, this shift has created fresh possibilities while also introducing challenges. Consequently, a growing number of scholars have turned their attention to big data, hoping to explore innovative approaches and methodologies for foreign language research and pedagogy through its application.

In the curriculum of college English, translation has always been in a key position, covering almost all the training programs of English majors and deeply embedded in the forging process of their academic literacy. As globalization deepens and cross-border exchanges become increasingly frequent, translation has emerged as a crucial bridge for

international cooperation. In response, many countries have made the development of high-level translation teams a strategic priority, with the training of highly skilled translators now widely regarded as essential to effective cross-cultural communication.

2. Characteristics of Big Data

Big data has attracted much attention due to the continuous upgrading of its application breadth and cross-domain influence. According to Wang Shiwei (2016, p. 5), it is a data cluster with "large volume, diverse types, fast access speed and high application value". In essence, this is not only a technical iteration, but also involves deep changes in service models and organizational forms. The aggregation analysis of multivariate data is helpful for rule discovery, insight generation and decision optimization, which has both practical and economic and social benefits. Big data is invisible but permeates daily life, continuously tracking the micro pulsation of social life. Its ' four V ' traits (Li & Xu, 2021) have laid the foundation for multi-domain applications.

The short video APP represented by Tik Tok, Kuaishou and Xiaohongshu has attracted a large number of heterogeneous audiences by virtue of the algorithm recommendation mechanism (based on user viewing, search and interactive data). This logic has now overflowed the boundary of entertainment, immersed in the field of education, and simultaneously triggered the adjustment of teaching methods and the reconstruction of learning paths. According to Sun Hongtao and Zheng Qinhua (2016, p. 41), "educational big data has shown a rapid development trend in research paradigm, technology application and practical cases", reflecting its continuous impact on education and classroom. However, there are significant differences in research orientation between China and other countries: at the international level, more attention is paid to empirical topics such as data-driven learning, AI and multimodality, while at the domestic level, more attention is paid to practical topics such as corpus, language resource development and moral education (Dong & Wang, 2026, p. 50). It can be seen that the effective implementation of educational big data depends on seeking a dynamic balance between global common trends and local special demands, rather than one-way technology transplantation.

3. Major Challenges in Traditional College English Translation Teaching in China

China's economic strength and foreign exchange continue to push up the market demand for high-quality translation. As the core yardstick of foreign language literacy, translation competence has been institutionally confirmed through the College English Syllabus (Revised Edition) and the translation questions in CET-4 and CET-6. English majors in colleges and universities should attach importance to translation teaching. However, the reality is that the course is neglected by teachers and students, and the students' translation level is generally low, which is difficult to meet the expectations of employers. The crux of the problem lies in the marginalization of courses, the narrow coverage of teaching materials, the insufficient input of cultural and linguistic knowledge, the lack of practical opportunities, and the systematic suppression of personalized feedback by the unified teaching mode.

3.1 Insufficient Emphasis on College English Translation Courses

From primary through higher education, the teaching of English in China has long given primacy to listening, speaking, reading, and writing., while translation training has remained conspicuously underrepresented. This pattern persists at the tertiary level, where translation courses are generally treated as ancillary rather than core components of the curriculum. Wang Zhuo (2012) observed that translation course offerings in many Chinese universities, particularly local institutions, remain scarce. Even among English majors, translation classes are often limited to two sessions per week, and for non-English majors, such instruction is frequently unavailable. Compounding this problem, teaching materials tend to be outdated and homogeneous, and course plans often rely on lecture slides that have seen little revision over the years—a familiar sign of pedagogical stagnation.

In the translation classroom, student engagement tends to be low. Some learners concentrate narrowly on vocabulary and grammar drills at the expense of hands-on translation practice, while others disengage from classroom activities altogether. These behaviors point to a broader, systemic undervaluation of translation competence within the curriculum. A major contributing factor lies in the signaling effect of high-stakes testing. As Wang and Chen (2015, p. 84) note, "the national College English Test Band 4 and Band 6 (CET-4/6) exerts a powerful influence on both teaching practices and student learning priorities". Historically, translation items were absent from these examinations; when they were later reintroduced, their level of difficulty remained relatively low, and their weight was capped

at just 5% of the total score—a proportion too modest to motivate sustained pedagogical attention or meaningful student effort. In other words, while translation now appears in the test, its minimal, low-stakes role fails to signal that translation proficiency merits serious investment. This institutional message, in turn, reinforces the marginal position of translation courses within the broader English curriculum, trapping translation training in a cycle of systematic neglect from which it has yet to recover.

3.2 Outdated and Monotonous Teaching Content

Chen Yanhua (2016, p. 211) points out that "the content of current college English translation textbooks is rather outdated, examples are out of line with the times, and cannot respond to students' real needs". This dislocation not only damages the learning motivation, but also restricts the teaching efficiency, and makes it difficult for the training results to migrate to the actual work scene. Although different versions of the textbooks are published by different publishers, the contents are highly similar, especially in the absolute dominance of literary translation materials on examples and exercises. The translation examples selected in the current textbooks are all from Sun Li, Wu Chengen, Zhu Ziqing, Fu Lei and other literary classics. This bias is not an isolated case, but a microcosm of the market norm.

The literary tendency of translation textbooks ignores the skill difference between literary translation and practical translation: the former focuses on aesthetic interpretation, while the latter focuses on precise logic. The daily contact and actual needs of students are mostly directed to non-literary scenes, such as tourism and business. This reality requires translation teaching to break through the single style and reconstruct the training system and evaluation criteria for multiple genres and real situations.

3.3 Insufficient Integration of Linguistic and Cultural Background Knowledge

The essence of language proficiency lies not in the lexicogrammatical level, but in the deep understanding of cultural implications. André Lefevere (2004) points out that translation is shaped by socio-cultural forces and deeply tied to strategy, history and tradition. Therefore, linguistic training alone is not enough to achieve perfect translation ability.

The continuous deepening of the globalization process has given a new era meaning to the cultivation of cross-cultural awareness and the exploration of heterogeneous culture. However, in contrast to the actual situation of translation teaching in China, the technical orientation is still dominant, and the content integration of cultural dimension is obviously lagging behind. Students' reading materials have long been confined to isolated passages, and they have little knowledge of the original English literature and the social culture of English-speaking countries. This structural narrowness of the input end directly leads to a significant defect in the learner's background knowledge system. In view of this, Wang Zhuo (2012) advocates the systematic embedding of cultural knowledge in the classroom teaching process, and repeatedly emphasizes the supporting role of language foundation and cultural cognition in translation practice. However, we must face up to the fact that the real implementation of the advocacy of cultural awareness will inevitably require the translation teaching and learning paradigm to make profound adjustments and shifts on the existing track.

3.4 Lack of Translation Practice Experience

Translation ability can only be formed through long-term continuous training. However, at present, in addition to completing the required homework, college students rarely carry out translation exercises outside class. Wang Zhuo (2012, p. 60) pointed out that "the amount of homework is small and the knowledge coverage is narrow, which is difficult to support vocabulary accumulation and translation accuracy". The lack of practice has both internal and external representations: the classroom hours are mostly occupied by theoretical teaching, and the practical space is narrow; extracurricular activities lack the ecology of autonomous translation training, which is far less valued than listening, reading and other skills, and few of them actively expand.

The consequences of insufficient translation practice have a wide range of radiation: students are difficult to internalize the acquisition methods, tend to mechanically translate, and the output efficiency and quality are unstable. And confidence is frustrated, it is difficult to cope with exams and workplace challenges. In the long run, vocabulary accumulation and comprehensive translation literacy (discourse coherence, stylistic relevance, cultural transmission, etc.) are also fundamentally restricted by the lack of continuous and diverse practical input.

3.5 Monotonous Teaching Methods and Insufficient Individualized Instruction

The current college translation class is still dominated by traditional teacher teaching. The teaching mode is deeply

bound by the dual constraints of the textbook framework and the fixed class hours. In essence, it continues the platform-centered and knowledge-based path. The level of classroom interaction is limited, and practical training in real scenes is particularly scarce. Chen Qingbin (2016, p. 130) once pointed out that "teaching students in accordance with their aptitude and individualized teaching" has always been the concept advocated by the reform of college English teaching in China. However, in the specific field of translation teaching, the implementation of this concept is extremely limited, and the gap between the ideal and the current situation is obvious.

The formation of this gap is rooted in the superposition of multiple institutional and structural factors. The fixed total amount of class hours and the predetermined teaching schedule make teachers lack the space for flexible adjustment in curriculum implementation, and there is little room for spontaneous and responsive teaching. Even if translation exercises are arranged, they are often promoted in a unified way, failing to design them hierarchically according to the individual level of students. The reality that the class size usually exceeds 40 people further aggravates the workload of teachers-a large number of homework corrections occupy their available time, leaving little room for personalized diagnosis and targeted guidance.

4. Big-Data-Driven Strategies for College English Translation Teaching

The above analysis summarizes the five challenges of college English translation teaching. In order to deal with these disadvantages, it is necessary to go beyond the scattered improvement and promote the fundamental paradigm shift of translation teaching concept - from the experience-led, teacher-centered and unified model to the new path of data-inspired, learner-centered and personalized adaptation. Big data has become the key driving force of this transformation by virtue of its information processing and decision support functions. Accordingly, this paper proposes a five-dimensional strategic framework covering content design, ability training, teaching methods, subject coordination and evaluation reform.

4.1 Integrating Teaching Content and Resources through Big Data

Big data and digital resources extend translation instruction beyond the physical classroom, offering multimedia content, immediate feedback, and a learner-oriented environment. As Zhao et al. (2010, p. 100) point out, "these conditions create favorable opportunities for pedagogical reform and quality enhancement". Tan (2015, p. 111) also suggests that "teachers may draw on online media, electronic repositories, and nationally available language-learning channels to provide students with sustained linguistic exposure". Yet the presence of these tools does not in itself guarantee better learning outcomes. To be effective, "their use needs to be aligned with the specific challenges students face at different stages of translation—before writing, during drafting, and in revision" (Xu, 2012, p. 7).

In the pre-writing stage, students often have difficulty locating sufficient background information and topic-specific vocabulary. Teachers can encourage the use of general search engines (Bing, Google, Baidu) for quick fact-checking and contextual exploration, while platforms such as Unipus—especially its New Horizon College English Reading and Writing digital series—offer structured reading materials and tutorial content that help build relevant knowledge. For lexical and terminological precision, parallel corpora (BNC, COCA) and terminology databases (Term Online, UNTERM, the Standardized Terminology Database for Discourse with Chinese Characteristics) provide authentic examples and established equivalents, which are generally more dependable than intuitive judgments about word choice and collocation. During drafting, online dictionaries and writing-support platforms allow students to consult references in real time and receive peer or instructor feedback as they write. When they encounter problematic collocations or uncertain usage, corpus tools, including the United Nations Document Database and the CCL Chinese-English Bilingual Corpus, can be consulted for verification. In the revision phase, automated writing evaluation systems enable students to submit revised versions before the deadline, with immediate scoring and feedback on grammatical, lexical, and discourse-level issues. This structured, tool-assisted process not only supports each subtask of translation but also encourages learners to become more reflective and independent in selecting and using digital resources. Moreover, by engaging with diverse tools across the entire workflow, students gradually internalize a problem-solving mindset that transfers readily to new tasks and unfamiliar content areas.

4.2 Cultivating Students' New Literacies

The rapid expansion of digital information has significantly altered what it means to read and write in the present day. While translation teaching has long prioritized linguistic accuracy, it must now cultivate broader competencies—

often termed "new literacies". The New London Group (1996) argued that literacy today extends beyond decoding written language to encompass multimodal meaning-making. Leu et al. (2004) similarly contend that effective digital communication requires not only traditional reading and writing but also skills in information navigation, evaluation, and synthesis. In the context of translation education, these literacies can be understood as comprising four interrelated capacities: locating relevant information efficiently; evaluating the credibility and timeliness of online sources; interpreting content that blends text, image, sound, and layout; and adjusting one's writing to suit different media and audiences. These abilities, though grounded in traditional literacy, have grown in importance with the rise of data-rich environments, and they are unlikely to have taken their present shape without the pressures exerted by massive digital information flows.

University translation programs can develop these capacities through course designs that embed digital tools in authentic, project-based tasks. For instance, instructors may set assignments that require students to search for and compare multiple online sources, assess the reliability of different parallel texts, and adapt translations for various digital formats, such as subtitles, social media posts, or formal documents. Beyond individual work, social platforms like Weibo, WeChat, QQ, email, and institutional learning management systems can support interactive activities, including collaborative annotation, peer review, and discussion. These practices extend learning beyond class hours and help cultivate the critical awareness needed in professional translation. In addition, the integration of such platforms encourages sustained dialogue between peers and instructors, fostering a sense of shared inquiry that enriches the learning process. When these literacy goals are made explicit in course objectives and assessment criteria, translation programs stand a better chance of preparing students for the complex, digitally mediated communication tasks that await them in their future careers. Ultimately, the cultivation of new literacies is not an add-on to traditional translation training but an essential reorientation that responds to the realities of contemporary information practice.

4.3 Innovating the Teaching Format of Traditional English Translation Courses

Traditional translation teaching is teacher-centered, and students passively accept knowledge. The classroom is mainly lectured, and the homework is independently written and submitted in paper. The integration of big data and education has reshaped this pattern: multimedia classrooms and online platforms support real-time interaction and full-process digital operations, and provide instant resource feedback. The automatic scoring system (such as I Write and Juku Correcting Network) relies on NLP and corpus methods to score in real time, give suggestions for modification, and track learner behavior data (dictionary access, reading materials, time allocation, and modification records). The data generated by learning activities can be effective at multiple levels: at the class level, identify common difficulties and implement centralized feedback; at the grouping level, the differentiated tasks are arranged according to the horizontal stratification; at the individual level, combined with behavioral data such as translation speed, error mode and performance trend and automatic feedback, students' weaknesses are accurately positioned and customized guidance is provided. Personalized teaching thus moves from concept to practical and achievable goal.

4.4 Establishing New Teacher-Student and Student-Student Relationships

The online translation learning platform enhances the interaction between teachers and students, and promotes students to shift from passive acceptance to active construction of knowledge. Hyland 's (2003, p. 147) assertion that the teaching of writing requires "the synergy of appropriate methods, adequate practice and effective guidance", and also applies to the teaching of translation. Teachers should be positioned as designers and promoters of the classroom-guide students to learn independently, regulate the process and participate in the evaluation of results, rather than passive bystanders. As a powerful complement to automatic scoring, teacher feedback and peer assessment play a key role in knowledge transfer and problem solving. Peer review and collaborative learning can effectively help students achieve their task objectives. The interaction between autonomous learning and cooperative learning enables learners to construct and adjust their own knowledge structure through dialogue and negotiation or collaborative practice, which may further reshape their emotional attitude and cognitive orientation towards English learning.

4.5 Building a New Evaluation System for English Translation Instruction

The rapid development of information technology such as big data and the Internet has not only deeply embedded in daily life, but also fundamentally reshaped the way of information acquisition and sharing. The traditional paper reading and writing mode is gradually replaced by digital terminals such as smart phones, computers and tablets. The

generation, transmission and diffusion of information have been fully electronic to a large extent. This structural change puts forward new requirements for the evaluation system of colleges and universities-the traditional path of relying solely on paper-and-pencil tests or written examinations. Because of its inherent limitations in terms of comprehensiveness, consistency and fairness, it is difficult to accurately judge teaching effectiveness and academic performance. As Yan (2014, p. 111) said, "the diversity of evaluation methods can improve the scientific rigor and effectiveness of evaluation". In fact, many important international language tests have taken the lead in shifting to online implementation, a trend that has clear reference significance for the local environment. As far as college English translation teaching is concerned, the test system based on big data and Internet support is showing a development path worthy of further exploration.

Although teacher evaluation is still at the core of the current evaluation system, from the perspective of students, the automatic scoring system is not enough to capture the rich language details in translation assignments, and its judgment still has obvious boundaries. As necessary supplements, peer review and teacher-led evaluation are usually embedded in such systems and constitute an indispensable part of comprehensive evaluation - they have unique value in stimulating learning initiative, encouraging independent thinking, giving birth to new ideas and refining critical reasoning ability. For teachers, the online platform supported by big data provides an effective tool for integrating multiple evaluation sources - integrating student self-evaluation, peer feedback and expert / tutor comments, so that the identification and targeted adjustment of teaching weaknesses can be implemented in time. In addition, such platforms are not limited by time and space, and can provide fast and operational feedback support for both teachers and students.

5. Conclusion

This paper has identified five major challenges in college English translation teaching in China. By systematically diagnosing these issues and proposing big-data-driven countermeasures, this study offers a contribution to the field of translation pedagogy. In response, a set of interrelated strategies has been proposed: integrating diversified online resources and corpora into teaching content; cultivating students' new digital literacies; transforming traditional classrooms into technology-enhanced learning environments; restructuring teacher-student and student-student relationships to foster collaboration and autonomy; and establishing a comprehensive evaluation system that combines automated scoring, peer review, and teacher assessment. These strategies are mutually reinforcing and, when implemented in combination, have the potential to make translation instruction more responsive to digital-age demands and better aligned with students' practical needs. The proposed strategies contribute to translation pedagogy by offering both a theoretical reference for curriculum design and a practical basis for empirical research on the effectiveness of data-driven instructional interventions.

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