Big Data Technology Assisted Digitalised Pedagogical Practise for University Translation Courses

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DOI: 10.32629/jher.v5i1.2124

Abstract: Traditional teaching approaches employed in university translation courses often yield unsatisfying results. This paper explores the integration of big data technology in the digitalized pedagogical practice for university translation courses. It examines the role of big data technology in enhancing teaching and learning outcomes in translation education; analyzes the current challenges faced by universities in terms of translation courses; and proposes strategies for leveraging big data technology to create a more interactive and personalized learning environment for students. By incorporating big data technology into pedagogical practices, universities can improve the effectiveness and efficiency of translation courses, ultimately enhancing students' language proficiency and translation skills.
***Keywords*:** big data technology, digitalized pedagogical practice, university translation courses, language pedagogy

1. Introduction

The development of big data technology is revolutionizing education, leading to the digitization of teaching content, organization, activities, processes, and evaluation. Optimizing classroom instruction, improving learning methods, and enhancing teaching quality through the application of big data technology have become crucial components of educational reform. This research paper aims to investigate how the integration of big data technology in digitalized pedagogical practices for university translation courses is transforming language education in higher education institutions, showcasing its advantages and implications.

This paper is structured into four sections. Section 1 examines the current status of translation pedagogical practices in universities. Section 2 discusses the principles, specific practices, implementation, and outcomes of constructing university translation course systems assisted by big data technology. Section 3 proposes strategies for integrating big data technology into the digitalized pedagogical practice for university translation courses. Section 4 summarizes the key findings of this study and provides recommendations for future research directions.

2. Current Challenges in University Translation Courses

Traditional pedagogical methods used in university translation courses often face several challenges [1]: including limited student engagement, lack of personalized learning experiences, and inadequate interaction or feedback means. Moreover, the evolving nature of language and cultural contexts requires educators to adjust their teaching strategies and materials to meet the diverse needs of students. Under this circumstance, the integration of big data technology offers opportunities to address these challenges and elevate the quality of translation education in universities. The current status of translation pedagogical practices in universities are discussed below:

2.1 Limited Teaching Approaches

Within English translation courses, reliance on textbooks and course materials as the primary teaching tools has led to a lack of diversity in available resources, resulting in a limited range of teaching models [2]. This narrow focus often creates a gap between theoretical knowledge and practical application, as the common practice involves presenting all theoretical concepts before engaging students in hands-on activities. Consequently, students may develop misconceptions, such as deeming theory irrelevant and perceiving skills as disconnected. Furthermore, the prevalent use of non-technical concepts and methods in teaching, combined with a lack of practical platforms, has confined many translation courses to a theoretical realm, with minimal real-world application. The reliance on traditional teaching resources such as textbooks and course materials has resulted in a dearth of innovative teaching strategies and real-world engagement for students [3].

However, the advent of big data presents boundless opportunities, breaking free from the confines of traditional teaching paradigms. The integration of big data in translation education introduces innovative features like virtualized instructors, pervasive learning environments, multidimensional course structures, intelligent settings, and holographic simulations.

One of the recent applications, for instance, in practical translation modules, neural network machine translation has made significant strides, with Machine Translation Post-Editing (MTPE) emerging as the predominant approach. This shift towards new translation methods necessitates a reimagining of teaching content and methodologies. Regrettably, a limited number of university translation educators harness such technological advancements and platforms, often abandoning the digitalized practices due to the substantial time investment required. This predicament underscores the urgent need for educational institutions to revamp their pedagogical approaches and embrace more dynamic and inclusive teaching methodologies to better prepare students for the demands of the modern translation landscape.

Empowering teaching with big data technology is a significant trend, with roles expanding in areas such as instructional support, scheduling assistance, teaching management, teacher guidance, and proxy affairs. The formative assessment based on educational big data can greatly enhance teaching efficiency and quality. However, intelligent educational technology has not been fully utilized in translation education.

2.2 Teachers' Incompetent Technological Competence

The lack of strong technological skills among teachers poses a significant barrier to the modernization of translation education [4]. Teachers not only play a key role in orchestrating teaching activities but also serve as users of educational technology, which is crucial for integrating technology into translation teaching. To ensure the sustainable growth of digitalized translation education, it is necessary to train teachers to be proficient in educational technology. Translation education technology is a multidisciplinary field that combines translation studies, translation teaching, education, educational technology, information technology, human-computer interaction and human-machine collaboration. However, many translation teachers lack the necessary technological expertise, which hinders the progress of digitalized translation education.

The lack of strong technological skills among teachers poses a significant barrier to the modernization and effectiveness of translation education. Teachers first of all must be well-versed in utilizing educational technology to create engaging and interactive learning environments for students. Translation teachers are often with humanities backgrounds, and may have limited knowledge of computer technology, hindering their ability to leverage technology effectively in translation pedagogy. They tend to weigh teaching ability as the primary skill and may fail to see the connection between educational technology and translation teaching. Many teachers lack the necessary expertise to effectively integrate technology into their teaching practices. Consequently, this impacts the development and utilization of digital educational resources in translation courses. Teachers may struggle to create and implement innovative teaching materials, such as online exercises, multimedia resources, and computer-assisted translation tools. Only by equipping teachers with the necessary technological competencies can universities overcome the challenges, and provide students with a comprehensive and modernized learning experience in translation studies.

2.3 Lack of Technology Resources

The survey findings reveal a stark reality: a mere 7.6% of universities allocate over 1 million in technology laboratory funds, primarily earmarked for acquiring specific software [4] in China. This disparity underscores the deficiency in technical resources within translation education. Educational platforms tailored for translation teaching remain scarcely used. Crucially, the absence of methods for sharing teaching and learning processes, behavior data, and technology integration compounds the issue.

The inadequacy of educational technology resources poses a significant challenge to universities in the realm of translation pedagogy [5] in China. The dearth of such resources hampers the provision of interactive learning experiences, access to online language tools, and utilization of computer-assisted translation. These resources are pivotal for nurturing students' linguistic competence, improving their translation skills, and equipping them for the rigors of the contemporary translation landscape. Regrettably, the shortfall in educational technology resources obstructs the integration of digital tools and online platforms into translation curricula, resulting in outdated and less effective teaching methodologies.

2.4 The gap between Theory and Practice

The gap between theory and practice in digitalized teaching sheds light on the dynamic landscape of educational technology and its impact on translation education [6]. This transformation is propelling the theories of educational technology application to new heights, fueling innovation and progress in language education technology. While digital technology is widely utilized in language teaching across the world, there is a lack of new theoretical frameworks to guide its application in education. Furthermore, integrating these digital tools and resources effectively into translation teaching remains a significant hurdle. As educational technology introducing new concepts and tools, a disconnect emerges in the integration of these technological advancements into the field of translation education. Efforts to bridge this divide and

enhance the integration of digital tools in translation teaching are essential for advancing the effectiveness and relevance of educational technology in language education.

2.5 The Necessity of Digitalized Teaching

The necessity of digitizing English translation teaching in higher education stems from various factors:

2.5.1 Meeting the Practical Demand for Digital Education

In response to government and educational council mandates, education providers must enhance their capacity to innovate in educational practices within a technology-rich landscape to ensure that digital teaching becomes a fundamental aspect of their instructional methods.

2.5.2 Addressing the Evolving Nature of Educational Digitalization

Higher education is undergoing substantial transformations in its digital landscape. The imperative to digitalize English translation teaching in higher education is driven by the essential requirement to align with this dynamic evolution [7]. This paper aims to explore unsupervised cross-lingual word representation learning methods with the specific task of acquiring a bilingual translation lexicon on a monolingual corpus. This research tries to tackle the obstacles encountered in higher education foreign language teaching and underscores the necessity for inventive teaching methods [8]. This adaptation is crucial to ensure that students are equipped with the necessary skills and tools to thrive in a technologically advanced learning environment.

2.5.3 Accommodate Students' Individualized Learning Needs

Today's educational landscape is driven by the increasing demand to address students' individualized learning needs. Students have diverse learning styles, preferences, and technological proficiencies. By embracing digital tools and methods in teaching English translation, educators can better tailor their instruction to meet the unique needs of each student, ultimately enhancing the learning experience and outcomes.

3. The Design of Digitalized Pedagogical Practice

Utilizing the collaborative teaching platform "University English Translation Teaching Online System v1.0", provided by industry-academic partnerships, this practice seamlessly integrates theory with practice, fostering a data-driven teaching methodology. Section 2.1 elaborates on the guiding principles for designing digitalized pedagogical practices in translation. Section 2.2 delineates the theoretical frameworks and empirical measures implemented within this course. Section 2.3 explains the outcomes derived from these initiatives.

3.1 The Principles

(1) Student-Centered: It is essential to prioritize students' needs while considering the unique nature of university translation courses. The course content should closely align with students' needs and interests to stimulate learning motivation and enthusiasm. By understanding students' academic backgrounds, learning goals, and career aspirations, teachers can personalize course content to make it more attractive and practical. The student-centered principle also manifests in the establishment of course evaluation and feedback mechanisms. Through timely and effective assessment and feedback, teachers can understand students' learning outcome, helping them adjust learning strategies promptly. This timely feedback of students aids in continuously optimizing course design to ensure that teaching content and methods closely align with students' learning needs.

(2) Demand-Oriented: This principle takes into account the requirements and standards of the future society and economic development for the translation discipline. Scientifically selecting course content to meet the demands of future translators' capabilities. By collaborating with industry experts and translation agencies to understand market demands and industry trends, the course system ensures alignment with the "real world". Practice bases should simulate real work environments, enabling students to apply big data technology-assisted translation in practice, enhancing their practical skills and professional qualities.

(3) Practice-Oriented: The curriculum construction of translation practice bases should be centered on the "real world". This means that course design should focus on cultivating students' problem-solving skills, enabling them to continuously enhance their professional competence. Through practice-oriented course design, students can apply their learned knowledge in real work scenarios, enhance practical skills, and prepare adequately for future translation work. Students take comprehensive training in real translation contexts, improving their translation skills and adaptability. This student-centered practice-oriented teaching model facilitates the integration of classroom learning with practical application, enabling students to better adapt to future professional challenges.

(4) Interdisciplinary and Innovation: Considerations should be given to integrating the translation discipline with other

related disciplines such as linguistics, literature, and culture to enrich students' knowledge to give better translation. Through interdisciplinary integration, students can gain a more comprehensive understanding of the complexity and diversity of translation work, laying a solid foundation for future career development. Through innovative course design, students can better adapt to the constantly changing demands of the translation market, laying a solid foundation for their career development. This entails continuously updating course designs, introducing the latest translation theories, technologies, and methods to inspire students' innovation awareness and practical abilities.

3.2 Theoretical and Practical Measures Implemented

The initiative to establish a digitalized platform for English translation education at universities, supported by big data technology, involves several key steps:

(1) Market demand analysis: Based on the market's requirements for translation personnels, determine the level of English translation proficiency that students need to possess upon graduation, including translation skills, language proficiency, and professional knowledge.

(2) Curriculum design: Adapt teaching content to meet market demands and student needs, including course structure, teaching methods, and textbook selection.

(3) Development of practical projects: Formulate practical projects tailored to market demands using the platform to enhance students' translation abilities and practical skills through hands-on experience.

(4) Faculty development: Establish a team of instructors with extensive practical experience and teaching capabilities to provide students with professional guidance and support.

(5) Evaluation and feedback mechanism: Implement a assessment system to evaluate students' learning progress and practical outcomes, providing timely feedback and adjusting teaching programs.

(6) Project design for practical application: Developing projects across different difficulty levels and domains like text translation, interpreting, and audiovisual translation to boost students' translation skill. By incorporating modern technology into translation education, students access global translation practices, interact with a broader community of learners in virtual spaces, and merge learning with practical application for improved outcomes.

(7) Real-world case integration: Establishing simulated translation studios to introduce scenarios like international conferences and business negotiations, shifting teaching beyond classrooms to sustain student engagement and extend learning into societal contexts.

(8) Practical training implementation: Arranging real-time translation exercises and skill-building sessions to enhance students' translation efficiency and precision.

(9) Utilization big data analytics: Leveraging big data tools to assess and analyze students' translation practice data, offering tailored learning suggestions and feedback to both educators and learners. Teachers play a guiding role by aiding students in selecting appropriate study materials, demonstrating processes like information retrieval, resource analysis, material organization, and practical application, while encouraging independent material selection.

(10) Continuous evaluation and enhancement: Regularly assessing the operational effectiveness of the practice base, refining design and operational modes to meet evolving demands and standards in the field of translation.

By collaborating with industry partners, developing talent cultivation programs for translators, and integrating the construction and operation of digital practice bases, universities can better meet market demands and student learning needs, ultimately enhancing the comprehensive qualities and competitiveness of translation talents. School-enterprise collaboration can facilitate the sharing of teaching resources, achieve integration of industry, academia, and research, and improve students' practical abilities and employment competitiveness.

3.3 Outcome of Big Data Technology in Pedagogical Practice

This data-driven approach enables personalized learning experiences, progress tracking, and targeted feedback to enhance student engagement and language proficiency. Additionally, big data technology facilitates the interactive learning platforms, virtual simulations, and collaborative tools that foster student-centered learning and a sense of community within the educational environment. The students' feedback for this pioneering attempt consists of the following four parts, listed below. The majority of students express satisfaction with this translation pedagogical practice.

(1) Enhanced Student Translation Proficiency: Through digital operations in the practice base, students significantly improve their translation proficiency, becoming more adept at using translation tools and skills in real translation work.

(2) Strengthened Practical Skills: By participating in practice projects and training, students enhance their practical skills, equipped to handle various translation tasks and challenges.

(3) Personalized Learning Support: Leveraging the results of big data analysis, personalized learning support and

guidance are provided to students, helping them identify and address their translation practice issues more effectively.

(4) Optimized Engagement and Teaching Effectiveness: Through the feedback from the practice base operations, teaching content and methods are optimized to improve teaching effectiveness and student engagement.

By implementing these strategies and achieving these outcomes, the development and advancement of digital practice bases in university English translation teaching can be effectively promoted, providing students with a more comprehensive and practical translation teaching environment, and cultivating outstanding English translation talents.

4. Strategies for Implementing Big Data Technology in Pedagogical Practice

Through this pioneering attempt, this study summarizes several strategies to integrate big data technology into digitalized pedagogical practices for university translation courses, listed below:

(1) Invest in Data Analytics Tools and Learning Management Systems: Universities can invest in data analytics tools and learning management systems that enable educators to effectively collect, analyze, and visualize student data.

(2) Adopt Online Learning Platforms: Adopt learning platforms that offer multimedia resources, adaptive assessments, and real-time feedback to enhance student learning experiences. This can provide personalized learning experiences tailored to individual student needs and preferences.

(3) Establish Partnerships for Real-World Projects: Forge partnerships with industry stakeholders, language service providers, and professional translators to provide students with real-world translation projects and internship opportunities. This hands-on experience will enhance students' practical skills and industry readiness.

(4) Build a Data Literacy Teaching Team: Form a specialized, interdisciplinary teaching team focused on data literacy. This team should be equipped to integrate big data technology effectively into translation courses and create a supportive learning environment.

(5) Optimize Data Literacy Teaching Models: Ensure that teachers not only master basic data literacy skills but also understand how to integrate technology into teaching methods. This involves optimizing teaching models, creating a digitalized learning environment, and implementing scenario-based teaching that immerses students in data analysis.

By implementing these strategies, universities can enhance their pedagogical practices in translation courses, fostering innovation and effectiveness in language education through the integration of big data technology.

5. Conclusion

The integration of big data technology in digitalized pedagogical practices for university translation courses offers new possibilities to enhance teaching and learning outcomes in higher education. By leveraging big data technology, universities can create a more interactive, personalized, and effective learning environment, ultimately improving students' language proficiency and translation skills. Incorporating big data technology into pedagogical practices represents a promising avenue for innovation and excellence in language education.

Future translation education requires ongoing reforms and development, and brain-computer interfaces to maximize digital and ubiquitous teaching modes, advancing the digital transformation of translation education. Through cross-disciplinary integration and exploration of the universal value of translation education technology, pioneering new approaches to translation research in the AI era can stimulate profound theoretical discussions in translation education, ushering in an era of intelligent translation education. The positive impact of big data technology on university translation courses, as evidenced by increased student proficiency, practical skills, and personalized support, underscores the significant improvement in education quality and student outcomes. This approach aligns with industry demands, equipping students with essential skills for successful translation careers.

Acknowledgments

Guangdong Provincial Higher Education Association's "14th Five-Year Plan" 2021 Annual Higher Education Research Project, 21GYB183, Application Research of Online Grammar Teaching in Network Corpus; Ministry of Education's Industry-Education Cooperation Collaborative Education Project 230805701301117, Construction of Digital Practice Base for College English Translation Teaching Assisted by Big Data Technology.

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