

Article

A Study on the Intersubjective Reconstruction of University English Translation Teaching through Educational Agents

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Abstract: The rapid development of educational AI has opened new prospect for foreign language teaching innovation. In the traditional English translation teaching, there are problems such as the unequal links between subjects and the inflexible teaching forms. This study discusses the application of educational AI in translation teaching from the standpoint of intersubjectivity. The study explores three dimensions:teaching models, teaching environments,and assessment systems,to build a tripartite interactive teaching mode between teachers, AI, and students, and improve the multi-stakeholder collaborative assessment mechanism. This study has practical possibilities for reconstructing subject relationships in English translation classrooms, prompting the positive transformation of the translation teaching ecosystem, and providing practical references for the innovative development of intelligent foreign language education.

Keywords: educational agent; university English translation teaching; intersubjectivity; multi-agent interaction

1. Introduction

Artificial intelligence technology powered intelligent agents have information-processing capabilities and demonstrate 'human-like' properties such as autonomous perception of surroundings, ability to breakdown difficult tasks and continual self-evolution [1]. These elements are in line with the highly interactive and practice-oriented nature of English translation instruction, and provide a new technology basis for improving the teaching models at university level. With the expanding use of intelligent agents in different industries, the field of education has steadily become a key locati0n of exploration. In Chinese institutions, English translation training is still mostly following the conventional lecture-based paradigm, which reinforces the relationship of subject and object between teachers and students. In the absence of profound communication, this evident hierarchy of duties hinders the emergence of intersubjective relationship of equality, mutual understanding, synergy and co-creation in English translation classes.Such constraints greatly restrict the improvement of students' critical thinking ability, conversion ability of the text and overall language application ability. On the other hand, the ability of educational AI agents to generate anthropomorphic dialogue and provide immediate feedback makes them well suited to support teachers and students in areas such as listening, speaking, reading, and writing, and to support teachers in instructional design and assessment. Extensive and profound is the empowerment of English instruction by educational AI agents. This study will focus on the subject-subject interaction in teaching, and explore how the educational AI agents can empower the English translation teaching and promote the reconstruction of the latter from the subject-centered model to the intersubjective model.

2. Conceptual Framework

2.1. Educational AI Agents

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The conceptualization of educational AI agents has evolved over stages as a function of technology advances. Prior to the arrival of big language models, educational AI agents were seen as abstract entities in intelligent tutoring systems, virtual avatars in teaching environments [2], or virtual characters designed to aid learners' cognitive learning and emotional experiences [3]. The rapid growth of generative AI has resulted in breakthrough achievements of big language models in natural language understanding and generation tasks, which has brought completely new technological options to the creation and development of large-model-based educational AI agents [4]. However, large-model-based educational AI agents remain in an exploratory phase, and the academic community has yet to reach a unified consensus on their definition; some researchers define them as adaptive systems capable of perceiving environmental information and acting upon it to achieve their predefined objectives [5]. This study defines an educational agent as an intelligent system driven primarily by generative artificial intelligence, which plays a specific educational role within educational contexts and interacts with teachers and students via natural language or other means to enhance teaching and facilitate learning.

2.2. Subjectivity

The term 'subjectivity' first appeared in Western philosophy, where it was defined in relation to the dichotomy between subject and object, emphasising the external world as an objective entity. Descartes defined 'subject' and 'subjectivity' from an epistemological perspective, while Hegel and Feuerbach conducted further research on the subject based on this foundation. Descartes' establishment of the definitions of the subject and subjectivity endowed them with fundamental characteristics and rational thought, while Hegel and others, through their research into the developmental process of the subject and subjectivity, established the role and status of the human being. Subjectivity encompasses human physiological characteristics, the accumulation of knowledge, needs and preferences, purposes, and human capabilities. Subjectivity is primarily manifested in the subject's mastery, influence and transformation of the object. By objectifying the object and making it serve its needs, the subject establishes its own subjectivity. Consequently, the subject and the object are always in an unequal, antagonistic relationship. The excessive exercise of the subject can lead to a series of adverse consequences, such as an imbalance between subject and object [6].

In translation teaching, students, as one of the subjects of teaching, are not mutually independent entities from teachers, authors and readers but rather co-existing subjects whose existence is premised upon that of other parties. At the same time, in translation activities, it is of immense significance to enable teachers, students, readers and various other subjects to collaboratively exercise creativity whilst maintaining a harmonious unity in the creative process [7].

2.3. Inter-Subjectivity

In philosophical research, intersubjectivity refers to human interaction and the interplay between individuals; this process embodies the role of intersubjectivity. Intersubjectivity transcends the 'subject-object' dichotomy; the relationship between subject and object is no longer one of domination and subordination, and the objective world is no longer viewed as an object but rather as another subject—a symbiotic existence with which dialogue and exchange are possible. Inter-subjectivity, also known as intersubjectivity, specifically refers to the characteristic of mutual interaction between a given subject and other subjects; it is an essential component of human subjectivity. Humans exist in a mode of co-presence as subjects while simultaneously possessing an independent individual essence; from this perspective, intersubjectivity constitutes the co-presence of individuals [8].

Humans use language as a medium for coexistence, facilitating activities such as the exchange of ideas, the expression of emotions, and interpersonal interaction. Language itself is communication; communication serves as the vehicle through which language conveys information, and communication itself is an intersubjective act. English

translation is not only the process of transforming and transferring information between other languages, but also a type of cross-cultural communication. Its essence is interchange and communication, which makes perceivable the establishment of intersubjectivity in translation teaching. General situation of foreign language education in Chinese colleges and universities reveals that theoretical study and teaching practice are increasingly moving in the direction of intersubjectivity, but in essence, they are still within the scope of subjectivity [9]. Taking translation pedagogy as an example, a wide variety of teaching methods are widely employed in China, primarily including the grammar-translation method, communicative language teaching, and task-based teaching. While these methods differ in their underlying philosophies and educational objectives, they can be broadly categorised into three major teaching models: teacher-centered, student-centered, and content-centered. However, whether the approach is teacher-led, emphasising the teacher's central role; student-centred, strengthening the student's active participation; or content-centred, focusing on translation materials and specialist knowledge while denying the agency of both the teacher and student, it has consistently failed to break free from the inherent constraints of a fragmented and adversarial relationship between the teacher and student.

3. The Internal Logic of Reconstructing Intersubjectivity in English Translation Teaching under the Educational Intelligence Framework

3.1. Reconstructing Translation Teaching Models through Educational Intelligence

Historically, translation teaching models have often been presented in a teacher-student subject-object format. The teacher occupies a position of intellectual superiority, explaining translation theory and demonstrating translation strategies to students; students, meanwhile, are in a passive, receptive role, acquiring translation skills through lectures, imitation, and practice. Although dialogue between teachers and students existed, the initiative always remained firmly in the hands of the teacher. The introduction of educational AI has effectively broken down this structure. Educational AI possesses strong interactivity; its operational logic and information processing capabilities are constantly evolving, gradually aligning with the operational patterns of the human brain [10], and it is capable of progressively acquiring human thought patterns and linguistic characteristics based on human feedback, thereby providing the practical conditions for realising intersubjectivity in teaching. Another key feature of intersubjectivity is the continuous feedback and adjustment between subjects. The human-like subjectivity possessed by educational AI agents offers a realistic possibility for breaking away from the traditional teacher-student model and establishing a 'teacher-AI-student' multi-subject teaching model. This multi-subject teaching model facilitates constructive interaction among diverse participants, effectively preventing any single subject from dominating the process while ensuring the autonomy and effectiveness of inter-subject communication, thereby truly realising intersubjectivity in English translation teaching.

3.2. Educational AI Reconstructing Teacher-Student Roles in Translation Teaching

The introduction of educational AI fundamentally alters the positioning of teachers and students within the teaching process. The 'transmission-reception' teaching model emphasises the process of knowledge acquisition-'teacher lecturing, student receiving'-and focuses on the attainment of knowledge-based objectives; however, it falls short of achieving goals related to skills, emotional attitudes and values. While this model highlights the teacher's dominant position, it undermines the student's agency. Subsequently, the emergence of the flipped classroom led to the development of a student-centred teaching model that appeared to empower students, but it also diminished the teacher's agency to some extent. Through the introduction of educational AI, teachers can devote more energy to focusing on how to effectively enhance students' creative abilities and the formation of their emotional attitudes and values. During the teaching process, teachers can assume the role of a student; when encountering teaching bottlenecks or difficulties, they can 'consult' the educational AI. Teachers' feedback, in

turn, drives the continuous refinement of the AI's operational logic, further fostering a positive teaching ecosystem characterised by multi-stakeholder collaborative teaching and mutual progress. Students transition from being passive learners in a 'transmission-reception' teaching model to becoming transmitters and innovators of knowledge. Their interest in language learning will be significantly enhanced, enabling them to derive a strong sense of achievement from their studies and effectively stimulating their intrinsic motivation to learn. It is evident, therefore, that the AI effectively bridges the intersubjectivity between teachers and students, providing both with equal access to knowledge. This enables both parties to engage proactively in thinking, inquiry and communication, fostering a more equal teacher-student relationship and thereby achieving a balanced intersubjective dynamic.

3.3. Educational AI Reconstructing Learning Approaches in Translation Teaching

In a typical English translation class, the teacher talks about translation theory and strategies while the students listen and take notes. After class, the primary learning methods often involve the teacher setting translation assignments, which students complete independently, followed by the teacher marking the work, providing model answers, and students revising it against these standards. Students are recipients of knowledge rather than producers. In flipped 'student-centred' classrooms, student agency is often limited to procedural arrangements such as group discussions and video viewing. This, in essence, is still limited autonomy within a framework that is predetermined by the teacher, with students in a passive, receptive position as an object. Educational AI systems have human-like agency, so an equal, interactive relationship with students can be formed: students continuously ask questions, and the AI provides ongoing feedback. Students' questions and answers are also continuously added to the AI's database, forming a positive circle of mutual learning. At the same time, by gathering learning data from different students, the AI develops personalised teaching plans according to individual learning styles, progress, interests and academic situations, thereby contributing to the improvement of students' agency.

4. Pathways for Educational AI to Empower the Realisation of Intersubjectivity in Translation Teaching

Educational AI has great potential to be applied to English translation education. It plays a key role in mediating the reconstruction of inter-subjective relations in the classroom, and can optimize the teaching framework in multiple dimensions such as teaching models, learning environments, and assessment systems, to form an intelligent form of translation teaching with human-machine collaboration and mutual co-construction.

4.1. Reconstructing Teaching Models

There is usually no direct and equal discussion between teachers and students in English translation teaching. The main interaction with static texts is for students or professors. The discourse is limited only to the text, without immediate feedback and multidimensional contact.

The deployment of educational AI agents is not only widening the horizon of English translation education but also reshaping the responsibilities of numerous stakeholders in the classroom. Students can now communicate with educational AI agents, teachers and peers in multi-directional interaction, not just interact with the text [11]. The translation is completed by means of constant contact, collaborative debate and cooperative refinement among all parties concerned. More specifically, the educational AI is able to identify translation mistakes, propose revisions and change the syntax and textual structure of the translation upon student requests, so as to make it more fluid and idiomatic [12]. If students have questions about the AI's output, they can decide to go deeper for more complex explanations, turn to the teacher. By constructing a multi-agent interactive space for translation dialogue, the intersubjectivity of English translation teaching no longer

remains confined to theoretical conceptualisation but is gradually integrated into students' daily classroom practice.

4.2. Optimising the Teaching Environment

The English translation teaching environment is a comprehensive educational system designed to cultivate students' English translation abilities through teaching activities, encompassing both the teacher's 'teaching' and the student's 'learning' environments. At the teacher's 'teaching' level, technologies such as virtual reality and augmented reality are utilised to construct embodied, highly interactive, and immersive classroom environments; at the student's 'learning' level, technologies including personalised analysis, intelligent content generation, and targeted content delivery support students in undertaking independent learning. In the pre-class phase, teachers can utilise text-generating AI agents such as ChatGPT to input the teaching themes and content of the translation course, thereby using the intelligent platform to assess students' foundational knowledge and actual learning needs. Based on the results of multi-party interactive feedback, intelligent tools can push learning resources—such as study materials, translation examples, specialised exercises and learning guides—to students. This enriches students' pre-class knowledge base, stimulates classroom engagement and lays the foundation for the implementation of intersubjective translation teaching [13].

During lessons in traditional translation classes, students' translation practice often centres on text-based exercises or the sentence-by-sentence translation of audio recordings. By introducing educational AI tools such as Doubao, students' practice methods will become more diverse. For instance, a specific context can be created based on a text, or roles can be assigned, allowing students to engage in dialogue with the AI, thereby generating a learning environment that supports immersive learning and enhances students' learning experience and engagement. Simultaneously, as teachers and students continuously refine learning instructions and flag inaccuracies in translations, the AI agent adjusts its output accordingly to improve accuracy. When students have queries regarding the content provided by the educational AI agent, they may continue to ask the agent for clarification, seek assistance from the teacher, or discuss the matter with peers, thereby fostering a multi-agent interactive learning environment.

After class, the educational AI breaks down the constraints of time and space, allowing students to engage in translation practice at any time, thereby sustaining the atmosphere of intersubjective learning. Students can utilise intelligent tools to create personalised study plans, access tailored learning materials and complete self-assessments, thereby meeting their individualised learning needs. However, students must be made aware of ethical boundaries and adopt a rational perspective towards intelligent translation tools. They should be able to identify issues such as cultural misalignment and inappropriate value orientations in translated content, communicate promptly with teachers, and revise learning materials based on professional advice to correct misconceptions, thereby maintaining the effective construction of intersubjective teaching.

4.3. Refining the Assessment System

The English translation assessment system for teaching should be refined to establish a multi-dimensional evaluation framework that combines quantitative assessment by an educational AI system with qualitative feedback from teachers and self- and peer-assessment by students. Teachers input assessment criteria into the educational AI system, which then conducts an objective, quantitative evaluation of the accuracy and grammatical correctness of the translation, as well as the completion of learning tasks. This makes it possible to efficiently carry out basic translation assessments and to deliver comments in a timely manner. Teachers, as professionals, examine pupils' linguistic and cognitive development, cultural implications, and language expressive skills. They address the limitations of automated evaluation in relation to humanistic interpretation and the assessment of deeper semantic nuances, by adopting a human-machine collaborative method to assessment [14]. Students analyse themselves and their peers

simultaneously in the classroom. This allows them to think back on flaws in their translations. It makes sure that the assessment considers the learning process and the learning results. This multi-dimensional approach not only caters to the developmental needs of translation teaching and overcomes the deficiencies of traditional evaluation based on a single dimension and high subjectivity, but also further improves the evaluation system of English translation teaching in an intelligent environment to guarantee the real equal communication among all parties.

5. Conclusion

The integration of educational AI agents has successfully balanced the leading function of teachers in the conventional English translation classrooms, thus empowering the students' autonomy of learning. Meanwhile, educational AI agents with extremely human-like traits have effectively expanded the space for intersubjectivity in the teaching setting, forming a system in which teachers, educational AI agents, and students learn together. However, it should be recognised that educational AI is not a technical instrument to replace the fundamental role of teachers or to weaken student autonomy, but a necessary catalyst to drive translating teaching towards greater openness, equity and uniformity. In the future, with the further development of educational AI, university English translation teaching is expected to achieve a profound transformation towards genuine intersubjectivity within a human-machine collaborative teaching model.

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