

A Study on Teaching Path Design for Developing College Students' Post-Editing Competence Based on Technology Trust

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Abstract— As artificial intelligence reshapes translation workflows, post-editing competence has become essential for translation graduates. Yet how technology trust influences its development remains underexplored. This study investigates the optimization of teaching pathways for cultivating college students' post-editing competence based on technology trust. The study therefore explains a three-stage teaching pathway. It contributes a complete method for integrating technology trust into post-editing instruction, offering practical implications for AI-enhanced translation education.

Keywords— technology trust; post-editing competence; teaching pathway design.

1. INTRODUCTION

Driven by globalization and AI technology, the language services industry is undergoing unprecedented and profound transformation. The rapid advancement of neural machine translation (NMT) technology has led to a qualitative leap in machine output quality, evolving from early rigid and fragmented text into forms with significantly improved fluency and readability. Against this backdrop, Machine Translation Post-Editing (MTPE) has shifted from a supplementary working method to the mainstream production model in the language services industry. A lot of language service enterprises have incorporated MTPE into their regular business processes, covering multiple domains such as technical documentation, localization, and e-commerce. This shift has raised new requirements for translator training. Translators are no longer merely executors of language conversion but need to become decision-makers and managers in human-machine collaboration, that is, they must possess a high level of post-editing (PE) competence.

PE competence is not a single skill but a composite competency structure, encompassing multiple layers such as machine translation (MT) quality assessment, error type identification, editing strategy selection, and the balance between efficiency and quality. However,

in the reform of translation teaching at many Chinese universities, although an increasing number of institutions have integrated MTPE into their curricula, the teaching content largely focuses on technical operational aspects, such as comparative analysis of mainstream MT engines, classification and correction techniques for common error types, and workflow specifications for PE. While such skills-training-oriented teaching models are indeed necessary, they have largely overlooked a critical cognitive dimension, which is technology trust.

Technology trust refers to students' cognitive judgment, affective tendency, and degree of reliance on the quality of MT output. In MTPE practice, technology trust directly influences translators' behavioral decisions. Excessive trust may lead to blind acceptance of machine output, causing translators to overlook subtle semantic deviations, cultural mistranslations, or pragmatic inappropriateness, thereby degrading the final translation quality. Insufficient trust, on the other hand, may trigger over-editing, where translators adopt an entirely negative attitude toward machine output, making unnecessary revisions or even re-translating, thus nullifying the efficiency advantages of PE. These two extreme states of trust, blind reliance and outright rejection, constitute common pitfalls in PE practice, whereas the

ideal state of trust should be a dynamic, context-sensitive “calibrated trust”, whereby translators can flexibly adjust their trust levels and editing strategies according to specific tasks, text types, and the quality of machine output.

Regrettably, current translation teaching pays seriously insufficient attention to this critical dimension. Students’ perceptions of MT often exhibit a polarized tendency. Some technology optimists regard machine output as credible authority, lacking critical revision awareness; others, as technology skeptics, harbor preconceived rejection toward machine output and find it difficult to objectively assess its actual value. The root of this cognitive bias lies in the fact that existing teaching fails to systematically help students establish a scientific understanding of the competence boundaries of MT, nor does it provide an effective trust calibration mechanism. Therefore, incorporating technology trust into the core framework of PE competence development and exploring a teaching path from cognitive construction to behavioral internalization has become an important task for translation education to respond to industry demands and enhance the quality of talent cultivation.

2. LITERATURE REVIEW

Technology trust is an individual’s willingness to rely on a technology, grounded in their assuredness of its reliability, integrity, and competence (Choi et al., 2023; Moorman et al., 1993; Zhang et al., 2025). In environments saturated with rapidly changing digital information, such as online repositories or MT outputs, the ability to assess the trustworthiness of technology and its generated content is crucial (Shen et al., 2013). Digital literacy, encompassing the skills to appropriately access, identify, manage, analyze, and utilize digital information (Anthonysamy et al., 2020), plays an important role in fostering technology trust. Those possessing advanced digital literacy exhibit greater capacity to understand how technologies work, evaluate their outputs critically, and make informed decisions about their use, thereby building confidence and trust (Yang and Lou, 2024). Digital literacy has been established as a fundamental requirement for successful learning in technology-rich environments

(Prior et al., 2016) and for developing trust in technology within higher education (Kabakus et al., 2023). Conversely, lacking advanced digital literacy may impede motivation and engagement with digital tools, potentially hindering the development of trust (Chiu, 2023). Fostering digital literacy through practice and demonstrating the value of technological tools can enhance student engagement and satisfy innate needs related to competence and autonomy, thereby strengthening technology trust (Chiu et al., 2022; Ismailov and Ono, 2021; Prior et al., 2016; Reeve, 2013; Reynolds, 2016).

Trust in the technology being used, particularly MT systems, is a key predictor of PE behavior and effectiveness. As translators increasingly become post-editors, understanding the complexities of PE competence, such as the role of trust, is essential (Pym, 2014). A significant challenge in AI adoption revolves around trust (Fritzsche et al., 2023), including NMT. Resistance among professional translators towards MT adoption is frequently associated with trust deficits, either in the technology’s capabilities or in the entities providing it. This trust deficit can directly impact PE competence because translators who distrust MT outputs may be less inclined to engage in genuine PE and might instead default to retranslating segments or overly scrutinizing correct translations, thereby undermining the efficiency gains PE aims to achieve (Cadwell et al., 2018). Conversely, appropriate trust enables translators to leverage MT output effectively, focusing their cognitive resources on identifying and correcting genuine errors. Therefore, trust in the reliability and utility of MT is expected to facilitate better PE performance.

3. THREE-STAGE PROGRESSIVE TEACHING PATH DESIGN

The three-stage progressive path is designed for Chinese undergraduate translation programmes, where translation technology courses are often limited to 32 class hours, large classes, and considerably varied students’ digital literacy. The design therefore avoids adding a separate course and instead offers a teaching path that can be embedded into an existing Translation Technology or Computer-Aided Translation course for over 16 weeks. Its logic is cumulative. Students

first understand what MT can and cannot do, then learn to calibrate trust in MT output, and finally internalize PE as a professional routine. Each stage prepares the cognitive, affective, and behavioral conditions for the next. The design is task-based, reflective, and project-oriented. Assessment is formative and process-focused, so that students are evaluated not only on final text quality but also on their ability to identify MT errors, justify editing decisions, and adjust trust across different text types. This path is feasible in Chinese universities because it uses widely available MT engines such as Baidu Translate, Youdao Translate, and so on, relies on shared documents and learning management systems, and can be delivered through a combination of short lectures, workshops, and group projects.

The first stage, normally implemented in Weeks 1–3, aims to build students' analytical understanding of MT's capability boundaries. Rather than beginning with tool operation, instruction begins with structured comparison. Students receive parallel materials containing source texts, MT outputs, and human reference translations in genres such as product descriptions, news summaries, and academic abstracts. Working in small groups, they annotate MT errors using a simplified taxonomy, such as terminology inconsistency, collocation errors, omissions, additions, logical distortion, register mismatch, and hallucination. A short micro-lecture then explains why these errors occur, which is neural MT relies on probabilistic patterns, training data, and context windows, and it does not possess real-world understanding or professional accountability. The Chinese classroom context makes this stage particularly workable. Large classes can use shared online documents for collaborative annotation, and teachers can provide ready-made templates for error logs. The key task is an error analysis report, about 1,500 words, in which each group identifies error patterns and explains their likely causes. Assessment focuses on accuracy of error identification, use of terminology, and quality of explanation. By the end of this stage, students should be able to say not simply that "the MT is wrong", but precisely what kind of error has occurred, why it matters, and what risk it poses for the target reader.

The second stage, implemented in Weeks 4–8, targets trust calibration. Chinese students often display two opposite tendencies. Some over-trust fluent MT output and under-edit it, while others distrust MT entirely and over-edit every segment. The instructional goal is to help students treat trust as a testable hypothesis rather than a fixed attitude. The core activity is the "trust audit". Before editing, students rate their confidence in the MT output for each segment as high, medium, or low. They then record their actual editing behavior, which is to accept, light post-edit, heavy post-edit, or retranslate, and compare their confidence with the actual quality of the MT segment after peer review. Decision logs require students to state what they changed and why, with reference to error categories from Stage One. A second activity is role-rotation peer review: one student post-edits, the other reviews whether the level of editing was appropriate to the MT quality. This externalizes trust calibration and makes it discussable. Teachers demonstrate calibrated strategies using authentic briefs, such as a product manual where terminology errors are high-risk and a news summary where stylistic polishing is lower-risk. Assessment combines trust-calibration accuracy, decision-log quality, and peer-review comments. This stage is feasible in Chinese universities because it requires no expensive software; it uses the same MT engines and shared documents, and it turns large classes into multiple small review groups.

The third stage, Weeks 9–16, aims to internalize PE competence into automated, professionalized performance. Students work on extended simulated projects that replicate a translation company workflow. Each group receives a client brief specifying text type, target audience, deadline, terminology requirements, and quality standards. Students use CAT tools and MT output, produce a first post-edited version, receive peer and teacher feedback, and then revise through two or three iterative cycles. They also compile an individual portfolio containing a final post-edited text, a terminology base, a style guide, decision logs, and a reflective report. The portfolio assesses both product and process, specifically, final quality, editing efficiency, consistency, risk communication, and the ability to explain professional choices. In the Chinese context,

this stage can be strengthened through industry collaboration, such as inviting local translation companies to provide authentic briefs or evaluate final portfolios. For large classes, group projects can be combined with individual contribution records, so that each student's PE work remains visible. At the end of the stage, students should be able to assess MT output quickly, decide where to invest editing effort, and justify their decisions in professional terms. This is the transition from learning to post-edit to working as a post-editor.

4. DISCUSSION

4.1 Core Advantages

The main advantage of the three-stage path is its systematic integration of cognition, affect, and behavior. Many existing PE lessons focus on tool operation or isolated editing exercises. By contrast, this design first builds analytical knowledge of MT errors, then addresses the affective and strategic dimension of trust, and finally consolidates competence through professional projects. This sequence responds to a common problem in Chinese translation classrooms, which is that students may know how to use MT but still lack the judgment to decide when and how much to trust it. The path also has strong transferability. It is not tied to one MT engine, one text type, or one CAT platform. Teachers can adapt it to different language pairs, course durations, and student proficiency levels. It can be embedded in an existing 32-hour course, expanded into a 16-week module, or distributed across several courses. Because the core activities, such as error annotation, trust audits, decision logs, peer review, and portfolios, require only basic digital tools and shared platforms, the model is realistic for institutions with limited budgets. It also aligns with outcome-based education. Each stage has clear learning outcomes and assessment criteria, making it easier to demonstrate programme quality and student progress.

4.2 Implementation Challenges

Two challenges are particularly salient in some Chinese colleges. The first is teacher technological literacy. The model requires teachers to analyze MT output at a granular level, design trust-audit tasks, and guide students in reflective decision-making.

However, many translation teachers have not received systematic training in MT, PE, or human-machine interaction. This gap cannot be solved by individual effort alone. Institutions should establish teaching-research communities, organize short-term micro-credential workshops, and invite industry practitioners to co-teach. Teacher development should focus not only on tools but also on error taxonomies, trust calibration, and assessment rubrics. The second challenge is curricular time. A 32-hour course is already crowded with CAT tools, terminology management, and translation practice. Adding three stages may seem challenging. A practical solution is modular integration and flipped learning. Basic error analysis and tool demonstrations can be moved online as micro-lectures. Class time is reserved for workshops, peer review, and project consultation. The three stages can also be distributed across courses, for example, stage one in an introductory translation technology course, stage two in a dedicated PE module, and stage three in a capstone project. This reduces the burden on any single course while preserving the progressive logic.

5. IMPLICATIONS

The path has broader implications for translation curriculum design. Translation technology courses should move beyond operational training and adopt a critical, process-oriented approach. Students need not only to use MT and CAT tools but also to understand their limits, risks, and ethical implications. A spiral curriculum is therefore advisable. In the first year, students can be introduced to basic MT awareness and error recognition. In the second year, they can learn CAT tools and trust calibration. In the third year, they can undertake advanced PE projects. In the fourth year, they can complete a capstone project or internship that integrates PE into professional workflows. Assessment should also change. Rather than relying only on final translations, programmes should use portfolios, decision logs, reflective reports, and peer assessment. These tools make students' thinking visible and reward calibrated judgment. Finally, industry-academia collaboration should be institutionalized. Local translation companies, language service providers, and AI companies can provide authentic briefs, internships, and feedback.

This helps students understand that trust in technology is not a personal preference but a professional responsibility. It also helps teachers update their knowledge and keeps the curriculum responsive to a rapidly changing industry.

6. CONCLUSION

This study has proposed a three-stage teaching path for developing PE competence among Chinese undergraduate translation students. The path consists of technological cognition, trust building, and competence internalization. The first stage helps students deconstruct MT's capability boundaries through error analysis. The second stage cultivates calibrated trust through trust audits, decision logs, and peer review. The third stage internalizes professional PE through simulated projects, iterative revision, and portfolios. The model is grounded in the view that trust in technology is dynamic and calibratable, not fixed. Its main contribution is to offer a feasible, low-cost, and transferable pedagogical path that fits the realities of Chinese universities. There are large classes, limited hours, varied student digital literacy, and existing translation technology courses. It also shifts the focus from tool operation to professional judgment, which is central to PE competence.

The path is based on theoretical synthesis and pedagogical reasoning rather than large-scale empirical validation. Its effectiveness may vary across institutions, language pairs, and student levels. Future research should conduct longitudinal classroom studies to track students' development across the three stages, using product quality, trust-calibration accuracy, decision logs, and reflective reports. Comparative studies across different universities and regions in China would help identify contextual factors.

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