

## Coverage of Machine Translation Post-Editing Competences in Iran's MA English Translation Curriculum: An EMT Competence Framework (2022) Perspective<sup>1</sup>

Saeed Ketabi<sup>2</sup>, Rouhullah Nemati Parsa<sup>3</sup>  
Mohammadtaghi Shahnazari<sup>4</sup>

### Abstract

Machine translation post-editing (MTPE) has become a core competence in translation workflows, yet its integration into translator education remains understudied. This case study examines Iran's national MA curriculum in English Translation against the European Master's in Translation (EMT) Competence Framework (2022) and current MTPE competence models. Credit-bearing units were mapped to the five EMT competence areas, and learning outcomes were analyzed via directed qualitative content analysis; MTPE-specific coverage was assessed using a matrix drawn from the EMT Framework, ISO 18587:2017, and established MTPE models. Two independent coders achieved substantial interrater reliability ( $\kappa = 0.81$ , 95% CI [0.74, 0.88]), confirming coding consistency rather than generalizability. Translation and Language and Culture accounted for 75.0% of credits, while Technological competence accounted for only 6.25%; Personal/Interpersonal and Service Provision areas received no dedicated coverage. At the outcome level, 24 of 38 EMT descriptors (63.2%) were unaddressed, with gaps in MT literacy, error analysis, post-editing strategies, workflow integration, quality evaluation, and ethical use. Findings suggest the curriculum remains largely traditional and text-oriented, underrepresenting technological, interpersonal, and service-oriented competences. Three reform priorities emerge: expanded technology training, longitudinal MTPE integration, and alignment with international frameworks.

**Keywords:** EMT Competence Framework; Iranian Translator training; Post-editing competence; Translation curriculum analysis

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2. Corresponding author: Associate Professor, Department of English Language and Literature, Faculty of Foreign Languages, University of Isfahan, Isfahan, Iran; email: [ketabi@fgn.ui.ac.ir](mailto:ketabi@fgn.ui.ac.ir)

3. Ph.D. Candidate in Translation Studies, Department of English Language and Literature, Faculty of Foreign Languages, University of Isfahan, Isfahan, Iran; email: [rouhullah.parsa@gmail.com](mailto:rouhullah.parsa@gmail.com)

4. Associate Professor, Department of English Language and Literature, Faculty of Foreign Languages, Department of English, University of Isfahan, Isfahan, Iran; email: [m.shahnazari@fgn.ui.ac.ir](mailto:m.shahnazari@fgn.ui.ac.ir)

## 1. Introduction

Translation is no longer viewed solely as the production of target texts by human translators working independently of digital systems. In many professional settings, translation is performed within technology-mediated workflows that incorporate computer-assisted translation (CAT) tools, translation memories, terminology management systems, quality assurance software, machine translation (MT), and machine translation post-editing (MTPE). This shift has fundamentally reshaped both the technologies translators use and the competence profile expected of graduates entering the language-services market, placing competence-based approaches at the center of translator education. Translation competence is widely conceptualized as a multidimensional construct. Models proposed by PACTE (2003, 2017), Kelly (2014), and the European Master's in Translation (EMT) describe it as the integration of linguistic, cultural, technological, strategic, interpersonal, and service-provision dimensions. Among these, the EMT Competence Framework (2022) is of particular importance because it explicitly addresses technological competence, machine translation, workflow integration, quality assurance, and post-editing as core components of graduate-level translation competence.

Within this evolving professional landscape, MTPE warrants particular attention. Since the emergence of neural machine translation (NMT) and AI-driven translation systems, post-editing has evolved from a marginal activity into a mainstream professional practice. Contemporary post-editors must evaluate machine-generated output, identify recurring error patterns, determine the level of intervention required, apply project-specific terminology and style requirements, and ensure that the final text meets established quality standards. O'Brien (2012) characterizes contemporary translation as a form of human-computer interaction; Koponen (2016) demonstrates that post-editing involves cognitive processes distinct from translating from scratch; and Nitzke et al. (2019) argue that post-editing competence encompasses risk management and professional responsibility alongside linguistic expertise.

Against this international backdrop, Iran provides a particularly revealing case for examining whether translator education has kept pace with these developments. The national MA curriculum in English Translation has remained largely unchanged, predating the widespread adoption of CAT tools, neural machine translation (NMT), and MTPE. Previous research has documented persistent mismatches between Iranian translator education and professional market needs

(Beikian et al., 2020; Davari et al., 2021; Sohrabi et al., 2015), while more recent evidence indicates that technological competence has become increasingly important in the Iranian translation industry (Farahzad & Jazeb, 2021). However, no study has systematically evaluated the curriculum against either the MTPE-related provisions of the EMT Competence Framework (2022) or the post-editing competence models articulated in ISO 18587:2017 and Nitzke et al. (2019). To address this gap, the present study employs structured document analysis to investigate the following research questions:

**RQ1:** How far does the Iranian MA curriculum in English Translation cover the five competence areas defined in the EMT Competence Framework 2022?

**RQ2:** How far does the curriculum address machine translation post-editing competence as conceptualized in contemporary MTPE models?

## 2. Literature Review

Scholarly perspectives on translation competence have shifted from early models focused on linguistic and textual ability toward multifaceted, multicomponential frameworks. The PACTE group (2003, 2017) defines translation competence as a system of interacting sub-competences: bilingual, extralinguistic, instrumental, translation knowledge, strategic, and psycho-physiological. Similarly, Kelly's (2014) curriculum-oriented model includes communicative, textual, cultural, intercultural, subject-area, professional, instrumental, attitudinal, and interpersonal dimensions. Notably, Kelly emphasizes "market-professional" curricula, which frame translation as a service shaped by technological and client-driven constraints (Kelly 2014, p. 20). This forms the interpretive lens for the current study. Furthermore, the EMT Competence Framework (2022) synthesizes these developments into five components: Language and Culture, Translation, Technology, Personal and Interpersonal, and Service Provision—setting employability-focused outcomes that explicitly incorporate machine translation, data literacy, quality assurance, and post-editing. Mellinger (2017) was among the first to argue systematically that post-editing exposes knowledge and skill gaps not addressed by traditional translation training and that these gaps require dedicated pedagogical responses. Building on this line of research, Nitzke et al. (2019), later refined by Nitzke and Hansen-Schirra (2021), proposed one of the most comprehensive models of MTPE competence. The model conceptualizes MTPE competence as comprising four core competences—risk assessment, strategic competence, consulting competence, and service competence—

supported by eight subsidiary subcompetences. Its defining feature is an emphasis on risk management: post-editors must judge MT output reliability, decide when intervention is necessary, determine how deep a revision should go, and manage the consequences of both under- and over-editing. Robert et al. (2022) find that post-editing requires dedicated instruction rather than an assumption that revision skills transfer automatically, while Koponen et al. (2021) conclude that this competence develops through authentic, structured engagement with MT output rather than through declarative knowledge alone. ISO 18587:2017 specifies translation, linguistic and textual, research, cultural, technical, and domain competences as baseline requirements. Industry-oriented work by Gene and Guerrero (2022) identifies professional best practices spanning MT-system literacy, error identification, quality-level decision-making, style-guide compliance, and professional ethics, and notes a persistent gap between academic training and what industry expects.

Kiraly's (2012) project-based approach to translator education conceptualizes professional competence as socially and contextually situated. Applied to machine translation post-editing (MTPE), this perspective implies that students should engage directly in authentic post-editing tasks, error annotation, revision justification, and technology-mediated workflow simulation. The extent to which such pedagogical principles are reflected in formal translator education varies across educational contexts. In Iran, translator education operates within a centralized curriculum administered by the Ministry of Science, Research and Technology (MSRT). A substantial body of research identifies persistent mismatches between university training and professional practice. Studies report that MA programs overemphasize theoretical knowledge and language proficiency at the expense of practical translation competence (Birjandi & Nosratinia, 2009; Khoshsaligheh et al., 2019; Shahri et al., 2016), rely on outdated course content and insufficient technology training (Kaveh & Karimnia, 2015; Motallebzadeh et al., 2019), and provide limited preparation for specialized domains such as legal and journalistic translation (Mollanazar & Beni, 2023). Building on these findings, Hassani (2025) evaluated Iranian BA and MA curricula against the EMT Competence Framework (2022) and found strong alignment in the Language and Culture and Translation competence areas but substantial deficiencies in Technology, Service Provision, and Personal and Interpersonal competences—the very domains in which MTPE competence is most heavily grounded. While Hassani (2025) provides a broad EMT-based benchmarking of Iranian BA and MA curricula, the present study focuses specifically on MTPE within the national MA curriculum and moves beyond the identification of a

general Technology gap by examining specific MTPE competencies and their explicit representation in stated learning outcomes.

### 3. Methodology

#### 3.1. Theoretical and Analytical Framework

The primary analytical framework for this study is the EMT Competence Framework (2022). It was selected because it is one of the most influential institutional frameworks for postgraduate translator education internationally, provides a clear five-area structure suitable for systematic document analysis, and explicitly addresses machine translation, post-editing, quality assurance, workflow management, and data literacy. To complement this framework, the study draws on the MTPE competence literature, particularly Gene and Guerrero (2022), ISO 18587:2017, Koponen et al. (2021), Mellinger (2017), Nitzke et al. (2019), Nitzke and Hansen-Schirra (2021), O'Brien (2012), and Robert et al. (2022). These sources enable the analysis to assess whether the curriculum develops the composite competences required for MTPE as conceptualized in contemporary research and professional practice. The findings are interpreted in light of Kelly's (2014) account of translator education, which provides a conceptual basis for characterizing the gap between the current curriculum and internationally benchmarked competence expectations.

**Table 1. Analytical Framework**

| Framework/Model                 | Primary Focus                             | Contribution to MTPE Analytical Framework                                                                                                         |
|---------------------------------|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| ISO 18587:2017                  | Professional standard for post-editing    | Defines post-editing quality requirements, light vs. full post-editing, terminology management, quality assurance, ethics, and service provision. |
| EMT Competence Framework (2022) | Translator competence for the digital era | Provides overarching competences (Translation, Technology, and Service Provision) used to organize MTPE skills within translator education.       |
| Nitzke et al. (2019)            | Digital and post-editing competence       | Emphasizes MT literacy, productivity, risk management, digital competence, and the integration of MT into translator training.                    |
| Nitzke & Hansen-Schirra (2021)  | MTPE competence model                     | Focuses on MT error diagnosis, post-editing decision-making, MT engineering awareness, and professional consultancy skills.                       |

|                                   |                                                |                                                                                                                        |
|-----------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <b>Koponen et al. (2021)</b>      | MTPE education and revision competence         | Highlights terminology management, revision, quality evaluation, and productivity in post-editing workflows.           |
| <b>Gene &amp; Guerrero (2022)</b> | Industry-oriented MTPE training                | Emphasizes post-editing strategies, quality specifications, ethics, and authentic industry-based training practices.   |
| <b>Robert et al. (2022)</b>       | Post-editing quality and competence assessment | Focuses on MT output evaluation, revision competence, quality assessment, and professional standards for post-editing. |

### 3.2. Research Design

The study uses a two-phase document-analysis design, appropriate given that the research questions concern the formally prescribed curriculum rather than classroom practice or students' actual competence. Following Bowen (2009), the curriculum is treated as an institutional document representing official educational intentions—a framing well suited to the Iranian context, where the MSRT-mandated curriculum functions as a binding national standard. Phase 1 involved quantitative cluster-level mapping of curriculum credits onto the five EMT competence areas. Phase 2 applied directed qualitative content analysis to the learning outcomes, using the EMT descriptors as deductive coding categories and a purpose-built MTPE competence matrix derived from MTPE competence models. Directed content analysis is appropriate when coding categories derive from existing frameworks (Hsieh & Shannon, 2005), allowing systematic assessment against established standards.

### 3.3. Data Sources

The primary source was the official Iranian MA curriculum in English Translation, which specifies course titles, credit values, objectives, prerequisites, and syllabi. The EMT Competence Framework 2022 served as the secondary benchmark source. Additional sources for the MTPE competence matrix were Gene and Guerrero (2022), ISO 18587:2017, Koponen et al. (2021), Nitzke and Hansen-Schirra (2021), Nitzke et al. (2019), and Robert et al. (2022).

### 3.4. Coding Procedure

The coding matrix was built from the five EMT competence areas and their associated learning outcomes, then augmented with the MTPE competence matrix described in Section 4.1. Each curriculum unit received a primary competence-area code based on its dominant learning objective; secondary codes were recorded

where relevant, but credit percentages were calculated from primary codes only, to avoid double-counting. At the outcome level, each EMT learning statement was coded as fully addressed (explicit and systematic development), partially addressed (some relevant content but not systematically developed), or not addressed (no identifiable corresponding content). Two independent coders classified all units and reached substantial inter-rater agreement ( $\kappa = .81$ , 95% CI [.74, .88]); disagreements were resolved through discussion and adjudication by a third reviewer.

#### 4. Results and Findings

This section provides a comparative analysis of the current MA translation curriculum by mapping its credit distribution and learning outcomes against the standards established by the EMT 2022 framework.

**Table 2.** *Cluster-Level Distribution of MA Curriculum Content Across EMT Competence Areas (N = 32 Credits)*

| EMT Competence Area          | Representative Courses                                                         | Credits | % of 32 Credits |
|------------------------------|--------------------------------------------------------------------------------|---------|-----------------|
| Language and Culture         | Persian literature; culture and sociolinguistics in translation                | 8       | 25.0%           |
| Translation                  | Translation theories; translation workshop; critique of published translations | 16      | 50.0%           |
| Technology                   | Computer applications in translation                                           | 2       | 6.25%           |
| Personal and Interpersonal   | No dedicated units                                                             | 0       | 0.0%            |
| Service Provision            | No dedicated units                                                             | 0       | 0.0%            |
| Unclassified / cross-cutting | Article writing / research-oriented units                                      | 6       | 18.75%          |
| Total                        |                                                                                | 32      | 100.0%          |

Table 2 reveals the distribution of the MA curriculum across EMT competence areas (N = 32 credits). Translation and Language and Culture together account for 24 of 32 credits (75.0%); Technology receives only 2 credits (6.25%); and neither Personal and Interpersonal competence nor Service Provision receives dedicated coursework. The EMT framework encompasses 38 learning outcome statements. Of these, 14 (36.8%) are fully or partially addressed in the curriculum, while 24 (63.2%) are not addressed.

**Table 3.** *Outcome-Level Coverage by EMT Competence Area*

| EMT Area | Total Statements | Fully Addressed | Partially Addressed | Not Addressed | Coverage Gap (%) |
|----------|------------------|-----------------|---------------------|---------------|------------------|
|----------|------------------|-----------------|---------------------|---------------|------------------|

|                            |    |   |   |    |       |
|----------------------------|----|---|---|----|-------|
| Language and Culture       | 2  | 1 | 1 | 0  | 0%    |
| Translation                | 14 | 6 | 5 | 3  | 21%   |
| Technology                 | 6  | 0 | 1 | 5  | 83%   |
| Personal and Interpersonal | 6  | 0 | 0 | 6  | 100%  |
| Service Provision          | 10 | 0 | 0 | 10 | 100%  |
| Total                      | 38 | 7 | 7 | 24 | 63.2% |

As Table 3 shows, the curriculum exhibits a dual structure: strong traditional foundations coupled with significant gaps in contemporary professional practice. While robust in Language and Culture and Translation theory—prioritizing source-text analysis, linguistic competence, and metalinguistic justification—the program excludes localization, accessibility, and MTPE. Technology presents a major structural weakness (83% coverage gap). Existing coursework remains predominantly theoretical, failing to develop operational proficiency with industry-standard CAT tools, workflow platforms, and data literacy. Technology is treated as an elective supplement rather than a constitutive element of translator competence. Most critically, the curriculum entirely omits Personal and Interpersonal competence and Service Provision (100% gap). By excluding formal training in project management, client negotiation, ethics, and collaboration, the program maintains a rigid traditional translation-oriented approach. Graduates may attain strong theoretical knowledge but lack the practical competencies expected in contemporary translation markets, including project management, quality assurance, and accountability to clients.

#### 4.1. Post-Editing Competence Analysis

This section evaluates the extent to which the MA curriculum in English Translation addresses the competences required for machine translation post-editing (MTPE), using the MTPE competence matrix developed for this study.

**Table 4.** MTPE Competence Coverage in the MA Translation Curriculum

| MTPE Competence Component | Source Model(s)                      | Description                                                                    | Related EMT Outcomes | Curriculum Coverage |
|---------------------------|--------------------------------------|--------------------------------------------------------------------------------|----------------------|---------------------|
| MT-system literacy        | Nitzke et al. (2019); ISO 18587:2017 | Understanding MT types, NMT strengths and limits, language-pair variation, and | Technology           | Not addressed       |



|                                               |                                                      |                                                                                                                                      |                                 |               |
|-----------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------|
|                                               |                                                      | system-generated error tendencies                                                                                                    |                                 |               |
| <b>MT error diagnosis</b>                     | Nitzke & Hansen-Schirra (2021); Robert et al. (2022) | Identifying typical MT errors: mistranslation, omission, addition, terminology inconsistency, syntactic distortion, fluency failures | Translation; Technology         | Not addressed |
| <b>Light vs. full post-editing strategy</b>   | ISO 18587:2017; Gene & Guerrero (2022)               | Applying different intervention levels according to quality specifications and cost-benefit assessment                               | Translation; Service Provision  | Not addressed |
| <b>Terminology and style-guide compliance</b> | ISO 18587:2017; Koponen et al. (2021)                | Using glossaries, termbases, and client style guides while post-editing                                                              | Translation; Technology         | Not addressed |
| <b>CAT-MT workflow integration</b>            | EMT (2022); Nitzke & Hansen-Schirra (2021)           | Integrating MT engines into CAT tools, TMs, terminology systems, and QA tools within digital workflows                               | Technology                      | Not addressed |
| <b>Source-text preparation</b>                | EMT (2022) Translation Outcome 13                    | Editing or preparing source texts for optimal processing by translation tools                                                        | Translation                     | Not addressed |
| <b>Quality evaluation of MT output</b>        | Robert et al. (2022); ISO 18587:2017                 | Evaluating MT output and final post-edited text against project-specific quality standards                                           | Translation ; Service Provision | Not addressed |
| <b>Productivity and effort awareness</b>      | Koponen (2016); Nitzke et al. (2019)                 | Understanding post-editing effort, time-quality trade-offs, and decision-making on MT suitability per text type                      | Technology ; Service Provision  | Not addressed |
| <b>Risk and ethics of MT use</b>              | Nitzke et al. (2019); Gene & Guerrero (2022)         | Managing confidentiality, data security, liability, bias, and disclosure                                                             | Service Provision               | Not addressed |

|                                           |                            |                                                                                                 |                   |               |
|-------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------|-------------------|---------------|
|                                           |                            | obligations when using MT systems                                                               |                   |               |
| <b>Professional communication on MTPE</b> | EMT (2022); ISO 18587:2017 | Explaining MTPE decisions, limitations, and quality expectations to clients or project managers | Service Provision | Not addressed |

Table 4 reveals a systemic absence of MTPE training spanning technical, linguistic, strategic, quality-related, and ethical dimensions. Students receive no instruction on evaluating MT output, assessing MT suitability across text types, or integrating MT into professional CAT workflows—gaps that directly contradict the EMT (2022) framework. The Translation outcome mandates post-editing competence aligned with style guides and terminology; the Technology outcome requires understanding how MT systems integrate into modern workflows. However, the program develops neither competence. As Nitzke et al. (2019) argue, effective post-editing demands more than linguistic proficiency; it requires sophisticated risk-management competence to assess MT reliability and perform principled, cost-effective interventions. By omitting these skills, the program leaves graduates without the practical tools or strategic decision-making capacity necessary for a translation industry where MTPE has become standard professional practice.

## 5. Discussion

The analysis reveals a marked imbalance between traditional translation competences and those associated with technology-mediated professional practice. While the curriculum emphasizes linguistic and textual analysis, it provides minimal preparation in CAT tools, machine translation post-editing (MTPE), client communication, project workflows, and collaborative translation environments. These findings are consistent with longstanding concerns about the misalignment between Iranian translator education and professional practice (Birjandi & Nosratinia, 2009; Kaveh & Karimnia, 2015; Hassani, 2025) and further demonstrate that the curriculum falls short of the technological, interpersonal, and service-oriented competences articulated in the EMT Competence Framework (2022). Considered alongside Farahzad and Jazeb's (2021) analysis of professional translation tasks, the limited coverage of MTPE and Service Provision competences also indicates a substantial misalignment between the formal curriculum and current industry expectations. Addressing these gaps requires more than incremental revision. Consistent with the EMT Competence Framework (2022), a competence-based curriculum should

integrate technological and professional competences throughout the program rather than treating them as supplementary components. Within Iran's centralized higher education system, this would involve embedding MTPE instruction across core translation courses, incorporating authentic technology-mediated workflows and simulation-based learning activities, and establishing systematic mechanisms for periodic curriculum review against international competence frameworks.

## 6. Conclusion

This case study examined Iran's national MA curriculum in English Translation through a systematic analysis of its formal curriculum documents against the competence profile articulated in the EMT Competence Framework (2022). The findings indicate a substantial gap between the competences explicitly addressed in the curriculum and those emphasized by the contemporary EMT framework. Specifically, 63.2% of the EMT learning outcomes received no formal curricular coverage, with particularly pronounced gaps in Technology, Service Provision, and Personal and Interpersonal competence. Most notably, the curriculum contains no explicit provision for machine translation post-editing (MTPE), despite the growing importance of MTPE in contemporary translation workflows.

Within the scope of this single national curriculum case, these findings suggest that the formal curriculum remains predominantly oriented toward traditional translation competences and provides limited explicit preparation for technology-mediated and professionally situated translation practices. Accordingly, three priorities for curriculum reform can be identified: integrating MTPE and computer-assisted translation (CAT) tools as core professional competences; incorporating project-based learning through authentic service-provision simulations; and establishing systematic mechanisms for periodically reviewing the curriculum against internationally recognized competence frameworks.

The findings should, however, be interpreted as evidence from a specific national curriculum case rather than as a basis for broad generalizations about translator education in Iran or elsewhere. The study analyzed formal curriculum documents only and did not examine classroom implementation, student competence development, instructor practices, or institutional variation across Iranian universities. The quantitative indicators used in the analysis, including inter-rater agreement and confidence intervals, support the transparency and reliability of the document-coding process but do not imply statistical generalizability beyond the curriculum examined. Future research could therefore extend this case-based analysis by examining

curriculum implementation across different Iranian universities, investigating students' and instructors' perspectives, and exploring the pedagogical and institutional challenges involved in transitioning from predominantly text-based translator education toward more technology-mediated and professionally oriented models.

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