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Trainers' Perceptions of Undergraduate Translation Technology Course Design and Delivery

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***Abstract*—As a key driver in the global language services, translation technology has emerged as a central element of modern translation education. Consequently, training in translation technology has become an indispensable part of translation programs at the tertiary level to develop students' technological competence. Nevertheless, there remains a marked disparity between the rising technological complexity of the translation market and the training provided in undergraduate translation technology courses, as perceived by trainers. To fill the gap, this qualitative study adopted Kelly's (2005) translator training curricular design model as its theoretical framework and employed semi-structured interviews with 12 trainers from higher education institutions in Shaanxi Province, China, to examine their perceptions of the design and delivery of undergraduate translation technology courses. The results revealed that trainers reported a range of issues, including the imbalanced integration of technological competences, inconsistent content coverage, generally insufficient resources, and limited teaching and assessment methods. In particular, they made recommendations for addressing the most pressing challenges, namely, inadequate staff provision and the isolation of the course from the broader translation curricula. It is hoped that the findings of the study will shed light on the challenges faced by translation technology trainers and contribute to enhancing the design and delivery of translation technology courses in similar contexts.**

***Index Terms*—translation technology course, technological competence, trainers' perceptions, course design, course delivery**

I. Introduction

Driven by economic globalization and evolving technologies, the global language service market keeps expanding in spite of the uncertain global economy. Massive volumes of digitalized content, coupled with increasing demands for their adaptation into multiple languages, have posed a challenge to modern language service providers and the translation industry (Mellinger, 2017). In response to the ever-increasing time pressures, various translation technologies and tools have been developed and widely used by industry stakeholders (Rothwell et al., 2023). The wide variety of ubiquitous software tools and linguistic resources has given rise to the transition of the 'technological turn' (O'Hagan, 2013) in translation reality and enabled translators to enhance the productivity and quality throughout the translation process (O'Hagan, 2019).

Translation technologies not only have empowered the global language services industry but also brought both opportunities and challenges to the development of translation pedagogy and translator competence (Alonso, 2015). Technological competence, denoting the ability to use effectively a broad spectrum of translation-related digital tools and online resources, has become a fundamental component of translator competence, as outlined in the Translator Competence Framework developed by the European Master's in Translation (EMT, 2022) in the European context. While in the Chinese context, the *Teaching Guidelines for Undergraduate Translation Major* (Zhao & Feng, 2019) have acknowledged translation technology as a core course within the translation curricula and identified four key areas of translation technology training at the undergraduate level: information searching, terminology, translation memory, and machine translation (Xiao et al., 2021). Wang and Li (2021, p. 16) surveyed 434 Chinese universities and found that 71.92% offer translation technology training as either elective or compulsory courses.

Although translation technology training has become a crucial part of translation pedagogy over the last decade

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(Zhang & Vieira, 2021; Rodríguez-Castro, 2018; Man et al., 2019; Chan & Shuttleworth, 2023), a review of the literature indicates that, in many universities outside the European context, translation technology training has been insufficiently implemented and received inadequate recognition (Tao, 2023). In China, insufficient training in translation technology has hindered the development of students' technological competence (Wang et al., 2018). Recent feedback from language service providers notes that most translators received inadequate translation technology training, resulting in technological competences that do not meet professional demands (TAC, 2023). Furthermore, the *Report on the Language Services Industry in China* highlights that bachelor translation graduates comprise the main workforce in the industry, accounting for 43.2% of the labor market (TAC, 2023). However, there is a scarcity of empirical research addressing undergraduate translation technology training in China through the lens of trainers. Hence, further research is required to examine the design and delivery of undergraduate translation training and explore the barriers that hinder the course development.

Course design is vital to enhancing the quality and effectiveness of translation technology training (Kelly, 2014). A well-designed translation technology course ensures that its delivery and outcomes are aligned with professional realities. Accordingly, the present study aimed to fill the gap by investigating trainers' perceptions of the design and delivery of undergraduate translation technology training in Shaanxi Province, China, via qualitative data collected from semi-structured interviews. To this end, Kelly's (2005) translator training curricular design model was adopted to help the researcher navigate through the study, which was ultimately intended to refine and improve undergraduate translation technology training in China.

II. Literature Review

A. Kelly's Translator Training Curricular Design Model

Since translation technology training falls within the scope of Applied Translation Studies as Munday (2016, p. 20) maps and plays a critical role in modern translator education, this study is relevant to the design of translator training programs, which has been extensively studied by Kelly (2005) in her work.

Kelly's (2005) translator training curricular design model (see Figure 1), based on the systematic approach to translation program development proposed by D'Andrea (2003), is a holistic framework for designing translation curricula. The model begins by identifying the external social and institutional contexts, then proceeds to formulate the learning outcomes that focus on translator competence, considering the needs of the profession, society, and discipline. It then identifies the availability of resources and the profile of both trainers and trainees before determining how translation teaching activities are designed, sequenced, and coordinated with assessment methods. Finally, it concludes with evaluation and implementation for the purpose of quality enhancement of the curriculum.

Kelly's (2005) translator training curricular design model was adopted and contextualized to serve as the framework underpinning this study. The model is particularly well-suited to the present study, as it integrates social needs and professional and disciplinary factors and is informed by Kiraly's (2000) social constructivist approach, a pedagogical perspective widely recognized as essential for the effective design of technology-based translator training. Additionally, the model emphasizes a competence-based and student-centered approach to defining course aims and intended learning outcomes, offering a robust framework for the design of technology-oriented courses aimed at developing students' technological competence. Moreover, the model's logical progression provides a step-by-step structure that serves as a systematic and holistic roadmap for designing a collaborative and interactive translation technology course.

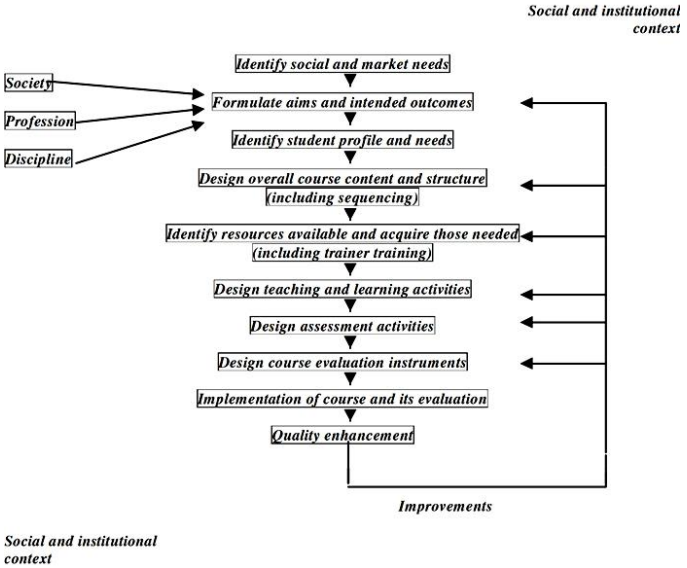

Figure 1. Kelly's (2005) Translator Training Curricula Design Model

B. Translation Technology Training

Researchers in the field of translation studies tend to agree that modern translators are required to possess expert knowledge and skills, or 'translation competence' (Kelly, 2014), in certain areas to perform translation tasks (Alcina, 2008; PACTE, 2011; EMT, 2022). Influenced by the digitalization of texts and the inception of translation technologies, translation competence now entails the ability to adopt tools and resources in the translation process (Kiraly, 2000). Hence, technological competence, or instrumental competence, has become an increasingly critical requirement, sometimes even preceding other skills needed by a professional translator (Pym, 2003). The Translators Association of China has recognized technological competence as one of the essential requirements for the translation profession (TAC, 2023). Wang and Wang (2016) propose a taxonomy that further breaks translation technological competence down into sub-competences in five areas, including basic computer literacy, information mining competence, computer-assisted translation (CAT) ability, terminology management competence, and machine translation post-editing (MTPE) competence. They highlight that these five sub-competences, which are closely linked to a translator's overall information literacy, constitute the framework of technological competence.

The increasing importance of technological competence in the present digital climate has triggered ideas among researchers about how technological competence can be acquired and developed through translation technology training (Doherty & Moorkens, 2013; Bowker, 2015; Xiao & Qian, 2021; He et al., 2022; Chan & Shuttleworth, 2023). Previous studies regarding translation technology training were concerned with several topics, including the divergence of the undergraduate and postgraduate levels (Davies, 2004, p. 67), the scope of technologies and tools to teach (Çetiner, 2018), the timing of training and teaching methods (Austermühl, 2013), the assessment methods (Tao & Wang, 2022), and the generative AI technologies involved in the training (Abbas et al., 2024).

To address the above-mentioned issues, some researchers proposed their course plans regarding translation technology training. For instance, Rodríguez-Castro (2018) published a course proposal on computer-assisted translation (CAT) at the University of North Carolina at Charlotte. The course was designed as an introductory graduate-level program, focusing on modules such as project creation, terminology management, translation memories, post-editing, and software localization. The course aimed to improve the acquisition of technical skills through well-defined learning outcomes. Virtual reality simulation (VRS) and task-based learning were adopted as key teaching methods, along with an assessment using portfolios to encourage students' critical thinking. The effectiveness of these learning outcomes was evaluated based on students' translation performance and perceptions in a pilot graduate course. The results showed that although most students reported improvements in their professional skills and recognized the importance of lifelong learning to maintain their competitiveness, some felt unprepared to undertake real-world projects. The complexity of the course content was considered overwhelming for undergraduate students because it demanded a high degree of computer literacy and a basic understanding of the translation industry, which posed challenges for students who lacked these prerequisites in the Chinese context.

Sánchez-Castany (2023) conducted a qualitative study to examine the integration of translation technology into undergraduate translation module syllabi by interviewing translation trainers at higher education institutions in Spain. The study gathered in-depth information on the trainers' perceptions, motivations, commitment, and experiences. The results showed that most trainers were committed to incorporating non-specialized translation technology in translation lessons and were aware of the importance of CAT tools for professional translators. However, they cited challenges such as unavailable resources, insufficient funding, and unequipped classrooms as barriers to broader technology integration. Moreover, many trainers reported negative self-perceptions regarding their own technological competences. The study concluded that Spanish higher education saw limited integration of translation technology. The translation curricula primarily include introductory knowledge of CAT tools, project management, terminology management, and machine translation. While this study offers essential insights into translation curricular development and encourages translation trainers to incorporate translation technologies more actively, the study's findings are limited to the Spanish context.

Zappatore (2024) proposed a master course plan focused on computer-assisted scientific translation, aiming to support CAT teachers specialized in computer science and improve student engagement with a balanced scope of the most significant topics in this field. A multi-framework CAT course methodology called CATDeM was developed in the study. This framework integrates the European translation competence framework, lab sessions that simulate real-life situations, collaborative learning supported by computer and network, case study discussions, and role-playing activities. Students' perceptions of the proposed course were evaluated via a self-assessment questionnaire. The results revealed that the proposed course enhanced student engagement and improved students' skills in translation, technology, and interpersonal relations. Although this study provides valuable insights for translation technology course design and development, it is limited by its confined focus on computer-assisted translation (CAT) training and postgraduate level.

Although prior research offers valuable insights into designing and delivering translation technology training, to our knowledge, empirical studies investigating trainers' perceptions of undergraduate translation technology course design and delivery within the Chinese context remain absent. To address this gap, the present study drew on Kelly's (2005) translator training curricular design model and explored trainers' perceptions through qualitative data gathered via semi-structured interviews.

III. Methodology

A. Participants

The initial sample consisted of 15 trainers from universities and colleges in Shaanxi Province, China, who taught undergraduate translation technology courses during the 2024-2025 academic year. To ensure the recruitment of participants with relevant experience, the purposive sampling method was used. However, three participants withdrew from the study due to institutional restrictions, resulting in a final sample of 12 trainers, each representing a different institution in the region that offers undergraduate translation technology courses or similar modules under varying course titles. Prior to the interviews, all participants were clearly informed about the study's purpose and scope. They were made aware that participation was entirely voluntary to reduce potential bias and ensure authenticity of their responses. Written informed consent was obtained from each participant in accordance with standard research ethics principles.

B. Instrument

Two research instruments were used in this study. First, a pre-questionnaire was developed by the researcher and administered to potential participants to gather demographic data. Second, semi-structured interviews were conducted to collect in-depth qualitative data on the predefined aspects of the translation technology courses under investigation and trainers' perceptions and experiences. The choice of semi-structured interviews over structured ones was guided by the need for greater flexibility, allowing the researchers to explore topics and issues introduced by the interviewees in more depth (Braun & Clarke, 2013). The interview items were adapted from previously validated instruments from Wagenaar (2019) and Sánchez-Castany (2023) to ensure content validity. The interview content was further informed by the existing literature on translation technology training, particularly the core dimensions highlighted in previous studies. Based on the procedures and principles of curricular design outlined in Kelly's (2005) model, the interview consisted of six major items, each supplemented by a set of follow-up probes designed to clarify responses and elicit more in-depth feedback. The interviews sought to elicit detailed qualitative data from the participants concerning the following key course dimensions: learning outcomes (technological competences), course content, available resources, and teaching and assessment methods, as well as challenges and constraints encountered in course design and delivery. Additionally, participants were encouraged to share their recommendations.

C. Data Collection and Analysis

The semi-structured interviews were conducted online via Tencent Meeting (VooV Meeting), which is easy to use and reliable for audio recording and data storage, from April 5 to May 20 in 2025. Each interview lasted for 30 minutes on average. The interviews were recorded, transcribed verbatim, and anonymized for confidentiality purposes with the participants' consent.

Interview transcripts were analyzed using an a priori coding system based on template analysis (King, 1998). The codebook was purposefully developed from Kelly's (2005) model to guide the identification and interpretation of meaning. Thematic analysis (Braun & Clarke, 2006) was also employed to identify themes and patterns that emerged from the participants' unexpected or nuanced responses, particularly those elicited through follow-up probes during the interviews. To enhance research reliability, a second coder was invited to review a sample of the transcripts based on the researcher's established codebook. Although it would have been ideal to conduct a full second coding, Saldanha and O'Brien (2014, p. 31) suggest that recoding a subset of the data can still offer valuable insights into the consistency of the initial coding. The coding process was conducted using NVivo 14.0 software.

Patterns in trainers' responses were identified through template and thematic analysis, which facilitated an examination of their experiences, opinions, concerns, and expectations. Regarding the trainers' perceptions of the design and delivery of undergraduate translation technology courses, particular attention was given to the dimensions predefined in the theoretical framework adopted in this study. In addition, the analysis sought to identify and explore the challenges faced by trainers and the factors that may account for them.

IV. Findings and Discussion

A. Demographic Profiles

TABLE 1
DEMOGRAPHIC PROFILES OF THE PARTICIPANTS

Code	Gender	Age	Specialization	Position	Years of Experience	Institution Type
A01	Male	46-55	Translation Technology; Project Management	Professor	7-9 years	Language
A02	Female	≤35	Translation Studies; Discourse Analysis	Lecturer	0-3 years	Engineering
A03	Male	46-55	Translation Studies; English Teaching	Lecturer	≥10 years	Agriculture
A04	Male	36-45	Scientific Translation; CAT	Associate Professor	7-9 years	Science
A05	Female	≤35	Scientific Translation	Assistant Lecturer	0-3 years	Science
A06	Female	36-45	Applied Linguistics; Translation Studies	Associate Professor	4-6 years	Engineering
A07	Male	36-45	Technical Translation; CAT	Lecturer	4-6 years	Engineering
A08	Female	36-45	Applied Translation; Translation Studies	Lecturer	0-3 years	Language
A09	Male	46-55	Translation Studies; Language Services	Professor	≥10 years	Comprehensive
A10	Male	≤35	Translation Studies; English Pedagogy	Lecturer	0-3 years	Normal
A11	Male	≤35	Translation Studies	Lecturer	0-3 years	Science
A12	Female	36-45	Corpus-based Translation; Computational Linguistics	Associate Professor	4-6 years	Comprehensive

As Table 1 shows, this study involved 12 translation technology trainers (7 men, 5 women) coded as A1-A12 for anonymity purposes, representing a diverse range of demographic and professional backgrounds. With respect to age, participants were predominantly in the 36-45 and 46-55 age ranges, with 3 participants aged 35 or younger and no participants above 55.

In terms of academic specialization, it is noteworthy that Translation Studies show a predominant presence, appearing in the profiles of 9 participants (75%). Other areas of specialization are also relevant to translation technology training despite that their contributions may vary in focus and scope. The finding is generally consistent with the previous study (Tian, 2025), which found that 70.98% of translation instructors have a background in linguistics, while only 6.25% possess a background in computer science or interdisciplinary studies. This finding indicates that interdisciplinary integration between translation studies and computer science remains limited, reflecting the reality that most institutions position translation technology as a subfield of applied linguistics or translation studies, rather than as an area that necessitates collaboration with computer science departments.

B. Codes and Themes

The following subsections report preestablished codes or identified themes and subthemes in the dataset, along with the interviewees' perceptions of a range of topics, including technological competences as learning outcomes, course content, resource availability, teaching and assessment methods, and challenges faced by trainers and students. Furthermore, the frequency of trainers sharing similar opinions is noted when relevant.

(a). Technological Competences as Learning Outcomes

According to Kelly (2005), the first step in designing a translator training course is to formulate a set of specific learning outcomes, which define the competences students are expected to acquire upon completion of the course. Therefore, the aim of the first predefined code in this study was to capture the technological competences as learning outcomes specified in the undergraduate translation technology courses under investigation.

The analysis revealed seven commonly identified technological competences across the syllabi cited by the trainers, including translation memories (n = 12), machine translation post-editing (MTPE) (n = 9), basic computer literacy (n = 8), terminology management (n = 6), information mining (n = 5), quality assurance (QA) (n = 3), and corpus application (n = 2).

It was found that the ability to use translation memories (n = 12) is universally included in all the investigated courses, indicating that CAT (computer-assisted translation) tools, such as Trados, MemoQ, Smartcat, or YiCAT, remain a core component of undergraduate translation technology training. This finding is unsurprising, as CAT tools have long been considered fundamental to translation technology (Bowker, 2015; Kornacki, 2018; Su & Li, 2023). Moreover, nearly all trainers (n = 11) reported a growing awareness of the importance of these tools in professional practice across both undergraduate and postgraduate levels (Wang & Liu, 2022).

The competence to carry out MTPE tasks (n = 9) was explicitly identified in a majority of the courses, indicating increasing recognition of MTPE as an essential industry-relevant competence in translator training. This finding aligns with Al-Batineh and Al Tenaijy (2024), who identified MTPE as a secondary but essential technology-related practical skill in translation programs in the Arab world. Driven by artificial intelligence technologies, MTPE has emerged as a widely adopted practice among language service providers to enhance productivity and reduce cost (Koponen, 2016). However, several trainers (n = 7) expressed concerns that introducing machine translation too early in a student's training may undermine the development of translator agency (Nunes Vieira, 2019) and ultimately have a negative impact on students' linguistic competence. Although most interviewees held positive attitudes toward this competence and acknowledged MTPE as a prevailing reality in the industry, some trainers (A03; A06) opposed its inclusion and argued that students should first develop basic linguistic and revision skills before engaging in post-editing machine-translated texts.

Basic computer literacy, recognized as a critical prerequisite for employability (Al-Dabbagh & Othman, 2024), was reported to be explicitly included in most of the examined courses (n = 8). This finding is encouraging because it shows that an increasing number of institutions are beginning to stress the development of students' foundational computer skills given the backdrop of China's translation education system, where most translation students from humanities backgrounds lack confidence and motivation in learning specialized technologies (Zhao, 2025).

However, the low presence of the remaining four specialized competences, including terminology management, information mining, quality assurance, and corpus analysis, as reported by the trainers, indicates an imbalanced formulation of learning outcomes and a gap between industry and academia.

(b). Content Coverage

The second code, established based on Kelly's (2005) model, attempted to identify the content covered in the investigated courses. The analysis revealed ten common addressed content areas, including basic principles of CAT (n = 12), construction and use of translation memories (n = 12), the potentials of CAT and MT (n = 12), hands-on practice of CAT tools (n = 10), professional roles and translation workflows (n = 8), file format conversion (n = 7), terminology management (n = 6), information searching skills (n = 5), translation project management (n = 4), and creation and use of corpora (n = 2). However, topics such as audiovisual translation, desktop publishing, and localization were notably absent from the curricula.

Although it is encouraging to see that half of the cases align with the *Teaching Guidelines for Undergraduate Translation Programs* by incorporating key components such as information searching, terminology management, translation memories, and machine translation (Zhao & Feng, 2019), considerable variation in course content persists across programs. This divergence could be attributed to different institutional contexts and the varied trainers' profiles. In several cases (n = 9), trainers expressed concerns that the course content may lack coherence and consistency, indicating only partial alignment with the national recommended framework. This finding resonates with Wang and Li's (2021) study, which identified gaps in the inclusion of essential technology modules within translation technology curriculums.

More than half of the trainers (n = 8) held less favorable opinions, contending that offering a stand-alone course is inadequate for students to develop the practical skills required by the industry upon graduation. These concerns echo Shuttleworth's (2017, p. 38) assertion that the goal of technology-based translation modules should be to prepare versatile problem solvers rather than users reliant on specific software systems. Moreover, the trainers expressed differing views regarding the appropriate timing for offering the course. Over half of the trainers (n = 7) believed that translation technology should be introduced early, ideally in the first academic year, while also stressing the importance of thoughtful course sequencing and duration. In contrast, other trainers (n = 5) argued that students should first develop translation skills without technological intervention, cautioning that early exposure to specialized tools might weaken students' acquisition of core language competence.

(c). Resource Availability

Kelly (2014) argues that effective technology-based translator training requires a broad range of resources, including appropriate physical infrastructure (e.g., computer labs), conventional teaching materials, up-to-date technologies (e.g., licensed software), mobility programs (e.g., staff and student exchanges, cooperative projects), and professional placements involving external experts and industry visits.

In terms of resource availability, computer labs (n = 10) were reported by the trainers as the most commonly provided resource, underscoring the essential role of physical infrastructure in facilitating hands-on practice for translation technologies. However, other resources were found considerably inaccessible. Online platforms (n = 4), such as learning management systems and cloud-based tools, were infrequently reported, indicating a lag in the integration of digital learning environments. Similarly, opportunities to invite industry experts as guest lecturers (n = 4) were limited. Only a few trainers noted institutional access to authentic translation projects (n = 3) and student work placements (n = 3), which were typically arranged through partnership with local language service providers.

Some trainers (n = 5) reported that although computer labs are available, limited access to paid software licenses poses a significant challenge. In many cases (n = 7), the lab facilities were reported as outdated and inadequately equipped, prompting students to bring their own laptops to class. A few trainers (n = 2) reported that they have no

access to labs and have to demonstrate the procedural knowledge of using CAT tools without providing hands-on experience for students. There was unanimous agreement among the trainers on the need for better-equipped labs, including the integration of course management systems (CMS) and enough computers to ensure that each student has a dedicated workstation.

Regarding students' work placements and internship opportunities, only a small number of trainers (n = 3) stated that their institutions have established connections and collaborations with some local language service providers to guarantee such opportunities. One interviewee (A11) explained, 'Our institution has signed partnership agreements with local translation companies, but implementing placements is hard. The companies care more about efficiency and profitability and are reluctant to host undergraduate interns with limited experience, as this can disrupt workflows and increase operational costs without getting quick returns…'.

These findings underscore broader inconsistencies in the availability of professional and digital resources and reflect a lack of institutional support and funding, a concern also raised by Al-Dabbagh and Othman (2024), whose interviewees noted that administrators often perceive internships and placements as costly and time-consuming due to the need to assign staff members to instruct, observe, and supervise students during the process.

(d). Teaching and Assessment Methods

Concerning the teaching methods used by the interviewed trainers, five common approaches were identified through analysis of the data. The trainers revealed that PowerPoint tutorials (n = 11) were the most predominant approach, through which students received direct instructions on procedural knowledge, including how to access relevant resources and operate specific translation tools. Other methods were reported less infrequently, including in-class reports (n = 7), project-based learning (n = 4), case studies (n = 2) that expose students to real-world technical problems, and product sharing (n = 1). This finding aligns with Zhang and Vieira's (2021) survey, which identified tutorials as the most commonly used method in translation technology teaching. However, some trainers (n = 5) argued that this should not be seen as a limitation, as undergraduate students typically require more guidance from trainers when first introduced to translation technologies (Su & Li, 2023). Although several trainers (n = 7) acknowledged that authentic project-based learning is among the most effective and favored approaches to delivering translation technologies, they noted that its implementation is constrained by limited resources and low levels of students' computer literacy. The limited use of case studies observed in the data aligns with Cui's (2021) findings, which highlighted a shortage of case-based approaches in translation technology teaching. This is likely attributable to restricted access to real-world projects and limited collaboration with language service providers.

Regarding assessment methods, six common approaches were identified in the data. The most frequently reported assessment method was the final exam (n = 9), which usually involved small-scale collaborative projects completed by student groups using CAT tools. Class assignments (n = 7) and group presentations (n = 6) were reported less frequently to check students' academic performance. Alternative methods, such as in-class tests on the application of CAT tools (n = 2), open-book exams (n = 2), and the use of online platforms to monitor learning progress (n = 1), were scarcely employed by the trainers. E-portfolios and situated tests were absent in the trainers' responses. It is evident that the interviewed trainers prefer traditional summative assessment over formative assessment, as noted by Wang and Zou (2022) in their study. However, summative assessment may hinder student motivation in learning translation technologies and limit the development of learner autonomy. It is also noteworthy that, although most trainers (n = 10) acknowledged the value and benefits of e-portfolios (Rico, 2017) and situated tests as formative assessments, they expressed concerns about their practical implementation. In particular, they noted that providing ongoing individualized feedback in large classes is time-intensive, especially within the constraints of a 32-hour course, and is further hindered by limited access to dedicated course management system platforms.

(e). Challenges and Recommendations

1. Insufficient Staff Provision

Insufficient staff provision emerged as the most pressing challenge emphasized by all trainers. This issue can be attributed to three main factors. First, translation technology is often not explicitly considered during the faculty hiring process. As a result, translator trainers, who lack technical backgrounds, familiarity with emerging technologies, and practical industry experience, are expected to learn translation technologies independently. Those with some prior exposure to translation technologies are typically assigned to teach the course. However, their limited expertise often hinders the design and delivery of effective training, as reflected in the pervasive negative self-assessments of their technological competence observed in this study. Second, several trainers (n = 7) reported that staff training programs in translation technology are expensive and lacking in depth. As one trainer (A08) remarked, "Online training courses in translation technology are often overpriced and superficial. And the expenses cannot be reimbursed by the institution." The combination of high costs, limited substantive content, and overly condensed live course durations (Ru, 2023) significantly diminishes trainers' motivation to pursue further training. Third, most trainers (n = 11) perceived the faculty promotion system in China's higher education as disadvantageous to those devoted to technological and practical translation sessions, as it disproportionately prioritizes theoretical research and publications. Under the dominant up-or-leave policy (Xu & Poole, 2024), where translation practice is seldom recognized as scholarly output

(Feng, 2023), trainers are often discouraged from investing in translation technology instruction. Over 85% of 306 translation trainers reported that translation works and unpublished translation practice hold little value in university assessment and promotion grading (Feng, 2023). Consequently, practical and technology-related teaching remains marginalized (Fu & Yuan, 2017), leading to limited faculty engagement in developing the translation technology courses.

In light of this issue, some trainers (n = 4) advocated for more accessible and cost-free retraining opportunities, suggesting that well-resourced universities should take the lead in sharing open and affordable online courses on translation technologies. Several interviewees (n = 5) also called for more inclusive and diversified evaluation criteria to reform the existing promotion system for translation faculty.

2. Course Isolation

Nearly all trainers (n = 11) cited the isolation of the translation technology course, pointing to insufficient coordination and collaboration between courses and trainers within the same program. Such isolation was also identified by Mellinger (2017), Kenny (2020), and Cui and Sun (2024) as the course is often delivered as a stand-alone module rather than within a comprehensive learning environment (Bowker, 2015). Instructors of other applied sessions often disregard translation technologies and do not encourage students to use them in assignments, largely due to their limited firsthand experience with standard translation workflows and a tendency to overstate the issues associated with these tools. While institutions in China grant trainers considerable autonomy over course content at the curriculum planning level, coordination among instructors remains limited. As one interviewee (A05) remarked, 'We can usually decide what to teach… But we don't work together on course content'.

Regarding this issue, some trainers (n = 8) proposed the development of a structured cluster of courses on translation technologies with extended training duration and increased credit weight. They suggested a progressive curricular design, beginning with general computer skills in the first year and advancing to the learning of specialized tools in subsequent years. Some trainers (n = 3) also highlighted the importance of teaching students how to assess translation tools critically. Furthermore, some trainers (n = 7) suggested that the translation program directors should promote the integration of translation technologies and tools into practical sessions to better expose students to emerging technologies and industry practices. However, several trainers (n = 4) felt less optimistic about the reform of curricula, citing institutional inflexibility, a challenge also noted by other researchers (Sánchez-Castany, 2023; Al-Dabbagh & Othman, 2024).

V. Conclusion

Designing and delivering effective undergraduate translation technology training are essential to prepare translation graduates that possess the technological competence required by the ever-evolving language services industry. This study adopted Kelly's (2005) translator training curricular design model as the research framework to explore how trainers perceive the design and delivery of undergraduate translation technology courses at 12 institutions in Shaanxi Province, China. The findings revealed that the most significant challenges in undergraduate translation technology training are insufficient staff provision and isolated technology integration, as these issues were consistently cited by the interviewed trainers. Hence, the current translation curricula should be reevaluated and updated to facilitate the comprehensive incorporation of translation technologies throughout the entire program.

It is necessary to consider the limitations inherent in this study. First, although Kelly's (2005) model adopted in this study provided a holistic framework for the investigation, the sample size, limited to twelve institutions in northwest China, may be considered small, which potentially limits the generalizability of the findings. Second, due to data collection constraints, this study relied solely on a qualitative approach and did not incorporate additional methods such as quantitative methods, classroom observation, or documentary analysis. This exclusive reliance on interviews introduces a degree of subjectivity, as the research process may be influenced by the researcher's own values (Greenbank, 2003) and is also susceptible to self-report bias on the part of interviewees.

It is hoped that the findings of the study will contribute to the improvement of undergraduate translation technology courses in China. The translator training curricular design model (Kelly, 2005) adopted in this study offers a comprehensive framework for designing and developing technology-based translation courses in comparable educational contexts. Future research could involve larger and more geographically diverse samples and use mixed methods to enhance the generalizability and robustness of the results. Additionally, investigating the factors that influence the acceptance and adoption of translation technologies among trainers and students would offer important contributions to the field.

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