Article

CADERNOS de TRADUÇÃO

# Evaluating the effectiveness of translation technology training in Iran: A perception-based mixed methods study

**Amirreza Akhlaghi Ilkhchi**
Azarbaijan Shahid Madani University
Tabriz, Iran
amirreza.akhlaghi@azaruniv.ac.ir
https://orcid.org/0009-0007-1283-3041

**Roya Monsefi**
Azarbaijan Shahid Madani University
Tabriz, Iran
r.monsefi@azaruniv.ac.ir
https://orcid.org/0000-0001-6374-6182

**Reza Yalsharzeh**
Azarbaijan Shahid Madani University
Tabriz, Iran
r.yalsharzeh@azaruniv.ac.ir
https://orcid.org/0000-0002-2595-1668

**Morteza Taghavi**
Azarbaijan Shahid Madani University
Tabriz, Iran
taghavi.m.asmu@gmail.com
https://orcid.org/0000-0002-3243-2137

**Abstract**: Although evaluating the effectiveness of training courses on translation technology is essential, previous studies have primarily evaluated such courses based on trainee translators' satisfaction or knowledge acquisition, paying little attention to behavioral changes in trainee translators and the long-term outcomes of the training. Drawing on convergent mixed methods design, this study aimed to evaluate the effectiveness of the translation technology course provided by Iranian universities at MA level based on the perceptions of Iranian MA translation students and graduates. To this end, both quantitative and qualitative data were collected from 63 Iranian MA translation students and graduates via two questionnaires. The results, according to the New World Kirkpatrick Model, indicated that the translation technology course provided by Iranian universities at MA level seems to lack training effectiveness. The findings suggest that there possibly exists a gap between what is taught and the needs of the translation market in the Iranian context.
**Keywords**: Kirkpatrick model; translation technology training; evaluation of effectiveness; translation market.

## 1. Introduction

The field of translation is now deeply intertwined with technology. The rapid growth of digital content, much of which is time-sensitive, has resulted in a significant increase in the demand for

translation services. However, the volume of content that needs to be translated exceeds the capacity of the human translators available. As a result, the presence of some form of human-computer interaction is unavoidable in nearly all translation work. Mastering translation technologies has become an essential skill for professional translators (Rothwell et al., 2023). In fact, graduates of translator training programs who lack the necessary technical skills and expertise will be unable to compete for employment in the highly technological translation industry. Nor will they be able to keep up with the needs of an industry that demands higher and higher amounts of translation work to be carried out on a level and at a pace and cost that would be impossible using solely *human* resources (Kenny, 2019). *Translation technology* is an umbrella term utilized to refer to a broad spectrum of technologies used by translators (Man et al., 2019). Chan and Shuttleworth (2023) define translation technology as the use of computer-driven tools and related resources and standards within the translation industry. "The concept encompasses the many ways in which computer programs can be used to support, enhance, or partially or wholly replace the agency of human translators" (Chan & Shuttleworth, 2023, p. 259).

The evolution of translation technologies, such as computer-assisted translation (CAT) tools, machine translation (MT) systems, and other AI-driven translation tools, has significantly changed the translation process. These advancements have enhanced the accuracy, speed, productivity, quality, and efficiency of translations (Chen & Liu, 2023; Doherty, 2016; Kaba & Gjinali, 2023; Pan et al., 2022). Technologies are used in the language industry to enhance the productivity and efficiency of both individual and collaborative work (Wang & Sawyer, 2023). For this reason, students need to learn the knowledge and skills necessary to incorporate present and future technologies into the translation workflow (Bowker, 2023). In today's world, translation technology training has become an essential part of translator training thanks to the widespread use of translation technology (Daems, 2024). Translation technology and how it is taught have become crucial aspects of all activities related to translation and translator training. This is evident from the significant volume of literature dedicated to teaching and evaluating translation technologies, indicating a growing emphasis on curriculum development and syllabus design (Al Sharou, 2024).

Iranian freelance and trainee translators fail to widely use key translation technologies like CAT tools, primarily because most of the training programs available to them are claimed to be outdated or lack efficacy (Abdi, 2020, 2022; Taghizadeh & Azizi, 2017). This issue highlights the importance of evaluating training courses related to translation technology in Iranian universities. The problem, however, is not limited to Iran, as universities in Saudi Arabia have yet to fully incorporate CAT tools into their translator training programs, largely due to the limited availability of training courses on translation technology. As a result, the integration of CAT tools into translator training programs in Saudi Arabia has not been successful (Al-Jarf, 2017; Al-Rumaih, 2021; Hazaea & Qassem, 2024; Omar et al., 2020). A comparable situation is observed in Spain, where undergraduate translation programs encounter challenges in aligning translation technology training with the needs of the language industry, as much of the instruction relies on outdated practices that do not reflect real-world requirements (Sánchez-Castany, 2022). Undoubtedly, the quality of textbooks and curriculum design also impact students' ability to acquire technological skills. It is worth noting that current textbooks are facing issues such as the imbalance between practical and

theoretical content (H. Li, 2022). Therefore, it is crucial to evaluate the effectiveness of training courses on translation technology.

In the current study, a translation technology training course (TTTC) refers to a course intended to train trainee translators in a wide variety of technologies, which include but are not limited to CAT tools and MT post-editing. A CAT tool, sometimes referred to as a translation environment tool, is a software application designed to aid human translators in the translation process by providing immediate access to different linguistic and text editing or formatting resources. In addition to translation memories, CAT tools provide translators with access to termbases, concordances, quality assurance, spellchecks, and machine translation (Kornacki, 2018). A 2-credit TTTC (referred to as the TTTC throughout this study) centered on both theory and practice, which is conducted in English, is provided by various Iranian universities and higher education institutions as a part of the curriculum developed in 2019 by Ferdowsi University of Mashhad and approved by the Ministry of Science, Research, and Technology of Iran for the Master's Degree in Translation. One point worth mentioning here is that the previous curriculum developed in 1999 also included a training course on translation technology. However, the curriculum developed in 2019 has arguably been more effective in several aspects, particularly in reducing the imbalance between theory and practice, thereby enhancing trainees' hands-on experience with translation technology.

In recent years, there has been an increasing interest in factors affecting translators' adoption of translation technology (e.g., Alotaibi, 2024; Cadwell et al., 2017; X. Li et al., 2024; Man et al., 2019; Rossi & Chevrot, 2019). Despite a relatively large body of research on translation technology and its adoption by translators and trainee translators, there is a paucity of studies investigating the effectiveness of TTTCs. The issue, however, is not exclusive to the context of Iran. Moreover, previous studies have primarily evaluated TTTCs based on trainee translators' degree of satisfaction or knowledge acquisition or both (e.g., Kodura, 2022; Mohammed, 2022; Rodríguez-Castro, 2018; Sánchez Ramos, 2021; Su & Li, 2023; Yan & Wang, 2022). Examination of the existing literature reveals that no study, to date, has evaluated TTTCs based on changes in trainee translators' behavior and long-term outcomes of the training, especially through the lens of the New World Kirkpatrick Model (Kirkpatrick & Kirkpatrick, 2016). Thus, the current study aims to bridge the gap in the pertinent literature by conducting a delayed evaluation of the training effectiveness for the translation technology course provided by Iranian universities at MA level.

According to the New World Kirkpatrick Model, in order to evaluate the effectiveness of a training course, it is important to evaluate it using four levels of reaction, learning, behavior, and results (Kirkpatrick & Kirkpatrick, 2016). Training effectiveness occurs when "[...] what is learned in training is relevant and gets implemented on the job. [...] If training evaluation shows that on-the-job performance increased and results improved, then training effectiveness has occurred" (Kirkpatrick & Kirkpatrick, 2016, p. 6). By integrating quantitative and qualitative methods, this delayed post-training study seeks to evaluate the effectiveness of the TTTC based on the perceptions of Iranian MA translation students and graduates to improve training courses on translation technology. The New World Kirkpatrick Model, comprising four levels of reaction, learning, behavior, and results, serves as the framework for the delayed evaluation of training effectiveness (Kirkpatrick & Kirkpatrick, 2016). In order to measure the long-term outcomes of the training, it is

imperative to conduct a delayed evaluation. A training course can be evaluated on a delayed basis at least one month after completion of training (Matolić et al., 2023).

In order to accomplish this overall aim, this mixed methods study aims to achieve four specific objectives: (1) to investigate the reactions of Iranian MA translation students and graduates towards the TTTC; (2) to investigate the extent to which Iranian MA translation students and graduates perceive that they have learned from the TTTC; (3) to investigate the extent to which Iranian MA translation students and graduates perceive that they have applied the acquired knowledge and skills from the TTTC in their jobs; and (4) to investigate the results and outcomes of the TTTC as perceived by Iranian MA translation students and graduates. On the basis of the above-mentioned objectives, the current study seeks to address the following questions both quantitatively and qualitatively:

i. What are the reactions of Iranian MA translation students and graduates towards the TTTC?
ii. To what extent have Iranian MA translation students and graduates learned from the TTTC?
iii. To what extent have Iranian MA translation students and graduates applied the acquired knowledge and skills on the job?
iv. What are the perceptions of Iranian MA translation students and graduates towards the results and outcomes of the TTTC?

## 2. Literature review

### 2.1 Evaluation of task-based and project-based approaches

The effectiveness of a course on translation technology can be influenced by the quality of the curriculum and syllabus design, as well as teaching methodologies. Several studies have demonstrated the effectiveness of the task-based approach in teaching translation technology (e.g., Rodríguez-Castro, 2018; Sánchez Ramos, 2022; Yan & Wang, 2022). The task-based approach has been shown to enhance student engagement and the acquisition of practical skills, as this approach emphasizes hands-on tasks that improve students' technical competencies. (Rodríguez-Castro, 2018; Sánchez Ramos, 2022; Yan & Wang, 2022). Similarly, studies have shown the effectiveness of the project-based approach in translator training (e.g., Moghaddas & Khoshsaligheh, 2019; Mohammed, 2022). Kiraly (2005) proposed the project-based approach to translator training, which was initially rooted in social constructivism. Emerging from a social constructivist foundation, this approach has evolved into a holistic-experiential approach with a complex system of interdisciplinary foundations (Kiraly, 2012). As a learner-centered approach, the project-based approach to teaching translation technology is based on the idea that what happens in the professional translation industry should be practiced in the classroom setting (Mitchell-Schuitevoerder, 2020).

Building on the task-based approach, Rodríguez-Castro (2018) examined the effectiveness of a course on CAT tools at the graduate level, focusing on students' performance and perceptions to evaluate the learning effectiveness. The results indicated that the majority of students perceived that

they had gained translation technology skills. Students expressed satisfaction with the hands-on tasks, the use of videos, and the overall learning experience, which was the result of task-based teaching methodology. Moreover, the coursework helped students develop a variety of technical skills. Echoing similar findings, Yan and Wang (2022) evaluated a task-based data science course for undergraduate translation students in China. The results indicated that the course was well-received by the participants. In addition, the findings suggested that the task-based learning approach had positive effects on students' learning engagement and interest. In a similar vein, Sánchez Ramos (2022) assessed the effectiveness of a task-based approach in a module focused on MT and post-editing within a postgraduate public service interpreting and translation program. The study demonstrated that the students were satisfied with both the content of the MT and post-editing module and its implementation. Notwithstanding, some students believed that further development of the module was necessary to enhance its integration with the overall postgraduate public service interpreting and translation program.

Having discussed the task-based approach, it is important to consider the project-based approach. Of particular relevance is Moghaddas and Khoshsaligheh's (2019) study in which they examined the effectiveness of the project-based approach in an English-Persian translation class in Iran. The study investigated students' attitudes, critical thinking, teamwork performance, and translation quality. The findings indicated improvements in students' teamwork skills, critical thinking abilities, and, above all, translation quality, alongside their overall satisfaction with experiencing project-based learning, demonstrating that this approach can be an effective in translator education, even within a predominantly transmissionist context like that of Iran.

Nonetheless, challenges were observed regarding the application of this approach in the Iranian context. A related study by Mohammed (2022) explored the effectiveness of using corpora for trainee translators when translating from Arabic into English and vice versa. The data for the study were collected using think-aloud protocols, Translog translation software, eye-tracking, and Screen-O-Matic software, and the researchers administered a questionnaire to assess participants' attitudes towards corpora use and project-based training. The results showed that trainees used various types of corpora in their translation projects and held positive attitudes towards the use of corpora tools and the project-based training approach.

Overall, the literature on the effectiveness of these approaches has largely overlooked the importance of post-training outcomes of the training. A key point to consider is the fact that evaluating the effectiveness of task-based and project-based training courses on translation technology requires looking beyond immediate results and focusing on long-term outcomes and how well students apply their skills after the training. As such, it is necessary to conduct delayed post-training assessments to evaluate the effectiveness of task-based and project-based approaches to teaching translation technology. Furthermore, establishing clearly defined metrics for assessing post-training outcomes is imperative. These metrics might include improved job performance, increased productivity, increased quality, and reduced error rates in translations, to mention but a few.

## 2.2 Effectiveness of training courses on translation technology

The ongoing technologization of the translation industry increasingly necessitates the incorporation of training courses on translation technology into translator training programs. Nitzke et al. (2019) emphasized the need to enhance the digitalization knowledge and skills of linguists and translators so as to prepare them for the current job market. In fact, He and Tao (2022) argue that the primary objective of teaching translation technology is to enable students to integrate knowledge with practical application and develop the ability to use technology effectively and responsibly in professional translation settings. These studies highlight the importance of equipping future professionals with the technological competencies required in the field and exploring the effectiveness of training courses in achieving this goal.

Nevertheless, the effectiveness of such training courses remains a subject of ongoing investigation. For instance, Kodura (2022) investigated the effectiveness of an online translation technology training course during the COVID-19 pandemic. The results indicated that online classes can restrict direct communication, leading to reduced interest, engagement, and self-discipline. Students, however, were able to learn and find information independently. Kornacki and Pietrzak (2021) emphasized the importance of learner autonomy in online teaching, suggesting that online training can be effective if students are given the freedom to learn independently. Conversely, Bilić (2020) concluded that online CAT classrooms can facilitate student collaboration, resulting in high-quality translations, notwithstanding some challenges that students experienced when working with TM. Consistent with these results, Qassem and Al Thowaini (2024) found that an online translation training program can improve students' performance and time management skills.

Sánchez Ramos (2021) evaluated a module centered on non-professional translation as part of a localization training program. The research examined the attitudes of trainee translators towards the utilization of collaborative localization platforms and the inclusion of these platforms in the localization curriculum. Overall, trainees had positive attitudes towards non-professional translation practices and were very satisfied with the incorporation of non-professional translation into the localization curriculum. Furthermore, they viewed the use of real localization projects and team collaboration as beneficial. Hao (2023) explored students' emotional experiences with learning and using translation memory (TM) systems. Through an innovative emotional-narrative task, the study revealed both positive and negative emotions associated with learning different TM systems. Students expected translation software tools to be learnable, productive, and user-friendly. Moving beyond this perspective, Venkatesan (2023) proposed an approach that integrates translation technology fully into the translation process rather than teaching translation technology in stand-alone courses. To evaluate the effectiveness of such an approach, To evaluate the effectiveness of this approach, a survey was conducted with postgraduate students after they completed a 45-hour, semester-long course called 'Translation Technology' under the proposed approach. The results revealed a notable increase in students' self-reported confidence and preparedness to utilize MT and other technological tools in translation.

Taken together, previous studies have attempted to evaluate the effectiveness of technology training courses from different angles. Nevertheless, the lack of objective criteria and the fact that

studies have failed to define and provide operational definitions for the training effectiveness as a construct render it very difficult to compare the findings of the studies.

### 2.3 Evaluation of training effectiveness based on the Kirkpatrick Model

In the present study, the New World Kirkpatrick Model is adopted as the framework to operationalize and evaluate the training effectiveness. It bears mentioning that when designing survey instruments, theoretical frameworks play a crucial role in ensuring that constructs are accurately defined, which in turn enhances the validity and reliability of the research findings (Mellinger & Hanson, 2021). The Kirkpatrick model of training evaluation, introduced by Donald Kirkpatrick in the 1950s, has become a widely accepted and influential framework for assessing the effectiveness of training programs in various settings (Kiettikunwong & Narot, 2024). The model has been revised multiple times over the past 6 decades. Introduced in 2009, the New World Kirkpatrick Model has since been widely implemented and adapted across organizations worldwide, encompassing four levels: reaction, learning, behavior, and results (Kirkpatrick & Kirkpatrick, 2016). The New World Kirkpatrick Model acknowledges the impact of e-learning and informal learning and corrects the common misapplications of the model, such as the overemphasis on reaction and learning levels and the belief that behavior and results levels are too expensive or difficult to evaluate (Kirkpatrick & Kirkpatrick, 2016).

The reaction level assesses the participants' initial reaction to the training program, considering factors such as engagement, relevance, and satisfaction. The learning level measures the extent to which participants have acquired the targeted knowledge and skills through their participation in the training. The behavior level evaluates the extent to which participants implement the knowledge and skills acquired during the training program on the job. Finally, the level of results measures the impact of the training on business outcomes, such as increased productivity, improved quality, reduced costs, and higher profits (Kirkpatrick & Kirkpatrick, 2016).

Most of the evaluation models used in the literature stem from Kirkpatrick's original four levels of training evaluation (Reio et al., 2017). The usefulness and flexibility of Kirkpatrick's four levels of evaluation make them applicable in various settings. Furthermore, the New World Kirkpatrick Model adopts blended evaluation, which emphasizes the use of "[...] methods or tools that evaluate more than one level at the same time" (Kirkpatrick & Kirkpatrick, 2016, p. 28). The usefulness and flexibility of this evaluation model explain its active and increasing use in evaluating training courses and programs (Alsalamah & Callinan, 2021; Nawaz et al., 2022; Reio et al., 2017; Shewchuk et al., 2023).

Few studies have utilized the Kirkpatrick model to evaluate the effectiveness of training courses on translation technology (Samman, 2022; Su & Li, 2023). Adapting the Kirkpatrick model, Samman (2022) conducted a formative evaluation of the effectiveness of an undergraduate training course on machine translation post-editing. Results indicated that the intervention led to an increase in productivity. Furthermore, students' opinions became more positive towards machine translation post-editing training, indicating that increased knowledge and practice of machine translation post-editing led to more positive opinions. Drawing on the Kirkpatrick model, Su and Li (2023) conducted a study on the effectiveness of translation technology training in master of translation and

interpreting programs in China. Results indicated that some students found the training effective, while others faced challenges during their learning. Although this study evaluated the effectiveness of training at the levels of reaction and learning, it failed to consider the behavior and results levels. In educational evaluation using the Kirkpatrick model, there is a tendency to focus on the first two levels, namely reaction and learning, and disregard the influential levels of behavior and results, leading to incomplete evaluations (Cahapay, 2021; Steele et al., 2016).

All in all, few studies have explored the effectiveness of TTTCs. While the existing literature has investigated the effectiveness of these courses based on trainees' reactions and overall learning, there remains a need for delayed post-training evaluation of such courses not only based on students and graduates' reactions and learning but also based on whether or not trainees and graduates transfer the learning from the training context to the workplace and what results and outcomes the training course has on their job performance.

## 3. Method

### 3.1 Design

In an attempt to develop a comprehensive understanding of the problem under investigation, the convergent mixed methods design was adopted (Creswell, 2021). In a convergent design, the researcher collects both quantitative and qualitative data separately but simultaneously. Following this, the researcher merges the two to compare or combine the results (Creswell & Plano Clark, 2017). The convergent mixed methods design was opted for, as each data collection method compensates for the limitations of the other. It is assumed that by gathering both types of data, researchers gain a comprehensive understanding of the research problem (Creswell & Guetterman, 2019). Additionally, mixed methods research designs are prevalent in the existing literature on the topic (e.g., Mohammed, 2022; Samman, 2022; Sánchez Ramos, 2022; Su & Li, 2023; Yan & Wang, 2022).

### 3.2 Participants

Initially, 66 participants were recruited for the current study. However, 3 participants were excluded as they did not meet all the requirements for the study. The final sample consisted of 63 Iranian MA translation students and graduates who participated in both qualitative and quantitative parts of the study. The participants were recruited from nine universities, including several first-class universities, across seven provinces in Iran. It is pertinent to mention here that only a limited number of Iranian universities offer courses on translation technology at MA level. The sample included 35 females (55.6%) and 28 males (44.4%), comprising 28 students pursuing their MA (44.4%) and 35 graduates (55.6%). Regarding professional experience, 17 participants (27%) had less than 2 years of work experience, 24 (38.1%) had 2–5 years, 10 (15.9%) had 6–9 years, 9 (14.3%) had 10–13 years, and 3 (4.8%) had more than 13 years of experience. The age distribution showed that 36 participants (57.1%) were between 20–27 years old, 17 (27%) were between 28–35 years old, and 10 (15.9%) were over 36 years old. With respect to their working language, the participants

translated primarily between English and Persian, which is the most prevalent language pair in Iran's translation market. Purposive sampling was employed since it is particularly suitable when participants possess specific attributes relevant to the research objectives (Mellinger & Hanson, 2017). The participants shared three essential characteristics: First, they had successfully completed the training course on translation technology at MA level; second, they had finished the course at least one month prior to the study; and third, they had job experience as a translator after the completion of the course.

### 3.3 Instruments

To investigate the questions posed in the current study, two questionnaires were employed. Initially, demographic information was collected from each participant, including age, gender, years of work experience, current educational status, and name of the university or institution for the master's degree. For the quantitative part of the study, the EDUCATOOL follow-up questionnaire developed by Matolić et al. (2023) was adopted to elicit the participants' perceptions towards the effectiveness of the TTTC at four levels of reaction, learning, behavior, and results. The questionnaire contained a total of 12 items using an 11-point Likert scale, ranging from *completely disagree* (0) to *completely agree* (10). For the purpose of the present study, reaction was defined as the extent to which the participants found the TTTC satisfactory, relevant (useful), and engaging (Items 1–3). Learning was defined as the extent to which participants acquired and retained new knowledge, developed and retained skills as a result of the training, and changed their attitudes about the subject of the course (Items 4–8). Behavior was defined as the extent to which the participants used the newly acquired knowledge and skills from the course (Items 9 and 10). Finally, results was defined as the extent to which participants observed improvements in their personal performance and benefits through their participation in the course (Items 11 and 12). The questionnaire demonstrated both validity and reliability with an overall Cronbach's alpha of 0.98 (Matolić et al., 2023).

For the qualitative part of the study, a questionnaire containing eight open-ended questions was utilized to evaluate the effectiveness of the TTTC from the participants' perspectives at four levels of reaction (Questions 1–3), learning (Questions 4–6), behavior (Question 7), and results (Question 8). The questions for the questionnaire were adapted from Kiettikunwong and Narot (2024) and Kirkpatrick and Kirkpatrick (2016). Regarding validation, the aforementioned questionnaire was checked and confirmed for its content and validity. To compare and integrate quantitative and qualitative data effectively in a convergent mixed methods design, it was necessary to ensure that both data sets had equal sample sizes. However, considering the possibility that some participants might decline to participate in interviews, a questionnaire with open-ended questions was used to collect qualitative data to ensure equal sample size for both data sets, thereby facilitating the comparison and integration of the two data sets. Moreover, using a questionnaire for qualitative data collection not only allowed participants to have more time to reflect and provide answers but also offered greater anonymity and reduced bias.

### 3.4 Data collection procedure and analysis

In order to ensure both anonymity and the integrity of the responses, quantitative and qualitative data were collected almost at the same time through an electronic link provided to the respondents. The link was sent out via email and several other platforms, including, but not limited to, Telegram and WhatsApp. The data was collected from the participants in 2024. Prior to participation in the study, they provided their informed consent. The consent form clarified that participation in the research was completely voluntary and confirmed that their personal names would not be collected. Participants were also assured that their individual responses would be kept confidential, and the information collected would be used solely for research purposes. All the participants provided their responses to the open-ended questions in English, as they all possessed full professional proficiency in the language.

Regarding data analysis, quantitative and qualitative data were analyzed independently. Descriptive statistics for the quantitative data were calculated using the SPSS software (version 27). To enhance credibility and minimize potential biases, researchers analyzed the qualitative data collaboratively using MAXQDA software (version 24) and following the six-step process for thematic analysis developed by Braun and Clarke (2006). First, the researchers began by immersing themselves in the data, carefully examining the data multiple times to get familiar with it. Next, they generated the initial codes by identifying patterns and recurring ideas in the data. These codes were subsequently categorized into potential themes in the third phase. In the fourth step, the themes were examined and refined to ensure they accurately represented the data. Following this, each theme was clearly named and defined. Finally, themes were reported along with examples from the data. To maintain anonymity, participants were given labels ranging from Participant 1 to Participant 63 when quoted.

## 4. Results and discussion

### 4.1 Quantitative results

Reaction level (Items 1–3) focused on participants' satisfaction with the TTTC (*M* = 6.42), relevance or usefulness of the TTTC (*M* = 6.12), and their level of engagement in the TTTC (*M* = 6.68), as presented in Table 1. The overall mean score for reaction level, as illustrated in Figure 1, was 6.41, indicating that participants found the TTTC only slightly satisfying, engaging, and relevant.

Learning level (Items 4–8) assessed participants' acquisition of new knowledge through the TTTC (*M* = 6.90), retention of knowledge gained from the TTTC (*M* = 6.58), development of new skills as a result of the TTTC (*M* = 6.14), retention of skills developed via the TTTC (*M* = 6.60), and increase of interest in the subject of the TTTC (*M* = 5.04), as shown in Table 1. The participants held slightly positive perceptions towards the TTTC in terms of acquisition and retention of new knowledge as well as development and retention of new skills. However, participants believed that the TTTC had neither a positive nor a negative impact on their interest in the subject. The overall mean score for the learning level was 6.25 (see Figure 1), indicating that participants held slightly positive perceptions.

Table 1: Results of EDUCATOOL Follow-up Questionnaire

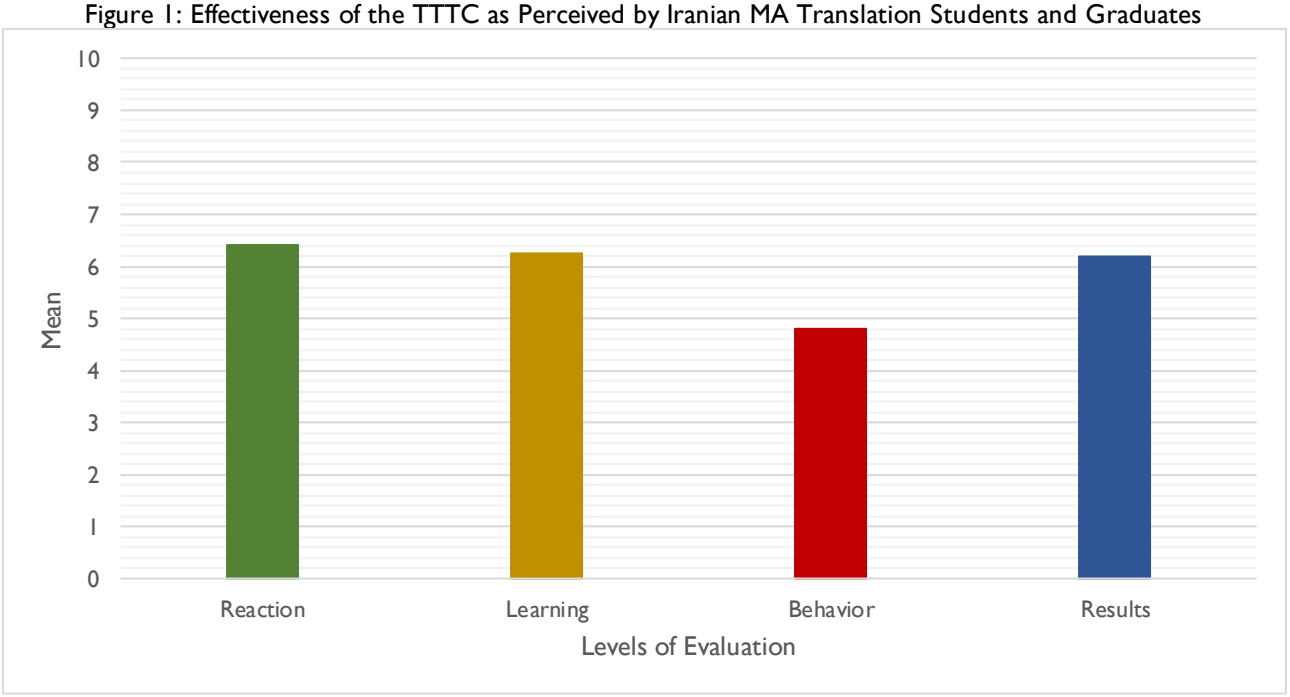
| Items | Mean |
|---|---|
| (1) Overall, I am satisfied with this course. | 6.42 |
| (2) This course has been useful to me. | 6.12 |
| (3) I was fully engaged in this course. | 6.68 |
| (4) I acquired new knowledge in this course. | 6.90 |
| (5) I still possess the knowledge I acquired in this course. | 6.58 |
| (6) This course helped me develop skills. | 6.14 |
| (7) I still possess the skills developed in this course. | 6.60 |
| (8) Taking this course increased my interest in the subject. | 5.04 |
| (9) I have used the knowledge acquired in this course. | 4.71 |
| (10) I have used the skills developed in this course. | 4.88 |
| (11) Participation in this course has improved my performance (e.g. work performance, academic performance, task-specific performance). | 6.23 |
| (12) My participation in this course resulted in other benefits (e.g. benefits for my business, institution, or community). | 6.15 |

Source: Authors (2025)

Behavior level (Items 9 and 10) focused on participants' use of the knowledge acquired through the TTTC (*M* = 4.71) and use of the skills developed in the TTTC (*M* = 4.88), as presented in Table 1. Participants had slightly negative perceptions towards the TTTC in terms of the use of knowledge and skills. The overall mean score for the behavior level was 4.80 (see Figure 1), indicating that participants had slightly negative perceptions.

Finally, results level (Items 11 and 12) focused on participants' improvements in personal performance (*M* = 6.23) and benefits of participation in the TTTC (*M* = 6.15), as demonstrated in Table 1. Participants held slightly positive perceptions towards the TTTC in terms of improvements in personal performance and benefits of the TTTC. The overall mean score for the results level was 6.19, as displayed in Figure 1, indicating that participants had slightly positive perceptions.

Figure 1: Effectiveness of the TTTC as Perceived by Iranian MA Translation Students and Graduates




Source: Authors (2025)

### 4.2 Qualitative results

The analysis of the qualitative data identified four main themes, including mixed reactions to the training, effective learning without attitudinal change, ineffective transfer of learning to behavior, and self-confidence and productivity as benefits of the training. These themes mostly confirmed the quantitative results reported above.

#### 4.2.1 Mixed reactions to the training

The participants had ambivalent reactions to the TTTC. In fact, most of the participants were somewhat satisfied with the TTTC. Nevertheless, they believed that it was basic and repetitive. For instance, Participant 55 noted:

> *I found this course moderately satisfying. Actually, initially, I expected to learn new technologies and software related to the task of translation and the application of AI in translation and how to efficiently implement them in the job; however, the course was taught at an introductory and basic level, covering topics I was already familiar with. It didn't cover topics like AI or localization* (Participant 55).

Participants also believed that they were only actively involved in the hands-on, practical components of the training and found the theoretical parts less engaging. Participant 15 shared their experience:

> *Part of the course primarily was about theoretical concepts, with an emphasis on reading related articles to expand our theoretical knowledge. In these parts of the training, we had literally no role. We were just listening. There were, of course, sessions where we had practical exercises, utilizing softwares like SDL Trados in class. In these parts, we were practically involved* (Participant 15).

Interestingly, there existed a consensus among the participants that the practical aspects of the training held greater relevance to their jobs than the theoretical components. In this respect, Participant 60 stated:

> *As for theoretical concepts, I memorized lots of things I can't even remember a word of. So I can't call them relevant to my job as a translator, but I learned to work with a few translation-related programs that I think are relevant to my job* (Participant 60).

#### 4.2.2 Effective learning without attitudinal change

Most of the participants reported learning about how to search for information on the web effectively and theoretical and practical aspects of CAT tools like SDL Trados and MemoQ, as well as learning about various aspects of machine translation as a result of the TTTC. The experience of Participant 2 presents this point:

> *I learned about machine translation, its history, and how it has evolved from rule-based to neural machine translation. I also learned how to post-edit machine translation. We explored applications and websites that offer translation memory, such as SDL Trados and MemoQ, which store previous translations to avoid repetition. What is more is that I learned some search techniques. I know that I can find information I need for my*

> *translation projects by searching in Google or asking other translators in ProZ. Now I know how to use LinkedIn or ProZ to find translation jobs* (Participant 2).

Most participants were also able to somewhat remember what they learned from the training. For example, Participant 44 pointed out:

> *I can remember what the instructor taught us during the course, but to be honest, I remember the practical areas of the course more. We were given translation tasks to do with CAT tools, and I think having practical experience makes one learn something forever because you just read theories, but you do tasks practically* (Participant 44).

Most of the participants felt that their interest in the course subject remained unchanged, and the TTTC had neither a positive nor a negative effect on their interest in the subject. Some of the participants referred to the instructor's lack of desired expertise as the reason. The comment from Participant 9 illustrates this point:

> *I was really interested in the topic from the beginning, especially with all the attention on AI these days. But this course didn't make me more interested because the instructor didn't have deep knowledge of translation technology. The instructor himself needed a course on translation technology* (Participant 9).

### 4.2.3 Ineffective transfer of learning to behavior

Participants also reported that they do not usually use most of what they learned from the TTTC in their jobs owing to different reasons, such as negative client or employer attitudes towards technology use, especially machine translation and CAT tools, and lack of access to paid features of most CAT tools due to sanctions. Nevertheless, participants reported using only basic technologies that most of them were already familiar with or using the internet as a tool for crowdsourcing. Participant 37 elaborated on this point:

> *I don't use the stuff I learned from the technology course in my job. I only use technologies like Word and etc. Actually, I don't think that using technology will make a difference, and it is because Iran's market is not ready to accept technology use. Sanctions also affect this. We usually use cracked versions, and in these versions you don't have full access to all of the capacities of the program. Although I translate legal documents, and most of the documents are repetitive, I don't use programs like SDL Trados. The number of ready-to-use translation memories is also very rare. Sometimes, when I don't know how to translate something, I ask in Proz or other websites that were introduced in the course* (Participant 37).

### 4.2.4 Self-confidence and Productivity as Benefits of the Training

Self-confidence and productivity were reported by the participants to be the main benefits of the training. They believed that their personal confidence and productivity have improved. For instance, participant 22 stated:

> *I, for one, think that my confidence has improved because being familiar with technology is good for my resume. Besides, I have become a more productive translator* (Participant 22).

### 4.3 Discussion

The first question investigated Iranian MA translation students and graduates' reactions to the TTTC. The findings revealed that the TTTC was perceived as slightly satisfying, despite being considered basic and repetitive. This finding seems to concur with Yan and Wang (2022), who found that trainee translators were slightly satisfied with the content and design of the data science course in the Chinese context. A possible explanation for repetitive and basic training as perceived by Iranian MA translation students and graduates may be the significant overlap in the content of the translation technology courses offered by Iranian universities in both BA and MA programs in translation. Although modifications have been made to the TTTC in the new curriculum developed in 2019, the issue of significant overlap in the content of translation technology courses in BA and MA programs has received no attention. Regarding the new curriculum approved by the Ministry of Science, Research, and Technology of Iran for the MA in translation, several changes need to be made. There exists a need to develop a more comprehensive and advanced course for translation technology at MA level that builds on the foundational knowledge acquired during BA studies.

Furthermore, Iranian MA translation students and graduates found the training to be slightly engaging and useful, with the practical components being more engaging and relevant to their jobs, despite the emphasis placed on theory over practice in this course. This is in line with Khoshsaligheh et al. (2019), who demonstrated Iranian trainee translators' willingness for practical, hands-on training. It can be interpreted that the practical components of the training are considered more engaging and relevant as they are directly and immediately applicable to the job market. In this respect, Rodriguez de Céspedes (2020) and Álvarez-Álvarez and Arnáiz-Uzquiza (2017) underscore the importance of collaboration between academia and the industry in order to better prepare trainees for careers in translation. Taken together, Iranian MA translation students and graduates in the present study responded somewhat positively to the TTTC, which is consistent with Su and Li's (2023) study, which demonstrated Chinese trainee translators' positive reactions to the translation technology training. This possibly indicates, according to Kirkpatrick and Kirkpatrick (2016), the efficiency of the TTTC at reaction level, which seems to contribute to achieving learning outcomes.

Concerning the second research question, which addressed the extent to which Iranian MA translation students and graduates have learned from the TTTC, results revealed that the TTTC was perceived slightly positively by Iranian MA translation students and graduates. They also reported learning about effective web search techniques and theoretical and practical aspects of CAT tools like SDL Trados and MemoQ, as well as various aspects of machine translation. These results echo similar findings of previous studies (Rodríguez-Castro, 2018; Su & Li, 2023). The findings can be explained regarding the learning outcomes of the TTTC outlined in the two curricula approved by the Ministry of Science, Research, and Technology of Iran for the MA in translation. While it appears that learning outcomes have been achieved, at least to some extent, a need, nevertheless, arises to incorporate AI and localization into the TTTC, as suggested by some MA translation students and graduates.

Constant modifications are crucial to make the TTTC meet the trainees' expectations in the ever-changing job market. Additionally, Iranian MA translation students and graduates believed that they were able to remember the knowledge and skills acquired from the training to an extent,

suggesting retention of the knowledge and skills after the training. Despite this, they felt that the TTTC had no significant change in their interest in the course subject, with some attributing this to the instructor's insufficient expertise. The findings do not support Sánchez Ramos (2022), who found that the content of the translation technology course increased students' interest in translation technology. It can be argued that the overlap of content in BA and MA translation technology courses, along with instructors' limited expertise, may have contributed to the perceived lack of increased interest. All in all, based on the New World Kirkpatrick Model, the TTTC has achieved its objectives at the learning level as specified in the approved MA curricula.

The third question sought to investigate the extent to which Iranian MA translation students and graduates have applied the acquired knowledge and skills from the TTTC in their jobs. In this regard, participants had slightly negative perceptions of the TTTC and reported not using most of the acquired knowledge and skills in their jobs. They reported using only basic technologies that most of them were already familiar with or using the internet as a tool for crowdsourcing. Learning did not effectively transfer to behavior. There are several possible explanations for such a result. It seems that there is possibly a gap between what is taught and the needs of the market. This supports the fact that there needs to be alignment between what is taught and what employers expect from translators (Alzamil, 2024; Sánchez-Castany, 2025; Vitalaru, 2024). Another possible explanation for this is that translation companies and employers do not provide adequate support and encouragement for the adoption of technology. However, the findings should be interpreted with caution because other contextual factors, such as insufficient resources, which require further investigation, may have contributed to this situation. According to the New World Kirkpatrick Model, the TTTC failed to successfully bridge the gap between learning and on-the-job application.

Regarding the fourth research question, which investigated the results and outcomes of the TTTC as perceived by Iranian MA translation students and graduates, self-confidence and productivity were reported as the main benefits of the training. This suggests that Iranian MA translation students and graduates have gained personal confidence due to their familiarity with translation technology. Furthermore, while productivity is usually associated with the use of CAT tools and other translation technologies (Doherty, 2016), the findings from the present study suggest that the perceived improvement in productivity was not a result of such tools. Instead, the perceived productivity likely stemmed from effective use of the internet as a tool for crowdsourcing and advanced search techniques. Platforms like ProZ emerged as pivotal tools, enabling students and graduates to seek help from peers and find jobs.

Overall, based on the New World Kirkpatrick Model, the TTTC appears to lack training effectiveness since that effective training requires the transfer of learning to behavior. This model emphasizes that training is only effective when the knowledge and skills gained are applied in practice, leading to changes in behavior. However, Iranian MA translation students and graduates in the present study demonstrated that the learning did not transfer to behavioral changes, resulting in a lack of training effectiveness.

## 5. Conclusion

Using convergent mixed methods design, this delayed post-training study aimed to evaluate the effectiveness of the TTTC provided by Iranian universities at MA level based on the perceptions of Iranian MA translation students and graduates. The findings indicate that the TTTC lacks training effectiveness. Moreover, the findings suggest that there possibly exists a gap between what is taught and the needs of the translation market in the Iranian context. Nevertheless, the limitations of the study need to be considered when interpreting the findings. Purposive sampling was employed for data collection, which limits the generalizability of the findings. Furthermore, data for the study was collected from nine universities offering translation technology training courses at MA level, which may not be fully representative. Further research should be carried out to investigate the degree of alignment between the technological needs of the translation market and skills developed through courses on translation technology in the context of Iran. The New World Kirkpatrick Model can also be applied in various contexts to evaluate the effectiveness of training courses on translation.

## References


Abdi, H. (2020). Translation and technology: Investigating the employment of computer-aided translation (CAT) tools among Iranian freelance translators. *Theory and Practice in Language Studies*, *10*(7), 811–818. https://doi.org/10.17507/tpls.1007.13

Abdi, H. (2022). Inquiry into students' familiarity with computer-assisted translation tools. *Global Journal of Information Technology: Emerging Technologies*, *12*(2), 124–135. https://doi.org/10.18844/gjit.v12i2.7880

Al Sharou, K. (2024). Open-source statistical machine technology in translator training: From machine translation users to machine translation. In M. Winters, S. Deane-Cox & U. Böser (Eds.), *Translation, interpreting and technological change: Innovations in research, practice and training* (pp. 159–179). Bloomsbury Publishing. https://doi.org/10.5040/9781350212978.0016

Al-Jarf, R. (2017). Technology integration in translator training in Saudi Arabia. *International Journal of Research in Engineering and Social Sciences*, *7*(3), 1–7.

Alotaibi, H. M. (2024). Factors affecting acceptance of cloud-based computer-assisted translation tools among translation students. *Theory and Practice in Language Studies*, *14*(4), 1057–1068. https://doi.org/10.17507/tpls.1404.14

Al-Rumaih, L. A. (2021). The integration of computer-aided translation tools in translator-training programs in Saudi universities: Toward a more visible state. *Arab World English Journal for Translation and Literary Studies*, *5*(1), 336–362. https://doi.org/10.24093/awejtls/vol5no1.23

Alsalamah, A., & Callinan, C. (2021). The Kirkpatrick model for training evaluation: Bibliometric analysis after 60 years (1959–2020). *Industrial and Commercial Training*, *54*(1), 36–63. https://doi.org/10.1108/ict-12-2020-0115

Álvarez-Álvarez, S., & Arnáiz-Uzquiza, V. (2017). Translation and interpreting graduates under construction: Do Spanish translation and interpreting studies curricula answer the challenges of employability? *The Interpreter and Translator Trainer*, *11*(2–3), 139–159. https://doi.org/10.1080/1750399x.2017.1344812

Alzamil, A. M. (2024). Translation competence between industry and academia in Saudi Arabia: Job descriptions vs students' perceptions. *The Interpreter and Translator Trainer*, *18*(3), 442–464. https://doi.org/10.1080/1750399x.2024.2348962

Bilić, V. (2020). The online computer-assisted translation classroom. *The International Journal of Translation and Interpreting Research*, *12*(1), 127–141. https://doi.org/10.12807/ti.112201.2020.a08

Bowker, L. (2023). *De-mystifying translation: Introducing translation to non-translators*. Routledge. https://doi.org/10.4324/9781003217718

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Cadwell, P., O'Brien, S., & Teixeira, C. S. C. (2017). Resistance and accommodation: Factors for the (non-) adoption of machine translation among professional translators. *Perspectives*, *26*(3), 301–321. https://doi.org/10.1080/0907676x.2017.1337210

Cahapay, M. (2021). Kirkpatrick model: Its limitations as used in higher education evaluation. *International Journal of Assessment Tools in Education*, *8*(1), 135–144. https://doi.org/10.21449/ijate.856143

Chan, V., & Shuttleworth, M. (2023). Teaching translation technology. In C. Sin-wai (Ed.), *Routledge encyclopedia of translation technology* (2nd ed.) (pp. 259–279). Routledge. https://doi.org/10.4324/9781003168348-15

Chen, S., & Liu, Y. (2023). Identity formation and transformation of Chinese university translator trainers. *The Interpreter and Translator Trainer*, *17*(3), 353–374. https://doi.org/10.1080/1750399x.2023.2237325

Creswell, J. W. (2021). *A concise introduction to mixed methods research* (2nd ed.). SAGE Publications.

Creswell, J. W., & Guetterman, T. C. (2019). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (6th ed.). Pearson.

Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.

Daems, J. (2024). Students' attitudes towards interactive and adaptive translation technology: Four years of working with LILT. In Y. Peng, H. Huang & D. Li (Eds.), *New advances in translation technology: Applications and pedagogy* (pp. 239–261). Springer Singapore. https://doi.org/10.1007/978-981-97-2958-6_12

Doherty, S. (2016). The impact of translation technologies on the process and product of translation. *International Journal of Communication*, *10*, 947–969.

Hao, Y. (2023). Students' emotional experiences in learning translation memory systems: A narrative-based study. *The International Journal of Translation and Interpreting Research*, *15*(2), 157–175. https://doi.org/10.12807/ti.115202.2023.a10

Hazaea, A. N., & Qassem, M. (2024). Translation competence in translator training programs at Saudi universities: Empirical study. *Open Education Studies*, *6*(1), 1–12. https://doi.org/10.1515/edu-2024-0029

He, Y., & Tao, Y. (2022). Unity of knowing and acting: An empirical study on a curriculum approach to developing students' translation technological thinking competence. *The Interpreter and Translator Trainer*, *16*(3), 348–366. https://doi.org/10.1080/1750399x.2022.2101849

Kaba, F., & Gjinali, A. (2023). Professional translators and translation technology. *Journal of Educational and Social Research*, *13*(2), 217–222. https://doi.org/10.36941/jesr-2023-0045

Kenny, D. (2019). Technology and translator training. In M. O'Hagan (Ed.), *The routledge handbook of translation and technology* (pp. 498–515). Routledge. https://doi.org/10.4324/9781315311258-35

Khoshsaligheh, M., Moghaddas, M., & Ameri, S. (2019). English translator training curriculum revisited: Iranian trainees' perspectives. *Journal of Teaching English Language*, *13*(2), 181–212. https://doi.org/10.22132/tel.2019.96238

Kiettikunwong, N., & Narot, P. (2024). *Determining outcomes and impacts of human resource development programs*. Springer Singapore. https://doi.org/10.1007/978-981-97-0395-1

Kiraly, D. (2005). Project-based Learning: A case for situated translation. *Meta*, *50*(4), 1098–1111. https://doi.org/10.7202/012063ar

Kiraly, D. (2012). Growing a project-based translation pedagogy: A fractal perspective. *Meta*, *57*(1), 82–95. https://doi.org/10.7202/1012742ar

Kirkpatrick, J. D., & Kirkpatrick, W. K. (2016). *Kirkpatrick's four levels of training evaluation*. Association for Talent Development.

Kodura, M. (2022). Evaluating the effectiveness of an online course in translation technology originally developed for a classroom environment. *The Interpreter and Translator Trainer*, *16*(3), 309–324. https://doi.org/10.1080/1750399x.2022.2092830

Kornacki, M. (2018). *Computer-assisted translation (CAT) tools in the translator training process*. Peter Lang. https://doi.org/10.3726/b14783

Kornacki, M., & Pietrzak, P. (2021). New translator training environments: Towards improving translation students' digital resilience. *New Voices in Translation Studies*, *24*(1), 1–22. https://doi.org/10.14456/nvts.2021.2

Li, H. (2022). Evaluation of translation technology textbooks from the perspective of translator's technological competence. *Journal of Language Teaching*, *2*(5), 1–5. https://doi.org/10.54475/jlt.2022.005

Li, X., Gao, Z., & Liao, H. (2024). An empirical investigation of college students' acceptance of translation technologies. *PLoS ONE*, *19*(2), 1–21. https://doi.org/10.1371/journal.pone.0297297

Man, D., Mo, A., Chau, M. H., O'Toole, J. M., & Lee, C. (2019). Translation technology adoption: Evidence from a postgraduate programme for student translators in China. *Perspectives*, *28*(2), 253–270. https://doi.org/10.1080/0907676x.2019.1677730

Matolić, T., Jurakić, D., Jurakić, Z. G., Maršić, T., & Pedišić, Ž. (2023). Development and validation of the educational course assessment toolkit (EDUCATOOL): A 12-item questionnaire for evaluation of training and learning programmes. *Frontiers in Education*, *8*, 1–9. https://doi.org/10.3389/feduc.2023.1314584

Mellinger, C. D., & Hanson, T. A. (2017). *Quantitative research methods in translation and interpreting studies*. Routledge. https://doi.org/10.4324/9781315647845

Mellinger, C. D., & Hanson, T. A. (2021). Methodological considerations for survey research: Validity, reliability, and quantitative analysis. *Linguistica Antverpiensia New Series – Themes in Translation Studies*, *19*, 172–190. https://doi.org/10.52034/lanstts.v19i0.549

Mitchell-Schuitevoerder, R. (2020). *A project-based approach to translation technology*. Routledge. https://doi.org/10.4324/9780367138851

Moghaddas, M., & Khoshsaligheh, M. (2019). Implementing project-based learning in a Persian translation class: A mixed-methods study. *The Interpreter and Translator Trainer*, *13*(2), 190–209. https://doi.org/10.1080/1750399x.2018.1564542

Mohammed, T. A. S. (2022). The use of corpora in translation into the second language: A project-based approach. *Frontiers in Education*, *7*, 1–14. https://doi.org/10.3389/feduc.2022.849056

Nawaz, F., Ahmad, W., & Khushnood, M. (2022). Kirkpatrick model and training effectiveness: A meta-analysis 1982 to 2021. *Business & Economic Review*, *14*(2), 35–56. https://doi.org/10.22547/BER/14.2.2

Nitzke, J., Tardel, A., & Hansen-Schirra, S. (2019). Training the modern translator – the acquisition of digital competencies through blended learning. *The Interpreter and Translator Trainer*, *13*(3), 292–306. https://doi.org/10.1080/1750399x.2019.1656410

Omar, A., F, A., & El-Nabawi, I. (2020). The impact of translation software on improving the performance of translation majors. *International Journal of Advanced Computer Science and Applications*, *11*(4), 287–292. https://doi.org/10.14569/ijacsa.2020.0110439

Pan, J., Wong, B. T., & Wang, H. (2022). Navigating learner data in translator and interpreter training. *Babel*, *68*(2), 236–266. https://doi.org/10.1075/babel.00260.pan

Qassem, M., & Al Thowaini, B. M. (2024). Effectiveness of an online training course for trainee translators: Analysis of keylogging data. *Education and Information Technologies*, 15711–15735. https://doi.org/10.1007/s10639-024-12484-7

Reio, T. G., Rocco, T. S., Smith, D. H., & Chang, E. (2017). A critique of Kirkpatrick's evaluation model. *New Horizons in Adult Education and Human Resource Development*, *29*(2), 35–53. https://doi.org/10.1002/nha3.20178

Rodriguez de Céspedes, B. (2020). Beyond the margins of academic education: Identifying translation industry training practices through action research. *The International Journal of Translation and Interpreting Research*, *12*(1), 115–126. https://doi.org/10.12807/ti.112201.2020.a07

Rodríguez-Castro, M. (2018). An integrated curricular design for computer-assisted translation tools: Developing technical expertise. *The Interpreter and Translator Trainer*, *12*(4), 355–374. https://doi.org/10.1080/1750399x.2018.1502007

Rossi, C., & Chevrot, J. (2019). Uses and perceptions of machine translation at the European Commission. *Journal of Specialised Translation*, *31*, 177–200. https://doi.org/10.26034/cm.jostrans.2019.182

Rothwell, A., Moorkens, J., Fernández-Parra, M., Drugan, J., & Austermuehl, F. (2023). *Translation tools and technologies*. Routledge. https://doi.org/10.4324/9781003160793

Samman, H. M. (2022). *Evaluating machine translation post-editing training in undergraduate translation programs: An exploratory study in Saudi Arabia* [Doctoral thesis]. University of Southampton. https://eprints.soton.ac.uk/469163/

Sánchez-Castany, R. (2022). Teaching translation technologies: An analysis of a corpus of syllabi for translation and interpreting undergraduate degrees in Spain. In G. Massey, E. Huertas-Barros & D. Katan (Eds.), *The human translator in the 2020s* (pp. 27–43). Routledge. https://doi.org/10.4324/9781003223344-3

Sánchez-Castany, R. (2025). The challenges of teaching translation technologies in the AI era. *Cadernos de Tradução*, *45*, 1–23. https://doi.org/10.5007/2175-7968.2025.e105121

Sánchez Ramos, M. D. M. (2021). Integrating collaborative localization into professional translator training. *The International Journal of Translation and Interpreting Research*, *13*(1), 38–50. https://doi.org/10.12807/ti.113201.2021.a03

Sánchez Ramos, M. D. M. (2022). Public service interpreting and translation training: A path towards digital adaptation to machine translation and post-editing. *The Interpreter and Translator Trainer*, *16*(3), 294–308. https://doi.org/10.1080/1750399x.2022.2092829

Shewchuk, S., Wallace, J., & Seibold, M. (2023). Evaluations of training programs to improve capacity in K*: A systematic scoping review of methods applied and outcomes assessed. *Humanities and Social Sciences Communications*, *10*(1), 1–14. https://doi.org/10.1057/s41599-023-02403-5

Steele, L. M., Mulhearn, T. J., Medeiros, K. E., Watts, L. L., Connelly, S., & Mumford, M. D. (2016). How do we know what works? A review and critique of current practices in ethics training evaluation. *Accountability in Research*, *23*(6), 319–350. https://doi.org/10.1080/08989621.2016.1186547

Su, W., & Li, D. (2023). The effectiveness of translation technology training: A mixed methods study. *Humanities and Social Sciences Communications*, *10*, 1–12. https://doi.org/10.1057/s41599-023-02066-2

Taghizadeh, M., & Azizi, M. (2017). Exploring computer-aided translation competences of some Iranian translators. *International Journal of English Language and Translation Studies*, *5*(1), 78–87.

Venkatesan, H. (2023). Technology preparedness and translator training: Implications for curricula. *Babel*, *69*(5), 666–703. https://doi.org/10.1075/babel.00335.ven

Vitalaru, B. (2024). Public Service interpreting and translation and employment in Spain. *Hikma*, *23*(1), 253–288. https://doi.org/10.21071/hikma.v23i1.16136

Wang, P., & Sawyer, D. B. (2023). *Machine learning in translation*. Routledge. https://doi.org/10.4324/9781003321538

Yan, D., & Wang, J. (2022). Teaching data science to undergraduate translation trainees: Pilot evaluation of a task-based course. *Frontiers in Psychology*, *13*, 1–18. https://doi.org/10.3389/fpsyg.2022.939689

## Appendix – The questions for the qualitative phase

1. How would you describe your overall satisfaction with the training? Why?
2. To what degree do you believe the training was engaging? Why?
3. How do you perceive the relevance of the course to your job?
4. What new knowledge and skills have you learned from this course?
5. How well do you remember what you have learned from this course?
6. Did the training affect your interest in the course topic? If so, how?
7. How well do you use the newly acquired knowledge and skills in your job?
8. What benefits, if any, does this course offer to you? (e.g., enhanced translation speed, increased quality, improved productivity, increased personal confidence, increased customer satisfaction, stronger relationships with your clients, etc.)

## Editorial notes

## Authorship contribution

**Conceptualization:** A. Akhlaghi Ilkhchi, R. Monsefi, R. Yalsharzeh
**Data collection:** A. Akhlaghi Ilkhchi, R. Monsefi, R. Yalsharzeh, M. Taghavi
**Data analysis:** A. Akhlaghi Ilkhchi, R. Monsefi
**Results and discussion:** A. Akhlaghi Ilkhchi, R. Monsefi, M. Taghavi
**Writing – review and editing:** A. Akhlaghi Ilkhchi, R. Monsefi, R. Yalsharzeh, M. Taghavi

## Research dataset
Not applicable.


## Funding
Not applicable.


## Image copyright
Not applicable.

## Approval by ethics committee
Ethical approval for this study was obtained from the Research Ethics Committee of Azarbaijan Shahid Madani University under approval ID IR.AZARUNIV.REC.1404.027.

## Conflicts of interest
Not applicable.

## Data availability statement
The data from this research, which are not included in this work, may be made available by the author upon request.




## Publisher
*Cadernos de Tradução* is a publication of the Graduate Program in Translation Studies at the Federal University of Santa Catarina. The journal *Cadernos de Tradução* is hosted by the Portal de Periódicos UFSC. The ideas expressed in this paper are the responsibility of its authors and do not necessarily represent the views of the editors or the university.

## Section editors
Andréia Guerini – Willian Moura

## Style editors
Alice S. Rezende – Ingrid Bignardi – João G. P. Silveira – Kamila Oliveira

## Article history
Received: 11-03-2025
Approved: 18-09-2025
Revised: 21-09-2025
Published: 11-2025