Technology for Public Service Translators and Interpreters in Spain: Enhancing Employability Through Training

Tecnología para traductores e intérpretes en los servicios públicos en España: fomentar la empleabilidad mediante la formación

Technologie pour les traducteurs et interprètes du service public en Espagne : améliorer l'employabilité par la formation

Tecnologia para tradutores e intérpretes do serviço público na Espanha: melhorar a empregabilidade por meio da formação

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Abstract

Despite rapid technological advances and how they affect public service interpreting and translation (PSIT), as a subfield of translation and interpretation, very few studies focus on how technological competence affects or facilitates employability in PSIT. This descriptive study carried out among graduates of the University of Alcalá's PSIT programme intends to fill that gap by examining the usefulness of its technology-related training. This descriptive case study sought (1) to establish which technological tools graduates had to use in their jobs and the technological requirements in the labour market for PSIT; (2) to establish potential differences between the T&I and the PSIT sectors regarding technological requirements or needs; and (3) to assess how useful the training received was. Findings show similarities in the use of sources and tools in both T&I and PSIT, but also differences in information mining sources, highlighting varied needs. Moreover, although computer-assisted-translation tools and machine translation are widely demanded nowadays, their use by graduates was shown to be lower than expected. This study gives critical insights for researchers, trainers, and programme designers to ensure that their syllabi encompass comprehensive content tailored to both in-house and freelance translators to increase their employability.

Keywords: translation tools, technological competence, public service interpreting and translation, translation and interpreting, employability

Resumen

Pese a los acelerados avances tecnológicos y su impacto en la traducción y la interpretación en los servicios públicos (TISP), como una subdisciplina del campo de la traducción y la interpretación, son escasos los estudios que tratan los efectos positivos o negativos de la competencia tecnológica sobre la empleabilidad en este campo. Este estudio de caso descriptivo centrado en egresados del programa de

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PSIT de la Universidad de Alcalá busca llenar ese vacío mediante un análisis de la utilidad de la formación en tecnología. El estudio buscó 1) determinar qué herramientas tecnológicas debían usar los egresados en sus empleos y los requerimientos tecnológicos del mercado laboral de la TISP; 2) establecer las posibles diferencias entre los sectores de la traducción y la interpretación y la TISP en relación con los requerimientos o necesidades tecnológicos; y 3) evaluar la utilidad de la formación recibida. Los resultados mostraron semejanzas en el uso de fuentes y herramientas en T&I y en TISP, pero también diferencias en fuentes de minería de datos, lo que pone de relieve las diversas necesidades. Más aún, aunque las herramientas de traducción asistida por computador y la traducción automática tienen amplia demanda actualmente, se observó una utilización entre los egresados menor de lo esperado. Este estudio ofrece conclusiones de gran importancia para investigadores, formadores y diseñadores curriculares para garantizar que sus programas académicos cubran un contenido integral que responda a las necesidades de traductores internos y autónomos para fomentar su empleabilidad.

Palabras clave: herramientas de traducción, competencia tecnológica, traducción e interpretación en servicios públicos, traducción e interpretación, empleabilidad

Résumé

Malgré les avancées technologiques accélérées et leur impact sur la traduction et l'interprétation dans le service public (TISP) en tant que sous-discipline du domaine de la traduction et l'interprétation, peu d'études adressent les effets positifs ou négatifs de la compétence technologique sur l'employabilité dans ce domaine. Cette étude de cas descriptive menée auprès des diplômés du programme TISP de l'université d'Alcalá vise à combler cette lacune en analysant l'utilité de la formation technologique. L'étude visait à 1) déterminer les outils technologiques que les diplômés devraient utiliser dans leur travail et les exigences technologiques du marché du travail des TISP ; 2) établir les différences éventuelles entre les secteurs de la traduction et l'interprétation et de PSIT en ce qui concerne les exigences ou les besoins technologiques ; et 3) évaluer l'utilité de la formation reçue. Les résultats ont montré des similitudes dans l'utilisation des sources et des outils en T&I et TISP, mais aussi des différences dans les sources d'extraction de données, soulignant les besoins différents. En outre, bien que les outils de traduction assistée par ordinateur et la traduction automatique soient actuellement très demandés, leur utilisation par les diplômés s'est avérée plus faible que prévu. Cette étude donne des indications essentiels aux chercheurs, formateurs et concepteurs de programmes pour qu'ils garantissent que leurs programmes d'études comprennent un contenu complet adapté aux traducteurs internes et indépendants afin d'améliorer leur capacité d'insertion professionnelle.

Mots clef : outils de traduction, compétence technologique, traduction et interprétation chez le service publique, traduction et interprétation, employabilité

Resumo

A despeito dos rápidos avanços tecnológicos e de seu impacto na tradução e a interpretação de serviço público (TISP) como uma subdisciplina do campo da tradução e interpretação, há poucos estudos que abordam os efeitos positivos ou negativos da competência tecnológica sobre a empregabilidade nesse campo. Este estudo de caso descritivo realizado entre os formandos do programa de TISP da Universidade de Alcalá busca preencher essa lacuna analisando a utilidade do treinamento em tecnologia. O estudo procurou 1) determinar quais ferramentas tecnológicas os graduados deveriam usar em seus empregos e os requisitos tecnológicos do mercado de trabalho de TISP;

2) estabelecer possíveis diferenças entre os setores de tradução e interpretação e de TISP em relação aos requisitos ou necessidades tecnológicas; e 3) avaliar a utilidade do treinamento recebido. Os resultados mostraram semelhanças no uso de fontes e ferramentas em tradução e interpretação e TISP, mas também diferenças nas fontes de mineração de dados, destacando as diferentes necessidades. Além disso, embora as ferramentas de tradução assistida por computador e a tradução automática estejam atualmente em alta demanda, seu uso entre os graduados foi menor do que o esperado Este estudo fornece *insights* essenciais para que pesquisadores, instrutores e criadores de programas garantam que seus programas de estudo incluam conteúdo abrangente adaptado a tradutores internos e autônomos para aumentar sua empregabilidade.

Palavras chave: ferramentas de tradução, competência tecnológica, interpretação e tradução no serviço público, tradução e interpretação, empregabilidade

Introduction

Public Services Interpreting and Translating (PSIT) is a discipline within the wider translation and interpreting (T&I) area that takes place in the context of public services, helping users who do not speak the main language of the country where the service is taking place. It differs from other T&I fields in its strong social focus, thereby requiring specific skills.

Over the last decade, technological advances, especially concerning translation productivity, social media, and artificial intelligence (AI), have brought many changes in professional and social settings in the field of T&I. Therefore, although T&I studies and PSIT (as its specialised subarea) have traditionally received less technological training in university curricula (Kerremans et al., 2019), their work methodology has also been affected by digitalisation and new technologies.

Several studies support the need for integrating technological advances to this field. For example, Sánchez Ramos (2017) and Vigier Moreno and Sánchez Ramos, (2017) show the benefits of corpus analysis tools for translation and interpreting training. Other studies approach current practices and perceptions regarding technology use. Thus, Kerremans et al. (2019) show the relationship between PSIT interpreters and translators' prior training and the frequency of use of a variety of technological tools in their professional practice, while Zaretskaya (2017) analyses professional translators' needs regarding translation technologies and ways to improve them. Also, Vercher García (2021) gathers information about the degree of knowledge, acceptance, and application of machine translation (MT), from different corners (translation agencies, professional translators, and clients).

On the other hand, studies such as Álvarez-Álvarez and Arnáiz-Uzquiza (2017), Galán-Mañas (2017), and Muñoz-Miquel et al. (2020) underline the need for universities to adapt their curriculum to include more specific employability skills, as well as adding training in entrepreneurship. Developing or shaping translation students' technological competence and offering them the opportunity to be proficient with translation technology is an effective strategy to increase their employability, since, as ELIS (2022, 2023) reports show, language service companies state graduates' technological competence needs improvement.

To address the relationship between the technological skills needed to enhance employability, it is essential to assess the T&I labour market's reality, that is, the types of jobs offered, the training required, and the competences most valued by employers of different settings. In fact, for González Pastor (2023), mapping the professional translation market is essential to design pedagogical proposals that keep up with the T&I socio-professional reality.

In this line, several studies focused on master's degree level training and employment (Krause, 2017; Valero-Garcés & Gambier, 2014; Valero-Garcés & Toudic, 2014; Valero-Garcés, 2017; Vitalaru, 2022a, 2022b) give T&I professionals hints about the needs of their potential employers, and help programme organisers and trainee translators plan their training objectives. Specifically, three European surveys designed within the following projects shed light on the relationship between training (including technological skills) and employability, by identifying labour market needs, competences in demand, and highlighting the importance of cooperation between language service providers and higher education institutions. The Optimale project (2011-2013) survey designed by the Directorate-General for Education and Culture, the (2015-2016) survey on 'Employment and the future of the profession', created by the European Commission Directorate-General of Translation (DGT) and the European Master's in Translation (EMT), and European Union of Associations of Translation Companies (EUATC/ ELIS) survey

(2016)[1] show job opportunities for translators. They underscore the fact that Computer Assisted Translation (CAT) tools and MT skills increase job opportunities. Additionally, they suggest that adapting training by integrating flexible multidisciplinary approaches is essential to enhance graduates' employability (Valero-Garcés, 2018; Valero-Garcés and Cedillo Corrochano, 2018).

This study attempts to assess the usefulness of technology-related training in a master's level programme that trains in the PSIT fields of intercultural communication in general, healthcare, legal, and administrative settings (including international protection settings) in Spain since 2006. The Master's Degree in Intercultural Communication, Public Service Interpreting and Translation at Universidad de Alcalá, (Madrid, Spain) is one of the oldest and one of the few MA programmes specialised in public services and intercultural communication in the EU in several language pairs: Arabic/Chinese/English/French/Polish/and Romanian/Russian–Spanish. The programme's quality and its compliance with national and European academic standards have been endorsed by the National Agency for Quality Assessment and Accreditation (ANECA), and the membership to the Master's in Translation (EMT) network in 2009, 2014, 2019, and 2024. EMT membership provides a quality label for translation master's programmes that meet specific standards regarding "agreed professional standards and market demands" (EMT, 2024) and the development of specific competences.

This article is part of a project[2] carried out by the Quality Committee of this PSIT programme at Universidad de Alcalá to determine the employability of its graduates. It had three objectives. First, to determine the technology used by PSIT graduates in their jobs and current needs regarding the technological requirements of what we consider to be the PSIT labour market, that is, T&I or mediation in education, health, and administrative or legal settings. Second, to identify any potential gaps between the T&I training and jobs in the PSIT sector. Third, to measure how useful the training received was in terms of information mining sources and technological resources.

The study will help organisers of this and similar programmes to identify the potential usefulness of sources and tools currently taught and weigh modifications to adapt the programme to the current market needs. It will ultimately result in improving PSIT training in general, considering that the integration of practical adapted knowledge and efficient use of the different tools available can enhance employability skills for PSIT.

To achieve these objectives, graduates of the 2014–2020 PSIT programme cohorts were sent a questionnaire. Specific research questions were used to guide the design, the analysis, and the conclusions (see Table 3, in Instrument section).

Technological Competence and the PSIT Programme

Technological competence can only be defined in relation to translation competence, which we understand as a broader term that can include both translation and interpreting activities. It is considered a particular type of expert knowledge that requires declarative and, predominantly, procedural knowledge (Hurtado Albir, 2015); thus, it is encompassed by instrumental competence and it is related to problem-solving (PACTE, 2018).

Defining translation competence has been, in fact, one of the main tasks undertaken by the EMT network, which is a partnership project between the Directorate-General for Translation of the European

1 For an overview of these surveys' objectives, see Vitalaru (2022b). For details, see Valero-Garcés and Gambier, 2014; Valero-Garcés and Toudic, 2014; Krause, 2017; Valero-Garcés and Cedillo Corrochano, 2018; Valero-Garcés, 2018; ELIS, 2022, 2023, 2024.

2 The project is called "Labour market insertion, internships, and competence development for translation and interpreting students".

Commission and several universities from a wide range of European countries. The main competences that EMT promotes are language and culture, service provision, technology, translation, and personal and interpersonal competence, although the parameters and aspects established in each have been redefined or shaped in the EMT Competence Framework in 2017 and 2022 (EMT, 2022).

Thus, the technological competence in the EMT Framework refers to all the knowledge and skills used to implement present and future translation technologies within the translation process (i.e., search engines, corpus-based tools, text analysis tools, CAT tools, MT, and quality assurance tools). The latest version includes basic knowledge of MT technologies and the ability to implement MT according to potential needs (EMT, 2022) and revolves around ideas such as working under pressure, information mining, or understanding the potential and restrictions of MT use.

Since the EMT Competence Framework (2022) is used as the point of reference for postgraduate programmes wishing to enter the EMT network, its specific parameters for technological competence as well as the reference to tools management or research skills mentioned as part of the translation competence will be used to identify the translation and technological aspects considered key for translators in the PSIT programme (see next section).

Ultimately, the implication of this competence framework for the programmes that belong to the EMT network is that programmes that train future translators must adapt and update their teaching approaches to reflect these competences, which are none other than the job market needs.

The programme is structured in five modules (which encompass nine compulsory subjects). It focuses on a different work setting and combining in-classroom T&I theory and practice, an internship in institutions and companies, and a Master's Thesis based on empirical research (Table 1). Three of the subjects are common to all language pairs, while six are taught by language pairs:

Table 1 Structure of the Programme

Modules	Subjects	ECTS	Main Focus/Topics
1.Intercultural communication and PSIT techniques and tools	1. Interlinguistic communication. 2. Institutional communication with foreign population. 3. Techniques and resources in PSIT.	18 ECTS	Overview of interlinguistic and intercultural communication. PSIT research and translation tools.
2. T&I in healthcare settings	4. Translation 5. Interpreting	10 ECTS	Focus mainly on developing translation or interpreting competences in specific fields by language pair.
3. T&I in legal and administrative settings	6. Translation 7. Interpreting	14 ECTS	
4. Internship	8. Internship	6 ECTS	In one of the institutions (healthcare or legal), NGOs, associations, cultural centres, T&I companies or other centres that the university has signed an agreement with. 150 working hours.
5. Master's Thesis	9. Master's Thesis.	12 ECTS	Writing an 80-100-page research paper. It can only be completed after passing the rest of the subjects.

Note: ECT: European Credit Transfer and Accumulation System. 1 ECT refers to approximately 25 hours workload.
Source: Vitalaru (2024).

The most significant subjects in terms of developing or shaping technological skills are:

1. Techniques and Resources in PSIT, taught as common-core content for one week in October (i.e., 150 hours, of which 30 are interactive workshops and 120 are students' working hours and other tasks). This subject is taught before T&I subjects and focuses on terminology, information mining sources, research principles, and translation tools.
2. the two translation subjects taught by language pairs in November and January (each of 5 ECTS, i.e., 125 hours, of which 44 are onsite classes and 81 are students' working hours and other tasks).
3. 150-hour internships, carried out in more than 250 companies and institutions between March and July/September.

Additionally, Table 2 shows how the parameters or aspects indicated by the EMT Framework (2022) have been included in the PSIT programme.

Extracurricular activities (non-compulsory 2h-/4h-/8h-seminars and workshops taught mainly by industry partners) are also promoted amongst the PSIT programme's students throughout the year. Their main objective is to complement compulsory training and improve students' employability skills and chances to meet market needs, as reported by both trainers and students. Some examples of the topics of the workshops/seminars taught for several years are website translation, Microsoft Office software for translators, telephone or remote interpreting, preparing translators and interpreters to work as freelance, practice with publishing software InDesign, practice with Trados, among others (Master's in PSIT, 2024).

Understanding and Updating Technological Competence

Several studies have inquired into technological competence in the T&I labour market. Valero-Garcés and Gambier (2014) and Valero-Garcés and Toudic (2014), based on data obtained from the Optimale project, highlighted the gap between the need for knowing how to use standard CAT tools or competences related to MT and the T&I industry technological savvy, such as MT systems and post-editing. These studies also found that language service providers were exploring other T&I technologies associated with computing, such as webpages, mobile telephones, or localisation.

Additionally, Krause (2017) compiled, based on data from a study by EU DGT and the EMT Network, the competences sought in most participants' jobs who were graduates from EMT Network programmes. Those skills were related to technology skills and tasks.

This concern is in line with the annual survey conducted by the European Language Industry to offer a broader view of the translation market, gathering information from several groups: language service companies, independent language professionals, training institutions and students, language departments, and language service buyers (see ELIS, 2024). In an analysis of its 2018 results regarding the implications for the profession and the training involved, Valero-Garcés and Cedillo Corrochano (2018) stated that some clear trends emerged from this survey: the increasing importance of MT and the still-dominant role of technology as well as the tendency to outsource linguistics and non-linguistics tasks.

As the ELIS reports have shown since then, MT implementation has stood as a main industry trend followed by other technological concerns. More specifically, MT implementation dominates the trend list in the 2023 ELIS report and is considered both as a positive trend (by approx. 60% of respondents) and a negative trend (by about 45% of respondents) by language service companies, while AI is mainly considered a challenge (ELIS, 2023). Most recently, the 2024 report showed an ongoing and significant growth in the use and implementation of technology. In fact, as per the 2024 ELIS survey, language technologies

Table 2 EMT Parameters in the PSIT Programme

Skills as phrased in the EMT Competence Framework	Subject in the PSIT Programme	Specific Training & Software
Competence 1: Technology Competence (EMT 2022) Tools and Applications		
Use the most relevant IT applications [..] and adapt rapidly to new tools and IT resources [. . .]. Make effective use of search engines, corpus-based tools, text analysis tools, computer-assisted translation (CAT) and quality assurance (QA) tools where appropriate. Pre-process, process and manage files and other media/sources as part of the translation workflow, e.g., web and multimedia files.	Introduction and practice: Techniques and Resources in PSIT. Practice and reflection: Translation in healthcare settings. Translation in legal-administrative settings. Internships.	-Training on effective searches and information mining techniques. -Training on file formats and pre-processing techniques. -Corpus analysis tools: Practice with AntConc & Sketch Engine. - CAT Tools: Overview and characteristics of TM, available software, formats, text aligners, etc. -Practice with Wordfast Anywhere & Trados (the latter as an additional workshop). -QA: in the translation environments learned.
Understand the basics of MT systems and their impact on the translation process, and integrate MT into a translation workflow where appropriate. [. . .]	Introduction and practice: Techniques and Resources in PSIT. Practice and reflection: Translation in healthcare settings. Translation in legal-administrative settings.	-Training in MT features, measuring the quality of translation and techniques, and post/editing. -Practice with MateCat.
Apply other tools in support of language and translation technology, such as workflow management tools.	Translation in healthcare settings. Translation in legal-administrative settings. -Internships.	-Text analysis within the translation environments learned. -Overview and analysis of information & research tools available (especially for thematic, terminological purposes) by settings and language pairs. -Term banks and terminology sheets. -Glossary creation with different tools. -Workflow management tools.
Competence 2: Translation competence (EMT 2022, p. 8)		
Acquire, develop, and use thematic and domain-specific knowledge relevant to translation needs [. . .] terminology and phraseology, specialised sources, etc.); Translate different types of material on and for different kinds of media, using appropriate tools and techniques; And apply post-editing to MT output using the appropriate post-editing levels and techniques [. . .].	Translation in healthcare settings. Translation in legal-administrative settings. Internships.	-Specific training on the variety and potential of research sources by field. -Creation and use of databases and terminological sources. -Text analysis activities. -Practice with activities designed as commissioned translations and that specifically require students to apply previous knowledge (use TM, QA, glossaries), and draft reports reflecting on several aspects through group projects. -Class activities. -Class discussions and presentation of projects.

were implemented in more than 70% of the language companies participating in the survey and CAT tools and translation management systems were being intensively used (84% and 77%, respectively). Also, MT and terminology management showed increasing use percentages (40% and 54%, respectively), compared with the 2023 report (31% and 44%, respectively). Finally, Artificial Intelligence (AI) overshadowed MT and the rest of the trends identified in previous reports (ELIS, 2024).

In tandem with this, language service providers suggested the need for more specific training for translators and interpreters. In Spain, Rico and García (2016) underlined the need for technology-qualified and specialised professionals, as early as 2015. This perception was prevailing in 2022 at the European level, with that year's ELIS report showing that 67% of the language service companies indicated the need to improve translation technology skills (ELIS, 2022).

These studies show that technological competence demand has been consistent in the translation sector, as shown by different actors. Thus, it should also be addressed in training programmes as an important requirement for their students' adaptability, effectiveness, productivity, and ultimately, employability.

Method

We carried out a descriptive study among graduates of the 2014–2020 cohorts of the University of Alcalá's PSIT programme through an online questionnaire designed by its Quality Committee using the institutional survey tool in Microsoft 365 forms. It was emailed to graduates, in July 2021, after receiving the mandatory approval from Universidad de Alcalá's Ethics Committee.

It aimed to gather more information that would allow us to survey current training needs, potential jobs in the fields of translation and interpretating, terminological assignments, mediation and intercultural communication, teaching, and linguistic advising, managing, and reviewing.

Instrument

The questionnaire used to collect data included 19 close-ended questions and 3 open-ended questions, organised in two parts: the first part focused on gathering academic and employment-related information, while the second one gathered data regarding their use of technology and its usefulness for the labour market. For the sake of this study, we have included the questions listed in Table 3 as these answer the two research questions stated. Six multiple-choice questions and one open-ended question inquired about technology-related aspects, covering the types of sources and tools participants used in their jobs and the frequency with which they used them.

In our study, we referred to participants who found jobs as 'workers' since they had completed their studies and provided information regarding their previous experience related to either PSIT or T&I jobs.

Participants

We obtained answers from 200 graduates distributed by academic cohorts, as follows: 17% (2014–2015), 9% (2015–2016), 19% (2016–2017), 23% (2017–2018), 13% (2018–2019), and 21% (2019–2020). Most of the respondents (60%) worked in the English–Spanish language pair, followed by the Russian–Spanish (14%), the Arabic–Spanish (13%), the French–Spanish (11%), and the Chinese–Spanish (2 %) language pairs.

Regarding their professional field, the participants had worked in a wide range of fields since their graduation. Some of them had had several jobs in different fields of the options given, with the most common field being PSIT (34%) either as translators, interpreters, or mediators in healthcare, educational, administrative, legal, or social services settings. Translating and interpreting in fields other than PSIT (technical, financial, commercial, international relations, and other settings) also stood out with 30%.

Table 3 Questionnaire Items Related to Our Research Questions

Questionnaire Items	Research Questions (RQ)
Q.12d Are there any information mining sources or translation tools that you frequently use/that you consider useful but were not taught in the master's degree? Q.13 What kind of sources and tools do you use in your job and how often using the scale below? [Likert scale with five options (Never, Hardly ever, A few times a week, Several times a week, Always) for each of the following items: dictionaries and glossaries, other terminological sources, corpora & parallel texts, corpus analysis tools, specialised monolingual websites, other tools and sources, CAT tools, and MT]. Q.14 Which CAT tools do you usually use? [a) Wordfast b) Wordfast anywhere c) Trados d) Deja Vu e) MemoQ f) OmegaT g) ForeignDesk h) Multiterm i) Others (please specify)] Q.15 What information mining sources do you usually use? [Open-ended] Q.16 What type of information mining sources do you use from the following list? [a) on paper b) online c) on CD d) my own ad hoc glossaries compiled manually e) glossaries compiled using translation memories f) glossaries compiled with corpus management tools g) glossaries of EU and related institutions h) institutional glossaries i) Others (please specify)] Q. 17 Do you use MT? [Yes; Yes, sometimes; No]	1. What types of mining sources and translation tools do PSIT/T&I workers usually use?
Q.11 Was what you learned in the Master's degree in relation to the information mining sources and translation tools you learned useful for that job? [Yes, No, More or less]. Q.12 Which of the information mining sources and translation tools from the ones learned in the Master's degree were useful for your job? [a) dictionaries and glossaries b) other terminological resources (thesauri, terminology banks, and databases) c) corpora and parallel documents d) corpus analysis tools (e.g., AntConc or Sketch Engine) e) computer-assisted translation tools (CAT tools) f) specialised monolingual websites g) MT h) other (please specify)] Q.20 Was the content on information mining sources and translation tools of the master's syllabus adapted to PSIT job market needs? [Yes, No, More or less].	2. Are the sources and tools learned in the PSIT programme useful for the labour market?

Notably, language teaching yielded 45%, being the main field informed by the participants who had had several jobs since graduation. Other jobs, not related to T&I, were healthcare services, international aid, and tourism (11% each), marketing & advertising (12%), law (4%), transport & logistics, and press & media (2% each). Finally, 32% of the participants had also worked in other sectors. Interestingly, from the group of graduates who had not found a PSIT or a T&I job, at some point, 23% had worked in some PSIT-related occupation and 17% had had some commission related to T&I.

As for their employment situation, 47% reported working full-time; 17% were working part-time; 13% were both studying and working; 9% were studying; 6% were looking for a job; and 8% did not work or were unemployed.

Results

In this section we established a comparison between PSIT and T&I (fields other than PSIT) to identify potential specific circumstances that can be considered in our needs analysis.

Usefulness of the Training Received

Two questions intended to gauge the usefulness of the tools learned in the PSIT programme overall (see Table 2) and the types of sources and translation tools that participants found useful in the labour market.

Salient Aspects of Training Received

Regarding training, graduates were asked whether the training received in the programme had allowed them to get a job in the sector they sought (PSIT or T&I) (Q. 10). Results show that the training received had been useful for 74% of the participants. It allowed 32% of the participants to achieve jobs in the PSIT or T&I sector while for 42% the training had been 'relatively' useful. It had not been useful at all for 8%, and for 18% the question did not apply.

In the open-ended question (*If yes, how?),* the aspects mentioned by the participants as significant during the training period within the PSIT programme were internships in companies and institutions, CAT tools, terminology banks and databases, the language level acquired, and the tools and techniques which contributed to improving their T&I skills in general. They also highlighted the importance that companies, agencies, and NGOs gave to university training and the fact that they had been able to learn about the existence of T&I associations and platforms. On the other hand, 18% of the participants underlined the fact that the specific training in PSIT was not always applicable to other fields of T&I, such as financial or more technical settings.

Usefulness of Tools and Sources for Jobs

Regarding the usefulness of the information mining and translation tools learned (Q.11), 70% of the PSIT and T&I workers who participated in the study had been able to apply the knowledge they had learned in the PSIT programme and 13% found their past studies relatively useful for their jobs; 17% found no direct applicability. On the other hand, 61% of the participants who had held jobs in fields other than T&I or PSIT also found the content useful for their jobs.

Moreover, Q.20 sought the participants' opinions regarding the PSIT programme's syllabus on information mining sources and translation tools adapted to the needs of the PSIT job market. 89% of the participants claimed that the content of the programme had met those needs either fully (30%) or relatively (59%).

Types of Tools and Sources Found Useful for the Labour Market

Considering the types of tools and sources that graduates found useful in the labour market, in line with those learned in the PSIT programme listed for Q.12 (Table 4), results were similar for both groups with very few variations. Both groups used all the typology indicated and, in both cases,

dictionaries and glossaries obtained higher percentages than the rest, indicating that they were mostly used by both groups.

Additionally, while PSIT workers obtained higher percentages for specialised monolingual websites (54% vs. 41%), more T&I workers used CAT tools than PSIT workers (59% vs. 46%). Moreover, more PSIT workers used MT (42% vs. 35%) while more T&I workers used corpora and parallel texts, although the latter with basic use, not reaching a quarter of the workers in each group. None of the participants found corpus analysis tools such as AntConc or Sketch Engine useful for the job they had had.

Moreover, the participants provided information (Open-ended Q.12d) regarding the tools and sources they had worked with, and they considered necessary for the PSIT programme: SDL Trados, additional CAT tools apart from Wordfast Anywhere (already taught in the programme), UNTERM, XBench, OmegaT, Memsource, more terminology banks and databases, TM, and practice with videoconference platforms such as Zoom, Google Meet, and Microsoft Teams. They also mentioned a textbook for interpreters and mediators and a course on how to start working as a freelance translator.

Information Mining Sources

To gather even more specific information, graduates were also asked about the frequency of their use of information mining tools and translation tools (Q.13) considering several items. The first item considered were dictionaries and glossaries. Most of the PSIT workers (74%) and of the T&I workers (82%) used them frequently (either on a regular basis or a few times a week). Conversely, the percentage of workers who stated that they never used them is low (9% and 18%) (Table 5).

Table 4 Tools and Sources

Tools and Sources	PSIT Workers	T&I Workers
Dictionaries & glossaries	71%	71%
Specialised monolingual websites	54%	41%
CAT tools	46%	59%
MT	42%	35%
Other terminological sources	38%	47%
Corpora & parallel documents	17%	29%
Other sources	13%	12%

The type of dictionaries and glossaries used by the participants (Q.16) depended on their field of work. On the one hand, PSIT workers preferred online dictionaries and glossaries (100%), their ad hoc glossaries (60%), printed dictionaries and glossaries provided by the EU or related institutions (33%), provided by institutions (20%), created with translation memories (27%) and other non-specified types (7%). On the other hand, T&I workers used online dictionaries and glossaries (100%), glossaries from institutions (57%), ad hoc (64%), from the EU or related institutions or ad hoc glossaries (57%), those created with TM (40%), and printed dictionaries and glossaries (21%).

Generally, we observed that the percentage regarding the use of glossaries from institutions, as well as those provided by the EU and created with TM, are higher for the T&I workers (by 37%, 24%, and 16%). The percentage of ad hoc glossaries is also higher for the same group but only by 4%. Both groups used online lexical sources with the same percentage, and, in both cases, approximately a quarter of the participants used printed dictionaries.

Moreover, 52% of the PSIT workers and 65% of the T&I workers used other terminological sources such as thesauri and databases frequently, while 31% and 30% respectively either never or

Table 5 Use of Dictionaries and Glossaries

Dictionaries and Glossaries	PSIT Workers	T&I Workers
Never	9%	18%
Hardly ever	9%	0%
Sometime a week	9%	12%
Several times a week	17%	18%
Always	48%	53%

Table 6 Other Terminological Sources

Other Terminological Sources (Thesauri, Terminology Databases and General Databases)	PSIT Workers	T&I Workers
Never	22%	18%
Hardly ever	9%	12%
Sometime a week	26%	29%
Several times a week	13%	24%
Always	13%	12%
N/A	17%	5%

Table 7 Corpora and Parallel Texts

Corpora and Parallel Texts	PSIT Workers	T&I Workers
Never	30%	35%
Hardly ever	4%	12%
Some time a week	22%	12%
Several times a week	17%	12%
Always	9%	24%
N/A	18%	5%

Table 8 Specialised Monolingual Websites

Specialised Monolingual Websites	PSIT Workers	T&I Workers
Never	4%	23%
Hardly ever	9%	0%
Sometime a week	17%	18%
Several times a week	35%	35%
Always	22%	24%
N/A	13%	0%

Table 9 Corpus Analysis Tools

Corpus Analysis Tools (i.e. AntConc or Sketch Engine)	PSIT Workers	T&I Workers
Never	70%	71%
Hardly ever	9%	12%
Some time a week	0%	0%
Several times a week	0%	0%
Always	0%	0%
N/A	21%	11%

hardly ever used them, broken down as shown in Table 6.

Lesser used tools (with approximately half of the workers) were corpora & parallel texts, with workers in T&I jobs using them more frequently than the PSIT workers, as can be seen in Table 7.

As per the use of specialised monolingual websites, 74% and 77% of the PSIT and, respectively, of the T&I workers reported a frequent use, as can be seen in Table 8. This shows the importance of monolingual research by fields within the public services (education, health, administrative, and legal settings) and in other T&I fields especially in language combinations such as Spanish-Arabic/Chinese/Polish/Romanian/Russian, in which very few bilingual specialised dictionaries can be found and in which the training programme was taught.

When asked about their information mining sources (open-ended question Q.15), the first group mentioned NGOs and public agencies websites, monolingual dictionaries, and parallel texts, while the second group mentioned monolingual websites and explanatory videos, radio programmes in the foreign language, websites of the companies for which they translated, and documents sent by the company.

On the lowest side of the spectrum, corpus analysis tools are the least used tools. None of the PSIT workers or T&I workers reported having used them frequently. In fact, 79% of the PSIT workers and 83% of the T&I workers never or hardly ever used them (Table 9).

CAT Tools, MT, Other Tools, and Social Media

Other items included in the questionnaire were the frequency of use for CAT tools, MT, and social media for professional purposes (Q.13), examples from each category (Q. 14), and other tools that had not been taught in the programme (Q. 15).

Results show that 39% of the PSIT workers used CAT tools with some frequency, while 39% either

Table 10 CAT Tools

Computer-Assisted Translation (CAT) Tools	PSIT Workers	T&I Workers
Never	22%	35%
Hardly ever	17%	0%
Some time a week	9%	6%
Several times a week	9%	18%
Always	22%	29%
N/A	21%	12%

Table 11 CAT Tools and Terminology Management Tools

CAT and Terminology Management Tools	PSIT workers	T&I workers
Wordfast	13%	17%
Wordfast anywhere	50%	67%
Trados	36%	44%
Deja Vu	0%	0%
MemoQ	18%	33%
OmegaT	18%	44%
ForeignDesk	0%	0%
Multiterm	18%	22%
Other (please, specify)	27%	22%

never or hardly ever used them. Similarly, 53% of the T&I workers used them frequently, while 35% reported never using them (Table 10).

Moreover, from the list of options of CAT tools and terminology management tools in Table 11, results were similar for all the options, with higher percentages in the case of T&I workers. Participants used several of the tools listed. Wordfast Anywhere, which was a free public utility until 2022, is the CAT tool more frequently used by both groups (50% and 67%) followed by Trados, with lower percentages (36% and 44%). OmegaT, another free translation memory tool, was used more frequently by T&I workers (44%).

As far as MT, 48% of the PSIT workers used it frequently, while 34% never or hardly ever used it. On the other hand, none of the T&I workers used MT all the time, but 42% used it several times or some time a week. 47% never or hardly ever used it. DeepL, Google Translate, Microsoft Bing, and Reverso are the MT tools used by both PSIT and T&I workers.

Regarding the use of other tools not mentioned in the questionnaire and their frequency, gathered through the "other, please specify" option, only 4% of the PSIT workers reported permanent use, while the T&I workers indicated not using tools other than the ones mentioned. In the follow-up question (Q.15), PSIT workers mentioned Xbench, a Quality Assurance tool for translators, Linguee, a search engine that highlights results in bi-text format from parallel texts available online from a variety of sources, and Poedit, a shareware and cross-platform editor useful for language localisation.

On the other hand, almost all the participants used social networks for professional purposes (98%). The use of LinkedIn (92%) stands out, followed by Twitter (25%), Facebook (22%), Instagram (8%), and others (3%).

Discussion

Regarding RQ.1 (*What type of mining sources and translation tools do* PSIT */T&I workers usually use*?), we found that dictionaries and glossaries are the sources used by most of the participants followed by either specialised websites and CAT tools (PSIT workers) or CAT tools, and terminological sources (T&I workers) (as shown in the 'Types of Tools and Sources for the Labour Market' section). As for the frequency of use, we found similar results: dictionaries, and glossaries as well as specialised monolingual websites were more recurrent, and both groups stated they never used corpus analysis tools. Similarly, corpora & parallel documents and other unspecified resources were reportedly equally used by both PSIT and T&I workers. This suggests that some translated materials are provided by/available within both institutions and companies, which is essential to increase accessibility to information and homogenise translation solutions.

Moreover, social networks are used for professional purposes by both PSIT and T&I groups. To us, this indicates participants' awareness of the variety of available technology that can facilitate labour market insertion as well as of the social networks' effectiveness for professional purposes.

However, PSIT and T&I jobs exhibit some differences in their use of information mining sources and translation tools. An important difference is the types of information mining sources privileged, not necessarily related to the typology already mentioned, but revealed in the open-ended questions. While PSIT workers resort more to monolingual and comparative research focused on understanding contexts, NGOs and institutions' websites, monolingual dictionaries, and parallel texts, T&I workers turn to monolingual websites and explanatory videos, radio programmes in the foreign language, websites of the companies for which they translate, and documents sent by the company.

More T&I workers tend to use glossaries from institutions, provided by the EU, and/or created with translation memories. Moreover, when comparing the reported continuous use of CAT tools, we observe that the percentage of use is higher among T&I workers than among PSIT workers. Interestingly, the fact that approximately a third of each group reported either never or hardly ever using them suggests that, despite the technological advances and their necessary use in the translator's daily work, in some sectors of the PSIT and even of the T&I industry, they are not as required or frequent as we initially thought. Numerous studies point to possible reasons for the reduced use of these tools: "financial constraints, the lack of time, and the lack of need" (Gough 2021, p. 201).

Furthermore, although both PSIT and T&I workers use Wordfast Anywhere, SDL Trados, OmegaT, MemoQ, Wordfast, and the terminology management tool Multiterm, use is higher among T&I workers, especially SDL Trados, OmegaT, and MemoQ. However, other translation tools that some participants from both groups believed should be specifically taught in the PSIT programme apart from the ones already taught (Table 2) were SDL Trados, UNTERM, XBench, OmegaT, and Memsource.

Thus, there seems to be a certain consensus across fields of expertise as to the CAT tools used. Heinisch & Iacono (2019) confirm the dominance of MemoQ and SDL Trados Studio as the two most used CAT tools among translation professionals. This is also in line with the ELIS report findings regarding language service companies, which show Trados/SDL/RWS as the preferred translation memory and translation management tool, followed by MemoQ, Phrase/Memsource, XTM, and Wordfast among other translation memories (ELIS, 2024).

Generally, CAT tools, MT, and corpus and parallel texts are used by fewer graduates than expected (reaching merely half of the participants in the case of CAT tools and even fewer workers in the case of MT), which suggests that they are not particularly necessary in all PSIT settings. Specifically, only about a third of the PSIT workers and roughly half of the T&I workers use CAT tools frequently. Low percentages seem in line with the results obtained by Kerremans et al. (2019). Their study also found that only a quarter of the respondents (PSIT professionals) claimed to use CAT tools and term base management systems. In fact, almost half of the respondents were not even aware of CAT tools. Conversely, in professional PSIT settings, Kerremans et al. found, MT, instant messaging, and videoconferencing tools are the most frequently used tools, although users who claimed to use these tools do not exceed 50% of the respondents.

Regarding the use of MT, our survey showed that DeepL, Google Translate, Microsoft Bing, and Reverso are mainly used by both PSIT and T&I workers. The latest ELIS Survey (2024) reported similar findings, showing DeepL and Google

Translate as the most frequently used tool by participants, followed by others such as E-translation, Embedded, and Microsoft translator.

On the other hand, only half of each group in our study use MT and it is used more frequently by PSIT workers than T&I workers, which could underline the lack of bilingual specialised information mining sources available for PSIT. Several other possibilities would be worth exploring in further studies. First, they do not trust its quality, do not believe it to be adequate for the contexts of their translations, or do not want to spend time post-editing when they lack thematic knowledge. Vercher García (2021) also indicates that one of the main reasons for the non-use of MT is the lack of confidence in the quality of the resulting text.

Something similar occurs in the literary translation sector, where the rejection of MT is due, in part, to the fact that it is considered an inflexible tool and "incompatible with the essence of literary translation", in addition to the fact that it "interferes with creativity and originality" (Ruffo, 2021 p. 221). Other authors such as Ruffo (2018, 2021) and Daems (2022) indicate the low presence of translation tools in the field of literary translation, even a total rejection of CAT and MT tools in some cases (Ruffo, 2018) since translators prefer to use corpora, terminology tools, and Internet searches (Ruffo, 2021).

Considering RQ.2 (*Are the sources and tools learned in the* PSIT *programme useful for the labour market?*), results show that the training received in the programme was useful for achieving jobs either in the PSIT or T&I sector for two-thirds of the participants. The aspects that were mentioned specifically and thus, were particularly useful, were the internships, language proficiency improvement, and the tools and techniques learned, which contributed to the development of specific T&I skills.

Thus, training seemed to have a positive impact on translators' attitudes toward technology. Generally, in line with other studies, adequate previous training/IT proficiency can be key not only for the confidence of the translator when using translation technologies (Ruffo, 2021) but also for the perception of benefits (Dillon & Fraser, 2006; Man et al., 2020) and positive interaction with technology (Bundgaard, 2017).

Another aspect that was highlighted was the collaboration with NGOs, associations, agencies, and companies that are representative of the current PSIT or T&I labour market. On the other hand, an aspect that was brought forward was that PSIT training was not entirely applicable to other fields of T&I and it required specific training. Other studies also show that different technologies are preferred by translators depending on the field of specialisation (Ruffo, 2018).

As for meeting the needs of the PSIT job market regarding information mining sources and translation tools, two aspects ought to be highlighted. First, most PSIT or T&I workers believed that the content of the programme's syllabus had met the needs of the PSIT job market. However, it is significant to observe the partial usefulness for more than half of the participants, which suggests that it could not fully cover all the varieties of fields involved. On the contrary, over half of the workers in fields other than T&I or PSIT also found the content applicable to their jobs, which ultimately implies the transferability of the skills developed.

Conclusions

Our study showed that studying the PSIT programme can result in finding a job in either the PSIT or T&I industry, as proved by the number of participants who found related jobs. Those who do not find T&I jobs work in the language industry either in teaching or tourism. At the same time, graduates end up working in a variety of T&I settings, confirming tendencies also observed by Vitalaru (2022a, 2022b).

Moreover, we identified tendencies regarding the types and frequency of a variety of sources and tools. Although the use of CAT tools and MT is significant, they are used less than expected perhaps

due to costs, lack of knowledge, inadequacy, lack of quality or time required or even insufficient training and motivation. Considering that data was gathered in 2021, data gathered in 2024 might show higher percentages in line with 2023 and 2024 ELIS survey results, which underline an important level of technology implementation in training institutions and the fact that MT plays an important role in the trend list (2023). Further research should be done to determine specific reasons and potential market changes since 2021.

Some limitations of the study are the number of participants from some language pairs and the fact that data have not been compared by language pairs and time dedication, which could show different tendencies. Ultimately, the findings and reflections of our study can be used to help organisers and trainers increase students' preparedness for the labour market, especially by making sure that they integrate both strategies and tools that can enhance employability skills for both PSIT and T&I workers regardless of the language pair in which the programme is taught.

Despite these limitations, our study also allowed us to obtain valuable information, contextualise our findings in the light of previous research and reflect on current and future challenges. In fact, looking at the data found in translation employability projects and ELIS reports (2023, 2024), we believe that the use of technological tools is bound to keep growing at a very fast pace and will become increasingly demanded in the industry. Translators will have to adapt to these shifts, which will naturally have an impact on translation skills and especially, on other skills brought forward by the technological era. Consequently, this will have effects on training needs too.

The effects of the increasing use of technology on translator and interpreter training entail several challenges. First, integrating effectively new tendencies in already existing training programmes is challenging if we consider both the pre-established training parameters within academic requirements and restrictions (ECTS and total number of hours, content and competences of the approved curriculum, trainers' profile in terms of academic and research merits endorsed by ANECA, etc.) and students' and trainers' satisfaction. Thus, there is a crucial need to rely on the experience of both active practitioners and university academic staff to practice with the variety of translation tools established by the programme organisers, and T&I strategies in the settings in question.

Second, balancing the (more or less) technological needs of the variety of applications in the PSIT sector, the specific needs of the different language pairs, and the development of other competences required in PSIT (e.g., intercultural competence) is also a challenge. This is essential if we keep in mind, as Vitalaru (2022a, 2022b) showed, that there are different needs in terms of employment, employability skills, and content that apply to the labour market by language pairs.

Third, constant cooperation between different stakeholders is key. As Krause (2017) states, translation faculties need to get in touch with domain specialists and cooperate both with the language industry and with other translation faculties. Cooperation with other areas should be a basic starting point to provide students with the domain knowledge and specialised content that they need before practising T&I strategies in a particular professional setting. In practical terms, multidisciplinary cooperation regarding technological competence can be implemented in PSIT programmes, as in this master's, through the integration of essential core training elements in both introductory modules and the main classes at the beginning of T&I modules (e.g., using CAT tools and/or MT and post-editing in commissioned translation projects applied to that setting).

Another example in this direction would be the integration of specific workshops (e.g., on how to start working as a freelance translator and practice with SDL Trados) that are usually taught as additional training later on (January-February) as main classes

following the same system as before, i.e., as compulsory classes at the end of the online module in October and at the beginning of the T&I modules.

Another challenge is the pace at which technology moves, which alters the market needs in less time than in the previous decade. Several breakthroughs are taking place in MT (ELIS, 2023), and the impact of AI is undeniable, with the corresponding translation quality concerns, the deterioration of the financial position of independent language professionals and the questioning of their activity's viability, among other concerns, as shown in the ELIS reports (2024). These factors make it difficult for programme organisers and trainers to plan effectively.

One thing is clear, both T&I and PSIT students are already carrying out other tasks than purely translating and interpreting (such as using TM, quality control, terminology extraction and management, as well as the pre- and post-editing of projects, among other tasks). Since technology implementation and use continue to increase (ELIS, 2024), they need to be fully equipped for the variety of tasks that their employers expect them to perform and for the efficient use of the translation tools available depending on the circumstances to increase their productivity and quality of their translations.

To achieve that, programme designers should make sure that the syllabus includes both broad and specific content applicable to a varied job market that includes both in-house and freelance translators. In line with this, and following findings from other studies and market tendencies according to the ELIS reports (2023 and 2024), in-class practice should include the use of a variety of tools applied to academic tasks that are oriented towards increasing students' employability.

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