

TEACHING TECHNICAL TRANSLATION IN THE DIGITAL ERA: CHALLENGES AND EXPECTATIONS

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Abstract: Several seminar studies explain the importance of technical translation today, as 90% of the global market of translations is represented by technical translations (Kingscott 2002:247). The need for research on this was also signalled by Romanian scholars like Daniel Dejica, Loredana Pungă, Georgiana Badea, and Titela Vilceanu (Dejica et al. 2022), who showed that there are only a few Ph.D. theses which investigate this type of LSP translation in Romania. This article is part of an ongoing Ph.D. research whose aims are: to develop effective teaching and learning methods, to focus on the state-of-the-art teaching of technical translation today, and to highlight future research directions.

Key words: technical translation, translation competence, translation method, translation technology, translation tools

1. Introduction

In the present digital era, technical translation has become an increasingly important field due to the rapid globalisation of industries. Teaching technical translation presents unique challenges and expectations, especially as digital tools and resources reshape how both students and professionals approach the topic. Moreover, “technical translations represent 90% of translations on the global market” (Kingscott 2002:247). Because technical translations are so popular on the market, students must be well prepared as they may have opportunities in their translation careers as technical translators. Also, technical translation plays a major role in our modern society, which inter alia, makes it demanding and essential: “Scientific and technical translation is part of the process of disseminating information on an international scale, which is indispensable for the functioning of our modern society” (Pinchuck 1997:13).

Furthermore, technical translation enables access to the global market and has a significant impact on the global economy and international communication. This article explores the key challenges of teaching technical translation today and offers practical methods to overcome them.

Considering the importance of technical translation, people would expect technical translation to be highly explored. However, this field has not been explored as much as other translation fields:

Technical translation has traditionally been regarded as the poor cousin of “real” translation. Often regarded as a vocational, practical, and at times rather basic type of translation, it has been largely neglected in the literature on translation theory. The work that has been done in this area has largely been restricted to terminological issues or technical issues (...) or does not fully reflect the reality of modern translation and needs to be updated (Byrne 2006).

Moreover, research conducted by a group of Romanian scholars, Muguraş Constantinescu, Daniel Dejica, and Titela Vilceanu, among many others (Constantinescu, Dejica, & Vilceanu 2022) also shows a deficit analysis in our country, Romania. The research has been conducted on 220 doctoral theses from 1993 to 2021. Out of 220 doctoral theses, only four were about the didactic of translation with emphasis on strategies and techniques of teaching, shaping future translators, and developing competencies. Among non-literal

translations, only six approached technical translation. Those results show the lack of research in this field and the great necessity of more studies in this highly demanded field of translation. Over the years, digital development has transformed how technical translation is taught, offering opportunities and challenges to educators and students alike, as indicated by Daniel Dejica, Loredana Pungă, Georgiana Badea, and Titela Vilceanu (see Dejica et al. 2022:4-13).

As technology advances, the expectations for teaching technical translation have evolved. They are related to digital literacy, knowledge of translation memory (TM) systems, computer-assisted translation (CAT) tools, and artificial intelligence (AI)-driven translation methods. Consequently, teaching technical translation today must address not only linguistic proficiency but also digital literacy, competence in various translation technologies, and awareness of ethical implications. This digital development from recent times makes a difference in the research field as the methods of teaching translation should be updated to the latest trends and tools. This article may be a step in this research gap, provides an in-depth exploration of challenges, and suggests practical pedagogical methods and digital tools to bridge the gap between traditional translation education and the demands of the digital era.

2..1. Problems in Teaching Technical Translation

2.1. 1. The Technological Competence

One of the primary challenges in teaching technical translation today is to make sure that students are proficient in the use of digital tools such as CAT tools, machine translation systems, and terminology management software. Bowker and Fisher (2010:46) noted that many translation programs do not integrate these tools into their curricula, which makes students unprepared for the realities of the modern translation industry.

Students must not only be competent in translation practices but also in using technology to enhance their productivity. This requires teaching how to effectively use translation tools like SDL Trados, and memoQ, alongside understanding AI-based platforms such as DeepL. Educators face the challenge of ensuring that students not only learn how to use these tools but also critically assess both their advantages and disadvantages. Teaching students to work alongside these technologies - particularly in post-editing - is vital in modern translation training (Ramírez-Polo & Vargas-Sierra 2023:82).

2.1. 2. Terminology Problems

Technical translation heavily relies on consistent and accurate terminology management, a skill that must be developed during translation training and through practice. The challenge here is twofold: ensuring students master the use of digital terminology databases such as Termium, IATE, or other specific glossaries, and developing the ability to create and manage their terminology lists in line with industry standards.

Terminology is the backbone of technical translation, and students must be trained not only to find and use the correct terms but also to understand the implications of standardisation, consistency, and localisation. Educators must strike a balance between training students in theoretical aspects of terminology management and equipping them with practical skills to navigate the wealth of digital terminology resources available today.

Educators now emphasise the importance of creating and maintaining termbases as part of translation assignments, equipping students with the skills they need to manage technical terms in professional contexts (Bowker and Fisher 2010:82-83; Ramírez-Polo and Vargas-Sierra 2023:93).

2.1.3. Machine Translation (MT) and Post-editing

The rise of machine translation has introduced both opportunities and complications for technical translation. Although the tools have drastically improved, they still require human

post-editing to ensure quality. Teaching students to work with machine translation output has become a key part of modern translation education, with an emphasis on post-editing for clarity, accuracy, and contextual appropriateness. Students need to be aware of the advantages and limitations of using machine translation in technical fields, particularly in highly specialised content where MT may struggle to provide accurate translations.

2.2. Important Competencies for a Technical Translator

Competence-based approaches to translator training have gained traction in recent years. These models emphasise the development of core competencies, including linguistic, cultural, technological, and ethical skills. For technical translation, this means a strong focus on domain-specific knowledge, digital fluency, and the ability to navigate complex translation technologies. The EMT (European Master's in Translation) competence framework serves as a widely recognised model, guiding educators in designing curricula that address diverse skills. This includes language competence, translation competence, technology, and personal and service provision competence.

The PACTE Group from Universitat Autònoma de Barcelona has realised another framework. Their study, known as the EFFORT Project (2023), presents the main competencies of a translator: language, thematic and cultural, instrumental, service provision, and methodological competence (European Framework for Translation 2023).

Language competence refers to the ability to use reading comprehension skills in the SL and written production skills in the TL (EFFORT 2023:7). The translator should have the needed competencies to understand a specialised text, having at least a minimum level of comprehension of C2. Linguistic knowledge is also needed in a specific field. Thematic and cultural competence refers to the capability of applying the cultural backgrounds of both languages and cultures. The translator should have the needed knowledge in the technical field “including its sub-fields (e.g. telecommunications, naval engineering), to grasp the technical meaning and translate specialized technical texts” (EFFORT 2023:20).

Instrumental competence refers to the skill of using information sources and any technological resources or tools to translate. The translator should be able to work with reliable specialised information sources and consult with experts in the field. The translator should also master digital tools for specialised texts, like CAT tools, MT, or other digital tools. The translator should also have the necessary competencies to manage the workflow, budget, and other vital legal aspects for service provision.

Service provision competence is defined as the ability to cope with challenges of professional translation practice (EFFORT 2023:7). The translator should have the needed competencies to align the translation task with professional ethical standards. The translator is also able to deal with the actors participating in the translation task and apply the administrative requirements and ergonomic conditions.

The methodological and strategic competence is the ability to use the best methodology in order to produce an “adequate translation” (EFFORT 2023:7). This kind of competence requires some previous steps, such as: planning both the process of translation and the completion of the project, evaluating the process of translation, applying cognitive strategies, the instrumental competence, and the knowledge in instrumental resources. The translator should be able to solve any translation problems, such as linguistic, textual, or extralinguistic.

2.3. Expectations in Teaching Technical Translation

2.3.1. Digital Fluency

In today's translation industry, employers expect new graduates to be digitally fluent, and capable of working with various translation software and online resources. This includes

proficiency in CAT tools, familiarity with translation management systems, and a solid understanding of how to incorporate machine translation into their workflows.

Thus, educators are tasked with creating learning environments that foster digital fluency. This includes providing access to a range of translation technologies and building a curriculum that emphasises the integration of these tools throughout the translation process. Additionally, educators must keep pace with evolving technologies to ensure that their programs remain relevant and aligned with industry standards. In this regard, educators may organise special training sessions or workshops which help students to develop their digital skills.

2.3.2. Cross-disciplinary Knowledge

Technical translation requires translators to possess knowledge in both linguistics and specific technical fields. Instructors must, therefore, design curricula that blend linguistic training with field-specific knowledge.

Collaboration with other departments, such as engineering or computer science, can help create a more holistic training experience. This also encourages students to specialise in particular domains, which enhances their employability in niche markets where domain expertise is valued. In this regard, educators may organise workshops with professionals who work in the technical field. This means a strong bond and a good collaboration between educators and experts from the labour market.

2.3.3. Quality Assurance and Standardisation

Quality assurance processes, including the use of translation standards such as ISO 17100, are a critical expectation in technical translation. Students need to be trained in the principles of translation quality, including accuracy, consistency, and adherence to client specifications. This involves teaching the importance of revising and proofreading translations and using software tools that aid in quality control, such as QA Distiller or Verifika.

2.4. Practical Methods for Teaching Technical Translation

2.4.1. Blended Learning

Blended learning, which combines face-to-face teaching with digital activities, is an effective approach to teaching technical translation. By leveraging online platforms, educators can create interactive translation exercises that simulate real-world translation scenarios. This includes collaborative translation projects, terminology management exercises, and machine translation post-editing tasks. The importance of authentic projects that stimulate real situations is also emphasised by Kiraly:

expertise and professionalism emerge through praxis and conversation, not as the result of transmissionist interaction with the teacher, but through hypothesis developing and testing, through discussion and debate, and as a result of concerted effort exerted with a team of present and future members of the community in question. (Kiraly 2003:17).

Furthermore, online forums and discussion boards encourage students to engage in peer feedback, enhancing their critical thinking and problem-solving skills. Moreover, blended learning provides flexibility for students to work at their own pace, which is particularly beneficial in mastering complex technical subjects.

2.4.2. Simulation of Professional Environments

Simulating professional translation environments can give students hands-on experience with the tools and processes they will encounter in the workplace. This includes working on real-world projects under the supervision of professional translators, using industry-standard software, and adhering to deadlines and quality standards. Such simulations allow students to experience the workflow of a technical translation project, from receiving the source text to

delivering the final translation to the client. A more practical approach is the key to developing translators' abilities: "The open-ended and collaborative nature of activities, tasks, and projects results in the advancement of the student's aptitudes and attitudes as translators, enabling them to take a step from novices toward experts" (Venuti 2016:77).

2.4.3. Collaborative Translation Projects

Collaboration is essential in the translation industry, especially in technical fields where projects often involve multiple translators working together to meet deadlines. Implementing collaborative translation projects in the classroom can teach students how to collaborate in teams, divide tasks, and use cloud-based translation tools which allow for real-time collaboration, such as Memsources or Smartcat. As González-Davies states, collaborative translations are part of the teaching and learning process: "the aim of the teaching and learning process is to encourage intersubjective communication in a positive atmosphere mainly through teamwork, to acquire linguistic, encyclopedic, transfer and professional competence and to learn about translation". (González-Davies 2004:13–14).

2.5. Suggested Syllabus for Teaching Technical Translation in Romania

Taking into consideration all of the above mentioned specifications, here is an example of a syllabus that follows the competencies needed for a translator and integrates practical activities. As Kelly suggests, a syllabus should concentrate on developing translation competencies, such as: "communicative and textual, cultural and intercultural, subject-specific, professional and functional, attitudinal or psycho-physiological, interpersonal, and strategic competencies" (2005: 32).

Course Title: Technical Translation

Course Objectives:

- Equip students with advanced skills in using CAT tools and machine translation systems.
- Develop competency in managing technical terminology across various domains.
- Train students to critically assess and post-edit machine translations.
- Simulate professional translation environments to prepare students for real-world challenges.

Course outline:

1. Introduction to Technical Translation: Overview of the field, challenges, and the role of the translator.
2. Digital Tools in Translation: Introduction to CAT tools, terminology management software, and machine translation.
3. Terminology Management: Principles of technical terminology, use of digital resources, and creation of termbases.
4. Machine Translation and Post-editing: Understanding MT and training in post-editing processes.
5. Quality Assurance in Technical Translation: Standards, revision, and proofreading techniques.

Evaluation:

- Mid-term exams based on theoretical knowledge.
- Final exam related to practical assignments using CAT tools and post-editing machine translations.
- Mid-term exam based on group translation project simulating professional environments.

3. Conclusions

Teaching technical translation in the digital era requires a comprehensive approach integrating technology with traditional translation skills. Educators must not only prepare students to work with digital tools but also cultivate an understanding of the complexities of

technical language and domain-specific knowledge. By adopting blended learning models, collaborative projects, and simulations of professional workflows, educators can help students meet the growing requirements of the technical translation industry. As the field continues to evolve, ongoing updates to curriculum and teaching methods will be essential to stay aligned with technological advancements and industry expectations.

References:

2023. "European Framework for Translation." EFFORT Project. <<https://www.effortproject.eu>> [21.10.2024].
- Bowker, Lynne, & Fisher, Desmond 2010. *Computer-Aided Translation Technology: A Practical Introduction*. Ottawa: University of Ottawa Press.
- Bowker, Lynne & Fisher, Desmond. 2010. "Computer-aided translation" in *Handbook of Translation Studies: Volume 1*. Yves Gambier and Luc van Doorslae. Amsterdam: John Benjamins Publishing Company. pp. 82, 83.
- Byrne, Jody. 2006. *Technical Translation: Usability Strategies for Translating Technical Documentation*. Dordrecht: Kluwer Academic.
- Constantinescu, Muguraș, Daniel Dejica, & Titela Vilceanu (coord.). 2022. *O istorie a traducerilor în limba română, ITLR - secolul XX, Domenii literare și non literare. Volumul II*. București: Editura Academiei Române. ISBN 978-973-27-3693-7.
- Dejica, Daniel et al. 2022. "Cercetarea traductologică doctorală din România" in *O istorie a traducerilor în limba română din secolul al XX-lea. Domenii literare și nonliterare. Volumul II*. Constantinescu Muguraș, Dejica Daniel and Vilceanu Titela (coord.). București: Editura Academiei Române. pp 4-13.
- Geoffrey, Kingscott. 2002. "Technical translation and related disciplines" in *Perspectives: Studies in Translation Theory and Practice*. 10(4):247-255. Amsterdam: John Benjamins Publishing Company.
- González-Davies, Maria. 2004. *Multiple Voices in the Translation Classroom*, Amsterdam: John Benjamins.
- Hurtado Albir et. al. 2023. *Common European Framework of Reference for Translation – Competence Level C (specialist translator): A proposal by the EFFORT Project*. [<https://www.effortproject.eu/>]
- Kelly, Dorothy. 2005. *A Handbook for Translator Trainers: A Guide to Reflective Practice*. Manchester: St. Jerome Publishing
- Kiraly, Donald C. 2003. "From Instruction to Collaborative Construction" in *Beyond the Ivory Tower: Rethinking translation pedagogy*. Brian James Baer and Geoffrey S. Koby. Amsterdam: John Benjamins Publishing Company. pp. 17.
- Lawrence, Venuti. 2016. *Teaching Translation*. 1st edn. London: Routledge.
- Pinchuck, Isadore. 1997. *Scientific and Technical Translation*. London: Westview Press.
- Pungă, Loredana et al. 2022. "Cercetarea traductologică doctorală din România" in *O istorie a traducerilor în limba română din secolul al XX-lea. Domenii literare și nonliterare. Volumul II*. Constantinescu Muguraș, Dejica Daniel and Vilceanu Titela (coord.). București: Editura Academiei Române. pp 4-13.
- Ramírez-Polo, Laura & Vargas-Sierra, Chelo 2023. *Translation Technology and Ethical Competence: An Analysis and Proposal for Translators' Training*.

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