

Analysis of Foreign Scientific Research on Training Specialized Translators Based on Information Resources

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Abstract

This article analyzes foreign scientific research devoted to the training of specialized translators through the use of information resources. In contemporary translation education, the translator is no longer viewed only as a bilingual mediator, but as a professional who must work with terminology databases, corpora, electronic dictionaries, translation memories, machine translation systems, digital archives and subject-specific information platforms. The purpose of the article is to examine how international research conceptualizes the role of information resources in developing specialized translation competence. The study is based on a qualitative literature review of major foreign models and approaches, including the EMT competence framework, the PACTE translation competence model, technology-oriented translation pedagogy, corpus-based translator training and neural machine translation research. The results show that foreign studies emphasize the integration of linguistic, technological, strategic, intercultural and subject-field competences. At the same time, the analysis reveals that many international models describe translator competence broadly, while fewer studies offer a step-by-step didactic mechanism for training specialized translators through information resources. The article concludes that information-resource-based translator training should combine subject knowledge, terminology management, corpus literacy, digital competence and reflective translation practice.

Keywords: *specialized translation, translator training, information resources, translation competence, corpus-based learning, terminology management, EMT, PACTE, neural machine translation.*

Introduction

The rapid development of digital technologies has significantly changed the professional profile of translators. In traditional translation education, attention was mainly paid to bilingual competence,

grammar, stylistics and equivalence. However, in the modern translation market, especially in legal, medical, technical, economic and academic translation, a translator must be able to search, evaluate, process and apply information from various digital resources. These include electronic dictionaries, parallel corpora, terminology databases, translation memories, CAT tools, machine translation systems, online encyclopedias, institutional databases and specialized professional platforms.

Foreign research on translator training shows that translation competence is a complex construct consisting of linguistic, cultural, technological, strategic and professional components. The PACTE group defines translation competence as a system of interrelated subcompetences, including bilingual, extra-linguistic, instrumental, strategic and knowledge-about-translation components (PACTE, 2003). Similarly, the European Master's in Translation framework considers technological competence and information mining as essential parts of professional translator training (European Commission, 2022). These approaches confirm that information resources are not auxiliary tools, but an integral part of translator competence.

Specialized translation requires even deeper interaction with information resources. A specialized translator must not only know two languages, but also understand the conceptual system of a specific field. For example, translating a medical text requires knowledge of medical terminology, genre conventions, institutional standards and reliable sources. A legal translator must work with legislation, legal databases and culturally specific legal concepts. Therefore, foreign researchers argue that translator education should be based on authentic materials, professional tasks and technological environments close to real translation practice (Kelly, 2005; Kiraly, 2000).

The relevance of this topic is also connected with the growth of machine translation and artificial intelligence. Neural machine translation has improved the speed and fluency of translation, but it has not eliminated the need for professional translators. Instead, it has changed the nature of translation work. Translators increasingly act as post-editors, terminologists, quality evaluators and information managers (Koehn, 2020; Doherty, 2016). In this context, the training of specialized translators based on information resources becomes one of the key problems of modern translation pedagogy.

The aim of this article is to analyze foreign scientific research on the preparation of specialized translators through information resources and to identify the main theoretical, methodological and practical tendencies in this field.

Methods

The study is based on a qualitative literature review. The analyzed sources include theoretical works on translation competence, translator education, corpus-based translation studies, terminology management, CAT tools, machine translation and intercultural communication. The review focuses mainly on foreign research because the purpose is to identify international approaches to information-resource-based translator training.

The selected literature was grouped into five thematic categories:

1. competence-based models of translator training;
2. technology-oriented translator education;
3. corpus-based and terminology-based approaches;
4. specialized translation and subject-field competence;
5. neural machine translation and post-editing in translator training.

The main criteria for selecting sources were their academic significance, relevance to translator training and connection with information resources. The analysis was carried out through comparison, classification and interpretation of key ideas presented in international studies. Particular attention

was paid to the EMT competence framework, the PACTE model, works by Kelly, Kiraly, Bowker, Zanettin, Bernardini, Pym, Koehn and other scholars.

Results

1. Competence-based approach in foreign translator training research

Foreign research generally treats translator training as the development of a complex professional competence. The PACTE model is one of the most influential frameworks in this area. It explains translation competence as a set of interacting subcompetences: bilingual, extra-linguistic, knowledge about translation, instrumental and strategic subcompetence (PACTE, 2003). For the training of specialized translators, the instrumental and extra-linguistic subcompetences are especially important. The instrumental component includes the ability to use documentation resources and technological tools, while the extra-linguistic component includes subject knowledge and cultural knowledge.

The EMT competence framework also gives a central role to technological and information-related skills. According to this framework, a professional translator should be able to use translation technologies, manage terminology, search for reliable information and evaluate the quality of sources (European Commission, 2022). This approach is directly connected with the idea of preparing specialized translators through information resources.

Kelly emphasizes that translator training should not be limited to language knowledge. It should include professional, interpersonal, instrumental and strategic competences (Kelly, 2005). Kiraly also argues that translator education should be organized around authentic professional tasks and collaborative learning, because translation competence develops through active participation in real or simulated professional environments (Kiraly, 2000).

Thus, competence-based foreign research shows that information resources are essential for forming professional translator competence. They help students move from passive language learning to active problem-solving in specialized translation contexts.

2. Information resources as a core component of specialized translation

Specialized translation is closely linked with terminology, domain knowledge and genre conventions. Foreign researchers note that the quality of specialized translation depends largely on the translator's ability to identify reliable information, compare terms, analyze parallel texts and use specialized databases (Bowker, 2002; Cabré, 1999).

Bowker's research on computer-aided translation technology shows that translators must learn how to work with terminology management systems, translation memories and electronic corpora (Bowker, 2002). These tools allow students to understand how specialized terms are used in real contexts. For example, a term may have different equivalents depending on the field, text type and communicative situation. Without information resources, students often choose equivalents mechanically, which leads to terminological and stylistic errors.

Cabré's theory of terminology also supports the importance of specialized information resources. She argues that terms are not isolated lexical units, but elements of a conceptual system (Cabré, 1999). Therefore, specialized translators must understand both the linguistic form and the field-specific concept behind the term.

Corpus-based research has made a major contribution to this area. Zanettin notes that corpora help translators observe authentic language use, phraseology, collocations and genre patterns (Zanettin, 2012). Bernardini also argues that corpora can develop translator autonomy because students learn to solve translation problems through data-driven analysis rather than relying only on intuition (Bernardini, 2016).

These studies show that information resources perform several functions in specialized translator training: they provide terminology, support contextual analysis, develop independent research skills and help students justify their translation decisions.

3. Technology-oriented translator education

Foreign studies increasingly emphasize the technological dimension of translator training. Translation technologies are no longer optional; they are part of professional practice. CAT tools, translation memories, terminology databases, alignment tools, concordancers and machine translation systems have become standard instruments in many translation workplaces (Austermühl, 2013; Bowker, 2002).

Pym argues that translator training must respond to the technological changes of the translation industry and prepare students for working in multilingual digital environments (Pym, 2013). This means that students should not only know how to use tools technically, but also understand their limitations, risks and ethical implications.

Gaspari, Almaghout and Doherty discuss the growing importance of machine translation literacy in translator education. They state that future translators need to understand how machine translation works, how to evaluate its output and how to post-edit it appropriately (Gaspari, Almaghout and Doherty, 2020). This is especially relevant for specialized translation, where machine translation may produce fluent but terminologically inaccurate output.

Koehn's work on neural machine translation explains the technological principles behind modern machine translation systems, including encoder-decoder architecture, attention mechanisms and large-scale data-driven learning (Koehn, 2020). Although Koehn's model is not a pedagogical model of translator training, it is highly relevant for translator education because students must understand the logic of neural machine translation in order to use it critically.

Therefore, technology-oriented research shows that specialized translator training should include not only practical use of digital tools, but also critical technological awareness.

4. Corpus-based learning and terminology management

Corpus-based learning is one of the most effective approaches to information-resource-based translator training. It teaches students to use authentic language data for solving translation problems. In this approach, students analyze parallel corpora, comparable corpora and specialized corpora to identify equivalents, collocations, phraseological patterns and genre conventions.

Johns introduced the concept of data-driven learning, where learners discover language patterns through direct interaction with linguistic data (Johns, 1991). In translation education, this principle has been developed by scholars who argue that corpora can help students become independent researchers of language and terminology (Zanettin, 2012; Bernardini, 2016).

Terminology management is another important direction. Specialized translators must be able to create glossaries, classify terms, define concepts, identify equivalents and maintain terminological consistency. Biel emphasizes that legal translation, for example, requires systematic work with legal corpora and institutional terminology databases because legal concepts are strongly connected with national legal systems (Biel, 2018).

The use of corpora and terminology databases also supports quality assurance. Students can justify their translation choices by referring to authentic contexts and reliable sources. This helps form not only translation competence, but also academic and professional responsibility.

5. Intercultural and professional dimensions of specialized translator training

Foreign research also connects specialized translator training with intercultural competence. Byram's model of intercultural communicative competence emphasizes attitudes, knowledge, skills of interpreting, skills of discovery and critical cultural awareness (Byram, 1997). These components are important for translators because specialized texts often contain culturally specific concepts, institutional references and discourse conventions.

Kramsch argues that language cannot be separated from culture because meaning is formed within cultural and social contexts (Kramsch, 1998). This idea is especially important in specialized translation, where terms and genres may reflect different professional cultures. For example, academic, legal or medical texts may follow different rhetorical and institutional traditions in different countries.

Professional competence is also widely discussed in foreign research. Gouadec states that translators must be trained for real professional conditions, including project management, client communication, documentation, quality control and ethical responsibility (Gouadec, 2007). This means that information resources should be used not only for linguistic purposes, but also for professional decision-making.

In figure below, we generalized all the above-mentioned information (see fig. 1).

Conceptual Framework of Information-Resource-Based Specialized Translator Training

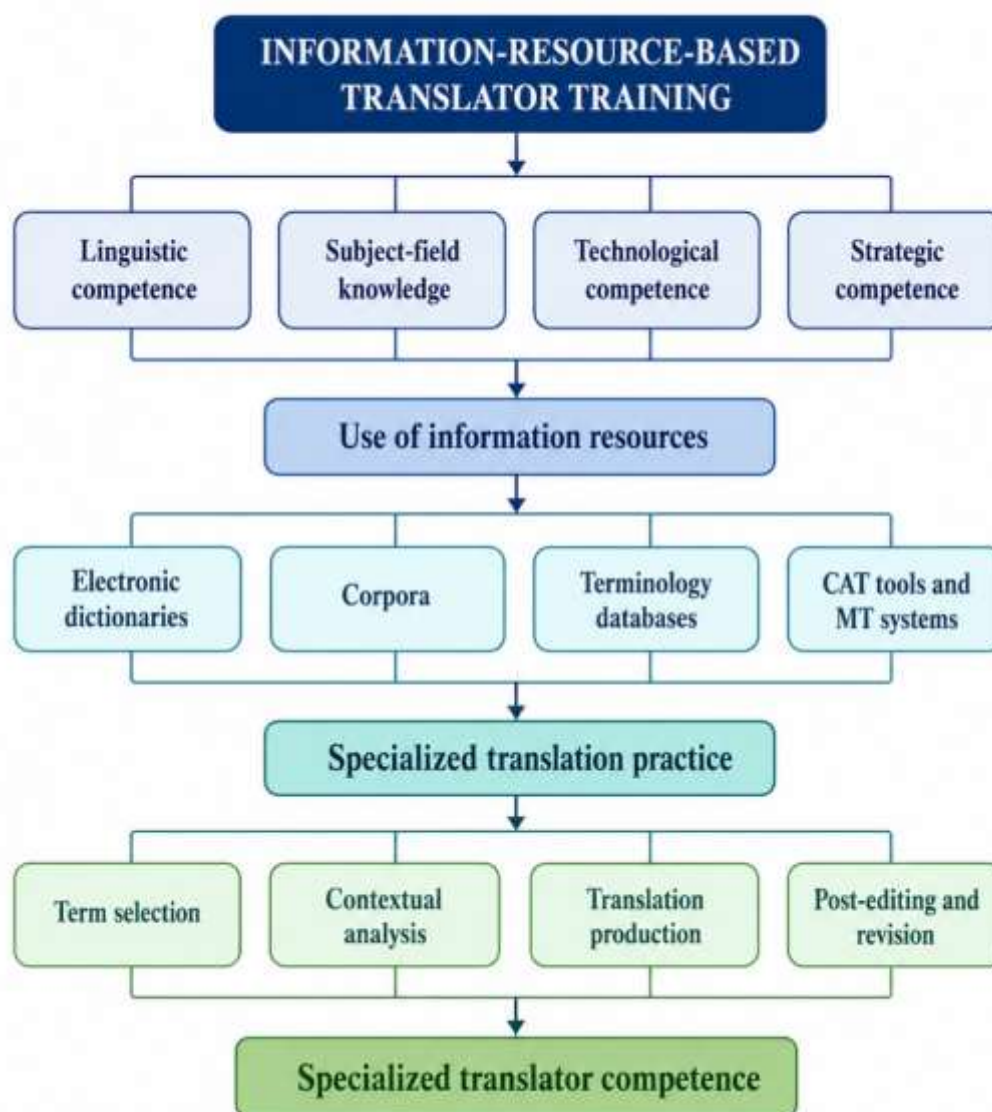


Fig. 1 Conceptual Framework of Information-Resource-Based Specialized Translator Training Discussion

The analysis of foreign research shows that the training of specialized translators based on information resources is a multidimensional process. It cannot be reduced to teaching students how to use electronic dictionaries or machine translation systems. Instead, information-resource-based training should integrate several components: linguistic competence, subject-field knowledge, terminology competence, technological competence, intercultural competence, strategic competence and professional competence (see table -1).

Table 1.

Comparative Analysis of Foreign Models Relevant to Specialized Translator Training

Model approach /	Core components	Role of information resources	Limitation in specialized translator training
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EMT competence framework	Translation, technology, language and culture, personal and interpersonal competence, service provision	Information mining, terminology management and translation technologies are included as key professional skills.	Gives a general competence framework, but does not provide a detailed systematic didactic mechanism.
PACTE model	Bilingual, extra-linguistic, instrumental, strategic and knowledge-about-translation subcompetences	Information resources are mainly connected with instrumental and strategic subcompetences.	Explains the structure of translation competence, but is less focused on practical classroom implementation.
Kelly's translator training model	Communicative, cultural, subject-area, instrumental, professional and strategic competences	Digital and documentary resources support professional translator preparation.	Provides a broad pedagogical view, but specialized information-resource integration is not fully detailed.
Corpus-based approach	Corpus analysis, authentic texts, terminology extraction, contextual equivalence	Corpora become the main source for analyzing terminology, collocations and genre patterns.	Requires strong methodological training; students may misuse corpus data without guidance.
Koehn's neural machine translation model	Data-driven neural translation, encoder-decoder structure, attention mechanism, MT output	Uses large-scale parallel data and computational resources for automatic translation.	It is a technological model, not a didactic model for human translator competence development.

The EMT and PACTE models provide strong theoretical foundations for this integration. EMT offers a professional competence framework suitable for higher education, while PACTE explains the internal structure of translation competence (European Commission, 2022; PACTE, 2003). However, these models mainly describe competence components. They do not always provide a detailed didactic sequence for developing specialized translation skills through information resources.

Technology-oriented research fills part of this gap by explaining how CAT tools, terminology databases, corpora and machine translation systems can be used in translator education. Bowker, Zanettin and Bernardini show that information resources can develop students' autonomy, terminological accuracy and ability to solve translation problems (Bowker, 2002; Zanettin, 2012; Bernardini, 2016). However, the challenge remains: students should not become passive users of digital tools. They must learn to evaluate sources critically and justify their translation choices.

Neural machine translation adds another layer to the problem. Koehn's research shows that machine translation is based on complex data-driven models, but these systems do not understand specialized texts in the same way as human experts do (Koehn, 2020). Therefore, translator training should include machine translation literacy and post-editing skills. This is not a replacement for human competence, but a new professional requirement.

Another important point is that specialized translation requires subject-field competence. Foreign research confirms that translators must understand the concepts, terminology and genre norms of a specific domain (Cabr , 1999; Biel, 2018). Information resources play a key role here because they provide access to authentic field-specific knowledge.

The reviewed literature suggests that an effective model of specialized translator training should include the following didactic stages: preliminary analysis of the translation task, search and evaluation of information resources, terminology extraction, corpus-based analysis, translation production, revision, quality assessment and reflection. Such a sequence allows students to develop not only translation skills, but also information literacy and professional autonomy.

Conclusion

Foreign scientific research shows that information resources have become a fundamental component of specialized translator training. International models such as EMT and PACTE demonstrate that modern translator competence includes technological, instrumental, strategic and professional dimensions. Studies on CAT tools, corpora, terminology databases and neural machine translation confirm that digital resources are essential for developing specialized translation competence.

The main finding of this analysis is that foreign research supports the integration of information resources into translator education, but there is still a need for more clearly structured didactic models aimed specifically at specialized translators. Such models should connect linguistic preparation, subject-field knowledge, information technologies, terminology management, corpus-based analysis, translation practice and assessment.

In this sense, information-resource-based translator training should be understood as a systematic pedagogical process. Its aim is not simply to teach students to use digital tools, but to develop their ability to search, evaluate, select, interpret and apply information responsibly in specialized translation tasks. This approach prepares future translators for real professional conditions, where quality depends not only on language knowledge, but also on the intelligent use of reliable information resources..

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