

INTEGRATING DIGITAL INFORMATION TECHNOLOGIES INTO THE METHODOLOGICAL FRAMEWORK FOR TRAINING SPECIALIZED TRANSLATORS IN A MULTIDISCIPLINARY EDUCATIONAL CONTEXT

KO'P TARMOQLI TA'LIM MUHITI SHAROITIDA IXTISOSLASHGAN TARJIMONLARNI TAYYORLASHNING METODOLOGIK TIZIMIGA RAQAMLI AXBOROT TEXNOLOGIYALARINI INTEGRATSIYA QILISH

Bakirova Khilolakhon Botiraliyevna

Associate Professor of the Department of English Applied Translation,

Doctor of Philosophy (PhD) in Pedagogical Sciences,

Uzbekistan State World Languages University

Abstract. The rapid development of digital information technologies has significantly influenced the field of translation studies and reshaped the professional training of specialized translators. This study examines how digital tools can be systematically integrated into the methodological framework for training translators operating in multidisciplinary environments. The research explores the effectiveness of technology-enhanced instruction in improving domain-specific translation competence, cognitive flexibility, and professional readiness. Using a mixed-methods approach that combines theoretical analysis, survey data, and experimental observation, the study reveals that the structured integration of digital platforms, terminology management systems, and corpus-based resources substantially increases translation accuracy and efficiency. The findings contribute to the advancement of translator education by proposing a technology-driven methodological model suited to contemporary academic contexts.

Key words: specialized translator training, digital information technologies, translator education, CAT tools, multidisciplinary context, translation competence, terminology management, technology-enhanced learning, professional translator competence, pedagogical framework, corpus-based resources, translation methodology.

Annotatsiya. Raqamli axborot texnologiyalarining tez rivojlanishi tarjimashunoslik sohasiga sezilarli ta'sir ko'rsatib, ixtisoslashgan tarjimonlarni professional tayyorlash tizimini tubdan o'zgartirdi. Ushbu tadqiqot raqamli vositalarni ko'p tarmoqli muhitda ishlaydigan tarjimonlarni tayyorlashning metodologik tizimiga qanday tizimli ravishda integratsiya qilish mumkinligini o'rganadi. Tadqiqot texnologiya yordamida olib boriladigan ta'larning soha bo'yicha tarjima kompetensiyasini, kognitiv moslashuvchanlikni va professional tayyorgarlikni oshirishdagi samaradorligini tahlil qiladi. Nazariy tahlil, so'rov natijalari va eksperimental kuzatuvlarni birlashtirgan aralash metodlar yondashuvi yordamida olib borilgan tadqiqot shuni ko'rsatadiki, raqamli platformalar, terminologiya boshqaruv tizimlari va korpusga asoslangan resurslarni strukturalangan tarzda integratsiya qilish tarjima aniqligi va samaradorligini sezilarli darajada oshiradi. Tadqiqot natijalari zamonaviy akademik muhitga mos keladigan texnologiya asosidagi metodologik modelni taklif etish orqali tarjimonlarni tayyorlashni rivojlantirishga hissa qo'shadi.

Kalit so'zlar: ixtisoslashgan tarjimonlarni tayyorlash, raqamli axborot texnologiyalari, tarjimonlarni ta'limi, CAT vositalari, ko'p tarmoqli kontekst, tarjima kompetensiyasi, terminologiya boshqaruvi, texnologiya yordamida o'qitish, professional tarjimon kompetensiyasi, pedagogik tizim, korpusga asoslangan resurslar, tarjima metodologiyasi.

Аннотация. Быстрое развитие цифровых информационных технологий значительно повлияло на область переводоведения и изменило профессиональную подготовку специализированных переводчиков. В данном исследовании рассматривается, как цифровые инструменты могут быть систематически интегрированы в методологическую основу подготовки переводчиков, работающих в мультидисциплинарной среде. Исследование изучает эффективность обучения с использованием технологий в повышении предметной компетенции в переводе, когнитивной гибкости и профессиональной готовности. С применением смешанного подхода, сочетающего теоретический анализ, данные опросов и экспериментальное наблюдение, исследование показывает, что структурированная интеграция цифровых платформ, систем управления терминологией и ресурсов на основе корпусов значительно повышает точность и эффективность перевода. Полученные результаты способствуют развитию образования переводчиков, предлагая методологическую модель, ориентированную на технологии и соответствующую современному академическому контексту.

Ключевые слова: подготовка специализированных переводчиков, цифровые информационные технологии, образование переводчиков, CAT-инструменты, мультидисциплинарный контекст, компетенция в переводе, управление терминологией, обучение с использованием технологий, профессиональная компетенция переводчика, педагогическая основа, ресурсы на основе корпусов, методология перевода.

Introduction

The globalization of professional communication and the expansion of specialized knowledge domains have intensified the demand for highly qualified translators capable of operating in complex disciplinary contexts (Cronin, 2013; Pym, 2010). Traditional methods of translator training, often limited to linguistic and textual analysis, no longer meet the requirements of modern translation practice, which increasingly depends on technological mediation (Kiraly, 2015). The emergence of digital information technologies has transformed translation into a technologically supported process, requiring innovative pedagogical approaches and revised educational models (Bowker & Fisher, 2010; O'Brien, 2012).

In a multidisciplinary educational context, translators must navigate not only linguistic differences but also specialized terminologies, conceptual frameworks, and professional discourses (Prieto Ramos, 2014). Therefore, the integration of digital technologies into translator training is not merely an auxiliary component but a central element of methodological modernization (Gouadec, 2007; Kenny, 2017). This study aims to investigate the role of digital information technologies in enhancing the

effectiveness of specialized translator training and to conceptualize their integration within a structured educational framework.

The primary research questions guiding this study are:

- How do digital technologies influence the development of specialized translation competence?
- What methodological strategies ensure effective integration of technology into translator education?
- How does a multidisciplinary context shape the application of these technologies?

Methodology

This study employed a mixed-methods research design combining qualitative and quantitative approaches in order to obtain a comprehensive understanding of the role of digital information technologies in the training of specialized translators. The combined use of numerical data and interpretative analysis allowed for a more nuanced examination of both measurable learning outcomes and subjective perceptions of participants regarding technology-integrated instruction. (Creswell & Plano Clark, 2018).

The research was conducted over a 12-week academic period and involved second- and third-year undergraduate students enrolled in a Translation Studies programme at a higher education institution. A total of 60 participants were selected and evenly divided into two groups: an experimental group and a control group. The experimental group received instruction based on a technology-enhanced methodological framework, while the control group followed a traditional translation training model relying primarily on printed materials and conventional teaching techniques.

Quantitative data were collected through pre-test and post-test assessments designed to measure translation accuracy, terminology consistency, stylistic adequacy, and overall translation quality. These tests were evaluated using a standardized rubric adapted from professional translation assessment models, ensuring objectivity and reliability of the scoring process.

Qualitative data were gathered through structured questionnaires, semi-structured interviews, and classroom observations. The questionnaires aimed to identify students' attitudes toward the use of digital tools, their perceived learning difficulties, and their level of confidence in handling specialized texts. Interviews with both students and instructors provided deeper insight into the pedagogical effectiveness of the integrated technologies and their impact on the learning process. Classroom observations focused on student engagement, interaction patterns, and the practical application of digital tools during translation tasks.

The experimental group was trained using a range of digital resources, including computer-assisted translation (CAT) tools, online terminological databases, corpus-based platforms, and electronic glossaries specific to selected professional domains such as legal, medical, and technical translation. These tools were systematically embedded into lesson plans, assignments, and collaborative translation projects.

Data analysis involved statistical comparison of test results using descriptive and inferential methods to identify performance differences between the two groups. Qualitative data were analyzed through thematic coding to reveal recurring patterns related to technological adaptability, cognitive development, and professional readiness.

This methodological approach ensured both reliability and validity of the findings, allowing the study to accurately assess the pedagogical value of integrating digital information technologies into specialized translator training.

The research involved 60 undergraduate students majoring in translation studies from a higher education institution. The participants were divided into two groups: an experimental group (30 students) receiving technology-integrated instruction and a control group (30 students) taught using traditional methods.

The study employed a set of research instruments designed to ensure systematic data collection and accurate evaluation of both linguistic performance and pedagogical impact.

Pre- and post-tests were administered to measure students' translation quality, focusing on terminological accuracy, lexical consistency, stylistic adequacy, and overall coherence of the translated texts. These assessments provided quantifiable data for comparative analysis between the experimental and control groups.

Questionnaires were used to evaluate students' attitudes towards the integration of digital technologies in the translation process. The items explored perceptions of usefulness, ease of use, motivation level, and perceived influence on professional competence development.

Observation checklists were applied during classroom sessions to monitor student engagement, behavioural patterns, participation intensity, and practical interaction with digital translation tools. This allowed for real-time evaluation of how technology influenced classroom dynamics.

Additionally, semi-structured interviews with instructors were conducted to assess pedagogical effectiveness, instructional challenges, and the overall suitability of digital resources within the methodological framework. These interviews provided expert insight into the practical implications of technology-enhanced translator training.

The experimental group was exposed to a curriculum integrating CAT tools, online corpora, terminology databases, and digital glossaries within translation tasks. The control group followed a conventional program focusing on manual translation techniques. The duration of the experiment was 12 weeks.

Quantitative data were analyzed using statistical comparison of test scores, while qualitative data were processed through thematic analysis of survey and interview responses.

Results

The findings of the study demonstrated a statistically significant improvement in the performance of students who were exposed to digitally integrated translation instruction. Compared to the control group, the experimental group achieved notably higher results in terms of translation accuracy, terminological consistency, and overall

coherence of translated texts, indicating the positive impact of information technologies on the development of specialized translation competence.

A comparative analysis of pre-test and post-test scores revealed a 28% increase in translation accuracy among students in the experimental group. These students showed a marked improvement in their ability to select appropriate terminology, maintain lexical uniformity, and convey subject-specific meanings more precisely. Moreover, their translations demonstrated greater stylistic adequacy and structural clarity, particularly when working with complex texts from legal, technical, and scientific domains.

In addition to linguistic improvement, students exposed to digital tools displayed enhanced cognitive and procedural skills. They developed a more systematic approach to handling specialized terminology across disciplines, utilizing terminology databases and corpus resources to verify contextual relevance and semantic accuracy. This resulted in more confident decision-making during the translation process and a noticeable reduction in time spent on problem-solving tasks.

Survey data further supported these findings, revealing that 85% of participants considered digital tools essential for modern professional translation practice. The majority of students reported increased motivation, improved self-confidence, and a stronger sense of autonomy when completing translation assignments. They also expressed greater satisfaction with their learning experience, highlighting the perceived practicality and relevance of technology-enhanced instruction.

Instructors' observations corroborated the quantitative results, as they noted higher levels of classroom engagement, more active participation, and improved adaptability among students working with technology-based resources. Students demonstrated greater initiative in independent research, more efficient collaboration in group tasks, and a heightened awareness of professional translation standards.

Overall, the results clearly indicate that the structured integration of digital information technologies significantly enhances both linguistic performance and professional readiness of specialized translators, reinforcing the effectiveness of the proposed methodological framework.

Discussion

The findings confirm that digital information technologies play a pivotal role in the formation of specialized translation competence. Their integration fosters a dynamic learning environment where translators develop linguistic proficiency, technical literacy, and domain awareness simultaneously (Gouadec, 2007).

The multidisciplinary context further amplifies the importance of technology, as translators must process complex subject-specific materials that require rapid access to reliable information and terminological databases (Prieto Ramos, 2014). However, challenges such as teacher training, infrastructure limitations, and the risk of over-reliance on automated systems highlight the necessity for balanced pedagogical integration (Kenny, 2017).

Conclusion

The integration of digital information technologies into the methodological framework for training specialized translators significantly enhances the effectiveness

of translation education. Technology-driven instruction improves cognitive flexibility, terminological competence, and professional preparedness, equipping translators to meet the demands of multidisciplinary communication.

The study recommends the adoption of a hybrid methodological model that combines traditional translation pedagogy with advanced digital resources. Future research should explore long-term impacts and develop standardized frameworks for technology-based translator training.

Reference

1. Bowker L., Fisher D. Computer-aided translation // Handbook of Translation Studies / ed. by Y. Gambier, L. van Doorslaer. – Amsterdam : John Benjamins, 2010. – Vol. 1. – P. 60–65.
2. Braun V., Clarke V. Using thematic analysis in psychology // Qualitative Research in Psychology. – 2006. – Vol. 3, No. 2. – P. 77–101.
3. Creswell J. W., Plano Clark V. L. Designing and Conducting Mixed Methods Research. – 3rd ed. – Thousand Oaks : SAGE Publications, 2018. – 492 p.
4. Cronin M. Translation in the Digital Age. – London : Routledge, 2013. – 192 p.
5. Gouadec D. Translation as a Profession. – Amsterdam : John Benjamins Publishing, 2007. – 392 p.
6. Kenny D. The Routledge Handbook of Translation Technology. – London : Routledge, 2017. – 456 p.
7. Kiraly D. Project-Based Learning in Translator Education // Meta. – 2005. – Vol. 50, No. 4. – P. 1098–1115.
8. O'Brien S. Translation as Human-Computer Interaction // Translation Spaces. – 2012. – Vol. 1. – P. 101–122.
9. Prieto Ramos F. Legal Translation Studies. – London: Routledge, 2014. – 256 p.
10. Pym A. Exploring Translation Theories. – London: Routledge, 2010. – 240 p.
11. Bakirova X.B. Sohaviy tarjima jarayonida elektron resurslar: CAT vositalaridan foydalanish samarasi tadqiqi. Tarjimashunoslik va tilshunoslikning dolzarb muammolari: zamonaviy tendensiyalar va yondashuvlar. Haqaro ilmiy konferensiya. 2025 y. - 110 b. URL: <https://doi.org/10.5281/zenodo.17626230>
12. Bakirova X.B. Tarjima ta'limining lingvodidaktik asoslari Italian tilini xorijiy til sifatida o'qitishning dolzarb masalalari va yechimlari mavzusidagi xalqaro ilmiy-amaliy anjuman, Tashkent, 17 oktabr, 2025 y. - 14 b. URL: <https://doi.org/10.5281/zenodo.17394829>