

Information Technologies and Language: The Impact of CAT Systems on Improving the Efficiency of Translators' Training

Irina Anatolyevna Skripak*

Institute of Humanities, North Caucasus Federal University, Stavropol, Russia

Anastasia Vladimirovna Shatskaya

Institute of Humanities, North Caucasus Federal University, Stavropol, Russia

Ekaterina Vladimirovna Ukhanova

Institute of Humanities, North Caucasus Federal University, Stavropol, Russia

Anastasia Evgenievna Tkachenko

Institute of Humanities, North Caucasus Federal University, Stavropol, Russia

Nadezhda Aleksandrovna Simonova

Institute of Humanities, North Caucasus Federal University, Stavropol, Russia

Abstract—The translator uses programs with different functions designed to improve, optimize, and ensure the quality of the translation process. The ability to use automated translation programs and knowledge of various CAT and applied tools significantly improve the productivity and quality of work, leading to an increase in the translator's competitiveness. The purpose of the article is to show that the use of the functional capabilities of CAT systems in the implementation of written translation has a positive effect on forming contemporary professional and personal competencies of students, as well as on improving the quality of training of future translators. The article presents a comparative analysis of CAT programs, considers their main and advanced functional features, and identifies factors for improving the quality of student training in the course of integrating CAT systems into translation training. It is concluded that employing CAT systems in teaching translation leads to an increase in the quality of education in general. It brings the learning process closer to the working conditions of the real translation industry, orients students professionally, opens up opportunities to work with modern text formats and contents, and expands students' vision of the modern market of linguistic services and the relationship of linguistics with computer technologies. It also improves students' general computer literacy and their participation in real translation projects.

Index Terms—translation memory (TM), terminology management, machine translation, translation quality control

I. INTRODUCTION

The contemporary world of written translations is impossible to imagine without specialized software – automated translation systems called CAT (Computer-Assisted Translation, or Computer-Aided Translation) tools, or CAT systems. Thus, the European Commission's platform for language services LIND-Web has published a report in which it was noted that only 1% of translation companies in European countries do not use CAT tools (Karpińska, 2017). Therefore, Pym (2011) rightly points out that the possession of CAT tools has already become necessary for effective work in the field of translation. The main reasons for this are the following: 1) using CAT tools allows fulfilling translation orders much faster; 2) CAT tools ensure the consistency of the target language texts since they can contain integrated necessary terminological bases; 3) CAT technologies make it possible to save the translation results for further use due to the so-called Translation Memory (TM).

Thus, today, it is virtually impossible to work as a translator of written texts without mastering CAT tools (except for translators of fiction). Therefore, the issue of the need for students to master translation software during their studies is quite acute in terms of improving the quality of education.

A. Literature Review

* Corresponding Author

The concept and essence of CAT systems (CAT tools) are described in numerous studies (Table 1).

TABLE 1
THE CONCEPT AND ESSENCE OF CAT SYSTEMS

No	Definitions	Source
1	The computer-aided translation is a type of translation from one language to another, in which a human translator uses computer equipment to optimize the process and implement translation.	L. Bowker and D. Fisher (2010)
2	The main function of CAT tools is to memorize translated text fragments and their use in subsequent translations. This technology is called Translation Memory (TM), which represents a database that stores previous works for their possible reuse, as well as a quick search through the available content.	D.A. Folaron (2010)
3	CAT tools can learn through forming a large array of source texts and their ready-made translations, which must be loaded into a super-powerful multiprocessor. During the translation of new texts, analogs of fragments of these texts are selected from the mentioned array, which can be used to form the target text.	M. Olohan (2011)
4	Unlike machine translation systems, using a CAT program requires that a translator takes part in the translation process, performing their functions to the full.	B. Han (2020)

The issues of implementing CAT technologies in the training of future translators have been repeatedly raised both in the scientific and educational environments. Thus, Odacıoğlu and Kokturk (2015) consider changes in the academic training of translators associated with the implementation of CAT tools. Alotaibi (2014) analyzes the feasibility of using commercial and free translation software. The researchers describe in detail the TM operating mechanism and the types of TM software (Jiménez-Crespo, 2009), the advantages of such a technology for translation and the difficulties associated with their use (Bowker, 2015), as well as the prerequisites for the introduction of an automated translation training course (Çetiner, 2018; Qian, 2009).

Researchers (Bundgaard et al., 2016) illustrate the current state of the implementation of information technologies (Afanasyev et al., 2021; Kovalevskaia et al., 2021), including, CAT systems, in the training of translators. As shown in (Song et al., 2010), translation software has been widely included in the system of training translators: if not in the official programs of the relevant university departments, then in the form of special workshops and additional courses (Abdulkadyrov et al., 2021; Bobrova et al., 2021). This contributes to forming translation skills in students (Pym, 2013). The experience of implementing CAT-system courses in translation training programs is presented in (Chunzhi, 2014; Zhang & Yang, 2012).

However, the impact of the capabilities of CAT systems in the implementation of written translation on the quality of education remains little studied to date. We believe that the potential capabilities and positive changes in the training of translators associated with the transition to CAT-based translation are not sufficiently described. At the very least, it should be supplemented with several important aspects.

B. *The Hypothesis of the Study*

The hypothesis of the study: using the functionality of CAT systems in teaching translation leads to an increase in the quality of education in general.

C. *Research Objectives*

1. to carry out a comparative analysis of CAT programs and consider their main and additional functionality based on an expert survey;
2. to determine the factors for improving the quality of education in the course of integrating CAT systems into the teaching process of written translation;

The article consists of an introduction, a literature review, methods, results, their discussion, and conclusion.

II. METHODS

A. *Research Design*

To prove the hypothesis, a mixed type of research design was used, based on a combination of requirements for data collection and analysis, necessary for the implementation of the research goal. Therefore, we chose the following methods for collecting information:

- analyzing scientific literature using theoretical methods (analysis, synthesis, comparison, generalization) to study the research problem state and determine the most common CAT tools and their functionality;
- the expert survey method was used to carry out a comparative analysis of CAT tools and determine the factors for improving the quality of education in the course of integrating CAT systems into the field of translation training;
- ranking method, based on the number of experts mentions, was employed to determine the rank of CAT tools according to the proposed comparison criteria, as well as factors for improving the quality of student learning in the course of integrating CAT systems into translation training.

B. *The Research Procedure and Tools*

At the first stage of the research, the information sources, necessary for the implementation of the research goal were selected. They included articles published in journals indexed by Scopus and Web of Science and presentations made at conferences by researchers from different countries containing provisions on the essence of CAT systems and their implementation in the training of future translators (21 sources in total).

At the second stage, the most common CAT programs were selected based on the analysis of scientific literature. Their comparative analysis was carried out based on an expert survey (conducted by e-mail). At the same stage, the experts identified factors for improving the quality of training in the course of integrating CAT systems into translation training.

The criteria for selecting experts (25 people) were the presence of at least three articles on the concerned topic published in journals included in the Scopus or Web of Science citation databases or teaching experience of at least 12 years.

At the third stage, the collected information was analyzed followed by the interpretation of the results obtained.

C. Statistical Analysis

We employed numerical calculation methods using Microsoft Excel to calculate the percentage of expert mentions of factors improving the quality of learning in the course of integrating CAT systems into translation training.

III. RESULTS

Based on the analysis of scientific literature (Baar, 2013; Doherty et al., 2012; Erwen & Wenming, 2013; Juan & Yahaya, 2019), the most common CAT tools, used in translation training were identified. Their comparative analysis was carried out based on the expert survey (Table 2).

TABLE 2
COMPARATIVE ANALYSIS OF CAT TOOLS

No	CAT system	Comparison criteria					Rank
		Access	Payment	Translation efficiency	Functionality (level)	Interface	
1	SDL Trados Studio	PC installation	Paid	High	High	Complicated	1
2	Smartcat	Online	Free	High	Medium	Simple	2
3	Crowdin	Online	Paid	High	Medium	Simple	3
4	MemoQ	PC installation	Paid	High	High	Medium	4
5	OmegaT	PC installation	Free	Medium	Low	Medium	5-6
6	Memsources	PC installation, online	Paid	Medium	Medium	Complicated	5-6
7	MateCat	Online	Free	Medium	Low	Simple	7-8
8	Wordfast	PC installation	Paid	Medium	Medium	Complicated	7-8
9	Memsources	PC installation	Paid	Medium	Medium	Medium	9
10	Wordfast	Online	Free	Low	Low	Simple	10
11	Wordbee	Online	Paid	Low	Medium	Complicated	11-12
12	Deja Vu	PC installation	Paid	Low	Medium	Medium	11-12
13	CafeTran	PC installation	Free	Low	Low	Medium	13
14	XTM Cloud	Online	Paid	Low	Medium	Simple	14
15	Anywhere	Online	Free	Low	Low	Simple	15-16
16	Espresso	PC installation	Free	Low	Low	Simple	15-16

As shown by the analysis of scientific literature (Bowker & Fisher, 2010; Folaron, 2010; Olohan, 2011), the main functional features of CAT tools include TM, terminology management, machine translation, and translation quality control. Additional functionality of the CAT programs most preferred by experts is presented in Table 3 (the first three lines).

TABLE 3
ADDITIONAL FUNCTIONALITY OF CAT TOOLS

No	CAT tool	Functional features
1	SDL Trados Studio	- Supports more than 70 different file formats, has a built-in PDF document recognition function, which allows saving money on additional tools in certain cases; - Contains machine translation and post-editing tools integrated into the workflow; if no match is found for the translation unit, the program will substitute its machine translation into the target segment, which can then be edited; - Allows translating software products and electronic sources, such as websites, XML documents, whose translation causes difficulties using the traditional approach due to the need to monitor the integrity of tags
2	SmartCAT	- Supports SDL Trados packages, which allows using SmartCAT to work on projects originally intended for execution in the Trados environment, as well as to create outgoing packages that can later be uploaded to Trados; - Provides a translation collaboration feature that allows multiple translators to work on a single project together in real-time; - It is provided in the SaaS format (program as a service) and is available via the Internet
3	Crowdin	- A paid web platform aimed at developers of mobile applications, websites, documentation, games, etc.; - Crowdin's unique feature is crowdsourcing, i.e. the ability to invite users to help with the translation and localization of the product in other languages; - In addition to the usual translation formats (XLIFF, XML), it supports the translation of software, source code files, and applications for mobile platforms, such as Android, iOS, Windows 10 Mobile, etc.

According to the experts, the study and use of CAT systems in the course of receiving a professional translator's university education and the integration of CAT systems in teaching written translation allow improving the quality of education due to the following factors (Table 4).

TABLE 4
FACTORS OF IMPROVING THE QUALITY OF EDUCATION IN THE COURSE OF INTEGRATING CAT SYSTEMS IN TRANSLATION TRAINING

No	Factors, improving the quality of training	%*	Rank
1	Expanding the range of text formats that students can work with	84	1
2	Acquiring skills for editing the translation text in electronic format	80	2
3	Career guidance role of CAT programs	76	3
4	Familiarizing students with the direct duties of translator and obtaining practical work experience	68	4
5	Improving the general computer literacy of students, mastering a computer vocabulary in a foreign language	60	5

Note: compiled based on the expert survey; * – percentage of expert mentions.

IV. DISCUSSION

The factors for improving the quality of education in the course of integrating CAT systems in teaching written translation are considered more in detail in Table 4.

According to the experts, the expansion of the range of texts that the translation team directly works with concerns, firstly, the text formats. In the translation services, paper documents no longer are used. Today, electronic text formats are translated, more properly, the formats of the translation tools themselves. That is, the translator almost never sees the text in its original form and always deals with certain electronic translation files. According to one of the experts (Sergey N., 11 years of teaching experience), the transition to CAT-translation systems even during training, "on the one hand, makes the learning process more modern and closer to the real world of translation and, on the other, makes it possible to work with text types that are simply not available in the text editor format, for example, with websites or the user interface".

Even working with more common document formats in general use, such as .docx, pptx, xlsx, pdf, and html, students employing the CAT tools get acquainted with tags-metadata for text fragments (which denote, for example, graphic formatting of text or hyperlinks) that are in almost any translation file (Qian, 2009). As researchers (Song et al., 2010) note, tags make up significant difficulties for students. The absolute majority of them get acquainted with tags for the first time and do not understand the principles of working with them, while a professional translator constantly deals with tags in their practice.

Secondly, the experts note that the use of CAT systems also contributes to expanding the range of topics of texts for translation and bringing students closer to the real world of translation. Researchers (Jiménez-Crespo, 2009) point out that translating content in CAT tools is especially convenient for texts inaccessible for printing, for example, websites, interfaces of computer codes and applications, and video subtitles. Thus, the implementation of CAT programs in teaching translation courses makes it possible to work with modern content, which, certainly, has a positive effect on the quality of training.

The experts consider the career guidance role to be an equally significant positive factor in applying CAT tools. It consists in familiarizing students with the realities of their profession and the need to refer to the list of requirements of translation companies and identify exactly those tools and technologies that are most in-demand in the translation market.

Thus, according to one of the experts (Stanislav R., 9 years of teaching experience), getting acquainted with the translation software, students "begin to ask questions about the purpose of particular functions of the CAT system (for example, why it is necessary to mark 100% matches with the memory of translations that were specifically edited by the

translator). They have the interest to learn about how the translation process is organized in translation companies in general. They begin to see themselves in the translator's place, think about what kind of lifestyle the translator leads, whether the chosen profession corresponds to their inclinations and interests".

According to the experts, working with CAT tools also opens up opportunities for students to familiarize themselves with the direct duties of a translator and get practical experience in this industry already during training. In particular, the experts cite the example of the SmartCAT system, which is also a translation exchange. Students can continue their independent work on this resource after mastering the basics of its use. Working on translations in the SmartCAT system, students get the opportunity to not only translate text documents but also work on translating websites, as well as subtitles to video materials (for example, movies or TV series). According to one of the experts (Nikolay P., 10 years of teaching experience), "getting translation experience not only within the framework of training, when the translation is only checked by the teacher, but for real people, companies, and projects, the student sees a real goal and overcomes real difficulties that are associated with the today's working conditions of a translator in the contemporary world". This also plays a motivational role, because, as one of the experts (Leonid B., 8 years of teaching experience) clarified, "students can join on a volunteer basis or even as co-contractors in the development of platforms, such as TED, Coursera, Wikipedia, etc., which adds social significance to their training and practical activities". Also, participation in real projects can be used by students when creating their personal translation portfolio and plays a positive role in the further employment process (Pym, 2013).

In addition, working in the CAT environment improves the general computer literacy of students, as well as contributes to the assimilation of computer vocabulary in a foreign language, which is of great importance. The study (Bundgaard et al., 2016) shows that the translation industry needs better skills of graduates not only in terms of their mastery of CAT tools but also knowledge of general computer skills, such as, for example, converting files from one format to another.

There are two ways to implement CAT tools in the teaching of translation: to join one of the academic programs, for example, TRADOS (<https://www.tra-service.ru/academic>), which allows obtaining licenses of commercial translation programs for computer classes of universities on preferential terms (Alshynbaeva et al., 2021; Muratova et al., 2021), or to use available free translation software. Each of the ways has certain advantages. In the first case, it is the acquaintance of students with programs, which are relevant on the market and with which they will actually work in companies. In the second case, the advantages are independence from licenses, tests, and certification and the availability of software that students can start using for their own translations, including outside the educational process, at any time (Alotaibi, 2014).

It is advisable, even when training students working with commercial translation tools, to first familiarize them with free-access CAT tools, which have a simpler interface and, therefore, are easier to learn. While mastering them, it is not difficult to understand the basic principles and key components of more complicated translation tools, which greatly facilitates the mastery of multifunctional commercial programs.

V. CONCLUSIONS

As the results of the study show, the use of CAT systems in translation training brings the learning process closer to the conditions of the real translation industry and professionally orients students. It opens up opportunities to work with contemporary content and text formats, expands students' vision of the modern market of linguistic services and the relationship of linguistics with computer technologies, and improves students' general computer literacy and their participation in real translation projects.

Therefore, the hypothesis that using the functionality of CAT systems in teaching translation leads to an increase in the quality of education, in general, is confirmed.

In this regard, CAT systems are more than just optional tools in teaching translation. We consider it appropriate to introduce them into the training curricula of future translators.

Further research can be focused on detailed planning and methodological and didactic support of CAT-technology courses for each specific university that trains future translators.

REFERENCES

- [1] Abdulkadyrov, U. U., Pak, O. A., & Makushkin, S. A. (2021). Regulation of professional and labor relations of university teachers: International practice and national characteristics. *Revista Tempos E Espaços Em Educação*, 14(33), e15129. <https://doi.org/10.20952/revtee.v14i33.15129>
- [2] Afanasyev, V. V., Gracheva, O. A., Rezakov, R. G., & Voropaev, M. V. (2021). Ensino a distância aplicado à estudantes por meio de blogs informativos e educacionais [Distance learning of students through informational and educational blogs]. *Laplage Em Revista*, 7(Extra-A), 233-248. <https://doi.org/10.24115/S2446-622020217Extra-A798p.233-248>
- [3] Alotaibi, M. (2014). Teaching CAT tools to translation students: An examination of their expectations and attitudes. *Arab World English Journal*, 3, 65-74.
- [4] Alshynbaeva, M. A., Mazhitayeva, S., Kaliyev, B., Nygmetova, N., & Khamzina, G. S. (2021). Linguocultural anatomical code: Concept of sacredness. *Rupkatha Journal on Interdisciplinary Studies in Humanities*, 13(1), 1-13. <https://dx.doi.org/10.21659/rupkatha.v13n1.31>

- [5] Baar, D. (2013). Embedding technology in translation teaching: Evaluative considerations for courseware integration. *Computer Assisted Language Learning*, 26(4), 295-310. <https://doi.org/10.1080/09588221.2012.658406>
- [6] Bobrova, S. E., Popova, E. N., Sizova, Y. S., Orlova, L. N., & Polozhentseva, I. V. (2021). Professional foreign language competence formation using educational multimedia technologies. *International Journal of Education and Practice*, 9(1), 155–170. <https://doi.org/10.18488/journal.61.2021.91.155.170>
- [7] Bowker, L. (2015). General issues of translation technology. In C. Sinwai (Ed.), *The Routledge encyclopedia of translation studies* (pp. 88-104). New York: The Routledge.
- [8] Bowker, L., & Fisher, D. (2010). Computer-aided translation. In Y. Gambier, & L. van Doorslaer (Eds.), *Handbook of Translation Studies* (Vol. 1, pp. 60–65). Amsterdam: John Benjamins Publishing Company.
- [9] Bundgaard, K., Christensen, T. P., & Schjoldager, A. (2016). Translator-computer interaction in action – An observational process study of computer-aided translation. *The Journal of Specialized Translation*, 25, 106-130.
- [10] Çetiner, C. (2018). Analyzing the attitudes of translation students towards CAT (computer-aided translation) tools. *Journal of Language and Linguistic Studies*, 14(1), 153-161.
- [11] Chunzhi, D. (2014). Computer-aided translation in student's practical translation competence. In *Proceedings of the 3rd International Conference on Science and Social Research* (pp. 494-496). Atlantis Press. <https://doi.org/10.2991/icssr-14.2014.115>
- [12] Doherty, S., Kenny, D., & Way, A. (2012). Taking statistical machine translation to the student translator. In *Proceedings of the Tenth Biennial Conference of the Associations for Machine Translation in the Americas*, San Diego, California, USA (pp. 1-10). <http://dx.doi.org/10.13140/2.1.2883.0727>
- [13] Erwen, Z., & Wenming, Z. (2013). Application of computer-aided translation technology in translation teaching. *The International Journal of Emerging Technology in Learning*, 8(5), 15-20. <https://doi.org/10.3991/ijet.v8i5.2926>
- [14] Folaron, D. A. (2010). Translation tools. In Y. Gambier, & L. van Doorslaer (Eds.), *Handbook of translation studies* (Vol. 1, pp. 429-436). Amsterdam: John Benjamins Publishing Company.
- [15] Han, B. (2020). Translation, from Pen-and-Paper to Computer-Assisted tools (CAT Tools) and Machine Translation (MT). *Proceedings*, 63(1), 56. <http://dx.doi.org/10.3390/proceedings2020063056>
- [16] Jiménez-Crespo, M. A. (2009). The effect of Translation Memory tools in translated Web texts: Evidence from a comparative product-based study. *Linguistica Antverpiensia*, 8, 213-234.
- [17] Juan, L., & Yahaya, N. B. (2019). Research on application of computer-aided translation to translation teaching. *International Journal of Academic Research in Progressive Education and Development*, 8(4), 795-804. <http://dx.doi.org/10.6007/IJARPEd/v8-i4/6722>
- [18] Karpińska, P. (2017). Computer-aided translation – Possibilities, limitations, and changes in the field of professional translation. *Journal of Education Culture and Society*, 2, 133–142. <http://dx.doi.org/10.15503/jecs20172.133.142>
- [19] Kovalevskaia, N., Gilyazeva, E. N., Lobazova, O. F., Duborkina, I. A., & Sokolova, A. P. (2021). Impact of digital services of hybrid cloud-based learning environment on efficiency of education. *Revista Tempos E Espa ços Em Educa ção*, 14(33), e15297. <https://doi.org/10.20952/revtee.v14i33.15297>
- [20] Muratova, A. N., Mazhitayeva, S., Sarybayeva, B. Zh., Kelmaganbetova, A., & Kulibekova, Z. (2021). Non-verbal signs and secret communication as universal signs of intercultural communication. *Rupkatha Journal on Interdisciplinary Studies in Humanities*, 13(1), 1-9. <https://dx.doi.org/10.21659/rupkatha.v13n1.35>
- [21] Odacıođlu, M. C., & Kokturk, S. (2015). The effects of technology on translation students in academic translation teaching. *Procedia - Social and Behavioral Sciences*, 197, 1085-1094. <http://dx.doi.org/10.1016/j.sbspro.2015.07.349>
- [22] Olohan, M. (2011). Translators and translation technology: The dance of agency. *Translation Studies*, 4(3), 342-357. <https://doi.org/10.1080/14781700.2011.589656>
- [23] Pym, A. (2011). What technology does to translating? *The International Journal for Translation & Interpreting Research*, 3(1), 1-10.
- [24] Pym, A. (2013). Translation skill sets in a machine translation age. *Meta: Translators' Journal*, 58(3), 487-503. <http://dx.doi.org/10.7202/1025047ar>
- [25] Qian, D. (2009). Reflection on the teaching mode of computer-aided translation course. *Chinese Translator Journal*, 4, 49-54.
- [26] Song, X., Zhang, P., & Wang, D. (2010). Curriculum design reform in application-oriented translation talents training. *Journal of Xinxiang University*, 24(6), 189-191.
- [27] Zhang, Z., & Yang, Y. (2012). Exploration and application of MTI CAT practical ability. *Shanghai Journal of Translators*, 2, 44-47.



Irina Anatolyevna Skripak is an Associate Professor of the Department of Foreign Languages for the Humanities and Natural Sciences, Institute of Humanities, North Caucasus Federal University, Stavropol, Russia. Received the degree of candidate of philological sciences in 2008.

The main subjects taught include Foreign Language (English), Foreign Language in Professional Communication, Business Foreign Language (English).

Author of about 30 scientific papers in Philology and Pedagogics.



Anastasia Vladimirovna Shatskaya is an Associate Professor of the Department of Foreign Languages for the Humanities and Natural Sciences, Institute of Humanities, North Caucasus Federal University, Stavropol, Russia. Received the degree of candidate of pedagogical sciences in 2002.

The main subjects taught include Foreign Language (French), Foreign Language in Professional Communication (French), Business Foreign Language (French).

Author of about 30 scientific papers in Philology and Pedagogics.



Ekaterina Vladimirovna Ukhanova is an Associate Professor of the Department of Foreign Languages for the Humanities and Natural Sciences, Institute of Humanities, North Caucasus Federal University, Stavropol, Russia. Received the degree of candidate of philological sciences in 2005.

The main subjects taught include Foreign Language (English), Foreign Language in Professional Communication, Foreign language in the field of jurisprudence (English).

Author of about 45 scientific papers in Philology and Methods of language teaching.



Anastasia Evgenievna Tkachenko is an Associate Professor of the Department of Foreign Languages for the Humanities and Natural Sciences, Institute of Humanities, North Caucasus Federal University, Stavropol, Russia. Received the degree of candidate of political sciences in 2009.

The main subjects taught include Foreign Language (English), Foreign Language in Professional Communication, Business Foreign Language (English).

Author of about 35 scientific papers in Philology and Methods of language teaching.



Nadezhda Aleksandrovna Simonova is an Associate Professor of the Department of Foreign Languages for the Humanities and Natural Sciences, Institute of Humanities, North Caucasus Federal University, Stavropol, Russia. Received the degree of candidate of pedagogical sciences in 2004.

The main subjects taught include Foreign Language (English), Foreign Language in Professional Communication, Business Foreign Language (English).

Author of about 40 scientific papers in Pedagogics, Methods of language teaching, and Intercultural Communication.