Information and technology case as an indicator of information competence level of the translator

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Abstract. The article deals with the innovative approach to the organization of the information training of translators. The proposed approach will ensure not only the formation of information competence of future translators, but also the formation of an individual information and technology case of the translator. The components of an individual information and technology case are determined. They may include electronic terminology databases, translation memory databases for use in automated translation systems, databases of electronic links to terminological resources network, databases of electronic links to corpora of parallel texts. The using information and technology case of the translator as one of the diagnostic tools for evaluating the information competence level of the translator is proposed. It was found that the creating information and technology case is effective in developing information literacy and improving information technology skills.

Keywords: innovative approach, information technology, information and technology case, information competence of future translators.

1 Introduction

The realities of the information society lead to radical changes in the conditions and nature of professional activities of specialists in all spheres of life. Special transformations relate to professions that have traditionally been not closely linked with the use of information technology, in particular, professional translation activities. Appropriate reorientation is also needed in higher education institutions that train translators. Given the rapid development of information technologies that affect, in particular, scientific

and technical translation, and based on a competent approach to the training future professionals, it is important to focus on the development of information competence of translators. The development of this competence will enhance the competitiveness of current students in the market of translation services. In view of this, the search and implementation of innovative approaches to information training of translators in the process of their study is relevant.

2 Related work

The specification of an optimal translator's competencies complex that meets modern requirements and takes into account the technology of translation activities was investigated by domestic and foreign scientists, in particular, Oleksandr S. Bondarenko [4], Christiane Nord [8], Alla S. Olkhovska [9], Dennis Scheller-Boltz [11], and others. All researchers agree that, along with language knowledge, the knowledge of modern translation tools based on specialized information technologies is equally important.

In particular, Dennis Scheller-Boltz notes that in the CIS countries today there is no understanding of the integral complex of competencies of the professional translators, or it is only partial and has not sufficiently developed yet. So far, many translators believe that language competence is a dominant in the translation process. Without denying that knowledge of a foreign language is one of the main components of the translator's competencies complex, the scientist states that nonetheless, many other competencies, in particular informational, should be formed for the successful translation [11].

The Research group PACTE (Process in Acquisition of Translation Competence and Evaluation — Amparo Hurtado Albir (director), Allison Beeby, Mònica Rodríguez Fernández, Olivia Fox, Inna Kozlova, Anna Kuznik, Wilhelm Neunzig, Patricia Rodríguez-Inés, Lupe Romero Ramos), on the basis of the Autonomous University of Barcelona (Universitat Autònoma de Barcelona), has developed a model of competence of the translator, emphasizing the need to take into account the knowledge of various components due to the translation process. According to scientists, the competence of the translator consists of five subcompetencies, namely:

- language competence, that involves fluent knowledge of two languages,

- extra-language competence, that covers different types of background knowledge,

- translation competence, that means the ability to translate in working languages,

- strategic competence, related to knowledge and decision making on the choice of translation strategy,

- instrumental competence, related to modern information tools of translator based on information technologies [10].

In order to develop information and technological skills, Christiane Nord offers the structure of a training program for technical translators, according to which the course "Practice and theory of specialized translation" should be studied during the last two semesters and involve studying both traditional and electronic translation tools [8].

However, despite the available work of scientists, an effective system of formation of the information competence of the translators has not been developed yet.

The purpose of the article is to consider innovative approaches to the information training of the future translators at different stages of mastering information technologies and to determine their content and tasks in relation to the formation of an individual information and technological case of the translator.

3 Research methodology

The methodology of the study covered a number of methods that provided for the study of individual aspects of the problem, namely:

- method of analysis and synthesis in the study of scientific literature and methodological documentation to determine the degree of problem investigation;

- comparative analysis of international standards for the training translators, standards for their professional activities to distinguish the main components of the informational competence of future translators;

- empirical methods — questionnaires, interviews, interviews to determine the attitude of future translators to the issue of information competence.

4 Research results

The problem of forming the informational competence of future translators during their studies at the university is considered in the context of concepts developed by scientists. They are based on numerous theoretical

and empirical studies on the implementation into the educational process of various forms of educational work, methods and means of training that in aggregate contribute to the achievement of students by such level of knowledge of information technology, which is necessary for successful professional activities.

It is worth noting that the researchers expressed the idea of a close relationship of information competence and ways of interaction of a person with information, which is determined by a set of three main components: information technology, conditions of use of information and features, due to special circumstances. This understanding has been reflected in a distinct complex of concepts that summarize the main characteristics of the information competence:

- information technology conception — using information technology for information retrieval and communication;
- information sources conception — finding information;
- information process conception — executing a process;
- information control conception — controlling information;
- knowledge construction conception — building up a personal knowledge base in a new area of interest;
- knowledge extension conception — working with knowledge and personal perspectives adopted in such a way that novel insights are gained;
- wisdom conception — using information wisely for the benefit of others [5].

Variable components, which depend on the particular circumstances of use of the information, are as follows:

- information technology for access to relevant information;
- information sources (including organizational structures and information specialists);
- information process for problem solving and decision making;
- information management to get more information;
- critical analysis of ideas and knowledge expansion;
- intuition to develop new ideas;
- personal values and moral perceptions regarding the use of information.

Taking into account the aforementioned, the successful mastering of the modern translator's tools by the future specialist depends on his awareness of the growing prospect of no alternative to the use of information technology in translation. In order to determine the degree of awareness of the role of information technology in translation activities at the present stage and the importance of their study during the training period, a questionnaire was conducted among future translators. 68 students of the specialty "Translation" of the National University of Life and Environmental Sciences of Ukraine attended it. As a result, it was found, that 87% of students noted the need to study information technology in translation. In addition, 26% of respondents even expressed the need for an in-depth study of modern translator tools based on information technology. This testifies to the urgency of finding new approaches to the organization of the educational process in order to improve the information training of translators.

Among the innovations that can contribute to improving the effectiveness of informational competence formation in future translators, the following should be noted:

- orientation of professional training of translators to the requirements of European and international standards for the formation of information competence as a factor in ensuring their competitiveness in labor markets;
- direction of the content of courses of professional and practical training for forming the components of information competence;
- implementation into the curriculum of a special course, which will ensure the formation of the components of information competence in applying modern information technology in professional activities;
- internships in translation agencies using modern tools based on information technology involving students to the main stages of translation projects [2].

The enhancement of the synergetic effect in applying these innovations in mastering modern information technologies by future translators can be achieved by introducing such a system of their training that would involve the formation of their information competence. It includes the acquisition of abilities through the implementation of a complex of translation tasks with simultaneous filling throughout the period of training of an individual information and technology case of the translator. Under the information and technology case of a translator, we understand the complex of student

outcomes, which reflects his ability to use information technology in translation and for which he must focus his efforts during studying.

The conceptual idea of such an approach is that the student develops, at the initial stage of training, under the guidance of a tutor, his own working plan for the period of study, which includes a phased implementation of a series of tasks aimed at:

- in-depth mastery of the terminology of several specialized branches;
- search for available terminology resources databases, including those selected for in-depth study;
- development of own terminology databases in formats that can be used when working with automated translation systems;
- formation of bases of aligned parallel texts and translation memories databases in specialized formats based on the results of their own translation activities and using materials that are freely available;
- translation of branch materials using desktop and cloud automated translation systems;
- expansion of its own information space by participating in network professional communities (forums, blogs, webinars, conferences);
- research on the efficiency of the use of information technology in translation.

Successful implementation of this process can be achieved by clearly defining the results that a student must achieve; stages of achieving these results; the components of the information competence of the translator, the formation of which ensures the execution of the specified set of tasks. It is worth noting that it is necessary to adhere to the definition of the structure of the stages of such activity, their correlation with the classical division of the educational process for periods, and most importantly with the levels of knowledge by future translators of information technology [2].

Considering in this context the process of forming a coherent structure of the informational competence of the future translators, it is worth noting that its content should be consistent with the standards of leading foreign countries that regulate the quality and order of providing translation services. The most common of these standards are International ISO 17100:2015 "Translation Services — Requirements for translation services" [7] and American ASTM F2575–14 "Standard Guide for Quality Assurance in Translation" [3]. These standards define a common list of competencies of the translator, which generally coincide in name and content, and in particular, the structure of information competence.

An important aspect in shaping the structure of the information competence of the translator is taking into account the elements of information competence identified in the European Master's program (European Master's in Translation) [6].

Summarizing the requirements of these documents and the experience of training translators, we consider it appropriate to form the information competence of the translator in the list of components that cover the most significant aspects of their information training, namely the complex of such components:

- information retrieval component;

- information and technology component;

- informational and technical component;

- informational and analytical component;

- information and editorial component;

- informational and thematic component;

- information and legal component [12].

By concentrating on filling the information and technology case of a translator by each student, it is necessary to determine its components in a quantitative and qualitative dimension, because of which it will be possible to assess the level of formation.

Given that such levels can be used as indicators of the formation of an information competence of a translator, each level should have a separate set of constituents with defined quantitative indicators, or these components can be repeated at different levels but with other numerical limits. In addition, each higher level must contain at least one component that was not available at the previous level and is characterized by a higher complexity of its implementation. The number of levels for the expediency of determining the completeness of the information and technology case of the translator should be defined as four, which corresponds to the levels of formation of the information competence of the translator: low (reproductive), medium (technologized); sufficient (constructive), high (productive) [12].

Considering the above, the information and technology case of a translator may include several indicator. The list and the quantity may vary, and depending on the level of their implementation, it will be possible to determine the level of formation of the student's information competence. In particular, such components may include:

- database of software products for performing various translation tasks, taking into account information about the type and value of the license;

- databases of electronic links to network terminology resources;

- electronic terminology databases of branch terminology;

- databases of aligned parallel texts;

- translation memory databases for use in automated translation systems;

- database of texts translated using CAT systems;

- databases of electronic links to corpora of parallel texts;

- database of network professional communities, registration and participation;

- scientific articles covering various aspects of the use of information technologies in translation;

- certificates of internship in agencies and organizations, including international ones, using information technology in translation;

- certificates of the level of knowledge of specialized software in translation (companies, their dealers, certification centers, etc.).

The practical realization of the components of this complex must certainly be provided for the instrumental support, which in this case is realized by means of specialized software. Since it is about using this software by students during training, it is worth noting that the use of professional proprietary software has certain limitations associated with its cost. In this regard, students should be oriented, preferably, to studying and using for these purposes software with a free license, or cloud services with available periods of free access or access for a minimum fee. This option of using specialized software by students is realistic, as a significant number of companies offer services on the use of cloud-based automated translation systems, which implement the functions of creating terminology bases, aligning parallel texts, creating databases for translation, etc. The presence of such functions will allow realizing the overwhelming part of the set of components of the information and technology case of the translator. Such systems are MemSource, Wordfast Anywhere, XTM Cloud, MateCat, MemoQ, smartCAT. There is also a significant number of desktop software products with open source licensed, that have similar features.

As noted, one of the components of the information and technology case is the electronic terminology database of the branch terminology. The ability to implement such a component lies at the heart of many technological processes associated both with translation and with terminology management. In particular, it should be noted that, depending on the needs, such databases could be made in different structures, in different formats and by different software tools [1].

The simplest and most widespread form of structuring terminological entries and forming terminology databases on this basis is the tabular form that is usually implemented by means of the MS Excel table processor and the saving results in the format of XLSX. Applying this option allow to structure the terminology entries in the columns by language, and within the line, there is a concentration of entries, which relate to one term. The advantages of such structuring terminological data and using the appropriate format are:

- wide access to relevant software products in the structure of many desktop and network office packages (Office 2019; Office 365; Google Sheets, etc.), with the help of which it is possible to structure data in tabular form and save results in XLSX format;

- previous experience with the use of tabular editors and processors for structuring data in tabular form;

- universality of the XLSX format for saving terminology databases, since almost all network automated translation systems and part of desktop systems can work with them directly in this format or with certain transformations to their own format.

The slight differences in the preparation of terminology databases in the XLSX format for various automated translation systems lie predominantly in the area of application of the corresponding language coding systems in accordance with the standards ISO 639–1 and ISO 3166–1 alpha-2 (Figures 1, 2). Although in some cases, it is necessary to take into account possible changes in the structure of the base.

Taking into account the peculiarities of the preparation of this component of the information and technology case of the translator, its formation with different quantitative indicators should be part of the case formed at the initial and subsequent levels.

The higher level of the formation of the case, and, accordingly, the information competence, must meet the developed terminology database in specialized formats, which can be connected to the common automated translation systems. In particular, SDLTB terminology databases for

SDL Trados (Figure 3) can be included. Despite the fact that SDL MultiTerm specialized terminological management system is required to create and fill it, it is possible to achieve qualitatively new indicators of their informativeness and technology, in particular by filling descriptive fields, using filtering functions, etc. In this context, it is necessary to focus separately on the possibility of filling the information-technological case by forming and saving terminology bases directly in the environment of the CAT systems. Since almost all cloud-based CAT systems contain tools for filling them in various ways, in particular, importing terms from files, adding terms using the appropriate forms and functions (Figure 4), adding terms directly in the translation process, etc. Such options can be implemented during the period of work with the information technology case using the available tools.

	A	B	C
	en_US	**en_US**	**uk_UA**
2	multishare plow	multifurrow plow	багатокорпусний плуг
3	corn cutter	corn mower	жатка кукурудзяна
4	sweer-fork feed	shaker feeder	живильник вібраційний
5	grass drill	grass seeder	трав'яна сівалка
6	hi-arch tractor	high-clearance tractor	висококліренсний трактор
7	caterpillar tractor	crawler tractor	гусеничний трактор
8	wheel tractor	wheel-type tractor	колісний трактор
9	power take-off shaft	pto shaft	вал відбору потужності

Fig. 1. Structure of the branch terminology database in XLSX format with the possibility of using it in cloud-based CAT systems XTM Cloud, MemSource, Wordfast Anywhere

	A	B	C
	English	**English**	**Ukrainian**
2	corn harvester	maize harvester	кукурудзобиральна машина
3	corn sorting machine	maize sorting machine	кукурудзоочищувальна машина
4	hulling machine	hulling separator	лущильна машина
5	packaging machine	packager	пакувальна машина
6	compress machine	press machine	пресувальна машина
7	drum-type washer	rotary washer	барабанна мийка
8	apron washer	belt washer	конвеєрна мийка
9	agitator	mixer	мішалка

Fig. 2. Structure of the branch terminology database in the format of XLSX with the possibility of its further conversion and use in the SDL Trados
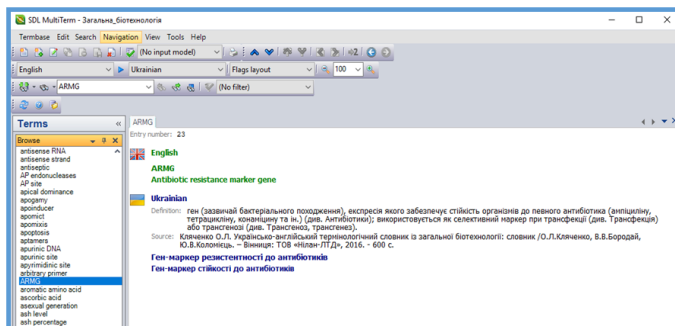
Fig. 3. Structure of the window and tools of the SDL MultiTerm system for working with the terminology database in .sdltb format
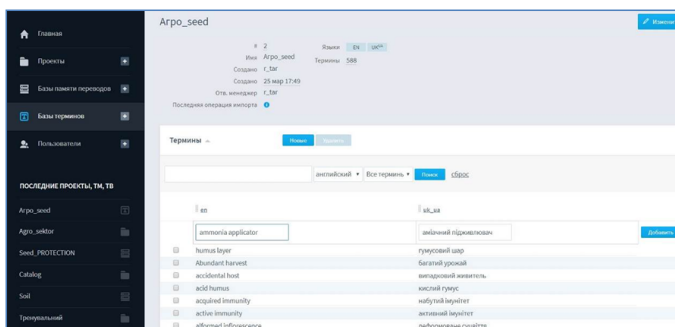

Fig. 4. Structure of the window and tools of the cloud-based CAT system MemSource for working with the terminology database

A special place in the structure of the components of the information and technology case of the translator take the translation memory, since it is based on the work of the main modern tools in translation, namely, automated translation systems. A future translator can reach a certain level of filling his own translation memory databases during studying by performing appropriate operations and using specialized tools. In particular, the most accessible in this aspect may be actions aimed at the use of predefined databases of aligned parallel texts in appropriate formats for filling such databases, or saving the results of translations by using automated translation systems. That is, the implementation of this component of the information technology case is closely related to two

other components, namely, the formation of a database of aligned parallel texts and the development of a translation memory database using CAT systems.

Alignment of parallel texts can be done both with the use of desktop systems and with the toolkit that is in the structure of cloud-based CAT systems. In particular, a powerful tool for aligning parallel texts is the WinAlign program, which is part of the structure of the SDL Trados system, but it relates to proprietary software. To this end, the software Okapi Olifant Translation Memory Editor, which has a free license for use, can be successfully used and, accordingly, is available for use in the studying process and in self-study work. These software products can save the alignment results of parallel texts in a specialized TMX format that can be directly used as a translation memory database in some CAT systems, and it serves for such systems as SDL Trados as the main resource for importing into a database stored in SDLTM format.

As noted, alternatives to desktop systems may be appropriate tools for cloud-based systems. The process of aligning parallel texts in cloud-based CAT systems occurs mainly in automatic mode, with subsequent loading of files in the format XLSX to a personal computer (Figure 5).

Fig. 5. Fragment of aligned parallel texts base by cloud-based CAT system MemSource in the format of XLSX

Formation of other identified components of the information and technology case of a translator is no less important than those discussed in

more detail above and is an important indicator of students' knowledge of the information technologies used in translation process.

Table 1. The correlation of the results of the formation of an information and technology case of a translator with the level of information competence

The for-mation level of infor-mation and techno-logy case	Components of information and technology case	Quantitative indicators of the components of the information technology case	The level of the infor-mation compe-tence
1	2	3	4
I	Database with a list of software products for performing various translation tasks	Up to 5 products	low (re-pro-ducti-ve)
	Database of electronic links to network terminology resources	Up to 5 links	
	Electronic terminology databases in XLSX format	Up to 500 terms	
II	Database with a list of software products for performing various translation tasks	At least 10 products	medium (tech-nolo-gized)
	Electronic terminology databases in XLSX format	At least 2000 terms	
	Databases of aligned parallel texts	Up to 1000 segments	
	Database of electronic links to corpora of parallel texts	Up to 5 links	
	Database of network professional communities, registration and participation	Up to 5 links	
III	Electronic terminology databases in formats XLSX, SDLTB	At least 5000 terms	suffi-cient (con-struc-tive)
	Databases of aligned parallel texts	More than 5000 segments	
	Translation memory bases for use in automated translation systems	More than 7000 segments	
	Base of texts translated using CAT systems	More than 50,000 characters	
	Database of network professional communities, registration and participation	Up to 5 links and parti-cipation in 1 of them	
	Scientific publications	Up to 2 publications	
	Certificates of internship in agencies and organizations	Not less than 1	

Continuation of Table 1

1	2	3	4
IV	Electronic terminology databases in formats XLSX, SDLTB	At least 7000 terms	high (productive)
	Translation memory bases for use in automated translation systems	More than 15,000 segments	
	Base of texts translated using CAT systems	More than 50,000 characters	
	Database of network professional communities, registration and participation	Up to 7 links and participation in 2 of them	
	Certificates of the level of skills of the use of specialized software in translation	Not less than 1	
	Certificates of internship in agencies and organizations	Not less than 2	
	Scientific publications	More than 2 publications	

The results of systematization of the aforementioned aspects of the formation of the components of the information and technology case of the translator in quantitative and qualitative dimensions, which are correlated with the levels of formation of information competence, are given in Table 1.

The structuring of data summarized in the data table concerning the qualitative and quantitative indicators of the information and technology case of the translator can be used as one of the diagnostic tools for determining the levels of formation of the information competence of the translator, which was carried out during the experimental study.

The overall sample consisted of 96 students. They were assigned to experimental group and control group so that each group comprised 48 students. The analysis carried out at the end of the experiment based on control diagnosis showed significant changes in the experimental group (Table 2).

In particular, the number of students in the experimental group, which had a low level of information competence formation at the beginning of the experiment, decreased from 69.6% to 15.2%. At the same time, positive dynamics is observed also at the average level, where the growth was 13.0%. The effectiveness of the study of information technology, typical of translation process, to increase the level of information competence of future translators is that 34.8% of students have reached a sufficient level and 6.5% the high level, although at the beginning of the experiment there were no students at all such levels of information competence.

Table 2. Dynamics of formation levels of information competence

Levels	Control group		Experimental group	
	at the beginning of the experiment, %	at the end of the experiment, %	at the beginning of the experiment, %	at the end of the experiment, %
low (reproductive)	68.1	59.6	69.6	15.2
medium (technologized)	31.9	38.3	30.4	43.5
sufficient (constructive)	0.0	2.1	0.0	34.8
high (productive)	0.0	0.0	0.0	6.5

5 Conclusions and future work

Based on the study, an approach has been proposed that can contribute to the achievement of high efficiency in the formation of an integral structure of information competence of translators. This approach is based on the orientation of the student on the creation of an information and technology case of the translator. It is determined that the indicator of the level of formation of information competence is the completeness of a certain set of components of such a case. The translator's information technology case includes a set of components that reflect a list of the most important information, terminological and technological resources that can contribute to the successful implementation of translation projects in educational and professional activities.

Thus, it is possible to create the prerequisites for successful start of professional activity of future translators, determining and evaluating the completeness and level of formation of the translator's information and technology case during the implementation of an individual plan by each student. It is due to the availability of important developments in information resources and knowledge of information technologies with a confirmed level of formation of information competence.

Findings of the present study have revealed the need to undertake further research works in many related areas. Further scientific studies may be related to the development of methodological aspects of the formation of the components of the information and technology case of the translator.

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