PECULIARITIES OF TRANSLATION OF SCIENTIFIC LITERATURE VOCABULARY FROM POLISH INTO UKRAINIAN

PECULIARIDADES DA TRADUÇÃO DO VOCABULÁRIO DA LITERATURA CIENTÍFICA DO POLONÊS PARA O UCRANIANO

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Abstract. The translation challenges encountered within the domain of scientific vocabulary represent a distinct area of research that has garnered significant attention from the scientific communities in both Ukraine and Poland in recent years. This topic holds utmost significance and warrants thorough investigation. The research focuses on the theoretical and practical aspects of translation, encompassing the functions of translation, the utilization of various styles and vocabularies, and their influence on the target audience. Furthermore, it examines translation techniques and pedagogical approaches employed to develop translation skills. The primary objectives of this study are twofold: firstly, to identify the specificities involved in translating scientific literature vocabulary while imparting translation skills, and secondly, to assess the impact of innovations and technologies on the effectiveness of Polish to Ukrainian translations. A comprehensive methodology will be employed to fulfill the aims of this research endeavor. The principal methodology employed in this study is the pedagogical experiment, complemented by statistical methods, the observation method, and the descriptive method. The primary hypothesis posits that an examination of the intricacies associated with translating Polish vocabulary into Ukrainian will facilitate the integration of digital technologies within the educational process. Moreover, it is hypothesized that a comprehensive understanding of the peculiarities involved in translating scientific vocabulary will contribute to the enhancement of academic performance, subsequently augmenting the translation skills of students and prospective translation specialists. The outcome of this study aims to substantiate the efficacy of integrating innovative approaches into the instruction of translating scientific texts from Polish into Ukrainian. The findings from the conducted pedagogical experiment reveal promising prospects for implementing initiatives within the domain of scientific and popular science text translation. Future research endeavors will delve into areas such as translation theory and practice, the significance of terminology and book vocabulary within Polish-language texts, exploration of the distinctive role played by the tradition of employing and composing scientific vocabulary, and the utilization of contemporary technologies to streamline the translation process.

Keywords: Polish language, Ukrainian language, language skills, teaching methods, translation, scientific vocabulary, terminology, equivalents.

Resumo. Os desafios de tradução encontrados no domínio do vocabulário científico representam uma área distinta de pesquisa que atraiu atenção significativa das comunidades científicas da Ucrânia e da Polônia nos últimos anos. Este tópico é de extrema importância e merece uma investigação completa. A pesquisa enfoca os aspectos teóricos e práticos da tradução, abrangendo as funções da tradução, a utilização de vários estilos e vocabulários e sua influência no público-alvo. Além disso, examina técnicas de tradução e abordagens pedagógicas empregadas para desenvolver habilidades de tradução. Os objetivos principais deste estudo são duplos: primeiro, identificar as especificidades envolvidas na tradução do vocabulário da literatura científica ao mesmo tempo em que transmite habilidades de tradução e, segundo, avaliar o impacto das inovações e tecnologias na eficácia das traduções do polonês para o ucraniano. Uma metodologia abrangente será empregada para cumprir os objetivos deste esforço de pesquisa. A principal metodologia utilizada neste estudo é a experimentação pedagógica, complementada pelos métodos estatísticos, pelo método de observação e pelo método descritivo. A hipótese principal postula que um exame das complexidades associadas à tradução do vocabulário polonês para o ucraniano facilitará a integração das tecnologias digitais no processo educacional. Além disso, é hipotetizado que uma compreensão abrangente das peculiaridades envolvidas na tradução de vocabulário científico contribuirá para a melhoria do desempenho acadêmico, aumentando posteriormente as habilidades de tradução de estudantes e futuros especialistas em tradução. O resultado deste estudo visa comprovar a eficácia da integração de abordagens inovadoras no ensino da tradução de textos científicos do polonês para o ucraniano. Os resultados da experiência pedagógica realizada revelam perspectivas promissoras para a implementação de iniciativas no domínio da tradução de textos científicos e de divulgação científica. Esforços de pesquisa futuros se aprofundarão em áreas como teoria e prática da tradução, o significado da terminologia e do vocabulário de livros em textos em língua polonesa, exploração do papel distintivo desempenhado pela tradição de empregar e compor vocabulário científico e a utilização de tecnologias contemporâneas para simplificar o processo de tradução.

Palavras-chave: língua polonesa, língua ucraniana, habilidades linguísticas, métodos de ensino, tradução, vocabulário científico, terminologia, equivalentes.

INTRODUCTION

Within the realm of translation theory and practice, the translation of scientific and popular science texts holds a distinct position. While the translation from Polish into Ukrainian adheres to general translation methodologies, the peculiarities of translating scientific literature are closely linked to word usage intricacies. Notably, this entails the incorporation of specialized professional vocabulary, terms, and quasi-terms. The potential for achieving a translation of superior quality and accuracy is further complicated by the presence of fixed expressions that are employed following the tradition, style, and language of the original text.

A meticulous translation of a scientific text from Polish places emphasis on the precise utilization of scientific vocabulary, the coherence and structure of the discourse, the logical arrangement of specific lexemes within a sentence, and their interconnectedness with the overall text. Extensive research has also underscored that the Polish language and scientific style exhibit a distinctive lexical stratum, comprising terms and expressions categorized as book vocabulary within the Polish literary tradition. These terms frequently originate from foreign languages and retain their original form within the source language (Bergen, 2010; Puranik, 2020).

The dynamics of scientific advancement, the surge in research activities, and the enhanced sharing of experiences have been greatly facilitated by modern technologies, which expedite the process of interaction and grant convenient access to information. Consequently, the demand for the translation of specialized scientific texts has escalated. In the context of translating articles for international scientific journals, there are instances where a translator may simply need to proofread the text already translated by the author. However, there are also situations where the translator must endeavor to bridge the linguistic and cultural gaps, ensuring that the scientific text resonates with the target community (Pieńkos, 2003).

The translation process from Polish involves the adaptation of scientific vocabulary, including terminology, proper names, and fixed expressions, which may lack direct equivalents in the target language. As a result, translators must endeavor to identify and utilize expressions that are commonly employed in the Polish language (Kozłowska, Z., 2007). Notably, several researchers highlight that the domains of medicine and technical sciences represent prominent sectors that extensively rely on the services of translators (Kim, Eun-Young, 2011). Additionally, the translation needs within interdisciplinary studies are equally significant, encompassing the social and humanitarian fields of scientific knowledge. The Partnership for 21st-century Learning (2020) emphasizes the necessity for professionals in various fields to possess foreign language proficiency and continually enhance their learning and translation techniques. The translation of texts into Polish is no exception to this requirement.

In the overall context of the global labor market, the demand for Polish translators, particularly those specializing in scientific texts, necessitates professionals who possess a comprehensive understanding of the intricacies associated with translating scientific vocabulary. Consequently, universities play a crucial role in enhancing translation teaching methodologies, standardizing practices, and incorporating modernized instructional technologies within this domain (Ko, et al., 2013). These endeavors collectively contribute to the development of a requisite skill set and knowledge base for translators of scientific texts (Salinas, 2007).

The functional approach represents a contemporary and efficacious method in scientific translation (Kiraly, 2015). Grounded in a pragmatic perspective, this approach conceptualizes translation as a distinct activity, encompassing a systematic algorithm. This algorithm comprises several key stages, namely the analysis of the translation situation, the construction of the text body, and the description of the final translation outcome, i.e., the completed target text (Vienne, 2010). Throughout each stage, advanced technologies are employed to facilitate the translation process.

Studies on the specifics of working with scientific translation and relevant vocabulary (Arbol del, 2018) note that translations of the scientific style are extremely difficult for students. The research goal is to facilitate the process of mastering the specifics of working with scientific vocabulary, teaching translation activities step by step with a parallel familiarization with the traditions of the book language, rhetoric, and the use of terms in the Polish language. Therefore, it is also important to familiarize yourself with new technologies for creating translations of the latest translation methods combined with a wide range of possibilities of modern digital technologies.

Furthermore, the training of translation specialists necessitates the inclusion of dedicated case studies that address the complexities encountered in translating lexical units, as well as the development of rapid orientation techniques within specific fields of knowledge relevant to the translation process.

Regarding the nature and intricacies involved in translating scientific, technical, and medical texts from Polish (Lambeinová, 2018), several distinctive principles have been identified. These include the presence

of terminology derived from Greek and Latin origins, the frequent occurrence of neologisms, tautology, complex sentence structures, and nominalizations. Additionally, the use of specialized terminology, abbreviations, and units of measurement, as well as the particularities of employing passive constructions, are notable features of such translations.

Consequently, the translation of scientific vocabulary into Polish represents a complex undertaking. Achieving proficiency in translation skills and competencies requires substantial dedication and an extended learning trajectory. Therefore, the integration of innovations aimed at streamlining this process, in combination with the utilization of digital technologies, is highly desirable and indispensable.

AIMS

The objective of this study is to ascertain the specificities involved in translating scientific literature vocabulary during the instruction of translation skills. Additionally, it aims to evaluate the influence of innovations and technologies, particularly advancements in educational technologies and the evolution of translation methods, on the efficacy of translations from Polish into Ukrainian.

Aligned with the research objective, the study aims to accomplish the following tasks:

- identify variations in the comprehension and translation of scientific vocabulary in Polish.
- determine the extent to which digital technologies are utilized in the translation of texts containing scientific vocabulary.
- establish a rating system to assess the challenges associated with translating scientific vocabulary, as evaluated by the respondents.

LITERATURE REVIEW

The matter of specificities related to translating the vocabulary found in the scientific literature from Polish into Ukrainian stands as a highly pertinent and contemporary topic that has recently garnered the attention of researchers in the realms of translation practice and theory. Exploring the nuances of translation within the context of Polish literary traditions has been the focal point of several studies conducted in the past few years (Pavlinchuk, 2023; Barwiński, 2016; Fedyshyn, 2017).

Several analytical studies (Zhao, 2018) have made noteworthy contributions to the advancement of translation theory and the exploration of strategies to enhance translation practices. Brøgger (2017) investigates the efficacy of diverse translation methods that can be employed in foreign language instruction as a means to facilitate grammar acquisition. Numerous research endeavors have also focused on incorporating innovations and digital technologies into the training of proficient specialists, resulting in the development of novel teaching methodologies (Senthilkumar, Kannappa, 2017).

From a pedagogical standpoint, the objectives of translation encompass swiftness, efficiency, and excellence in quality, which are paramount for any professional translator. In this regard, translation algorithms and stages play a crucial role in determining the speed and quality of translation. The significance of this aspect has been acknowledged by several researchers (Mason, 2006; Kuzmina et al., 2020). Furthermore, the processes involved in acquiring translation competencies and skills have been extensively investigated and continuously explored (PACTE, 2018).

From a research standpoint, it is imperative to delve deeper into the challenges and potential avenues for the advancement of translation skills, particularly in the domain of scientific translation from Polish into Ukrainian.

METHODS

To fulfill the research objectives, a training project was implemented at Vasyl Stefanyk Precarpathian National University (Ukraine). The project involved the collaboration of university professors and the participation of 60 second-year bachelor's degree students, who were divided into two groups (G1, G2).

The research material necessitated a comprehensive approach, wherein the primary method employed was a pedagogical experiment. The theoretical aspects were examined utilizing the descriptive method, analysis, and synthesis. Moreover, observation and survey methods were employed.

The curriculum encompassed the educational component titled "Theory and Practice of Translation," which constituted an integral part of the four-year bachelor's degree program. Furthermore, students specializing in philology received instruction in Polish throughout their entire course of study.

Within the project framework, data and materials were collected during the academic year 2022-2023, spanning two semesters, to elucidate the intricacies of teaching scientific translation from Polish.

During the project's preparation phase, it was delineated that the experiment would be conducted in three distinct stages. Before the translation of scientific literature vocabulary, participants received training in text translation skills, with due consideration given to the contextual relevance of the texts within the modern scientific paradigm.

Stage 1: The initial phase involved identifying the primary types and characteristics of working with the terminological corpus of the Polish and Ukrainian languages. Furthermore, a survey was conducted to determine the frequency of digital technology utilization in the translation process and when working with scientific literature vocabulary. The researchers and instructors involved in the project undertook various tasks, including the development of course materials, conducting preliminary consultations, and organizing master classes for participating teachers and students. Additionally, training seminars were conducted with technical specialists.

Stage 2: During this phase, simultaneous efforts were dedicated to the theoretical and practical aspects of translation, focusing on acquiring proficiency in translating scientific literature vocabulary. The groups actively monitored their knowledge and identified areas of concern, aiming to enhance their skills in scientific and technical translation from Polish into Ukrainian.

Stage 3: In the concluding stage, following a second survey that gauged the extent of digital technology adoption in the translation process, an analysis of progress, if any, was presented across all groups. The primary stages involved in translating scientific literature vocabulary were identified and evaluated.

Training materials and technical guidelines for utilizing artificial intelligence in translation were collected from various information platforms. These materials were subsequently uploaded to the university's learning system and archives, which were adapted to suit the objectives of this study.

Regarding the challenges encountered during the experiment, it is important to acknowledge the significant time investment required (spanning an entire academic year) and the inherent limitations in determining the factors influencing changes in grade dynamics and respondents' performance. Additionally, the inability to conduct a qualitative in-depth investigation should be noted.

RESULTS

The collection and organization of data, along with comprehensive technical and methodological preparations, combined with theoretical investigations into the translation of scientific vocabulary from Polish, laid the foundation for initiating the project aimed at identifying suitable digital translation tools.

First of all, the organization of the learning space and technical tools for learning was important. This is how it is planned to create favourable conditions for translation by working with Polish texts. This involved interpreting meanings, making connections, and framing texts. The organization of translation activities begins with the combination of content, grammar, creative and stylistic activities of the translator. Participants interacted and formed group decisions through joint reasoning and discussions. This process should also include visual learning materials, diagrams, animated film presentations, etc. Attention is paid to the development of the translator's interpretation skills, where along with the classic configuration of tools and methods of learning, there are high-tech tools, applications, games, etc.

There are also a large number of other learning strategies that can be chosen by teachers and students to teach the basics of translation to enrich and diversify their own experience. However, the experience of interpreting a text is important for the art of translation, in the translation context interpretation can be interpreted from cognitive, translational and performative positions. Such three aspects of interpretation when translating a text are present in everyday translation activity.

An interpretation can be presented as an explanation/clarification of a statement. In this context, the translation activity looks like research work, which aims to determine the contents, meanings, and terminological bases of the text. It is precisely in this aspect that the translator's cognitive capabilities should be used.

The second characteristic of translation is interpretation, interpretation as performance, and stylistic markers of the text. The interpreter-translator is a performer, has his vision of the stylistic features of the text, and tries to realize these features. Important for this aspect of translation is a sense of style, a subjective vision of the features of the text, and a certain artistry. This aspect is very important for translators specializing in interpreting.

Oral translation is also the skill of interpretation, and such a translator is a language specialist who is not only a mediator, but also a participant-interpreter of the text. This involves the ability to instantly compare resources in Polish, English, and Ukrainian and pick up relevant idioms, paremies, stylistic jargon, etc. Also, digital technologies and high-tech resources are additionally used, but the presence and experience of a person, a translator, is still required.

Additional visualization of texts before translation also remains an important component of training. It can be visualized as a story (oral and written form), a comic, a picture, or an animation, it is an "intersemiotic" form of translation.

Transmutation or intersemiotic translation began to be developed in the modern theory of translation in the middle of the 20th century. This is a special type, where several sign systems are updated to relay the contents, reinterpreting the main positions of the text on many levels. This phenomenon was called multimodal resensitization. The value of this type of translation is to facilitate the audience's perception of information, complex emotions, and difficult-to-understand messages and the use of auxiliary semiotic signs in the translation to create a more accessible text, a clearer message.

Primarily, it was imperative to establish the key aspects of translating scientific vocabulary and identify the challenges encountered by translators in the course of their work.
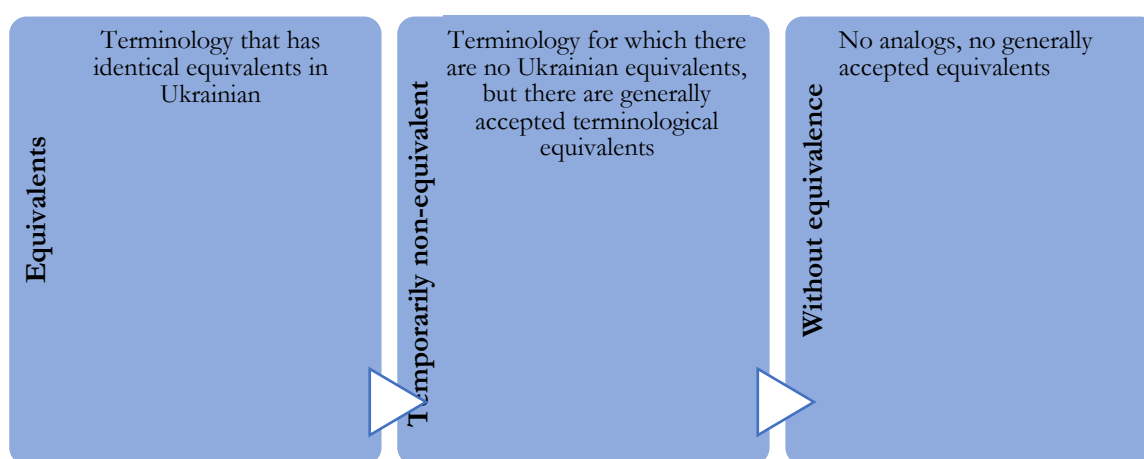

Figure 1. Variations of understanding and translation of scientific vocabulary in Polish (authors' development).

The significance of terminology as a substantial component of scientific vocabulary and the potential for its integration offer multiple algorithmic approaches for action.

1. Translating terms that possess counterparts in Ukrainian and encompass both foreign and domestic realities, such as "leczenie niepłodności" (infertility treatment) and "debriefing psychologiczny" (psychological debriefing).
2. Addressing terms that represent concepts not yet present or adapted within Ukrainian/Polish contexts, but possess internationally recognized equivalents, for instance, "pełnia obecności" (mindfulness).
3. Handling terms that lack direct equivalents, wherein Ukrainian/Polish analogs or terminological counterparts are absent. One notable example is the ethnically specific term "polszczyzna," a multifaceted notion encompassing not only the "Polish language" but also the concept of social communication, customs, norms, and their interplay within cultural contexts.

The entirety of this lexical repertoire and its diverse applications necessitates meticulous attention and precise usage of lexemes within their respective contexts. It is essential to accurately and effectively express the specific attributes at both the linguistic and conceptual levels.

In this initial stage (Stage 1), the research team conducted a preliminary survey among the respondents to gauge the extent and frequency of utilizing learning platforms, electronic information tools, and artificial intelligence capabilities for translation from Polish.

Table 1. The extent to which digital technologies are used in the translation of a text with scientific vocabulary (authors' development)

Group number	Using questionnaires (often referred to as quizzes)	Using chat rooms	Using workshops	Using glossaries
G1	57 %	32 %	46 %	60 %
G2	54 %	28 %	57 %	47 %

Based on the findings of the survey and drawing upon the expertise of the instructors who engaged with the respondents, a comprehensive collection of training materials was curated. In addition, a series of master classes were developed to guide the utilization of digital technologies, aimed at enhancing the acquisition of scientific vocabulary during translation exercises.

The primary objectives of contemporary scientific and technical translation have been identified and will be considered during the instruction of translation theory and practice. These objectives encompass the translation and analysis of texts (from Polish to Ukrainian), proficiency in both autonomous and collaborative translation work, aptitude in utilizing information resources of diverse nature (including electronic and printed dictionaries, glossaries, artificial intelligence, social learning platforms, consultations with specialists, and customer advisors), as well as the mastery of stylistics and the challenges associated with employing literary vocabulary in practical translation exercises.

The second phase entails establishing the training framework and selecting the requisite tools for working with scientific vocabulary throughout the project. Addressing the distinctive aspects of working with scientific vocabulary during translation from Polish into Ukrainian necessitates the utilization of theoretical materials, research findings, sample texts, reference resources, and appropriate technological aids. Within the scope of translation instruction, particular emphasis is placed on terminology management, phrasing peculiarities, and the ability to construct translations step by step following the guidelines of scientific style. This approach involves the creation and digitalization of glossaries and "text libraries" through collaborative efforts with experts. Special attention is dedicated to addressing challenging cases and rectifying errors encountered during the translation process.

Throughout this study, students and teachers were requested to assess and rank the challenges encountered during the translation process. They were instructed to rank these difficulties in descending order, from the most challenging to the least challenging. The outcomes of this ranking were subsequently presented in the form of percentages.

Table 2. Rating of challenges in translating scientific vocabulary as assessed by respondents (authors' development).

Challenges	EG 1	EG 2
Synonymization of terms to avoid repetition	67	75
Non-equivalence of terms (the need to use descriptive constructions or bubbles)	56	68
Continuous development of scientific thought	55	61
Consideration of the rules of a stable book tradition	22	34
Inattention and incompetence of the translator	10	15

The survey results revealed that the most significant challenges encountered during the translation process stem from the issue of synonymizing terms while attempting to enhance the stylistic flow of the text. Synonymization in scientific vocabulary poses a complex dilemma, as terminological ambiguity is not desirable. On the other hand, the least difficulties were attributed to personal errors and an inability to work with the translation, which can be attributed to the active engagement of participants in group translation exercises and the involvement of teachers and experts in the process.

During the final stage (Stage III), an analysis was conducted on the survey results, patterns of utilizing sources, and digital learning/information platforms, as well as an examination of the challenges encountered while working with scientific vocabulary in Polish. Throughout all stages of the experiment, artificial intelligence, glossaries, reference materials, and educational as well as information platforms were employed, and communication through social media channels was utilized for consulting with experts. Additionally, at this concluding stage, a survey was administered among the participants to ascertain the frequency of translation usage.

Table 3. The extent to which digital technologies are used in the translation of a text with scientific vocabulary (authors' development)

Group number	Using questionnaires (often referred to as quizzes)	Using chat rooms	Using workshops	Using glossaries
G1	68 %	42 %	53 %	68 %
G2	60 %	36 %	66 %	58 %

Group number	Using questionnaires (often referred to as quizzes)	Using chat rooms	Using workshops	Using glossaries
G1	57 %	32 %	46 %	60 %
G2	54 %	28 %	57 %	47 %

Based on the survey findings, the utilization of digital technologies witnessed an average increase of 10%. Notably, the most substantial growth, amounting to 11%, was observed in the use of questionnaires (also referred to as quizzes) among participants in G1. In contrast, the smallest increment of 6% was observed in G2. Furthermore, there was a moderate increase of 9% on average in the use of artificial intelligence (AI) chats and glossaries by students in both G1 and G2.

Consequently, the algorithm (comprising multiple stages) for translating a scientific text from Polish into Ukrainian was outlined, taking into consideration the incorporation of digital technologies and the nuances associated with working with scientific vocabulary.
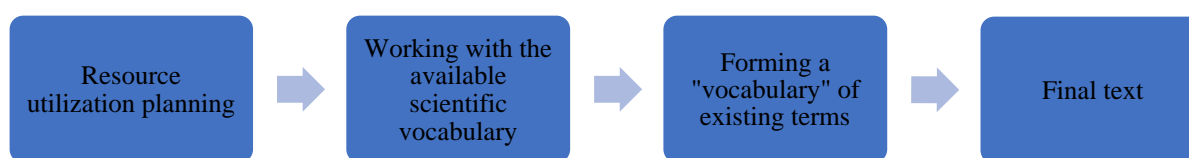

Figure 2. Stages of translation of scientific literature vocabulary (authors' development).

In the process of translating scientific vocabulary, several activities can be employed, including:
1. Planning the resources to be utilized, considering the specific sources necessary for the translation task.
2. Comparing "equivalent texts" and determining the range of meanings associated with the available vocabulary and its combinations. This involves referencing the book tradition of the Polish language and acquainting oneself with similar texts.
3. Creating a personal corpus of texts and samples that serve as a foundation for developing a glossary of terms tailored to the translation project.
4. Engaging with the source material, aids in generating a text aligned with the specific field of scientific knowledge.
5. Preparing the final version of the translation, subject to consultation in complex cases and seeking guidance from experts and clients.

DISCUSSION

The utilization of digital technologies holds paramount importance in the realm of scientific and technical translation. In the context of this project, insights gained from studying translation practices involving Polish and Czech languages prove valuable. Notably, an investigation on the nature and prospects of translating texts from Czech into Polish within the scientific and popular science domains revealed a noteworthy increase in the number of such translations, coupled with an enhancement in their overall quality (Lambeinová, 2018). The researcher underscored the significance of incorporating new technologies in the translation process. Our research findings have demonstrated that the active integration of digital technologies in translation practices enhances students' information literacy and digital competencies. In the concluding stage of the study, it was observed that an average of 10% more students displayed a willingness to employ artificial intelligence, social learning platforms, and digitized reference materials. As part of the study, students were provided with scientific texts in Polish and tasked with translating them

into Ukrainian while consistently utilizing electronic reference books, glossaries, and expert consultation through chat platforms.

The study of the basics of the translation of an artistic text indicates the need to preserve the author's style, the individuality of the author's language, original, but also in such a way that is organic for the historical time of the creation of the work. In addition, the translator of a work of art must think about the communicative purpose underlying the design and form of the work. The correct translation of the lexical component of the text makes it possible to preserve the content of the work. This translation is not difficult for a teacher well-versed in the language. Translation from Ukrainian to Polish and vice versa takes place as a process of selecting appropriate lexemes according to need, stylistic and thematic orientation. The syntactic level of the Polish language is quite dynamic, it has many features in common with other Slavic languages, this is due to the construction of grammatical categories of each language. We believe that it is possible to make certain changes in the syntax of the work, that is, the translation may differ from the original, but should be more acceptable to the reader. Yes, for example. in the Polish language, meanings are in postpositions to the main word, while the Ukrainian language has mainly a different structure - meaning is in prepositions.

In the work devoted to the peculiarities of the research of the translation algorithm from Polish to Czech, the emphasis is on the desire to convey all the components of the work as accurately as possible (Lambeinová, 2018). Examples of successful and unsuccessful translations are given. A comparative analysis of original and translated versions of translations of technical texts, and journalism is also conducted, artistic works are mentioned, and various types of transformations of the Polish and Czech languages will be considered. In our study, we also considered the peculiarities of the translation of the syntactic structure of the Polish language, where idiomatics, tropes, and inversion, determined by the structure of the language, work on the emotional and stylistic colouring of the text. It is interesting to work with changes in the syntactic structure of the sentence, changes in the grammatical basis of the sentence, as well as such characteristics as completeness/incompleteness, one-syllabic/two-syllabic sentences, complex or simple subjects and predicates. Complex sentences and periods in the process of translation from Polish to Ukrainian may not change their structure but sometimes require changes and transformations. A feature of the Polish language is the absence of subject pronouns with predicates that can be expressed by past tense verbs, in the Ukrainian translation all these forms are present and should be used. Accordingly, the processes of decompression of the target text are inevitable. In the translations made by the students, there were also many single-word concepts in the Polish language, although in the Ukrainian language it is a combination of words. In this way, we also have compression processes.

Linke-Ratyszny (2016) delves into the challenges of translating popular science texts from English into Polish, examining their influence on the didactic component of professional translation. The researcher compiled a sample of intricate translation cases, identified the obstacles encountered by students during the translation process, and devised additional strategies and approaches to mitigate errors. In our study, based on the students' evaluations of the difficulties encountered when translating scientific literature, the most prevalent issues revolved around the use of synonymous terms and the translation of non-equivalent terms. Other studies have also emphasized the significance of self-analysis of mistakes as an integral aspect of translation work and overall learning (Jayashree, 2017; Linke-Ratyszny, 2016; Pavlinchuk, 2023).

The challenges related to the implementation of new technologies in translation theory and practice continue to remain unresolved in the present day. The translation of scientific literature from Polish into Ukrainian necessitates careful deliberation of intricate cases and the exploration of methods to streamline the processes involved in specialized translation.

CONCLUSION

In the contemporary world, translation assumes a pivotal role as a means of disseminating discoveries and accomplishments. Translators are faced with novel challenges, requiring them to select methods and tools that enable the creation of effective translations adapted to the respective traditions and contexts, while meeting the expectations of the intended audience. It is essential for the translated text to maintain its original style and terminological clarity; otherwise, it may not be perceived as a reliable source of information by both Polish and Ukrainian readers.

Digital technologies serve as effective tools for translating scientific texts. In the final stages of the project, it was observed that their utilization in the translation work of the participants experienced an average increase of 10%.

When translating scientific texts that encompass a high level of terminology and specialized vocabulary, a systematic approach can be employed. This approach involves several steps. The first step entails planning the resources that will be utilized throughout the translation process. Subsequently, in the second step, "equivalent texts" are compared to determine the range of meanings associated with the available vocabulary and its combinations. The book tradition of the Polish language is taken into consideration during this analysis. The third stage involves selecting relevant examples of term usage and their synonyms from a personal corpus of texts while leveraging the capabilities of digital technologies to streamline the translation process. In the final stage, the definitive version of the translation can be prepared by consulting with experts and clients regarding complex cases.

An important component of translation should be high technologies that can implement many aspects of the practice of teaching translation. Among such auxiliary aspects of translation, we can name facial expressions, intonation, and gestures, which should also be counted as part of oral translation practice, as shown by modern intelligence in this field with exciting, creative and interesting software applications that help translate translation as a creative activity.

One of the important aspects of the use of digital technologies in translation is the active realization of the interpretative potential of translation students, it is worth continuing research on the use of social networks, educational platforms in the Internet space and the degree of limitation of such space in the training of a translator.

Today, conducting educational experiments with a combination of high technologies and the implementation of multimodal acts is a rarity. However, it is promising to involve university philology students in research on the implementation of translation training in multidimensional spaces. Studying in classical academic conditions also makes it difficult to reproduce the text as a natural given, depriving it of a natural, relaxed sound. That is why texts created by young translators can be formal, boring and uninteresting.

Knowledge of the Polish language, features of culture, history and national traditions, and verbal and non-verbal aspects of translation are necessary for future translators to master. Active participation in educational activities and their combination with the creative process, the ability to create and interpret, and an active public position create a successful specialist who will be in high demand in the labour market.

The limited range of translation tools and reluctance to respond to changes occurring in the language system make translation training more difficult. Teaching translation in modern conditions is impossible without the use of digital technologies, because it ceases to be mobile, and the Polish language ceases to be perceived as changeable, and constantly developing. Failure to use all modern opportunities for learning looks absurd and can become a significant obstacle to the further professional activity of a translator because the requirements of the labour market today require the presence of digital competencies in a philologist, the ability of a translator to work with high technologies.

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