

EDN: AHYTKO
УДК 81–26: 347.78.034
МРНТИ 16.31.41

Effectiveness of Cognitive-Pragmatic Approach in Special Translation: Experimental Study

Ainur A. Iskakbayeva^{*a}, Aigul K. Zhumabekova^b
and Veronica A. Razumovskaya^c

^a*al-Farabi Kazakh National University, Caspian Public University
Almaty, Republic of Kazakhstan*

^b*Abai Kazakh National Pedagogical University
Almaty, Republic of Kazakhstan*

^c*Siberia Federal University
Krasnoyarsk, Russian Federation*

Received 02.12.2024, received in revised form 23.12.2024, accepted 27.01.2025

Abstract. Terminology is a cornerstone of scientific communication. However, its translation poses significant challenges, demanding a deep understanding of not only linguistic but also cognitive and anthropological factors. This study experimentally investigates the efficacy of a cognitive-pragmatic approach in translating specialized geological terms. The approach allows for the examination of terms not merely as linguistic units but as reflections of cognitive models and cultural representations. The study compared two translation approaches: classical and cognitive-pragmatic approaches. Results indicate that the utilization of cognitive maps and corpus analysis enables a more precise understanding of term semantics, thereby mitigating errors associated with homonymy and polysemy. An experiment was conducted with two groups of translation students (15 students in each group). One group employed a cognitive-pragmatic approach, while the other used a traditional method. The groups translated scientific texts in the field of geology. A sampling method was used to identify pragmatic markers (terms), and resources such as NgranViewer and the British National Corpus (BNC) on the Word Sketch platform were employed to assess translation accuracy. The research focused on geological terms prone to synonymy and homonymy.

The findings of this study are applicable to the teaching of scientific-technical translation for specialists in both language and subject-matter domains. The application of cognitive-pragmatic analysis enables a comprehensive understanding of a term and its domain of use, thereby preventing distortions and errors related to homonymy.

Keywords: term, scientific-technical translation, cognitive-pragmatic approach, homonymy, cognitive maps, intercultural communication.

Research area: Theory and History of Culture and Art. Linguistics, Translation Studies.

Citation: Iskakbayeva A.A., Zhumabekova A.K., Razumovskaya V.A. Effectiveness of Cognitive-Pragmatic Approach in Special Translation: Experimental Study. In: *J. Sib. Fed. Univ. Humanit. soc. sci.*, 2025, 18(2), 378–389. EDN: АНУТКО



Эффективность когнитивно-прагматического подхода в специализированном переводе: экспериментальное исследование

А.А. Искакбаева^а, А.К. Жумабекова^б, В.А. Разумовская^в

^аКазахский национальный университет им. аль-Фараби,
Каспийский общественный университет
Республика Казахстан, Алматы

^бКазахский национальный педагогический университет имени Абая
Республика Казахстан, Алматы

^вСибирский федеральный университет
Российская Федерация, Красноярск

Аннотация. Терминология является фундаментальной составляющей научной коммуникации. Однако перевод терминологии сопряжен со значительными трудностями, обусловленными не только лингвистическими, но и когнитивными и антропологическими факторами. Целью данного исследования является экспериментальная проверка эффективности когнитивно-прагматического подхода в контексте перевода специализированной геологической терминологии.

Когнитивно-прагматический подход позволяет рассматривать термины не только как языковые единицы, но и как отражение когнитивных моделей и культурных представлений. В ходе эксперимента сравнивались два подхода к переводу: классический и когнитивно-прагматический. Результаты исследования свидетельствуют о том, что использование когнитивных карт и корпусного анализа способствует более точному пониманию семантики терминов и минимизации ошибок, связанных с омонимией и полисемией.

Экспериментальная часть исследования включала работу с двумя группами студентов-переводчиков (по 15 человек в каждой). Одна группа применяла когнитивно-прагматический подход, другая – традиционный подход при переводе научно-технических текстов в области геологии. Для идентификации прагматических маркеров (терминов) был использован метод отбора, а для оценки точности перевода – ресурсы «NgramViewer» и Британского национального корпуса (BNC) на платформе «Word Sketch». Объектом исследования стали геологические термины, склонные к синонимии и омонимии.

Полученные результаты могут быть полезны при обучении научно-техническому переводу как лингвистов, так и специалистов в области геологии. Применение когнитивно-прагматического анализа способствует глубокому пониманию специальных терминов и сферы их применения, что позволяет предотвратить искажения и ошибки, связанные с омонимией.

Ключевые слова: термин, научно-технический перевод, когнитивно-прагматический подход, омонимия, когнитивные карты, межкультурная коммуникация.

Научная специальность: 5.10.1. Теория и история культуры, искусства.
5.9.8. Теоретическая, прикладная и сравнительно-сопоставительная лингвистика.

Цитирование: Искакбаева А. А., Жумабекова А. К., Разумовская В. А. Эффективность когнитивно-прагматического подхода в специализированном переводе: экспериментальное исследование. *Журн. Сиб. федер. ун-та. Гуманитарные науки*, 2025, 18(2), 378–389. EDN: АНУТКО

Introduction

Modern translator training involves retraining technical specialists in language skills. While this method works well for scientific and technical texts, it is unsuitable for educational materials due to resource constraints. Universities address the issue by introducing specialized courses, but without a strong methodological foundation, the courses may fall short. However, translators have primary linguistic education and less special domain knowledge.

Translation methods mainly focus on semantic and syntactic analysis, but sometimes it can be insufficient. A deeper cognitive-pragmatic analysis is necessary to fully grasp the meaning and context of terms which allows to consider both the linguistic and cognitive aspects of terms, leading to more accurate and effective translations. The approach enables the identification of complex terminological units, which may span multiple words, and ensures their integrity during the translation process.

Combining a cognitive approach with existing training methods improve the translation of special terms in educational discourse. This hypothesis is based on the following observations from the provided texts:

- geological terms have complex cognitive-pragmatic meanings – understanding their pragmatics is crucial for accurate translation.
- current translator training methods focus on linguistic skills and basic background knowledge. This might be insufficient for capturing the cognitive-pragmatic aspects of terms.
- educational discourse requires clear and precise communication – misinterpreted geological terms can hinder pragmatics of the text.

Therefore, the hypothesis proposes that incorporating a cognitive-pragmatic approach into translator training can equip translators with tools to grasp the deeper meaning of terms and accurately convey the pragmatics of text.

Literature Review

Many scholars explore ways to train translators for scientific texts. The incorporation of information technology, alongside leveraging the advancements of corpus linguistics and translation studies within the learning process, has gained significant traction (L. P. Tarnayeva & Ye. S. Ossipova, 2016; N. N. Gavrilenko, 2018). Scholars such as V. S. Vinogradov (2001), I. S. Alekseeva (2008), A. Tarakov & el. (2013), A. Pym (2018), T. O. Esembekov & G. Sh. Akimbekova (2023) deal with theoretical investigations of pragmatic aspect of translation studies. While C. Guillemin & B. Tillmann (2021), G. Kasper & K. R. Rose (2001) observed explicite and implicate methods of teaching, such scholars as T. V. Parshina (2016), L. E. Strautman & Sh. B. Gumarova (2019), H. A. Khau & al. (2024) made research in special discourse translation training. They and others make great impact on translation studies development and contribution on methodology of the field and teaching.

Scientific translation deals with other language and culture through scientific discourse, which means necessity to have knowledge in particular domain in both languages. As M. V. Oparin (2019; 233) mentions scientific discourse is original for perception even if it is provided by translation. So, the usage of equivalent terms is important regardless to special domain. However, he notifies that translation of technical or scientific texts

requires special knowledge in presented domain. Translator may gain this knowledge through experience, self-development, and working-out pragmatic competence. Pragmatic competence, mostly, is worked out in understanding scientific discourse and terminological system. To maintain translation, it is necessary to choose strategy, V. V. Sdobnikov (2011a) denotes “translation strategy is a program for implementing translation activities that is formed on the basis of the translator’s overall approach to translation in the conditions of a specific communicative situation of bilingual communication and determines the nature of the translator’s professional behavior within this situation”. (Sdobnikov, 2011a: 165–172). When choosing a translation strategy, it is important to consider the communicative situation, which determines the choice of strategy (Sdobnikov, 2011b: 1446)

Thus, translator must choose strategy according to the text and domain discourse. In the context of scientific or technical discourse, overcoming several specific challenges is crucial for formulating an effective translation strategy. According to Ch. Nord (1991) there are three main translation challenges: linguistic, conventional, pragmatic. However, additional factors such as genre, linguistic challenges, and target audience profile must be considered. A complex approach is essential to address the diverse challenges within a single text. Moreover, the concept of a single “correct” translation remains elusive (Oparin, 2019: 233).

The inherent complexities of scientific text translation require a systematic and accurate analysis which is intrinsically linked to the established terminological framework of the domain in both source and target languages. While advancements in artificial intelligence (AI) offer promising solutions for widely used terminology, challenges arise when dealing with new, syntactically complex, or archaic terms. As M. Iu. Volgina (2013: 171) states, “Terms can become almost any lexical units that have moved into a highly specialized area and served to denote specific concepts”. Consequently, the task of extracting terminological units from sentences, comprehending their meaning, and selecting the most appropriate equivalents is particularly demanding.

Term is complex concept, as some scholars consider that the quantity of terms are not determined and we perceive concepts as terms. This point of view has the right to exist but addressing to the clarifications made by V.N. Komissarov (2011) we are surrounded by signs which may be iconic, symbolic, signal, and conventional. Conventional are the base of any language as they have 3 main features: semantics, syntactics, pragmatics. Being a system of the signs, a language interprets all signs. “The meaning of a linguistic sign is a generalized reflection of extra-linguistic reality and correlates with other generalizations of the form of thought – the concept”. (Komissarov, 2011: 45). The concept being a generalized form of thought may be represented scientifically, linguistically, colloquially, nationwide. Hence, the scientific concepts are terms, and their concentration and semantical relation to a particular domain make them a terminology system (Komissarov, 2011).

Pragmatics, the study of language use in context, was introduced by C. Morris in the 1930s. It explores how language users interpret meaning beyond the literal words, considering factors like context, speaker intent, and cultural norms (Morris, 2001: 45–97). But we cannot observe words separately, they have definite meaning in utterance or sentence. H.P. Grice (1957) distinguished between sentence meaning (literal) and speaker meaning (implied). This distinction is crucial for understanding how language is used to convey implicature and explicature. Scientific discourse provides no space for standard implicature. However, the usage of the same term in different fields may be observed as a sign of implicature proved by homonymy occurring. Homonymy is mostly regarded as a semantic issue, not pragmatic. G. Leech argues that the distinction between language and language use blurred the lines between semantics and pragmatics. While semantic meaning is inherent to linguistic expressions, pragmatic meaning is context-dependent and author-oriented. (Leech, 1983:4–6). However, pragmatic failures can arise from cultural misunderstandings or linguistic incompetence. J. Thomas (1983) distinguishes between pragmalinguistic and sociopragmatic

failures. Effective communication requires both linguistic and pragmatic competence. Written texts necessitates a focus on syntax, semantics, and pragmatics. While scientific discourse often avoids explicit implicature, linguistic and stylistic variations can still pose challenges, particularly in term identification and translation. Understanding the author's intent and the illocutionary force of the text is crucial. Widdowson (2000) emphasizes the role of context in interpreting linguistic structures. Komissarov (2011) highlights the importance of conventional codes and schematic elements in conveying meaning. Reference, as a linguistic act, often carries implicit intentions beyond its denotative meaning (Krhutova, 2007). Authors may use synonymous terms to differentiate between processes or create complex concepts complicating the translation process.

Cognitive approaches to translation, as explored by I.N. Remhe (2007) and G.I. Mansurova (2006), consider the mental processes involved in understanding and producing translations. These approaches emphasize the importance of transferring not only the linguistic content but cultural and contextual nuances of original text. Terminological diversity presents another challenge in scientific translation. Single-component terms may have multiple meanings, while multi-component terms require careful analysis to avoid misinterpretation. The problem here may arise from incorrect identification of the terminological frame leading to its division and to translation errors. S. V. Sahnevich (1998) discusses various translation techniques, such as calquing, borrowing, and metaphorization, that can be used to adapt terms to the target language.

Background knowledge is crucial for translating scientific-technical texts. It helps translators choose correct equivalent for terms and concepts depending on the context (Ignatyeva, 2010). Other challenge is to identify homonym and synonym which are common phenomena in scientific terminology. Synonymy occurs when multiple terms refer to the same concept, while homonymy occurs when a single term has multiple meanings.

Understanding the pragmatic aspects of term use and the cognitive processes involved

in translation is essential for developing effective translation strategies.

Materials and Methods

The training of translators demands the cultivation of diverse competencies, encompassing linguistic, text-formation, intercultural-communicative, professionally oriented, information-technological, special-professional, cognitive, and pragmatic domains. Notably, the development of these competencies follows a gradual trajectory, with the cognitive-pragmatic function assuming a dominant role from the second year onwards. This emphasis stems from its pivotal role in facilitating mastery of linguistic conceptual systems and enabling an accurate understanding of terms and concepts.

This study investigated the efficacy of cognitive-pragmatic analysis in pre-translation analysis of scientific-technical texts by comparing results of two groups of 3rd-year students, consist of 15 students each, educational program "Intercultural-communicative translation" of Caspian public university (Almaty, Kazakhstan). Their ages range from 19 to 20. The study of scientific-technical text translation was a part of a discipline "Practice of Translation" studied at the 3rd year of education. An experiment was conducted as a cross-sectional which lasted 3 hours to determine the necessity of usage the analysis as a part of pre-translation analysis in translating scientific and technical texts. The similar method was proposed by N. N. Gavrilenko (2011) with completing terminological map in translation scientific-technical texts. The difference is that terminological map is enlarged during the special discipline studying while the usage of cognitive-pragmatic approach is carried when the student does not have enough skills and specialization in the sphere of translation as well as limitation of the time for achieving them. A. Akbari & al. (2021) realized experiment to justify impact of pragmatic teaching on capacity to identify implicit and explicit discourse markers in the source text in a two sample groups of 40 translators, aged from 21 till 40 with 6.5–8.0 IELTS scores. Data analysis showed linguistic skills have no crucial impact on quality of translation, more

important was well-developed pragmatic skills based on G. Kasper (2003). In A. Akbari & al.'s research the students were provided by texts with pragmatic markers related to cultural and economic issues. In our experiment we had two texts of scientific-technical domain with prag-

matic markers related to terms of geology (Table 1, Table 2).

A concept map illustrates the interrelationships of geological concepts, forming the basis for cognitive-pragmatic meaning. The concepts are interconnected and essential for under-

Table 1. Concept Map of pragmatic markers of the text "Geodesy"

Concept	Related Concepts	Relationship
Earth	Mantle, Crust (not explicitly mentioned), Geoid	composed of, has property
Mantle	Mantle Convection, Tectonic Plates	involved in, supports
Tectonic Plates	Plate Boundaries, Latitude, Longitude	interact at, determined by
Plate Boundaries	Geoid Anomalies	relevant for
Geoid	Reference Ellipsoid, Geoid Anomalies	approximated by, influenced by
Latitude	Tectonic Plates, Control Point	used for
Longitude	Tectonic Plates, Control Point	used for
Control Point	Survey, Photogrammetry, GPS (not explicitly mentioned)	measured by
Survey	Geodetic Satellites	uses
Sea Level	Elevation	relative to
Geoid	Sea Level	influences

Table 2. Concept Map of pragmatic markers of the text "History of Surveying"

Geometric and topographic concepts	Geodesic methods and tools	Applied areas and markers
Elevation	Surveying	Agricultural area
Horizontal Position	Geodetic survey	Nile River
Vertical Position	Photogrammetry	Great Pyramid of Khufu
Horizon	Aerial photographs	Aqueduct
Valley	Boundary Stones	Mapping
Plain	A vertical wooden A-frame with a plumb bob	Processing and recording of survey data
Land Boundaries	Groma	Measurement Data
Relative Position	Astrolabe	
Alignment	Magnetic compass	
	Odometer	
	Theodolite	
	Micrometer microscope	
	Telescopic sights	
	Electronic distance measurement	
	Satellite	
	Hand-held cord	
	Clay tablet	

standing the Earth's processes and for various applications like surveying and navigation. The concepts of the second text are distributed according to basic group of concepts (Table 2).

Surveying instruments are used to measure coordinates, elevations, distances, and directions. Mapping is the result of processing these measurements.

The 1st text focus on geological and engineering geology concepts. While the 2nd text emphasizes the historical development of surveying instruments.

The 1st sample group (further called as group "A") was trained using familiarization with terminological system of the texts. Instructions were given on how to choose the right terms for a geology terminology system. Group "A" was proposed to use cognitive-pragmatic analysis to understand terminological definitions and analyze contextual meaning of the terms. The approach is grounded in the understanding of how terms are structured and perceived in the minds of native speakers. The approach considers:

1. Cognitive models and concepts.

Translators analyze the cognitive models and concepts behind the term to ensure accurate translation, considering cultural and linguistic differences.

2. Prototypical semantics. This aspect focuses on the core and peripheral meanings of the term. Translators must identify the primary meaning and consider secondary associations.

3. Metaphors and metonymies. The approach analyzes metaphorical and metonymic transfers associated with the term, considering cultural differences in expression.

4. Mental models of perception. The approach considers cultural differences in perception and categorization, ensuring accurate translation across cultures.

5. Empirical data: Data from cognitive research, such as association experiments, are often employed within this approach to understand how native speakers perceive and use terms.

Thus, the approach aims for a deeper understanding of mental processes, enabling more accurate and adequate rendering of term meanings in translation.

The 2nd sample group (further called as group "B") used a linguistic approach for translating special texts. While this approach is effective for experienced translators, it may be insufficient for amateurs which is confirmed by our experiment.

Qualitative research was used to assess translations based on confidence, correctness, and explanation of strategies. The British National Corpus and Google Ngram Viewer were used to verify term usage and frequency, helping to identify potential translation errors. The Lasswell Formula used to analyze the texts (Vorontsov, 2019: 421–427).

Results and Discussion

After the introductory theoretical part, students in practical classes were asked to translate two texts: "Geodesy" (original title "Study of the structure of the Earth" by Windley, & Harbaugh. Date of request: 20.11.2023), "History of Surveying" (original title "Surveying. History" by Lyman, & Wilfrid Wright, Date of request: 20.11.2023) which are non-adapted and sourced from the Britannica encyclopedia.

The results of both groups are strikingly different, both in the quality and emotional state of the students upon completion of the translations. The first difficulties were noted during translating text titles. Both groups identified the style of the texts correctly. Students used Multitran online dictionary, the Lingvo electronic dictionary adjusted for geology, and Oxford dictionaries.

As part of pre-translation analysis, Group "A" identified pragmatic markers and classified them as geological terms and concepts. Upon examining them, they discovered that some terms exhibited syntactically complex structures. Subsequently, they extracted all introductory phrases and general scientific terms to initiate the translation process. When translating, they considered the possibility that a lexical unit may not be a term, but a concept, and using cognitive-pragmatic analysis, they translated the title of 1st text as "geodeziia", and the title of 2nd text as "istoriia razvitiia geodezii". Voicing the reasons for terminological correspondence, Group "A" explained that geodesy is "science that combines methods for

determining the shape and size of the Earth and drawing maps and drawings of the Earth's surface" (Zhmagaliev & Kuandikhov, 2000: 82), while "маркшейдерское дело" or "surveying" is "a branch of mining science and engineering concerned with spatial and geometric measurements (mine surveying) ..." (Omelchenko, 1987: 74). While both terms relate to geology, geodesy focuses on surface features, whereas surveying examines subsurface objects. Group "B" translated the title of 1st text as "geodeziya", and the title of 2nd text as "istoriia marksheiderii". The students attempted to justify their translation choice by citing the translation provided in dictionaries. They reasoned that their selection of the equivalent was based on the similarity in sound and the assumption that if the same term was used in the text to refer to the same scientific field, then it should be used in the translation. Since 2nd text had a different title, they concluded that it must be translated differently. The reason of error lies in both insufficient back-ground knowledge in the field and an incorrect logical approach to the translation task, which failed to recognize the semantic connection between the title and the text's subject matter.

The Lasswell formula helps to analyze the texts' purpose, transmission, and cultural adaptation. In the most challenging cases, a detailed analysis of terminological units was undertaken. When translating "geodesy" in

Multitrans, students found only two options: "geodeziya" and the outdated "zemlemeriye". This limited choice effectively guided students toward correct translation.

When studying the term "surveying", students faced the problem of selecting correspondence (Fig. 1).

Fig. 1 illustrates various translation options provided for "geodesy". Potential semantic equivalents include "топографо-геодезические работы", "геодезическая съемка", "геодезические измерения". However, students opted for the "marshheyderskiyi" section, leading to the translation "marshreyderiya".

To check prototypical semantics of the term, we use BNC (Fig. 2).

Fig. 2 presents wide range of term "surveying" usage, the column five directs to mapping. It proves correctness in choice made.

The cognitive-pragmatic approach to analyzing and translating the term "surveying":

1. Cognitive Models and Concepts: Surveying involves measuring and mapping the Earth's surface, including geological features. Native speakers associate it with specialized equipment and methods for accurate measurement and analysis.

2. Prototypical Semantics: Surveying typically involves using theodolites, levels, GPS, and other tools to create precise maps, plans, and profiles of terrain.

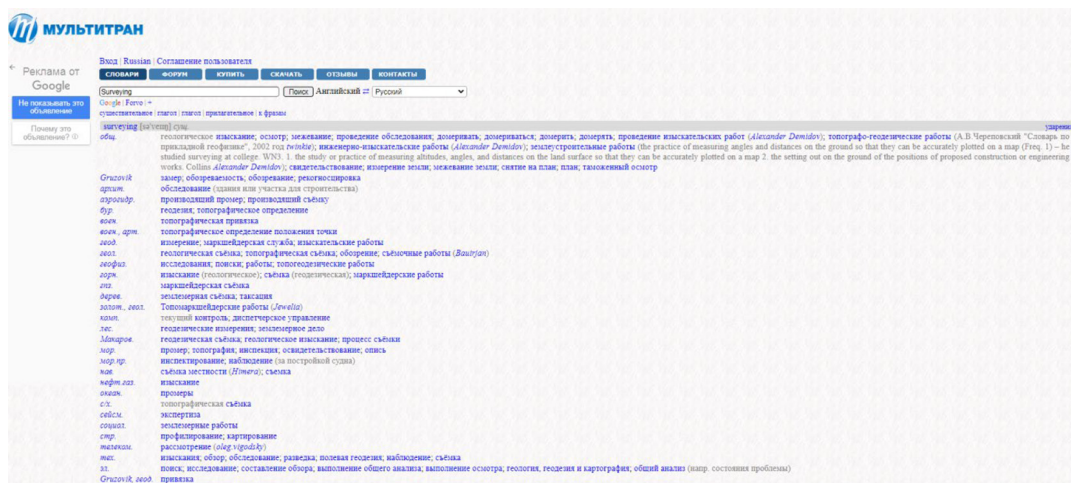


Fig. 1. The term "Surveying" in the Multitrans dictionary

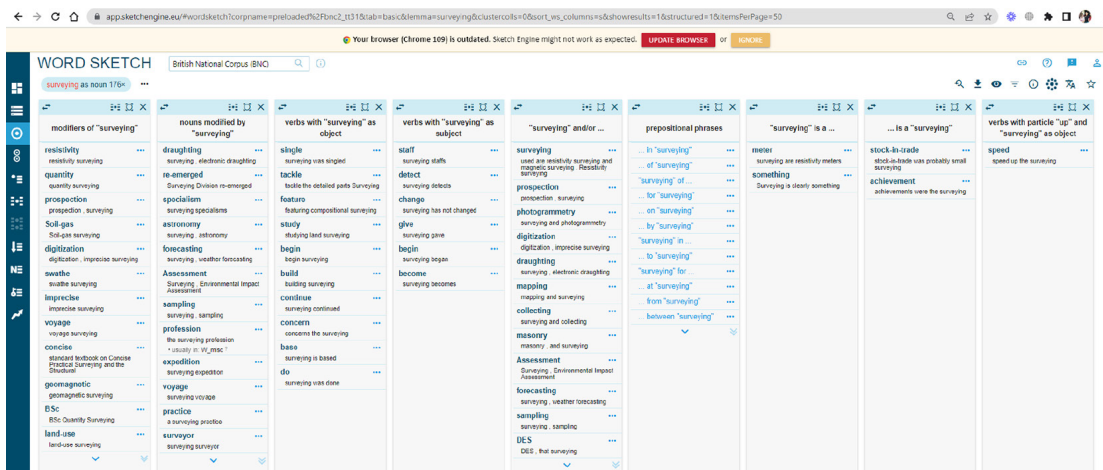


Fig. 2. Results of word “surveying” by Word Sketch platform

3. Metaphors and Metonymy: The term “surveying” is not directly metaphorical. However, it metonymically represents accuracy and detailed investigation.

4. Mental models of perception: In Russian, “geodeziya” and “geodezicheskaya s'emka” refer to various aspects of surveying and mapping, including both scientific and practical applications.

5. Empirical Data: “Surveying” is a process of measuring and mapping the Earth using specialized tools and techniques.

Considering these aspects, the translation of “surveying” in the geology context is: “геодезическая съемка” or simply “геодезия”. This translation retains all key elements and concepts of the original term, including the process of measurement and mapping. However, the reason of error is necessary to identify. So, the frequency of term usage is checked by Google Ngram Viewer (Fig. 3).

Fig. 3 shows dramatical decrease of usage over the last 150 years which may be a reason of semantical errors made by Group “B”.

The context “There is no record of any angle-measuring instruments, but there was a level consisting of a vertical wooden A-frame with a plumb bob supported at the peak of the A so that its cord hung past an indicator, or index, on the horizontal bar” has complex for translation term “a vertical wooden A-frame with a plumb bob” which denotes an ancient

Egyptian device. The translation error here was due to inadequate extraction. To analyze and translate the term “a vertical wooden A-frame with a plumb bob”, we must consider:

Conceptual Understanding – “A-frame” is a structure, known for its stability. “Plumb bob” is a tool used to establish vertical lines.

Mental Model: Both terms are well-established in the languages.

Metaphorical Usage: “A-frame” metaphorically describes the structure’s shape.

Metonymic Usage: “Plumb bob” is metonymically linked to the concept of verticality.

Empirical data: “A-frame” resembles “A” letter, and “plumb bob” is a tool for checking verticality.

By understanding these cognitive-pragmatic aspects, we can translate the term ensuring preservation of meaning and cultural nuances. The translation and analysis of the term is rendered as “vertikal’naia deriviannaia A-obraznaia rama s otvesom”. This translation preserves all key elements and concepts of the original term. By conducting the cognitive-pragmatic analysis, Group “A” correctly identified the term and its meaning. This demonstrates the effectiveness of the approach, particularly with complex ones.

Group “B” incorrectly separated it into smaller parts. This led to inaccurate translations like “A-obraznaia opalubka”; “A-obraznaia opornaia rama”; “A-obraznaia necyshaia

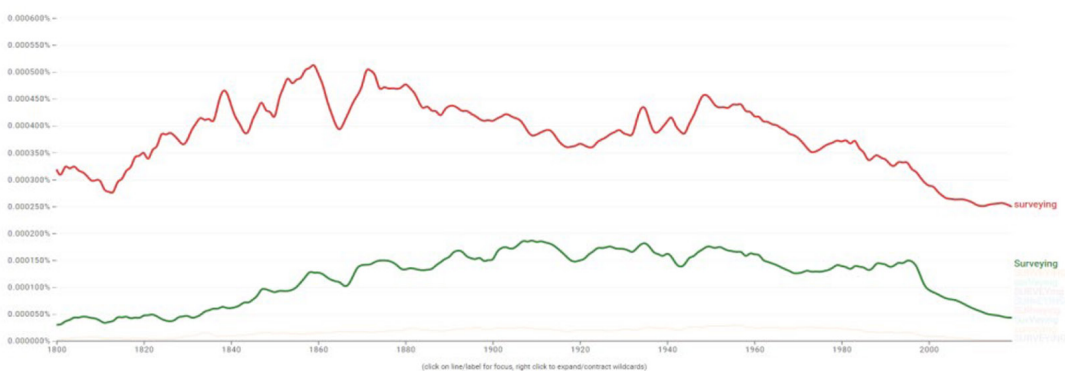


Fig. 3. Term "surveying"

konstruksia". These translations, while related to construction, are not equivalent to the context. The confusion arose partly due to limited information in corpora (BNC). Additionally, the students' experience with "A-frame" houses influenced their interpretation. The term "A-frame" was misinterpreted due to its changing usage over time bringing to architectural usage.

The text also contains a variety of terms and concepts that in most cases do not cause serious problems in translation and the errors had individual nature.

As evidenced by the cross-section experiment, the inclusion of the cognitive-pragmatic facet of concept and terminology development during the pre-translation stage of translation process contributes to translation quality. By employing the analysis, which enriches pragmatic competence, students can rapidly cultivate the necessary professional expertise in special translating.

Conclusion

In conclusion, it worth noting that the problem of translating scientific-technical literature and special terms is relevant and multifaceted. However, the consideration of terminological contextuality and its influence on semantics is not so popular. When considering the quality of translation, it is necessary to get the linguistic meaning of the term and its cognitive-pragmatic aspect. This is especially important when training specialists in translation of special domain. To achieve high

quality translation, students need carry out preliminary work on developing the terminology system of the text. This step is supplementary used with existing translator methods. Also, usage corpus is necessary to understand pragmatics and note that a term can have several equivalents when it appears as a concept. So, analysis minimizes the possible options and makes it possible to choose the equivalent that meets pragmatic goal. Especially, it helps with the problem of homonymy. Lasswell Formula reduces the likelihood of misinterpreting terms due to homonymy. It is important to remember that not all texts when translated are intended for specialists; some must be adapted for a non-specialized audience. So, incorporating the approach can equip a translator with the tools for deep understanding the context, correctly extract terms and effectively translate them.

The introduction of cognitive-pragmatic aspects in translator training enables students to develop the ability to analyze texts and defend their translation decisions logically and clearly, especially when dealing with technical texts. To improve the quality of scientific-technical translations, it is necessary to develop specialized training programs and conduct research on the direction. This will help address the specific challenges faced by translators. All these measures help improve the quality of translations of special domains, which, in turn, assist in development of science and technology progress. Development of analytical abilities based on cognitive-pragmatic aspect in translation relates to modern realities.

References

- Akbari A., Bazarbash M. G., Alinejadi R. Evaluating pragmatic competence. A case lost in translation training. In: *International Review of Pragmatics*, 2021, 13, 29–60.
- Alekseeva I. S. *Theory and practice of translation*. Moscow. 2008, 184.
- Esembekov T. O., Akimbekova G. Sh. *Modern Translation Processes*. Almaty. Kazakh University, 2023, 202.
- Gavrilenko N. N. Developing informative search skills when translating professionally oriented texts. In: *Bulletin of MGLU Priority directions in teaching foreign languages. Pedagogical Sciences Series*. Moscow. 2011, 12(681). 81–90.
- Gavrilenko N. N. Digital competence as a key component of the translator's professionalism. In: *Bulletin of PNRPU. Linguistics and Pedagogy*, 2018, 3, 139–150.
- Grice H. P. Meaning. In: *The Philosophical Review*, 1957, 66(3), 377–388.
- Guillemain C., Tillmann B. Implicit learning of two artificial grammars, In: *Cognitive Processing*, 2021, 22(1), 141–150.
- Ignatyeva I. G. *Verbal Representations of Background Knowledge in Media Texts and Their Transfer in Translation: A Case Study of "The Economist"*. Abstract of dissertation. Specialty 10.02.20, 2010 [Electronic resource: <https://www.dissercat.com/content/verbalnye-reprezentatsii-fonovykh-znanii-v-mediatekstakh-i-sposoby-ikh-peredachi-v-perevode>].
- Kasper G., Rose K. R. *Pragmatics in Language Teaching*. Cambridge University Press, 2001, 380.
- Kasper G. *Pragmatic development in a second language*. Washington, DC, Wiley, 2003, 364.
- Khau H. A., Nguyen B. Ph. Th., Ngo S. Ph. Students' remarks on Google's translated texts of English proverbs into Vietnamese. In: *Journal of Siberian Federal University. Humanities & Social Sciences*, 2024, 17(5), 892–904.
- Komissarov V. N. *Modern Translation Studies*. Moscow, 2011, 408.
- Krhutova M. Pragmatic Aspects of English for Engineering. *International Conference on Engineering Education*. Coimbra, Portugal. 2007, September 3–7.
- Leech G. *Principles of Pragmatics*. London/New York. Longman, 1983, 241.
- Mansurova G. I. *Cognitive Aspects of Translating Phraseological Units*. Abstract of dissertation. Specialty 10.02.20. Ufa, 2006. Electronic resource: <https://www.gavrilenko-nn.ru/upload/pdf/6dc-40c339f2d1221b505fbaa508c80d9.pdf>].
- Morris Ch. W. Foundations of the theory of signs. In: *Semiotics*, Moscow. 2001, 45–97.
- Nord Ch. *Text Analysis in Translation. Theory, Method, and Didactic Application of a Model for Translation-Oriented Text Analysis*. Translated from the German by Christiane Nord and Penelope Sparrow. Amsterdam/Atlanta GA, Rodopi, 1991, 250.
- Omelchenko A. N. (Ed.). *Terminological dictionary of surveying*. Moscow, 1987, 190.
- Oparin M. V. Technical translation. In: *Translation Communication in the XXI Century: Discourse Aspects of Translation: A Collective Monograph*. Shutova, N. M., Borisenko, Iu. A., Zlobina, O. N., Riabkova, I. P., Kuziaeva, O. R., Oparin, M. V. Izhevsk, Udmurt State University, 2019, 252.
- Parshina T. V. About methodics to teach translation-students to technical translation. In: *Intentional scientific Journal "Young Scientist"*. 2016, 19(123), 378–384.
- Pym A. *Exploring Translation Theories*. London, Routledge, 2014, 178.
- Remhe I. N. *Cognitive Aspects of Translating Scientific and Technical Texts (based on Materials of the Metallurgical Industry)*. Abstract of dissertation. Specialty 10.02.20, Tyumen, 2007. [Electronic resource: <https://dspace.kpfu.ru/xmlui/bitstream/handle/net/154400/0-768050.pdf?sequence=-1>].
- Sakhnevich S. V. *Overcoming the Polyvariability of Economic Terms*. Abstract of dissertation. Specialty 10.02.20, 1998. [Electronic resource: <https://www.dissercat.com/content/preodolenie-raznoperevodnosti-angliiskikh-ekonomicheskikh-terminov>].
- Sdobnikov V. V. Translation Strategy: A General Definition. Irkutsk, In: *Bulletin of ISLU*, 2011(a), 1(13), 165–172.

- Sdobnikov V. V. Translation Strategy Revised: The Communicative-Functional Approach, In: *Journal of Siberian Federal University. Humanities & Social Sciences*, 2011(b), 10(4), 1444–1453.
- Strautman L. E., Gumarova Sh. B. Machine translation in teaching the course of scientific technical translation, In: *Eurasian Journal of Philology. Science and Education*, 2019, 1(173), 226–232.
- Tarakov A., Zhaksylykov A., Musaly L., Adaeva G. *Theory of translation*. Almaty, Kazakh University, 2013, 132.
- Tarnayeva L. P., Ossipova Ye. S. Leveraging Corpus Linguistics Resources in the Training of Professional Communication Translators. In: *Philological Sciences. Theoretical and practical issues*, 2016, 9(63), 205–209.
- Thomas J. Cross-Cultural Pragmatic Failure. In: *Applied Linguistics*, 1983, 4(2), 91–112.
- Vinogradov V. S. *Introduction to Translation Studies: General and Lexical Issues*. Moscow, Institute of General Secondary Education RAO, 2001, 224.
- Volgina M. Iu. Translation terms as the key units of the special text. In: *Perspectives of Science & Education*. 2013, 6, 70–175.
- Vorontsov S. G. The communication model of H. D. Lasswell as an element of methodology of civil Researches. 2019, 414–431.
- Widdowson H. G. On the Limitations of Linguistics Applied. In: *Applied Linguistics*, 2000, 21, 3–25.
- Zhumagaliev T. N., Kuandikhov B. M. (Eds.). *Russian-Kazakh explanatory dictionary of oil and gas geology (in Kazakh, Russian and English)*. Almaty, 2000, 328.