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*For citation: Kurmanbayeva Tolganay S., (2022).
Scientific and Technical Terms and Problems of their Codification
in the Study of the Specialty Language at the University.
Cross-Cultural Studies: Education and Science,
Vol. 7, Issue 2 (2022), pp. 95-100 (in USA)*

Manuscript received: 13/04/2022

Accepted for publication: 31 /05/2022

The author has read and approved the final manuscript.

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SCIENTIFIC AND TECHNICAL TERMS AND PROBLEMS OF THEIR CODIFICATION IN THE STUDY OF THE SPECIALTY LANGUAGE AT THE UNIVERSITY

НАУЧНО-ТЕХНИЧЕСКИЕ ТЕРМИНЫ И ПРОБЛЕМЫ ИХ КОДИФИКАЦИИ ПРИ ИЗУЧЕНИИ ЯЗЫКА СПЕЦИАЛЬНОСТИ В ВУЗЕ

Abstract:

This article is devoted to the problems of codification of scientific and technical terms and the study of the language of the specialty in higher educational institution. In bibliographic terminography there is still a problem of synonymy of terms that have not reached stability in their system. The codification process requires an inventory of terms (collection and description of all terms of any field of knowledge, science or technology) is one aspect of the terminological research process. Also, the use of scientific and technical terms in Russian classes encourages interest in studying the special vocabulary, helps to implement the criterion of the innovation process and form a personality capable of being self-educated.

Keywords: terminography, scientific and technical terms, codification, synonymy, electric power, scientific text, cluster.

Аннотация:

Статья посвящена проблемам кодификации научно-технических терминов и изучению языка специальности в вузе. В библиографической терминологии до сих пор существует проблема синонимичности терминов, не достигшие устойчивости в их системе. Для процесса кодификации необходимо инвентаризация терминов (сбор и описание всех терминов какой-

либо области знания, науки или техники) является одним из аспектов процесса терминологического исследования. Также использование на занятиях русского языка научно-технических терминов побуждает интерес к изучению специальной лексики, помогает реализовать критерий инновационного процесса и формировать личность, способную к самообразованию.

Ключевые слова: терминология, научно-технический термин, кодификация, синонимия, электроэнергетика, научный текст, кластер.

Introduction

Vocabulary of any language has an idioethnic character, i.e., it arises base on a certain culture and reflects the peculiarities of material and spiritual life of people. Terminology (a set of scientific terms) is part of the lexical system of language, because these are, first of all, words and word-combinations, "which are the precise designation of a certain concept in the field of science, technology, art and public life" [1, 508].

Discussion

Terms arise and live in the same way as ordinary words, but they also have certain specifics. First, they appear at a certain stage of development of civilization with the development of science as a systematic knowledge of man and the surrounding world. Second, terms are created on the basis of common words, they are always derivative in onomasiological terms characterized by secondary nomination. Their meanings are motivated not by features of objects and phenomena of the surrounding world (primary nomination), but by the meanings of words existing in these languages.

Third, the terms included in the subsystem of the language of science are subject to certain requirements in terms of their semantics of use in speech: it is unambiguity, absence of synonymy, and stylistic neutrality. However, these requirements are seldom realized in full in terms, which is due to their origin, as a rule, from common words.

Fourth, the science is international, and scientific progress is not limited to the borders of the country and the language where the term was created.

Practice shows that one of the current problems of terms is the codification of scientific and technical terms in the study of the language of the specialty in higher education schools.

The codification process requires an inventory of terms (collection and description of all terms of any field of knowledge, science or technology) is one aspect of the terminological research process. This process consists of the selection of terms, their lexicographic processing of description, the **inventory** is a preliminary stage of work on the ordering of terminology, i.e. putting in order scientific and technical terms by specialists in a particular field of knowledge. S.V. Grinev rightly notes that the study of any field of special vocabulary is invariably associated with terminography, since the results of work on identifying, researching, and harmonizing terminology are usually formalized in the form of a dictionary [2,6].

Harmonization is the first and main step in the practical work on terminology unification, bringing terms to a uniform, unified system. **Unification** is conditioned by structuring the standard correspondence between the concepts and the terminological system (includes: introductory part, main part, alphabetical indexes and appendices). The introductory part specifies the object of standardization, provides the necessary data. The main part includes the terminological articles, the dictionary article consists of the term, its descriptions and illustrative material.

Once the harmonizing-unification takes place, the **codification of the term system**, i.e. its registration in the form of a normative dictionary, is carried out. But nowadays it is often found that industry dictionaries do not give the meaning of a term that may be found in educational, technical texts. This is explained by the rapid development of modern science and technology, for which the **harmonizing of terminology**, and especially the reflection of new phenomena of technology in the dictionary, could not keep up.

Linguistic problems of the term and its history are shown in works of domestic and foreign researchers (V. V. Vinogradov, A. S. Gerd, S. V. Grinev, T. L. Kandelaki, L. A. Kapanadze, R. Yu. Kobrin, V. M. Leichik, A. V. Superanskaya, de Bessé B., Cabré M. T., Depecker L., Felber H., Gadet F., Gouadec D., Wister E.).

According to A.Z. Karapetian, "when developing the concept of term and terminological derivation, the uniqueness of the term as the material substance of the concept it represents should be taken into account first" [2]. Practice shows that with regard to the term the subject matter specialist is primarily interested in a meaningful concept, covering all aspects of the subject. The specialist in the field of terminology decides, whether the term corresponds to the full content of the concept, checks, to what extent the term satisfies the requirements to it as a member of a certain terminological system [3].

For our study, the opinion of scientists seems important who believe that both for the formation of the vocabulary and for the definition of a term in a terminological dictionary, the awareness of the term in the system of scientific concepts, as well as the logical and conceptual analysis of the terminological system play a paramount role [4].

Terms, like no other layer of vocabulary, form quite clear groups of words, which are divided into a large number of specific types, according to semantics. All this makes it possible to set in advance a certain model from the means of lexicographic description of terms of a given type and to use automation when compiling terminological dictionaries [5, 26].

The area we are considering, i.e. terminology of electric power and power supply of agriculture, although it is already standardized, there are some practical issues, such as the synonymy of terms: output, generator, voltage, line, field, unit, etc. There are a large number of standards in the electric power industry, many have to do with the operation of electrical devices, equipment, etc. When working on this article materials we have used the materials from three dictionaries with electric power terms [6; 7; 8], as well as materials from the book about the quality of electric power systems [9]. The publication of new branch explanatory dictionaries is apparently still being decided, because it is more common to see translated dictionaries and reference books. The number of dictionary entries in terminological dictionaries is usually small, attention is paid to individual words only, multivalued words are presented only in one meaning, the choice of translated equivalents is limited.

Nowadays, the external conditions of the industry are developing and the terminological system is expanding, so the streamlining of terminology and the compilation of special dictionaries is important. For example, the reference book by V.V. Krasnik "Terms and Definitions in Power Engineering" was published in 2002. [7] The reference book includes more than 1,200 terms and definitions in the field of power supply, electrical safety, management and economics of electric power industry with reference to state (GOST) and international (ST CMEA and ST IEC) standards. In 2007, a collection of recommended terms "Reliability of Power Systems" was published. [10]. As we have noted above, terminology of power industry is constantly evolving, so it is necessary to update the dictionaries of terms. Some dictionaries are more than 10 and even 20 years old. Developing the new dictionaries requires practical and scientific rethinking of new terms.

So, the terminological system is one of the foundations for building a professional sublanguage, a special language. Any sublanguage of a specialty consists of highly specialized and commonly used vocabulary. Highly specialized terminology is also determined by the combination of a number of conditions: 1) thematic productivity; 2) index of the conceptual value of the concept represented by the term; 3) maximum information content; 4) low frequencies.

When teaching Russian at a technical university, we use various scientific and technical texts in the classroom, in the process of work with the text we define key concepts, describe phenomena, theoretical statements (problems, ideas), and come across terms. In the classroom, special attention is paid to the selection of terminological material, for example, electric power, like any science, has its

own concepts, the vocabulary in texts on electric power or agricultural power supply are general literary words and terms (electric motor, electric drive, transformer, winding, generator, insulator, etc.). Term combinations such as: the generator is excited; the generator is idling; voltage is applied to ...; apply current; be under voltage, current, etc. describe various processes and phenomena. In tasks, we divide the terms into thematic groups, expand the horizons of students using the mental maps, which form communicative competencies and expand the terminological vocabulary of students.

And now let's try to consider the method of critical thinking development technology through reading and writing, which we use in the classroom and is an integral system that forms the skills of work with information in the process of reading and writing.

This technology was developed at the end of the 20th century in the USA (**C. Temple, J. Steele, C. Meredith, S. Walter**) [11]. It's known in Kazakhstan since 2011.

It synthesizes ideas and methods of technologies of collective and group ways of learning, cooperation, developmental learning. The process should be organized in such a way that the focus is on the personality of the student (personal-oriented approach): his motives, goals, needs, inner world, individual experience and psychological makeup. The teacher's role in the classroom: he becomes more not a transmitter of knowledge, but a partner in learning.

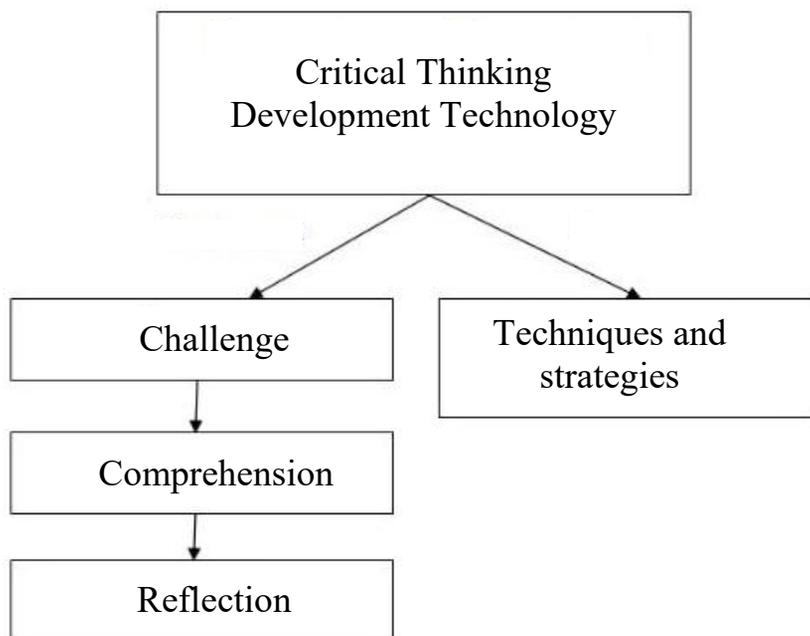


Figure 1 - Critical Thinking Technology

RCM technology has two features (Figure 1):

1. The structure of the session, which includes three phases:
 - challenge (awakening of existing knowledge and interest in new information);
 - comprehension (acquisition of new information);
 - reflection (comprehension, birth of a new knowledge);
2. The content, which is based on the effective techniques and strategies aimed at the formation of students' critical thinking.

So, from the point of view of the authors of technology above:

critical thinking is developed through the ability to rise new **questions**; the ability to develop a variety of **arguments** and the ability to make an independent **decision**. One of the tools of critical thinking is the construction of a cluster. **Cluster** is a way of graphical organization of the material,

allowing you to visualize the thought processes that occur during immersion in a particular text. Work is conducted in pairs, individually or in groups.

In the middle of a blank sheet of paper we write down the key word - the "heart" of the text, around the word, sentences - ideas, facts, images appropriate to the topic, the words are connected to the key concept, logical connections are established. Consequently, after reading a text, the students begin to develop their intellectual abilities, give free rein to their imagination and intuition, receiving new information, comprehending it, relating it to the already existing knowledge, make a model "planet and its satellites" on the topic "Scientific discoveries" of the final session. The students work with terms related to scientific discoveries, expand associative concepts with this topic and form skills of analyzing scientific texts, which is shown in Figure 2.

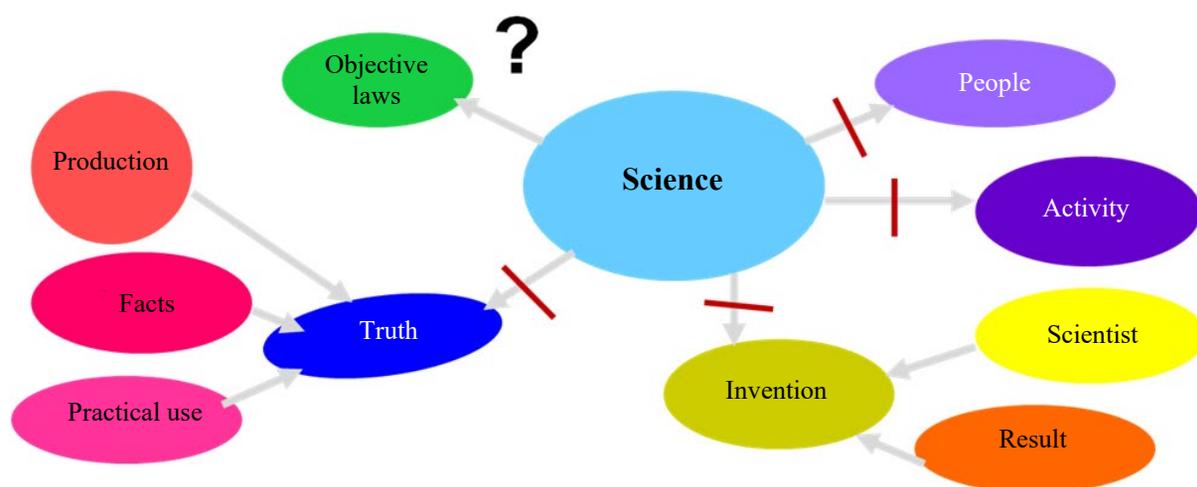


Figure 2 – «Science» cluster

In this way students continue to work until ideas run out, establish and build cause-and-effect connections between pieces of information, and **do not follow a predetermined plan**. In the learning process, students activate terminological units in speech by multiple repeating and imitating a statement based on training and speech tasks. Next, they determine semantics, combinations, and other characteristics of the term, then go back to the text, analyze the scope of its use, demonstrate the extent to which the text functions in similar situations, and then organize reproductive speech activities on an independent level. Note that it is the text that serves as the organizing pivot of all phases of terminological skill formation.

Conclusion

Thus, the work on formation of terminological skills in relation to the terminological unit should be carried out in several stages, each of which includes:

- assimilation of a certain number of terms, their recognition, selection and semantization in the text, active use in the process of independent expression;
- formation of a set of abilities and skills related to the specifics of a given group of terms.

If we take a new topic, all the necessary elements are presented and corrected by the teacher, then in the future the students themselves use the experience of previous sessions, as we have already noted above, they analyze, synthesize information, think and build reasoning to determine further actions. Consequently, another criterion for the effectiveness of the innovation process is realized, a personality capable of continuous learning and self-education is formed.

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Acknowledgments: I thank colleagues for valuable advice in the process of this research and editing the article and I thank the reviewers for their valuable suggestions.

Contribution of the author. The author contributed equality to the present research.