Methodology of Lexical Competence Formation of Power-Engineering Students based on CBA and its Experimental Research in Teaching ESP

Bakirova Khilolakhon Botiraliyevna

English Applied Translation Department, Translation Faculty, Uzbek State University of World Languages, Tashkent, Uzbekistan

Abstract: This article considers about methodology of lexical competence formation of power - engineering students and its experimental research in ESP teaching. Here some theoretical approaches are discussed, and new methodology suggested by the author is tested in practice. Experimental work was carried out in 3 non-philological universities of the Republic of Uzbekistan as Tashkent State Technical University named after Islam Karimov (TSTU), Fergana Polytechnic Institute (FerPI) and Navoi State Mining Institute (NSMI). Anonymous questionnaires were obtained from students and teachers, written control works are received from students. Using the results obtained, the existing difficulties in teaching and mastering the terms of power engineering were identified. With the help of these difficulties there have been developed a typology of exercises aimed at overcoming the identified challenges. The exercises given here were prepared and published in the textbook "Foreign language for 3rd year power engineering students" for the development of lexical competence, used at English language course for students of the 3rd year of the Faculty of "Power engineering" of non-philological higher educational institutions of the republic. The texts in the manual is based on the content of teaching special subjects and textbooks in the field of power engineering of TSTU, 3rd year "Foreign language" educational and methodological complex, O.G.Smirnova, E.A. Protsukovich's e-book English for Power Engineering, David Bonamy's Technical English 1, and Internet sources.Besides this there are given some recommendations and suggestions on teaching technical terms to ESP students in higher educational establishments.

Keywords: Professional Lexical Competence, Power-Engineering Students, CBA, Experimental Research, Content Based Exercises, Experimental Research, Engineering Terminology, Content-Based Instruction, Difficulties In Learning, Interference Types.

Introduction

It is known that modern non-philological principles of higher education imply the organization of the educational process on the basis of a set of competencies that are of a general cultural and professional nature and are important in certain areas of activity. These basic competencies play an important role in the relevant areas of professional activity of future professionals. According to the requirements of the State Educational Standards (SES) [19], the acquisition of all types of speech activities in a foreign language in a particular professional field is defined as a mandatory result of mastering the social and economic sciences. In today's world, the main task for students is to master all types of speech activities and professional communication skills on the basis of professional vocabulary.

These requirements for a university graduate are determined by the need to form a high level of professional communicative competence as a future specialist, which in turn cannot be achieved without mastering professional terms in a foreign language. Lexical competence in a foreign language forms the linguistic basis of professional communicative competence. They can also be considered as a dynamic unit: lexical competence is formed in the process of communicative activity of students, and communicative competence is improved with the development of lexical competence, that is, their formation is interrelated.

In recent years, in the process of science, information and economic globalization, the field of technology is also emerging as a rapidly developing field. Researchers suggest the use of various methods to ensure the free participation of experts in international relations. These include the translation method, the cognitive method, the situational approach, and the task-based approach. [1]

However, these approaches are aimed at English for general purposes (EGP) and are based on teaching listening comprehension, reading, writing, and speaking, which are basic language skills. In EGP more emphasis is placed on increasing grammar and vocabulary richness by using language material from everyday life situations. [22]

While this teaching method is effective in helping students build a solid foundation of language, it is not sufficient to meet students' needs for specific professional skills. In this situation, many researchers and teachers have advocated another new approach to foreign language teaching, namely the ESP approach, which is based on teaching English as a language of specialty.

"ESP has been a remarkable move in the English language teaching system, opening up rich opportunities for teachers and researchers in new professional fields" [13]. ESP teaching theories have been endorsed by both teachers and students because of the focus on language used in specialty subjects and future professions.

According to the world experience of foreign language teaching, in ESP teaching, scholars offer teaching activities based on different approaches. Content based approach (CBA) is one of them. According to the experience of foreign scholars, the use of CBA in learning English can increase students' motivation, accelerate students' language acquisition, expand intercultural knowledge, and make the language learning experience more effective.

Scientists around the world have presented their various theories about CBA. In particular, Widdowson noted that the CBA focuses on combining language learning with

content learning. When these two areas are combined, English is studied in the context of the subject matter [23]. As Brinton points out, in CBA the foreign language teaching methodology is based on a set of content or information that students learn [6]. Swain argues that the CBA can be a philosophical and methodological system that integrates language and content learning [21]. According to Short in CBA teachers use content topics to teach rather than grammar rules or vocabulary [16].

According to Stryker and Liver, the subject of CBA is determined based on texts or topics selected based on students' interests and needs [20]. This content approach provides a key element for students, namely what teachers should teach and what students should learn [5]. Tomlinson emphasizes the need to teach content in a way that is easy for readers to understand, meaningful, and relevant to their own lives [22].

Summarizing from the above, we can say that the purpose of content-based teaching is to teach students to master a language based on the content of an academic subject, that is, students learn the language within the content of a particular academic subject.

Content-based instruction teaches language instruction in a way that integrates the linguistic and academic needs of English learners. In communicative teaching of English as a foreign language, more emphasis is placed on meaning rather than on the form of the word. This means that the material taught in this methodology should be appropriate for teachers and students. In this case, the most suitable materials for students to study are selected through situational assessment.

CBA is organized within the content of education, in which the principles of teaching are based on the principles of communicative language teaching. Accordingly, students are required participate actively in their understanding of the content. The CBA is usually based on concepts, theories, facts, and principles that are taught and learned in certain academic courses, rather than on skills such as reading and writing that students learn at school. At the same time, students' professional knowledge and skills are formed through literacy skills such as reading, writing, listening comprehension, speaking and presentation, using content-related information.

One of the factors determining the level of professional training of a specialist in any field is the ability to communicate freely in a foreign language. In the process of training future professionals to communicate, communicative competence is formed. [11]

In order to communicate, it is necessary not only to know the language, but also to be able to use it in psychological, cultural and social processes. [3]

In the process of teaching to read and translate specialized literature, terminology is mastered not productively, but receptively, dialogical opportunities are limited, and communication opportunities of future professionals are limited.

In the process of oral communication, the study of terminology ensures the formation of professionally oriented communicative competence, which consists in developing the ability of non-philological students to communicate professionally in a foreign language.

The effectiveness of a specialist-oriented foreign language teacher's work depends on his knowledge of the required language material, his ability to use it in speech, his ability to explain and master this material by students, his terminological and general erudition competence in teaching practice, linguodidactics theory and history.

Professional lexical competence is a holistic concept that expresses the ability of students to apply relevant vocabulary, the skills and competencies formed on its basis, speech experience in different situations related to their future professional activity. The lexical component, as a linguistic part of communicative competence, includes the knowledge, skills, and competencies required to create a specific model of understanding and speaking style in a foreign language that is relevant to the goals and situations of communication.

This, in turn, requires basic concepts of linguistics (methods, methods of linking sentences in the text, etc.), text analysis skills and competencies, communication skills, i.e. knowledge of how to use them correctly in different areas and situations of communication. Communicative competence is the expression of linguistic competence in different contexts of speech according to behavioral and social norms and in accordance with the communicative purpose. [15]

In the process of forming communicative competence, speech (communicative) skills are leading, which in turn includes all types of speech activities, expressive and receptive skills and abilities.

"Professional lexical competence is a holistic concept that expresses the ability of students to apply vocabulary, skills and competencies based on it, representing the cognitive-speech experience in different situations related to their future professional activities." [18]

In our thesis, we study "terminology" in a broader sense as "professional vocabulary". This is because future professionals will face not only professionalism in their future careers, but also narrow specialization, general scientific terms, commonly used lexical units, and even phraseological units.

When we analyzed the research on the formation of professionally oriented foreign language communicative and lexical competence of the future specialist, we witnessed that in the formation of lexical competence in a foreign language, more attention was paid to the oral (written and oral) side of the issue.

Verbal lexical competence includes a student's lexical knowledge, verbal lexical skills, speaking skills, as well as personal speech and language experience i.e. the ability to perceive, master and use lexical units in professionally oriented communication [7].

In the formation of verbal lexical competence, along with the formation of verbal lexical skills necessary for the future specialist, the issue of selection of lexical content is also important [14; 92-p.].

Lexical content includes:
1. the ability to select and use professional terms related to a particular terminological system, and the use of words related to them at the paradigmatic level;
2. the ability to combine terms in accordance with the speech function at the syntagmatic level.

In the process of organizing the work with the dictionary, the teacher should understand that the student's mastery of the term and the perception in the mind of the concept expressed by the term is carried out in several stages.

In the first stage, the language material is analyzed: the main features of the concept are separated, its meaning is separated from the lexical meaning of specific words, it is determined whether it belongs to a particular linguistic phenomenon or language category.

In the second stage, the characteristics of the term and concept are summarized.

The third stage focuses on understanding the definition of the concept, identifying its features and the relationships between them.

In the fourth stage, the grammatical concept studied on the basis of the new language material is specified. In the process of learning, students establish inter-conceptual connections of the learned concept with those previously mastered.

Each stage of mastering the term and the concept expresses the teacher must choose rigorous types of exercises that are appropriate to the stage being performed and the specific characteristics of the concept. [10] This exercise is an integral part of the methodological organization of teaching materials used in the learning process. [2]

Methodology

The methodology for this study was designed to assess the effectiveness of a Content-Based Approach (CBA) in developing the lexical competence of power-engineering students in non-philological universities. The research was conducted across three institutions: Tashkent State Technical University, Fergana Polytechnic Institute, and Navoi State Mining Institute. A total of 280 third-year students were involved, divided into experimental and control groups. The study began with a diagnostic test to evaluate students' initial lexical competence. Throughout the semester, the experimental group was taught using the CBA methodology, which integrates language learning with subject-specific content, while the control group followed traditional teaching methods. The results were assessed through written tests at the end of the semester. Statistical analysis was conducted to compare the performance of the two groups. The findings revealed a significant improvement in the lexical competence of the experimental group, with an increase in the number of students achieving higher grades compared to the control group. This methodology demonstrates the effectiveness of CBA in enhancing the professional communicative competence of students by focusing on content-specific vocabulary, thereby better preparing them for their future professional activities. The study concludes that incorporating CBA into ESP teaching can significantly improve students' ability to understand and use specialized terminology effectively.

Result and Discussion

In the Results section, summarize the collected data and the analysis performed on those data relevant to the issue that is to follow. The Results should be clear and concise. It should be written objectively and factually, and without expressing personal opinion. It includes numbers, tables, and figures (e.g., charts and graphs). Number tables and figures consecutively in accordance with their appearance in the text.

Taking into account the above theories of Methodist scientists, in this work we have developed a system of exercises according to the typology of difficulties encountered in mastering the terms of the field of "Power engineering". The exercises mainly cover the semantics of terms and their syntagmatic and paradigmatic features. This system of

exercises serves to overcome existing difficulties and develop the skills and abilities of future professionals to work with, master and apply in professional terms in speech.

We classified the exercises as follows:

1. **A set of exercises that overcome difficulties according to interlingual interference;**
2. **A set of exercises that overcome difficulties according to the internal interference of the language.**

These two large groups are further subdivided into smaller groups:

   1. **A set of exercises to overcome difficulties according to interlingual interference:**
   1) A set of exercises to work with easy-to-learn terms.

It deals with international and assimilated terms that differ only in pronunciation, which are compatible in form and meaning.

It should be noted that from the point of view of modern methods of teaching foreign languages, exercises of a translation nature are not considered effective. Methods of expressing the meanings of lexical units without direct translation are more effective in teaching using pictures, gestures, facial expressions, situations, and so on. [9]

However, our practice of teaching English at a technical university has shown that because of the different levels of English proficiency among students, translation exercises are a convenient method for students who do not have an initial level of English proficiency.

Systematic lexical and speech exercises help to develop lexical skills in students with different levels of knowledge. Vocabulary exercises can be done at any stage of the lesson, but are usually more effective at the beginning of the lesson. Vocabulary exercises can take many forms: games - saying or writing more words on a topic, arranging words on the board faster in alphabetical order, catching a ball and translating a word - faster writing words from English to native language and vice versa, synonyms, antonyms, compound words, translation of words and phrases, composing sentences with given words, working in pairs with cards, etc.

The positive side of such exercises is that students demonstrate their vocabulary through it, using it in context. But the teacher needs to think clearly about the purpose of the task being given, as it will often be difficult for the student to use the newly learned words in advance (and their use is the main goal of the task). [12]

This group of exercises focuses on the comprehensive development of lexical competence and involves working on understanding and comprehending English texts that contain international and mastered terms that differ in form and meaning only in pronunciation. When doing such exercises, students hardly refer to the dictionary. Because of the similarities and compatibility of terms in the native language and foreign language, students can master them almost without difficulty.

For example:

1. Find out about materials you use in your profession. Make your own table and complete it.
2. Disagree with each statement.

3. Match the terms with pictures in the box.
4. Match the parts with their functions.

We would like to offer the following methodological recommendations when performing exercises on the formation of students' lexical skills:

- In teaching terms, it is advisable to use graphic tools that reflect the meaning of the term, not limited to the same type of exercise, because they clearly reflect the terminology elements and the terms formed by them;
- It is more effective to work with short authentic texts on the specialty and exercises based on them to develop technical reading skills, the purpose of which is to ensure error-free comprehension of the text in a foreign language;
- When performing exercises, it is recommended to use the dictionary only in exceptional cases, when other methods of understanding the meaning of the lexical unit do not work.

2) A set of exercises for working with difficult-to-learn terms:

a) A set of exercises for working with terms that are incompatible in form and meaning.

This type of exercise includes "exercises that teach students to recognize and comprehend a particular lexical material in terms of context and its formality". [4; 102-p].

Hence, this type of exercise is aimed at developing students' reading skills and ability to understand the meaning of terms in context. Including:

- Exercises to compare texts on energy specialization with headings (or pictures);
- Exercises to work on the content of the text: answers to questions, determining whether the conclusions are correct / incorrect;
- Interrelation of the terms given in the text with the definitions given in the dictionary.

All of these exercises are text-based and focused on a complete understanding of the text. For example:

1. Match the titles A to E with the corresponding texts 1-4. There is an extra title.
2. Make sentences:
3. Mind map
4. Work in groups. Which may does the water flow in this system? Draw arrows to show the direction of the flow.
5. This exercise focuses on the comprehensive development of lexical skills and involves working on comprehension of English texts. When doing such exercises, students can refer to the dictionary. Based on the context, students select the desired meaning of the term from the dictionary.

b) a set of exercises for working with terminological phrases.

This set of exercises includes exercises on the use of terms in language and speech constructions. These exercises are based on the construction of words, phrases, sentences, and texts: forming words from morphemes; make nests of related words; formation of word forms (person and number variation, etc.); form different

types of phrases and sentences; including composing different types of texts. It also focuses on the analysis of the features of identifying, constructing, using, and translating lexical combinations based on a common core to work with the most common terminological phrases in technical language. For example:

1. Translate the following terminological phrases consisting of a noun, participle I (gerund) and a noun into Uzbek.
2. Match the meaning of the following words:
3. Identify the meaning of the following terminological phrases.
4. Write out all familiar terminological combinations as more as you can from the given WORD CLOUD and write their equivalents in mother tongue.

When working with these exercises, it is recommended to follow some methodological recommendations to optimize the process of developing lexical skills:

- to avoid methodological errors in introducing students to individual word combinations, as this, firstly, doubles the load on students' memory, secondly, the unit of operative memory combines cognitive and learning activities, thirdly, terminological combinations are all they contain. They should have a full meaning in the combination of units, and finally, the terminological phrase must be considered as a single term, and therefore individual words are studied according to the principles under study;
- students have difficulty learning words as part of speech;
- As it complicates the process of understanding what is read, it is advisable to acquaint students with the suffixes specific to each word group before performing exercises on the formation of terminological combinations;
- Explain to students that when working with texts, it is necessary to pay attention not only to the similarity of the English term to the Latin (Greek) term, but also to the contextual environment of the terminological unit;
- provide students with complex terminological phrases in English with a translation into their native language;
- To teach students to use the dictionary only in exceptional cases.

2. A set of exercises to overcome difficulties according to internal language interference:

1) A set of exercises for working with easy-to-learn terms:

 a) A set of exercises for working with compound words, the core of which is homogeneous or not the same, it is easy to create a new term through word-forming additions.

This set of exercises is aimed at developing the ability to distinguish the main features of the term. They are based on language units and text analysis, including: text analysis, i.e. the ability to determine the type of speech in a text - description, narration, reasoning; syntactic analysis of a sentence, for example, the type of sentence according to the purpose; morphological analysis of word groups and their forms, for example, the ability to choose a noun, adjective, verb, etc. from the text;

lexical analysis, for example, the ability to determine the meaning of a term, interpret it, explain the methods of word formation; morphemic analysis of a word, for example, the ability to identify the root of a word, prefix, stem, suffixes; phonetic analysis, the ability to distinguish sounds in a word, to determine their number; the ability of a word to interconnect the sounds and letters of a letter, and so on.

The exercises in this group focus on gaining knowledge about word-forming terms and terminology elements (stems and affixes). For example:

1. Identify the parts of speech. Translate the following speech chains of the same root words into Uzbek/Russian.
2. Translate into Uzbek/Russian the following compound words and analyze which suffixes formed by.
3. a) Form nouns from the given verbs and translate them:
4. b) Form adjectives from the given nouns and translate them:
5. Find out what these word parts mean. Then find other terms with the same word part.

2) A set of exercises for working with difficult-to-learn terms:

a) A set of exercises for working with synonymous terms

This type includes exercises to compare terms of the same type, i.e. with the same meaning. The purpose of this type of exercise is to develop the ability to identify important features of meaningful terms, such as highlighting common features in defining a term, finding differences, defining the function of a term, and distinguishing a key term. For example:

1. Arrange the following words and expressions in pairs of
2. Compare: tell the differences and similarities.
3. Write a word that is similar in meaning to the underlined part.

b) A set of exercises for working with polysemic i.e. polysemous terms. This involves working with words, one meaning of which is used as a general word and the other meaning of which is used as a term. This group of exercises is aimed at developing the ability to identify the meanings of polysemous terms. Such exercises prevent misinterpretation of terms when used individually and in context. As an example, we can give the following exercises:

1. Identifing polysemic terms in context,
2. Choosing the correct term in specialty.
3. Determination of the meanings of polysemantic words.

The system of special exercises aimed at overcoming all kinds of difficulties in mastering the terms of power engineering. In the course of our research, it was proved that the use of this system of exercises in teaching English to power engineering students has a beneficial effect on the development of lexical competence of future engineering students.

In the methodological typology of vocabulary, the system of exercises is designed taking into account the most effective ways to overcome the difficulties

encountered in mastering this or that type of lexical units. In this regard, we recommend that one should consider the followings to avoid lexical difficulties:

1. grouping lexical units according to difficulties in mastering them;
2. development of methods aimed at overcoming the difficulties inherent in each group;
3. overcoming lexical difficulties is done in the following ways: separating difficult words from each other; analysis of various combinations and associative relationships of the studied units; performing differentiating exercises that shape the ability to differentiate in the learning process.

In our opinion, the typology of language material developed for the teaching of a specific foreign language, including the methodological typology of vocabulary, would be appropriate if the authors took into account not only in the dissertations but also in the compilation of textbooks. Because lexical units with developed methodological typology are very effective in organizing the process of language teaching and developing a system of special exercises. The effectiveness of the formation of lexical skills and abilities depends on the quality of the methodological typology, both theoretically and practically proven [24, 25].

Data Analysis

The purpose of the experimental work is to achieve effective and positive results by putting into practice our scientific-theoretical views, aimed at developing the lexical competence of future engineers in English classes, which we are researching in our research work.

Experimental work was carried out at the Tashkent State Technical University named after Islam Karimov (TSTU), Fergana Polytechnic Institute (FerPI) and Navoi State Mining Institute (NSMI) in the process of teaching English as a foreign language to 3rd year students majoring in power engineering specialty.

Tasks of experimental work include:

- conducting and analyzing questionnaires and surveys in order to determine the status of teaching and learning vocabulary at English classes;
- develop a set of exercises aimed at shaping lexical competence according to CBA and research in experimental groups;
- to determine the effectiveness of the development of students' lexical competence on the basis of mathematical and statistical analysis of the results obtained.

In the foreign language teaching system of non-language universities, the professional vocabulary is mainly taught at higher levels. Due to the completion of 4th course foreign language teaching at the universities we surveyed, the experimental work was conducted only with 3rd course students. Experimental work was carried out in the following 3 stages: *analysis, experiment, generalization*. We will focus on them below.

During the analysis of the experimental work (2020-2021 academic years), the current literature (SES, programs, textbooks and manuals) on the research topic was analyzed, the English language teaching system (credit module) and lessons were observed, foreign

language professor teachers' and students' questionnaires were obtained anonymously, according to which existing shortcomings were identified.

A total of 100 respondents took part in the online anonymous survey, which was conducted to determine the difficulties encountered in the process of teaching professional vocabulary and students' mastery of terms in the nonphilological universities. According to the results of this questionnaire we analyzed that, future engineer students are well aware of the importance of learning terms related to their field in foreign language classes, but due to the current textbooks and teaching system do not meet the needs of students, they face some difficulties in working with, mastering and using terms. For this reason, in our thesis, we aimed to reform the methodology of developing lexical competence of future engineers. Based on these results, in our work we aimed to reform the methodology of developing lexical competence in future engineers. For this purpose we offered above some new techniques and system of exercises to work with students during classes.

The next questionnaire was attended by 100 foreign language professors from several non-philological universities in the country to determine the importance and level of mastery of professional terms. The results of the analysis showed that the majority of foreign language teachers teaching in the non-philological direction are unaware of how many field terms students need to master, as defined in the SSE as a future specialist. The main reason for this, as they assumed, are the lack of sufficient books, textbooks, dictionary minimums. The reasons for the difficulties encountered by students in teaching process are that the knowledge level of the majority of learners is very low, and with such a knowledge base it is very difficult to reach the B1 or B2 level defined in the SSE, especially in the lack of practical lessons. In addition, the fact that students do not take tests in English in the entrance exams to higher educational institutions is a big obstacle, they suggested organizing foreign language classes in cooperation with teachers of specialty subjects.

At the *analytical stage* of our experimental work, a methodology for developing lexical competence in students was developed, aimed at overcoming the identified shortcomings in the system of teaching English in the field of power-engineering of non-philological higher educational institutions. According to this methodology (2021-2022 academic years) experimental work was carried out in three non-philological higher education institutions of the Republic of Uzbekistan as TSTU, FerPI and NSMI with 280 students participated as respondents in there. They were divided into two experimental and control groups.

At the beginning of our experimental work, in the 5th semester of the 2021-2022 academic year, written test was obtained from selected students. The results were evaluated on a 5-point scale. A comparative analysis of the preliminary results shows that based on the combined results of the experimental and control groups in all higher educational institutions, 7.9% and 7.1% of students in the experimental and control groups had high scores, respectively, while 22.1 and 22.9% of students had middle scores, 45.7 and 47.1% of students had low scores. Particularly low-level students were also present in both groups, with scores of 24.3 and 22.9%, respectively.

In the *experimental stage*, the experimental groups were taught on the basis of a methodology aimed at developing the lexical competence we proposed, while the control

groups were taught on the basis of the usual methodology. At the end of the semester, the final control was obtained. A comparative analysis of the final results shows that based on the combined results of the experimental and control groups in all higher educational institutions, the mastering rates of the experimental and control groups were 20.0% and 8.6%, respectively, and it shows that 11.6% higher than the control group. The middle scores 49.3% in the experimental group, 26.4% in the control group had increased by 22.9%. 30.7% in the low experiment group and 60% in the control group, which decreased by 29.3%. There were no low rate of results in the experimental groups while in the control groups indicates 5%. It shows that there is growth in the experimental groups of the work done. The following results were obtained by comparing the general indicators at the beginning and end of the experiment:

According to the results of the diagram, the mastering indicators in the experimental group increased from 7.9% to 20% for excellent assessors, from 22.1% to 49.3% for good assessors, and decreased from 45.7% to 30.7% for satisfactory assessors, it can be seen that there were no unsatisfactory evaluators at all. In the control groups, however, these figures differed by only 3-4%.

The results obtained at the *generalizing stage* were statistically analyzed.
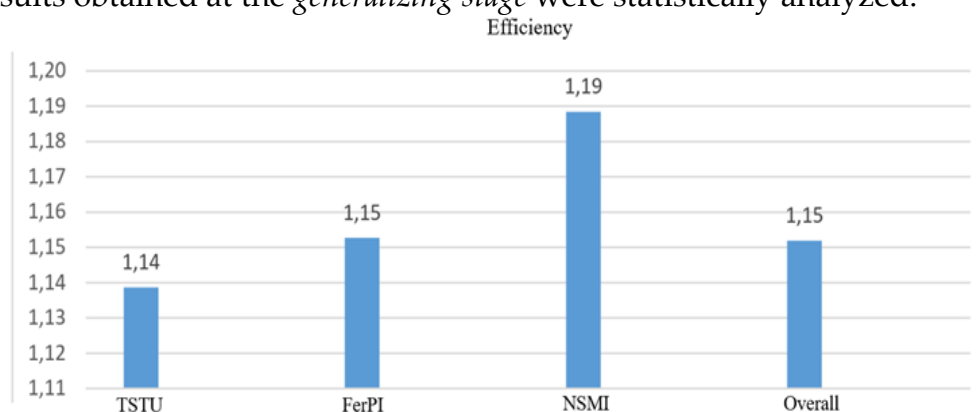

Figure - 1. Efficiency indicator of experimental tests

These results fully confirmed the hypothesis of the study. This was achieved through mathematical and statistical processing of the results of experimental work, ensuring representativeness, compliance with the law of transformation of quantitative changes into qualitative changes.

Conclusion

Experimental work was carried out at the Tashkent State Technical University named after Islam Karimov (TSTU), Fergana Polytechnic Institute (FerPI) and Navoi State Mining Institute (NSMI) in the process of teaching English as a foreign language to 3rd year students majoring in power engineering.The purpose of the experimental work is to achieve effective and positive results by putting into practice our scientific and theoretical views aimed at developing the lexical competence of future engineers based on CBA in English lessons.

Tasks of experimental work include:

- conducting and analyzing questionnaires and surveys to determine the status of teaching and learning vocabulary in the field of power engineering in English classes;
- develop a set of exercises aimed at shaping lexical competence according to a Content-Based Approach (CBA) and research in experimental groups;
- to determine the effectiveness of the development of students' lexical competence on the basis of mathematical and statistical analysis of the results obtained.

Experimental work was carried out in the following 3 stages: analysis, experiment, generalization. During the analysis of the experimental work (2020-2021 academic years), the current literature (SES, programs, textbooks and manuals) on the research topic was analyzed, the English language teaching system (credit module) and lessons were observed, foreign language professors and teachers and anonymous questionnaires were obtained from students to identify existing deficiencies.

A total of 100 students and 100 professors took part in the online anonymous survey, which was conducted to identify difficulties in the process of teaching professional vocabulary and students' mastery of terms in non-philological universities. A methodology for developing lexical competence of students has been developed. It is aimed at overcoming the shortcomings identified in the experimental phase of the experimental work. According to this methodology in 2021-2022 academic years an experimental work was carried out in three non-philological higher education institutions of the Republic as TSTU, FerPI and NSMI. 280 students participated as respondents. They were divided into two experimental and control groups.

The experiment began at the beginning of the 5th semester with a written diagnostic test to determine students' knowledge. The results were evaluated on a 5-point scale. During the 5th semester, students were trained according to the methodology we proposed. At the end of the semester, the final control was taken in written from both groups. The results of the control showed that in the experimental group, the mastery indicators increased from 7.9% to 20% for those with excellent grades, from 22.1% to 49.3% for those with good grades, and from 45.7% to 30.7% for those with satisfactory grades. It can be seen that there were no unsatisfactory evaluators at all. In the control groups, however, these figures differed by only 3-4%.

During the experimental study of the methodology for the development of lexical competence of future engineer students in English on the basis of CBA and experimental work aimed at overcoming the identified shortcomings and difficulties on the basis of written tests, a content-based learning system and special exercises proved to be effective.

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