
**INNOVATIVE METHODS OF PROFESSIONAL
TRAINING OF SPECIALISTS IN HIGHER EDUCATION
WHILE LEARNING FOREIGN LANGUAGES**

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INTRODUCTION

The current stage of development of higher education is characterized by rapid changes caused by the processes of globalization, digitalization and integration of Ukraine into the European educational space. Under such conditions, the training of highly qualified specialists who are able not only to acquire professional knowledge, but also to think creatively, quickly adapt to new challenges, work effectively in a team and find non-standard solutions to professional tasks is of particular importance. That is why one of the priority areas of modernization of the educational process is the implementation of innovative learning systems focused on the development of creativity, critical thinking and professional competence of future specialists.

A special role in this process is played by the teaching of foreign languages, in particular English, which is the language of international professional communication, science, technology and modern information technologies. Traditional teaching methods no longer fully meet the requirements of today, so it is urgent to search for new pedagogical approaches that will help activate students' cognitive activity, develop their independence, creative potential and ability to effectively use language knowledge in professional activities.

In recent years, the rapid development of digital technologies, artificial intelligence and online educational environments has significantly transformed higher education. Modern universities are expected to prepare graduates who possess not only professional knowledge and foreign language competence but also digital literacy, critical thinking, creativity, collaboration and lifelong learning skills. Consequently, innovative teaching methods have become a key component of educational modernization, supporting active student participation, problem-solving and interdisciplinary learning. International organizations, including UNESCO and the OECD, emphasize that the successful integration

of innovative pedagogical approaches is essential for improving the quality of higher education and preparing specialists for the challenges of the twenty-first century.

One of the promising areas of innovative pedagogy is the application of the principles of continuous formation of creative thinking based on the theory of inventive problem solving (TPS).¹ This methodology is aimed at developing the ability to analyze problem situations, generate original ideas, find optimal ways to solve the tasks set and overcome stereotyped thinking. The use of TPS tools in the process of teaching English allows you to combine the formation of language competence with the development of students' creative abilities, increasing their motivation and activity during learning.

An effective means of implementing the principles of TPS is the brainstorming method, which stimulates the collective search for solutions, activates the communicative activity of students, promotes the development of critical and creative thinking, and also forms the skills of reasoning in expressing one's own opinion in English. The use of this method during practical classes creates conditions for modeling professionally oriented situations, developing creative initiative and forming the readiness of future specialists to solve non-standard professional tasks.

The article examines the features of using the principles of continuous formation of creative thinking based on TPS in the process of teaching English in higher education institutions. Examples of organizing training sessions using the brainstorming method are presented, its didactic capabilities are analyzed and the effectiveness of its use as a tool for developing speech competence, creative potential and professional thinking of students is substantiated.

Modernization of education involves orientation not only assimilation by students of a certain amount of knowledge, but also in the development of his personality, cognitive and creative abilities. In the process of pedagogical activity, they try to form a holistic system of universal knowledge, skills, abilities, as well as key competencies that determine the modern quality of the content of education. The priority direction of the development of activity has become the humanistic orientation of learning, in which the personal potential (principle) occupies a prominent place². It involves taking into account the needs and interests of the student, the implementation of a differentiated approach to learning. It takes into account the laws of modern creative education, the thematic core of which is the creative and personally oriented paradigm.

¹ Альтшуллер Г. С. Алгоритм винаходу. Київ, 1990. 314 с.

² UNESCO. *Reimagining Our Futures Together: A New Social Contract for Education*. 2021.

1. Continuous formation of creative thinking-theory of solving inventive task

Modern classes are one of the tools of education and comprehensive development of the personality, aimed at the future of the student, at the synthesis of his personal uniqueness and professionalism. The teacher faces a problem: to find such a technology of teaching students that would allow them to be active subjects of it, who independently know and solve cognitive tasks.

One of the concepts that allows you to maintain balance is the concept of continuous formation of creative thinking and development of creative abilities of students, with active use of the theory of solving inventive tasks «Continuous Formation of Creative Thinking-Theory of Solving Inventive Tasks»(TPS).³The basis of the means used in TPS-pedagogy is the problem-search method and independent creative activity of students, aimed at obtaining the final result, bypassing the trial and error method. Through group work, students establish cause-and-effect relationships, apply knowledge in a familiar, but also in a situation. Non-traditional forms of conducting classes make it possible not only to raise students' interest in the subject being studied, science, but also to develop their creative independence, teach them to work with various sources of knowledge. The organization of such a lesson leads students to the need for creative assessment of the phenomena being studied. TPS arose as a theory of solving inventive tasks in technology. However, the question of the possibility of its application in other areas of human activity soon arose. The new direction TPS -pedagogy is based on methods developed within the framework of the theory of solving inventive tasks: stereotype removal operators, methods for resolving contradictions, algorithms for solving creative tasks and other decision-making mechanisms TPS. At the same time, TPS -pedagogy does not neglect other methods, using them as auxiliary. TPS -pedagogy has accumulated experience in teaching methods for solving creative problems to different age groups – from preschool children to students and adult specialists.

Elements of the theory of solving inventive problems are widely used in the process of teaching a foreign language in the context of developing an innovative system of professional training. The training is primarily not in specific knowledge, but in ways of quickly and effectively acquiring knowledge (learning skills). One of the most important differences from the traditional approach is the transition from the structure of content «by disciplines» to the structure «by problem».⁴

³ Сисоєва С. О. Інноваційні технології у вищій освіті. Київ, 2020. 250 с.

⁴ Tassone V., Biemans H., Raanhuis P. *Higher Education Research & Development*. 2021.

As is known, the brainstorming procedure includes the following main stages: traditional vertical integration of knowledge occurs taking into account two principles: the didactic principle of «from simple to complex» and the principle of linear planning⁵. The principle of linear planning implies sequential passage so that the previous one is meaningfully connected with the next one or that all aspects of a larger topic are sequentially covered. However, the specificity of reproducing a foreign language involves simultaneously knowing several components from different aspects of the language, and not studying them sequentially in each lesson, so it is necessary to move from linear planning to network planning, which allows you to simultaneously work with a network of concepts⁶.

At the university, a mechanism for transitioning from linear planning to network planning has been developed for English language classes. Four main models of network integration are scientifically substantiated and experimentally tested:

- 1) the model of mutual support;
- 2) the model of multilateral representations;
- 3) the model of integrated skills;
- 4) the model of complex problem tasks.

The model of mutual support involves the targeted use of resources from one subject to improve the results of another subject. Common to all disciplines are the ability to learn and cognitive skills as a technology within the framework of learning skills.⁷ The ability to work with text in both Ukrainian and Ukrainian English, and where necessary, in a foreign language, should be especially highlighted. The allocation of learning skills as integrated can significantly solve the problems of teaching a foreign language, since these skills allow you to independently acquire new knowledge in the future. For the successful integration of knowledge with the needs of the student, it is necessary to develop all components of learning skills in foreign language classes. Even the skills of working with knowledge are mainly formed as the ability to memorize and use ready-made knowledge. But the problem of the need to teach tomorrow's knowledge, which does not yet exist, requires a new content of the skills of working with knowledge. This is the ability to independently acquire new knowledge or cognitive skills. New knowledge arises from the problem: when something cannot be done, something cannot be explained. Part of cognitive skills is the ability to solve problems, the formation of which

⁵ UNESCO. *Guidance for Generative AI in Education and Research*. 2023.

⁶ OECD. *Education Policy Outlook 2024*. 2024.

⁷ Dabis A., Csáki C. *AI and Ethics: Investigating the First Policy Responses of Higher Education Institutions to the Challenge of Generative AI*. 2024.

requires the development of problem-solving technologies. This model allows you to rationalize the development of generalized cognitive skills: to learn, use, transform, synthesize.

With a teacher who uses even elements of TPS, students are engaged with enthusiasm, without overloading they master new knowledge, develop speech and thinking, master a foreign language without cramming. TPS is one of the methods of activating the educational process, which develops students' creativity. TPS is a new word in problem-based learning, because it does not just pose problems to students, but gives constructive ways to solve them, helping to achieve success in solving problems.⁸

The actual task of the brainstorming method is that all participants freely offer solutions to the issue under discussion, no one can directly or indirectly be critical of someone else's idea, each person should approve of others as much as possible, each person should create or inspire others to create the maximum possible number of ideas, regardless of them. Speed, quantity and immediacy are the motto of this process. Strict adherence to such a strategy is necessary, as it helps to break the unconscious limitations and prejudices that exist in our thinking in an ordinary situation, and allows us to be truly creative.

2. Application of the brainstorming methods in practical work using the task of translating professional texts

The peculiarity of this lesson on translation practice is that the communicative procedure of brainstorming is used. This method is interpreted not only as a heuristic method, but also as a dialogical one.

1. presentation of the discussion problem and the conditions of the discussion;
2. the stage of idea generation;
3. the stage of criticism, defense, discussion of ideas;
4. the final stage of making a decision or summarizing the results.

At the stage of idea generation, it is forbidden to criticize any proposals and thoughts, even the most incomprehensible and absurd ones. Strict adherence to the procedure allows you to spread the generation of ideas and their criticism over time, which minimizes stress in the process of idea generation and thereby increases the productivity of thinking. But it should also be taken into account that the entire positive result of stages 1–3 can be disavowed by the 4th stage if it is improperly organized. For example, if out of all the ideas developed, one will be accepted for implementation, and the others will simply be rejected. The so-called documented «idea bank» and others will help reduce

⁸ UNESCO. *Guidance for Generative AI in Education and Research*. 2023.

discomfort.⁹ Combining or expanding the stages of the method can form a lot of its modifications.

The brainstorming method is considered not only as heuristic (which is traditional for its descriptions), but also as dialogical. The dialogical models of the Ukrainian school of intercultural dialogue, supplemented by their own interpretations, allow us to approach brainstorming as a dialogical method:

- dialogue-guidance (reformulation of narrative replicas into interrogative ones): used at all stages, included in other dialogue models;

- dialogue-dispute (a term of the dialogue of cultures; expressive dialogue designed to promote the generation of ideas and their development into socially formed forms, not a dispute for the sake of a dispute) is used:

- a) at the stage of criticism – mainly;

- b) at the stage of idea generation – as a hidden dialogue-dispute: ideas that are generated and are not externally disputed can themselves express polar points of view, and, therefore, the process of idea generation can take place in the mode of cognitive conflict, which is inherent in the dialogue-dispute;

- c) at the final stage – due to the possible fixation of unresolved cognitive conflicts;

dialogue-consent (a term of the school of dialogue of cultures; the desire to generalize the results of comprehension during the dialogue-dispute, the creation of a single sense-making) is used

- a) at the final stage – mainly;

- b) at all stages – since voluntary participation and submission to the rules is already an expression of consent.

The purpose of the lesson:

To organize the comprehension of the phenomena of translation transformations in the mode of dialogue, in the mode of freedom and respect for the opinions of ALL participants in the dialogue. To create an intellectual atmosphere that promotes the demand for both the reproductive and productive sides of students' intelligence. It is optimal to use such «companions» of the students' thinking process as the visual-conceptual one).

- 1) the need for visualization (both figurative-symbolic and verbal

- 2) the need for oral speech and intonation of emerging thoughts.

The feasibility of using a media product in a lesson using the TPS system:

- 1. insufficient amount of information material in existing teaching aids

- 2. increasing the efficiency of learning material due to the simultaneous presentation by the teacher of the necessary information and showing demonstration fragments

⁹ OECD. *Education Policy Outlook 2024*. 2024.

3. forming information culture and competence of students
4. forming professional culture and competence of students.

Brief description of the content of interactive educational frames of the presentation

Slide 1 – theory: translation of words and word combinations that do not have lexical correspondences, "icons" – hyperlinks: dictionary, problem, exercises.

Slide 2 – theory: translation transliteration, transcription, tracing, their meaning, «icons» – hyperlinks: let's think together.

Slide 3 – theory: requirements for the adequacy of written translation of technical texts, «icons» – hyperlinks, professional opinions.

Slide 4 – theory: features of translating proper names from English into Ukrainian.

Slide 5 – practice: excerpt from the translation of a scientific and technical text (IMAREST magazine)

Slide 6 – practice: excerpt from the translation of a translator (any student).

Slide 7 – summary table of various translations of proper names and names of fictional university disciplines from all translated texts.

Slide 8 – dictionary: definitions of the words «to scribble down», «to topple out of sight», «to rib», «to scrub the deck», «to drone on», «to comb through».

Required equipment and materials for the lesson: computer class with a projector and screen, translations of certain technical texts and operating instructions for systems and mechanisms performed by professional translators and translations performed by the students themselves.

CONCLUSIONS

In the current conditions of reforming the higher education system, one of the priority areas of training future specialists is the introduction of innovative pedagogical technologies that ensure the development of creative potential, professional thinking and the ability of students to act effectively in non-standard production situations. The conducted research confirms that the continuous formation of creative thinking based on the theory of solving inventive tasks (TPS) is an effective methodological approach to organizing the modern educational process in higher education institutions.

It has been established that the use of the principles of TPS when teaching the discipline «English for Professional Purposes» contributes not only to the formation of foreign language communicative competence of students, but also to the development of analytical skills, critical and creative thinking, the ability to work with professional information, to defend one's own position with arguments and to find several options for solving the tasks set. This becomes

Table 1

Brainstorming-based lesson plan

№	Structural elements	Teacher's activities	Student's activities	Time
1.	Organizational moment. "Brainstorming"	Calling students to "brainstorm": what methods of transformation, studied by you, do you expect to encounter? Recording on the board of students' answers.	Using the "brainstorming" method, quick brief characteristics of the methods are given.	2 minutes
2.	Theory: translation transliteration, transcription, tracing.	Organization of work with the theoretical material of slide No. 2. Explanation and additions.	Make the necessary notes in notebooks, ask questions about the theoretical material.	
3.	Dictionary and text work.	Work Organization of work with the dictionary and text (teacher-group).	Make notes in notebooks.	
4.	Theory: Requirements for the adequacy of written translation of works of art.	Organization of work with the theoretical material of slide No. 3. Explanation and additions	Make the necessary notes in notebooks, ask questions.	3 minutes
5.	Practice: analysis of translations performed by students.	Formation of groups and organization of work in groups.	Forming groups and organizing work in groups.	24 minutes
6.	Problem statement.	Selection of the most successful translations in a separate group (analysis of the translation by sentences).	Performing tasks in groups.	10 minutes
7.	Theory: Features of translating proper names from English into Ukrainian.	Organization of work with the theoretical material of slide No. 4. Explanation and additions.	Review the material. Make the necessary notes in notebooks.	5 minutes
8.	Practice: analysis of translations performed by students.	Formation of new groups and organization of work in groups.	Perform a practical task.	25 minutes
9.	Practical work with slide number 7.	Analysis of the proposed methods and discussion of "folk translation".	Performed in a group, decisions are made regarding adequacy.	
10.	Reflection.	Increasing the results and organizing the work "Analysis of the results of comparative work".	Express one's own opinion, draw conclusions.	5 minutes

especially relevant when working with technical texts, the translation of which requires a deep understanding of the content, professional terminology and the ability to make optimal translation decisions.

The practical example of the lesson given in the article demonstrates the effectiveness of using the brainstorming method as one of the tools for implementing the principles of TPS. Organizing a collective discussion during the translation of technical texts activates the cognitive activity of students, stimulates their speech activity in English, contributes to the formation of teamwork skills, the development of creative initiative and responsibility for a common result. This approach allows you to create a learning environment that is as close as possible to the real conditions of the professional activity of future specialists.

The use of the brainstorming method provides increased motivation to learn English, contributes to a deeper assimilation of professional vocabulary, the development of oral and written communication skills, and also forms the ability of students to make independent decisions in the process of performing professionally oriented tasks. At the same time, the combination of language training with the development of creative thinking meets the modern requirements of the competency-based approach and the concept of continuous professional development.

Thus, the results of the study indicate the feasibility of integrating the principles of continuous formation of creative thinking and TPS tools into the process of professional training of students of higher education institutions. The proposed approach can be effectively used when teaching English in a professional direction, in particular when working with technical documentation, professional texts and performing communicative tasks. The prospects for further research are to develop a comprehensive methodology for implementing TPS tools in teaching other professionally oriented disciplines, as well as to study their impact on the formation of professional competencies of future specialists in various fields.

SUMMARY

The article considers the problem of implementing innovative systems of professional training of specialists in higher education institutions based on the continuous formation of creative thinking. The relevance of using the theory of inventive problem solving (TPS) in the process of teaching English for professional purposes is substantiated. The pedagogical potential of TPS as an effective means of developing students' creative, critical and professional thinking is determined. The possibilities of integrating TPS principles into the process of working with technical texts in English are analyzed. Special

attention is paid to the use of the brainstorming method as a tool for activating the cognitive activity of students. An example of a practical lesson in the discipline «English for Professional Purposes» is given, which demonstrates the features of using the specified method when translating technical texts. It is shown that the use of brainstorming contributes to the development of communication skills, the ability to work in a team and find non-standard solutions to professional tasks. It is established that the combination of language training with technologies for the development of creative thinking increases students' motivation to study and the effectiveness of mastering professional terminology. The feasibility of using innovative pedagogical technologies for the formation of professional competencies of future specialists is substantiated. The results of the study can be used by teachers of higher education institutions when organizing professionally oriented English language training.

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