

## CREATIVE THINKING DEVELOPMENT OF THE FUTURE AGRARIAN ENGINEERS: THEORETICAL AND METHODOLOGICAL ASPECTS

## РОЗВИТОК ТВОРЧОГО МИСЛЕННЯ МАЙБУТНІХ АГРАРНИХ ІНЖЕНЕРІВ: ТЕОРЕТИКО-МЕТОДОЛОГІЧНИЙ АСПЕКТ

Nowadays, the problems of enhancing professional competence of future professionals, their training for future activities in the current socio-economic conditions are extremely urgent. Exploration of higher education standards applied in recent years reveals a significant increase in the requirements for foreign language knowledge gained by non-linguistic students. In terms of intensive cooperation with foreign partners, it is extremely important to be able to communicate with foreign colleagues. However, future specialists should think creatively, generate original ideas, and make non-standard decisions. They are of great demand nowadays. The article examines the efficient methods of creative thinking development of the future agrarian engineers while learning a foreign language, e.g. creative projects, creative written tasks, creative searching tasks, "brain storming", discussions, reading and translating of the problematic scientific technical texts and articles, role plays etc. Creative thinking involves students learning to generate and apply new ideas in specific contexts, seeing existing situations in a new way, identifying alternative explanations, and seeing or making new links that generate a positive outcome. This includes combining parts to form something original, sifting and refining ideas to discover possibilities, constructing theories and objects, and acting on intuition. The products of creative endeavour can involve complex representations and images, investigations and performances, digital and computer-generated output, or occur as virtual reality. Therefore, the development of creative thinking, activity, intellectual skills and creative potential is one of the most important tasks of professional training. It is an actual goal of the modern high school nowadays.

**Key words:** creative thinking development, future agrarian engineers, creative activity, intellectual abilities and skills, creative potential.

Нині надзвичайно актуальними є проблеми підвищення професійної компетентності майбутніх фахівців, їхньої підготовки до подальшої діяльності в сучасних соціально-економічних умовах. Дослідження стандартів вищої освіти, що застосовувалися останніми роками, свідчить про значне збільшення вимог до знань іноземних мов,

отриманих студентами нелінгвістичних ЗВО. За сучасних умов інтенсивної співпраці з іноземними партнерами надзвичайно важливо не лише мати можливість спілкуватися з іноземними колегами, майбутні фахівці мусять мислити творчо, генерувати оригінальні ідеї, приймати нестандартні рішення. Розвиток творчого мислення, діяльності, інтелектуальних здібностей і творчого потенціалу є одним з найважливіших завдань професійної підготовки. Це актуальна мета сучасної вищої школи. Особливості підготовки інженера для сучасного аграрного сектору визначаються реаліями світової економіки з її досить чіткими вимогами до нинішнього фахівця, основними з яких є здатність вирішувати складні завдання, критичне мислення та креативність. Очевидно, що для забезпечення власної конкурентоспроможності на ринку працівники інженерних спеціальностей мають бути здатними до інноваційної діяльності, що потребує володіння широкою палітрою знань і умінь (інженерно-технічних і методологічних), а також високого рівня розвитку творчого потенціалу. Гармонійним доповненням розвитку творчої особистості аграрного фахівця та розвитку компетентності та творчого мислення майбутнього аграрного інженера виступає іноземна мова. У статті розглянуто ефективні методи розвитку творчого мислення майбутніх інженерів-механіків під час вивчення іноземної мови, такі як творче проектування, творчі письмові роботи, творчі пошукові завдання, «мозковий штурм», дискусії, читання і переклад науково-технічних текстів і статей проблемного характеру, ділові ігри тощо. Зазначено, що водночас із розвитком творчого мислення розвивається зацікавленість до своєї спеціальності, розширюється кругозір майбутніх аграрних інженерів, розвивається професійна мовна компетентність, формується творча особистість студента та його творчий підхід до вирішення проблем.

**Ключові слова:** розвиток творчого мислення, майбутні аграрні інженери, творча активність, інтелектуальні вміння та навички, творчий потенціал.

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**Tymoschuk N.M.,**

Candidate of Philological Sciences,  
Associate Professor of Ukrainian and  
Foreign Languages Department  
of Vinnytsia National Agrarian University

**Statement of the problem.** The level of knowledge of foreign languages by specialists in the agricultural sector undoubtedly affects the competitiveness of domestic agricultural and processing enterprises. Both profound professional knowledge and good command of English are of significant importance for future graduates of non-linguistic faculties (lawyers, agronomists, ecologists, technologists, managers, mechanics, engineers, etc.). It is a necessary condition for successful professional activity and further self-development of future agrarian specialists [7, p. 67].

Nowadays, the problems of enhancing professional competence of future professionals, their training for future activities in the current socio-economic conditions are extremely urgent. Exploration of higher education standards applied in recent years reveals a significant increase in the requirements for foreign language knowledge gained by non-linguistic students. In terms of intensive cooperation with foreign partners, it is extremely important to be able to communicate with foreign colleagues. However, future specialists should think creatively, generate original ideas, and make non-standard decisions. They are of great demand nowadays.

Creative thinking involves students learning to generate and apply new ideas in specific contexts, seeing existing situations in a new way, identifying alternative explanations, and seeing or making new links that generate a positive outcome. This includes combining parts to form something original, sifting and refining ideas to discover possibilities, constructing theories and objects, and acting on intuition. The products of creative endeavour can involve complex representations and images, investigations and performances, digital and computer-generated output, or occur as virtual reality. Therefore, the development of creative thinking, activity, intellectual skills and creative potential is one of the most important tasks of professional training. It is an actual goal of the modern high school nowadays. That's why the problem of creative thinking development of the future agrarian engineers is relevant and worth deeper research.

**Analysis of recent researches and publications.**

The issues of engineers' professional training have been investigated by such scholars as S.F. Artiukh, O.E. Kovalenko, V.S. Lednov etc. Some aspects of the agrarian engineers' training at the higher educational establishments were researched by I.M. Butsyk, P.H. Luzan, V.M. Manko, Yu.P. Nahirnyi, T.A. Tretiakova, and I.I. Palamar. Nowadays, much attention is paid to the aspects of learning foreign languages as a language of professional interaction. In particular, the problem of teaching professionally oriented foreign language has been studied by such authors as T. Hutchinson, N.D. Halskova, and O.Yu. Polyakov. However, problem of creative thinking development of the future agrarian engineers has not been researched sufficiently by contemporary pedagogy, which substantiates the relevance of our research.

**The aim of the research** is to analyze methods of creative thinking development of the future agrarian engineers learning a foreign language.

**The main part.** According to V.I. Petrushin, it is possible to develop creative engineering thinking by means of various techniques for finding new technical solutions, i.e. using the theory of solving inventive tasks, the algorithm for solving inventive problems, as well as both field and functional cost analysis [5, p. 5]. We think that foreign language is a powerful means for creative thinking development, too. There are different methods of stimulating and developing creative thinking at foreign language classes, i.e. creative designing (drawing up posters, collages, projects, walls); creative writing (writing of works, resume, academic essays); creative final lessons on the topic (classes-excursions, classes-conference); creative search tasks (finding additional information) [3].

Recently, the project methodology as an interactive learning technology has become increasingly widespread in teaching foreign languages to technical students. The project can be defined as a set of tasks that foresee an organized, long-term, independent

students' study of foreign language, which is carried out at the classes and during extra hours, the purpose of which is to create a definite final product in the form of booklet, newspaper, video etc., and oral presentation on the chosen problem with the use of varied visibility [4, p. 142]. The following task is an example of creative project task for agrarian engineers.

*It's known that there are general-purpose tractors, large field tractors, garden tractors and industrial tractors. Read the information about the modern large field tractors in the USA and compare them with the Ukrainian ones. Group up with your friends and work on the project about three other types of tractors and the comparison of the USA and Ukrainian modern tractors. Design a poster, in which you compare American and Ukrainian types of tractors.*

The project tasks simulate the real-life situation combining verbal and nonverbal means of communication, visual and sound representation of events and situations. The analyzed methods facilitate the formation of cultural and sociolinguistic competence, develop the creative potential of students and develop their communicative skills [6, p. 40–41].

*Writing is also an essential part of creative thinking development of the future agrarian engineers. The writing task for can be as follows:*

Write a composition about your ideas of how to improve the current situation in agriculture of Ukraine. What are the efficient ways of the Ukrainian agriculture development?

The creative search tasks are quite different. An example of a search creative task can be as follows:

*Read the text and do some individual research about the agricultural machinery industry in the USA.*

The discussion method is a teaching strategy in which the teacher brings students face to face as they engage in verbal interchange of ideas. The teacher in his interactions with his learners performs a variety of roles. He is firstly a teacher whose business is to transmit knowledge, and in doing this he specifies the objectives of his lesson and examines the needs and background of the students for relevance of the topic and its suitability. Importantly too, in applying the discussion strategy to the teaching-learning process, the teacher plays the role of manager, guide, initiator, referee and a summarizer.

The discussion teaching method is a design that provides opportunity for discussion between teacher and students, and students to students. It is a strategy that centers on shared conversations, discussions, and exchange ideas in class. Students are allowed to develop critical thinking ability, learn to evaluate ideas, concepts and principles, procedures and even programs and policies on the basis of clearly set criteria. For instance, a student who participates in a discussion lesson learns to support his views rationally, based on facts, too. He appreciates the need

to argue logically, define clearly concepts and terms, and examine critically rules, principles and constructs. Such a student learns to develop value processing skills in relation to changes that occur in his society.

Everyone will enjoy the group more if they take part. There are many methods to help all members participate in the discussion and add to the alternatives the group can consider, i.e. brainstorming (a method for producing a lot of ideas without judging them); brain drain (similar to brainstorming, but a competition between two smaller groups to produce a lot more ideas); nominal group technique (individuals in the group give ideas that are compiled and then rated by each person in the group, using a point system); quick discussion techniques (several different techniques for having discussions in a short time period); the futures wheel helps group members think systematically about the consequences of a future situation; open-ended statements (unfinished sentences that group members complete by themselves and then share in a discussion); idea search (a way for individuals to look over an idea carefully, trying to discover many different angles or ways to see it).

The discussion is an active method of conducting classes, designed to mobilize practical and theoretical knowledge, the views of listeners on the problem. The discussion is relevant when considering controversial issues (but in the learning process, situation of controversy of interpretations may not arise). For these reasons, it is not correct to plan lessons as discussion in advance. When discussion is a curriculum outcome, teachers have purposes for teaching discussion, and they explicitly teach students how to be discussants. Teachers report that they want their students to develop discussion skills for many of the same reasons that they teach with discussion. If students will engage in discussions outside of the classroom, then the possibility of students building knowledge and exploring multiple perspectives about issues also extends outside of the classroom. An additional purpose for teaching students how to engage in discussion related to citizenship education and preparing students to discuss issues and policies. Teachers think of discussion as a skill that requires practice sessions. At times they plan discussions so students may practice engaging in verbal interactions with one another. They believe that students become better discussants when they watch the teacher model appropriate behavior during a discussion, then receive opportunities to practice engaging in discussions [2].

The method of brainstorming is a method for solving urgent tasks in a short time. The essence of the method lies in the fact that it is necessary to express ideas, as much as possible, in a short period of time, discuss them and classify them. This method is used to solve complex problems. The method of brainstorming can be

used in various types of activities: in work with small and large training groups, individual work [4, p. 142–143].

A role-playing game (at the foreign language classes), which simulates future professional activities, contributes to the development of the students' skills and competence as foreseen by the qualification characteristics. The game model of learning allows those who learn not only to feel themselves in a certain communicative role, but also to reveal their emotions, intellectual abilities, creative imagination [1]. Taking into account that the author of the article works at the higher agrarian educational institution we should mention that future agrarian engineers have a significant interest to role games in the form of scientific conference. They argue in favor of or against this or that hypothesis, exchange information about the latest achievements in the field concerning their professional activity.

**Conclusions.** The effective methods of creative thinking development of the future agrarian engineers learning a foreign language are creative projects, creative written tasks, creative searching tasks, brainstorming, discussions, reading and translating of the problematic scientific technical texts and articles, role-playing games etc. However, the development of creative thinking develops interest in its specialty, expands the horizons of future mechanics engineers, develops professional language competence, and develops the student's creative personality and his creative approach to problem solving.

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