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IMPLEMENTATION OF HEURISTIC EDUCATIONAL TECNOLOGIES FOR FORMING FOREIGN LANGUAGE COMPETENCES OF STUDENTS

Abstract. *The implementation of innovative heuristic educational technologies of teaching foreign languages instead of traditional ones is important in the context of reforms in higher agrarian education in Ukraine. The authors investigated the phenomena of heuristic educational technologies; resumed and adapted key principles of heuristic education to the requirements of higher agrarian education; formulated a heuristic situational assignment as an effective technology of mastering foreign languages for professional communication; represented heuristic situational assignments verified in the academic process of agrarian higher school. Students were taught the methods and mechanisms of heuristic activity, such as “analysis through synthesis”, analogies and associations, methods of questioning activities, dialogue interaction, etc. It was found out that the permanent application of heuristic*

educational technologies resulted in students' motivation to study foreign languages profoundly, create personally significant educational products, release them from the psychological barrier of using foreign language in a professionally oriented situation and enable students to apply foreign language competences for their future professional activities in agriculture.

Key words: *heuristic educational technologies, heuristic situational assignment, agrarian higher education, foreign language for professional communication.*

Formulation of the problem. Heuristic education is an original scientific and pedagogical concept that offers students to “create knowledge” by comparing it with cultural and historical analogues and completing education with personally meaningful content. The productivity of heuristic education is expressed both in personal and general cultural growth, but its content is based on the inner need of a person in individual development through its creative productive activity, but not only in the demand of society [12]. According to C. Rogers, the sense of creativity is in the very nature of the existence of a human individual development: only the one who creates is the one who realizes the potential possibilities. But creativity is an inevitable consequence of the freedom of choice. Creative achievements are possible when a student has the right to choose the content and goals of education, educational trajectory, the creative work, the form of its implementation and protection. The freedom of a student's choice means the autonomy of academic activity. Therefore, it is not enough to give freedom of activity, it is essential to learn how to act, to reveal personal potential and self-realization [10, p. 315].

Relevance of research. Heuristic educational technology is often defined as a solution of problem tasks in the process of cognition and aimed to identify, transform and regulate the patterns, mechanisms and methodological means of anticipation, as well as the construction of new knowledge and purposeful ways

of working and communicating, created on the basis of generalization of existing experience and design of future models [1].

However, in Ukrainian higher agrarian education innovative heuristic technologies are not commonly and systematically used. The lack of theoretical and practical researches on the topic results in reluctance of most lecturers to apply innovations that bring impulses of cognition and development to academic environment. Sometimes superficial and unreasonable attitude prevents lecturers from putting aside traditional reproductive methods of teaching foreign languages that cannot provide the sufficient level of students' competences in this sphere.

Analysis of recent researches and publications. Analysis of pedagogical and psychological sources (T. H. Davenport, J. Dewey, N. Harvey, L. Prusak) showed that the effectiveness of heuristic educational technologies lies on preparing human psyche to the moment of “enlightenment”, establishing the connection between consciousness and sub-consciousness; and intuition that “extracts” the necessary information and promotes solving the problem. This complex mental act of extracting relevant information is called actualization, and the implementation of the received information to the solution of the educational task is called its organization. Methods for updating and organizing information in the heuristic search can be different. Some of them are based on the recognition of the elements that have already been met in solving other problems. Other methods of updating and organization of information are based on the separation of the elements of the task from each other, their combination in the right direction for heuristic search [3, 4, 6].

Effective implementation of heuristic educational technologies is based on the principles of heuristic education. The study of the scientific work of the classics of heuristic learning (N. Burbules, J. Dewey, A. Maslow, K. Rogers) and modern studies in the field of heuristic education (H. Ben-Horin, S. Pion, I. Kali, R. Goldwin-Jones, M. Payne et al.) enabled authors to reflect creatively

the main ideas and principles of heuristic learning and adapt them to the peculiarities and specifics of teaching foreign languages in agrarian university.

The purpose of the article is to study the potential of heuristic educational technologies targeted to form foreign language competences of students who master agricultural professions and their practical application in learning the English lexical, grammatical and phonetic material as well as removing the psychological barrier of using foreign language in a professionally oriented situation.

Methods of the research. A complex of methods, namely theoretical methods (system-structural, problem-objective methods, logical analysis, synthesis for the study of scientific sources, systematization and generalization of ideas of heuristic education, its technologies and tools; empirical methods (method of psychological-pedagogical observation, interview, pedagogical experiment of implementing heuristic educational technologies in the academic environment of agrarian higher education) has been used for this study.

Presentation of the main material. Application of innovative heuristic educational technologies in the academic process of agrarian university is impossible without taking into account future specialists' usage of foreign language competences in their professional activity as well as the principles of heuristic education. The classic principles of heuristic education have been adapted to the context of higher agricultural education as follows:

1. The principle of personal goal-setting: the training of each student is based on individual educational motives and peculiarities of future professional activities.

2. The principle of choosing an individual educational trajectory: a student has the right to approve the choice of the main components of education with a teacher: the content, goals, tasks, tempo, forms and methods of teaching, the system of monitoring and evaluation of results. Discussion of different points of view and positions in the classroom, protection of alternative creative

works on the topic can teach the tolerant attitude of students to other points of view and perspectives, help them to understand the law of the diversity of ways to comprehend the truth.

3. The principle of meta-subject fundamentals of the content of education: the knowledge of real educational objects leads students to go beyond the usual educational subjects and transit them to a meta-subject, interdisciplinary, integrated level of knowledge, when the diversity of concepts and problems is reduced to a relatively small number of fundamental educational objects, namely, categories, concepts, symbols, principles, laws, theories. This principle is especially important as it concerns the study of humanities (foreign languages as well) in the traditionally scientific academic environment.

4. The principle of productive learning: heuristic learning is oriented not so much on the study of already known, but on the discovery of unknown, when students create their own educational products. In the process of creating educational products according to the curriculum, students develop their competences that are essential for the specialists in the relevant science or field of activity.

5. The principle of primacy of educational products: the student's personal content of education is ahead of the study of educational standards and generally recognized achievements in the research field. Traditional activity "from the study of knowledge" is substantiated by the activity "for the acquisition of knowledge". Fundamental knowledge cannot be alienated from the personal knowledge and experience of a student, but must be based on them.

6. The principle of situational learning: the educational process is grounded on the professionally oriented situations, which involve the self-determination of students and the search for their solution. Its purpose is to cause motivation of students' future professional activity.

7. The principle of educational reflection: the educational process is combined with the reflexive awareness of the subjects of education by students and teachers. Reflection is an essential condition for students and teachers to visualize the scheme of organization of educational activity, to work it out according to the educational goals and programs, to realize the emerging issues.

Heuristic learning involves sufficient students' possession of mechanisms, methods and techniques of creative activity such as "analysis through synthesis", brainstorming, a logical set of heuristic questions, methods for developing empirical knowledge to the theoretical level, association, comparison, generalization, abstraction, objective and detailed diagnostics for evaluating their own or someone else's work, etc. It provides real autonomy, creativity and continuous interaction of teachers and students, and involves evaluating the results of productive educational activity, which can be improved, corrected, changed within a certain time frame [8, 11, 12].

The implementation of heuristic educational technology of professional situational assignment, which includes a series of consistent heuristic tasks from interrelated topics, gradually lead students to create a personally meaningful educational product.

The main purpose of such heuristic situational assignment is to organize the activities of students, which can help them not only to learn something new, but also realize their individual creative abilities and create their own system of knowledge of the subject. The heuristic situational assignment allows an open, unfinished solution to the main problem, which stimulates students to find opportunities for other solutions on a different level. The most heuristic one is the situational assignment in which the teacher is involved as a participant, the problem being solved is not a learning one for him/her, but a real one that he/she has to solve together with the students. The results of such training are the most productive and correspond to the essence of heuristics as the basis of modern education [7, 9].

The heuristic situational assignments, applied during the pedagogical experiment, involved the stimulation of real contacts with employers or institutions of professional internship, that adjusted the educational personal goals of students with their orientation to future practical activities, prompted profound studying the English language in order to obtain the knowledge necessary for their future professional activities in agriculture.

For instance, a heuristic situational assignment “The role problem-solving” implemented one of the main provisions of heuristic educational technologies, dialogue interaction of participants in the educational process and provided the opportunity for collective modeling and solving professional or business situations [2]. It required the setting of a particular problem by the participants of the situation and the distribution of roles between them for its solution, singling out the general purpose, but different vectors of professional interests, interaction of participants in the reproduction of the situation, analysis of the results and evaluation criteria [5, p. 12]. Such situational assignments had been successfully applied to summarize several topics at the heuristic immersion, for example, “Travel”, “Going through passport and customs control”, “Meeting a business partner”, etc. Students distributed roles and had several minutes to discuss the main scenario.

Further, everyone acted in accordance with the chosen role and strategy, following the general development of events. The teacher did not interfere into the process, but made notes, pointing out the correctness and expediency of using the English vocabulary, professional concepts, terminology, grammatical structure of sentences. These situational assignments required the unprepared verbal communication that gave the best opportunity of objective control of mastering the English lexical, grammatical and phonetic material. Moreover, this experience helped to remove the psychological barrier of using English in a real life situation with native speakers of English, which was the best indicator of students’ foreign language competences [9, p.92]. Having completing the

situation, the teacher analyzed students' achievements using the notes, let the students know the results and enabled the students to correct the errors by themselves. It was also expedient to use multimedia, including video recording for further reviewing by the participants and self-adjusting.

It was found out that the teacher should be able to determine the readiness of students to solve a certain heuristic situational assignment taking into account the individual characteristics of students and their training. Too high degree of uncertainty in solving a heuristic situation assignment could become unbearable for a student, and relatively low one, in its turn, would not cause the student's necessary heuristic efforts, therefore, his/her personality would change insignificantly.

At the beginning of the training course, teachers created heuristic situational assignments with a medium degree of uncertainty, during which the teacher formulated the problem and the general goal of the situation, and the students themselves chose the means of accomplishing tasks. Consequently, students formed their individual educational trajectory within the frames of the training course independently. After qualitative changes in students' knowledge level had been discovered, teachers began applying heuristic situational assignments with a higher degree of uncertainty. The teacher described a certain problem situation, and students formulated the corresponding tasks, set the general goal of the educational problem and achieved it.

Conclusions and results. Thus, it is revealed that the implementation of heuristic educational technologies in the process of studying English by the students of agricultural professions can ensure the transition from reproductive, formal-logical educational actions to creative ones. The effectiveness of the academic process based on heuristic technologies is ensured through the involvement of a complex of important pedagogical factors, in particular:

- a) motivation of students to create personally significant educational products;
- b) teaching students to apply methods and mechanisms of heuristic activity

(“analysis through synthesis”, analogies and associations, methods of questioning activities, dialogue interaction, etc.); c) mastering foreign language competences with the help of heuristic professionally oriented assignments.

Creative approach to mastering English for the future professional activity of students tends to form their productive thinking, necessary for solving complex tasks, the rejection of stereotypes, and gaining unexpected results [9, p. 107].

The perspectives of further researches. Higher degree of students' inclusion in the process of educational content forming that leads to their individual self-realization needs further pedagogical research and assessment. This process is determined by students' abilities to set goals, select themes, plan, control and evaluate their academic work.

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