DIDACTIC TECHNOLOGY FOR APPLICATIONS OF INTERACTIVE METHODS IN TECHNOLOGICAL EDUCATION AS AN ELEMENT OF AKMEOLOGY

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ABSTRACT: Increase the cognitive activity of students' learning process requires a change in traditional teaching methods that do not always provide an active attitude of students to the issues. Therefore we need diversity in the methods of training in the school.
The purpose of this article is to present the didactic technology for application of interactive methods in technological education. Through the development and test didactic technology achieves akmeological element in the educational process to increase the effectiveness of training. It depends on the utilization of knowledge and skills in the learning process, which in turn form relationships to the field of study.
To achieve the purpose is made classification of applied interactive methods and defined their place in the organizational form lesson.

KEY WORDS: didactic technology, interactive methods, technological education.

EDUCATIONAL requirements set objectives which guide the educational process to support the formation of the personality of the student as a whole; enrichment of its common culture; development of intellectual ability; formation of moral and aesthetic values. "Decomposition of educational objectives is described as reasonably achievable results and is in line with the four main target areas: the creation of motives for learning; learning and skills; formation of competence; nurture relationships" [6, 141].

SET of state educational requirements objectives require significant changes in the forms and methods of training. To be effective the learning process is not enough methods used to form only knowledge and skills. They should form and intellectual skills in students. Traditional methods do not always provide an active attitude of students to the issues. For greater efficiency of the training necessary diversity methods [3].

The purpose of this article is to present the didactic technology for application of interactive methods in technological education. (For didactic technology is accepted definition of M. Russinova "Didactic technology - defined as" legitimate pedagogical activities undertaken scientifically based model of teaching process, including a set of forms,

methods, techniques and tools to help to develop content, with a view the educational goals and have a higher degree of efficiency than traditional methods of training. "[7])

TESTED were students of S1, S2, S3 and S4 subject "Domestic techniques and Economics" and "Technology" defining technological education. Through the development and test didactic technology achieves akmeological element in the educational process to increase the effectiveness of training. It depends on the utilization of knowledge and skills in the learning process, which in turn form relationships to the field of study. Since the effectiveness of training is not only in the formation and consolidation of knowledge and skills, and transfer them from one area to another and their application in different situations, which leads to activation of cognitive activity of students in classes technological training.

THIS consolidates the *hypothesis of the study* in this article, namely, that in the learning process using different interactive methods in technological training, the cognitive activity of students will rise and gain respect in the students to the field of study. In this study cognitive activity associated with positive motivation and sustained interest in the field of study. All this is achieved through the appropriate mix of methods and tools for learning activity, so most suitable interactive methods.

THESE methods within technological education are little known and used. Table 1 outlines the classification of interactive methods and means of their realization in the learning process.

Table 1.
Classification of interactive methods and tools that are applied in the learning process

Interactive methods in education	Resources
Method of the Association	Intellectual cards
Didactic game	Crosswords
Problem situational methods	Problematic tasks
	Cases
Game simulation methods	Roleplaying games
Brainstorming (heuristics)	Assignments

INTERACTIVE methods can be divided into different parts of the organizational form lesson. Their location is not strictly specified, and can therefore be used at different stages of the classroom activity. For example:
⇨ updating of knowledge;
⇨ utilization of new teaching material;
⇨ inspection and assessment of knowledge and skills of students;
⇨ to consolidate and systematize knowledge in lessons to summarize and review.

TABLE 2 shows an exemplary model (didactic technology) for the use of technological methods interactive training. The main points that are common to all methods used are:

1. INTRODUCTION to didactic description and receive instructions for the course work.

2. DISCUSSION of logical consistency and execution of work.

3. CONCLUDING discussion and evaluative discussion of the results of the course work.

IN column 1 of Table 2 describes the main elements of classroom activity. For each activity is reflected corresponding method that is used for training (box 2). In column 3 describes the means by which they are made interactive applied methods and activities in column 4 of the teacher and the activities of students in column 5.

INTERACTIVE application of methods in technological education shows that students:
⇨ Achieve a level of intellectual development, in which they discover and overcome an unknown, it learn and apply as his;
⇨ Express their views and give an original solution to a problem;
⇨ Students are in conscious (self-knowledge) to their knowledge and abilities;
⇨ Gain increased self-esteem from their participation in the learning process through personal contributions.

Table 2.
Model of didactical technology to use interactive methods in organizational form lesson

Elements of classroom activity	Interactive methods	Resources	Activity of teacher	Activity of student
1	2	3	4	5
Update knowledge	*Didactic games*	Crosswords	Giving instructions for completing the crossword.	Solving crossword.
			Provide guidelines for the formulation of questions when completed crossword.	Questioning whose terms are crossword.
	Method of he association	Intellectual cards	Asking questions about the construction of intellectual map. Construction of intellectual map.	Reproduction of information. Classification and specification of concepts. Analysis of causality.
Exposure of the material	*Problematic situations*	Problematic tasks	Set problematic tasks and directions to solve them.	Search for ways to solve the problem
Practical work		Cases	Inserting the case.	Case studies and exposure arguments
Summarize, systematize and reinforce knowledge	*Game simulation methods*	Role playing game	Drawing up scenarios. Distribution of roles. Follow the course of the game.	Compliance with the rules of the game. Performance of roles.
	Heuristics	Brainstorming	Placing the problem. Making solution.	Generating and presenting their own ideas.

Didactic games are interactive methods used in the classroom organizational form in technological training. Funds relating to the realization of didactic games are **crossword puzzles**.

USING crossword puzzles can be accomplished in two ways - by:

⇨ Crossword puzzle students;
⇨ Compiling crosswords students.

CROSSWORD game as realized update the knowledge of students on a given topic. For example, in this study crosswords are realized in the following way: the teacher gives each student material on which written questions from the crossword puzzle. Students simultaneously with the teacher must draw in notebooks grid, which in response to the questions blank. Each student first decide independently, running time is five minutes. Then correct answers are recorded on the board. Thus students show than knowledge and wits, accuracy and speed in completing the crossword.

THE second interactive method that is used in this study is *the method of associations*. It is based on "natural ability of the brain to connect incoming information with the already adopted and revised" [5,56]. As a means of this method in technological training can be used **intellectual cards**.

THE procedure for the application of this method is: first - every student in the class of sheet records all associations that come to mind after hearing a certain concept. The teacher reported the concept and students reflect all associations caused memory mind. Second - all sorts of written concepts, as their legal classification. Students are required to work alone for a few minutes. After the expiry of the time under discussion the teacher writes on the board generalizations model in the form of intellectual map of the concepts proposed by the whole class. The center recorded keyword around which recorded associations. Every word written about the main can become the center of other associations.

THE third types of interactive methods are *problem situational methods* use techniques **problematic tasks and case studies** for the exhibition of the material in lessons technological training.

DIDACTIC description of the problem situational methods has three components:
⇨ Introduction - teacher orient students on the problem raised by them into place, time and participants in the problem situation.
⇨ The main part - contains a description of the problem situation. It reveals its development.
⇨ Placement of questions or tasks that are the basis for solving the problem situation.

IN the application of problem situational methods in classroom work the student is directly involved in the process of solving the problem, not just a contractor. Training is attractive and is based on the research approach. In cognitive activity the student works alone. Actively participate in discussions through which their communication skills, protect their own opinion and defend the positions and skills for teamwork.

The case studies are other means which determines problematic situations such interactive methods in technological education. Case studies allow indirect interaction between teacher and students. Teacher gives instructions and hidden guided students, leaving them free to focus on the correct answer. In this way pupils are taught skills to make decisions that are an important element of their common culture.

THE methodology of the appended studies involves the following steps:

⇨ Preliminary organization - familiarizing students with conditions (text) of the case and guidance in the execution of the work.

⇨ Allocation of groups, each group chooses a speaker.

⇨ Discussion in groups to solve the case, subject to certain conditions, such as listening to each other; adherence to the theme and the right of everyone to participate. Each student defends its decisions, arguing.

⇨ Conducting joint plenary discussion - reporting of decisions taken by the spokesman of the group, analyzing the proposed solutions, and asking questions and expressing opinions from members of other groups.

⇨ Summary of proposed solutions - the teacher analyze the decisions and evaluates performance of individual groups. Knowledge and skills acquired during the solving of cases

CASES such as problem situational methods can be used both in various course units and in different classes of general education students in technological education. Applied situations are adapted to certain themes of learning content with specific didactic purpose.

THE other type of methods used in technological education is *gaming simulation methods.* Through them, students are placed in real terms, to be improvised in educational terms. With gaming methods is practiced tactics of behavior and activities, student adopting a new identity. Create opportunities for the formation of communication skills and proper expression.

IN gaming simulation methods differs four components:

⇨ Game design - teacher determines educational content, which is presented as a game;

⇨ Game Content - scenario of the game, as well stand actors and positions to take;

⇨ Game rules - conditions that must be met by participants in the game. They come from the teacher;

⇨ Gaming action - executed by the students.

THE means by which apply gaming simulation methods is **pole plying game.**

METHODOLOGY applied role playing games involves the following steps:

⇨ Clarify the role-play activity.

⇨ Clarify the purpose and content of the game.

⇨ Allocation of roles.

⇨ Implementation of roles.

⇨ Discussion.

IMPLEMENTATION of roles focuses on students to new ideas, feelings and behavior. The emphasis is not so much the problem as the behavior in solution. Thus achieved motivation, as it allows each student alone to make a practical assessment of their behavior during the execution of roles.

Brainstorming as a *heuristic method* is applied summarize, systematize and reinforce knowledge. It is important in the learning process, because ideas are born in relation to rapid solving problems. This is a method for generating ideas that develops creativity. Brainstorming is a beneficial method for self-assessment of student performance.

BRAINSTORMING method is implemented through several stages:
⇨ Formulation of a problem.
⇨ Clarification of the aspects of the problem.
⇨ Allocation of students into groups according to the problem.
⇨ Each group writes their ideas on paper, with which the author writes. The sheets are collected by the teacher.
⇨ All groups involved in the discussion on the proposed strategies to solve the problem. Participants in the group analyze ideas.
⇨ All ideas are arranged in a hierarchy, such as those that provide the best solution, placed first.

BRAINSTORMING can be used in different ways and with different didactic purpose. This method is carried out individually, in groups and collective creativity. Form the skills of teamwork and cooperation skills, which are important elements of the functional literacy of students.

USED interactive methods developed in didactic technology for the purposes of this study allow for the improvement of the educational process. Their application in technological training is an effective diagnostic tool for knowledge and skills of students. Through them easily into account their individual abilities. So can fill missed by students knowledge and skills in technological training.

THE results from the tests to establish the level of acquired knowledge and smart using interaktivni methods - an experimental group and a control group of traditional methods with students from S1 – S4 technology training are shown in Figure 1.
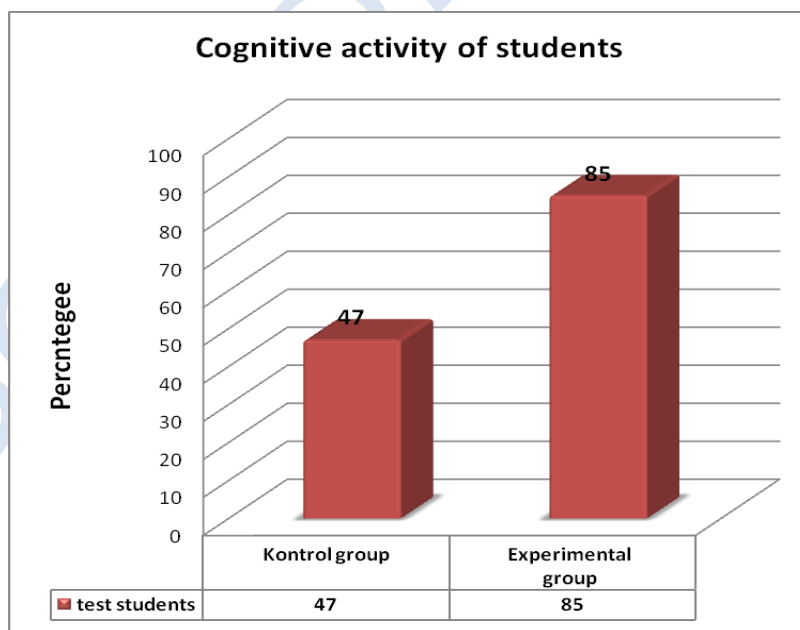

Figure 1.

THE data show that 38% results for the experimental group, in which they are used interaktivni methods are higher in comparison to the control group in which they are used

conventional methods. This means that interaktivnite methods contribute to better development of misleneteo and facilitate easier understanding of the material.

THIS application of interactive methods in technological education for the construction of functional literacy of individuals through technological training has several advantages ("The formation of functional literacy is required by the human need to interact with the external environment and the fastest to adapt to it. Based on this concept of functional literacy is defined as the quality and level of personality and education, but as a structure of competences can be seen as an objective, and as part of the subject area of training "[1, 9]):

⇨ Interactive methods provoke positive motivation and form cognitive interest in students not only to the field of study, and to learning in general.

⇨ They allow students to demonstrate the knowledge and skills in new cognitive situations.

⇨ Through these methods form various intellectual qualities in students, which are essential for building a personality.

⇨ Through them, students are placed in the position of researchers, which stimulate their creative thinking and activity.

⇨ Students master the different techniques and approaches of behavior in terms of the way you think, communication and interaction, as well as with other members of the group and with the surrounding reality.

⇨ Through them are formed personality

INTERACTIVE learning through interaktivni methods contributes to the formation of some personal qualities in students as organization, responsibility, fidelity, integrity, interest, tolerance, leadership, and as communication skills, teamwork, self-control and self-analysis. Through them brings a new element in the work of the teacher. Assessing the knowledge and skills of students becomes easier and more accurate. Systematic use of interaktivnite methods contribute to the formation of skills transfer acquired in classes technological knowledge training in different life situations.

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