

деятельности школьников, простая задача, составная задача, граф-схемы к задачам, этапы работы над составной задачей, известные числовые данные, искомые величины задачи, рациональный способ решения задачи.

*The article issued the urgency of preparing future teachers to use the graphical schemes of drawn up problems for the development of students' thinking in mathematics lessons in primary schools, namely in solving these problems in different ways, drawing graphic and analytical schemes, synthetic considerations drafting the proposed tasks graph charts and more. When working on composite tasks appropriate to use different methods and teaching aids that help the student in understanding the problems and ways to solve it. The purpose of the article is to identify effective methods of teaching mathematics that would have intensified the child's views and help teachers and students of primary school teacher training to master a variety of approaches to a better understanding of mathematical material disclosed unconventional approaches to solving problems drawn. The main focus of writing is to develop a number of practical problems at work composed objective, namely the use of graphical charts that help a student establish links between the data and the desired number and find a rational way of solving the problem in mathematics lessons in elementary school.*

**Key words:** development of analytical and synthetic reasoning pupils activation of mental activity of students, a simple task, composed task graph diagram for tasks, stages of work on the compiled object known numeric data problem, the unknown quantity of the problem, rational way of solving the problem.

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### SCIENTIFIC BASIS OF IMPLEMENTATION INTERACTIVE TECHNOLOGIES IN SCHOOL

*The advantages of using interactive technologies in the school educational process are argued in the article. It is also indicated, that the improvement of educational process in the school demands purposeful training of teachers to be for implementation of innovative pedagogical technologies. These technologies will help to express the pupils' activity and to realize personality-oriented approach. They will be based upon dialogical interpersonal interaction of participants of educational and training environment. Various scientific approaches towards the classification of interactive technologies are also analysed in the present article.*

**Key words:** pedagogical technologies, interactive technologies, interactions, classification.

**Urgency of the problem.** Current requirements of professional teachers include improving the training of future teachers towards the formation of their willingness to use effective innovative educational technologies in school. The focus of the educational process at enhancing teaching and learning of pupils updates introduction of reactive methods that form the basis of interactive technologies. In terms of interactive technologies an educational environment is created that promotes the process of active interaction between participants of the educational process in a comfortable and peaceful environment.

Willingness of students to use interactive technologies in their future teaching activity in school has to be considered through their nature, specific, purpose, opportunities, complex of general requirements - technological, pedagogical, organizational, technical, psychological, educational, hygiene and others. Effective use of interactive technologies in school depends upon the fact that students must be members of interactions requiring justification of scientific basis of the implementation of interactive technologies in schools.

Analysis of recent research and publications on the implementation of interactive technologies in the educational process of higher and secondary schools shows that the outlined problem has been studied by scientists of various fields. Researchers specify the nature of the basic concepts and techniques of interactive learning [8]; justify basic features of interactive technologies [1]; determine using the specific interactions in the educational process [2], scientific and methodological principles of implementation of

interactive technologies in higher education [3]. Structuring components of interactive technologies, O. Pometun determines the characteristics of active and interactive teaching methods [7]. A significant contribution to the modern pedagogy in the market system of education has become an interactive tutorial for teachers [5].

Disputable aspects of the problem remains the study of scientific basis of the use of interactive technology in school.

**Goal setting.** Educational transformation in modern society is based on the change in the vector of the educational process: from the traditional to the assimilation of a body of knowledge on the process of preparing innovative type of man that can form only innovative in substance education [3], based on training and technologizing of educational environment.

The term "technology" (from the Greek - the science of art) is widely used in modern psychological and pedagogical literature. Most scientists define the essence of the definition of a teaching career that best implements a law education, training and personal development as one of the components of the educational process, through the consistent implementation of the totality of methods of pedagogical interaction guarantee solving of educational problems [1; 3; 8].

In historical understanding the concept "educational technology" in the twentieth century, firstly means divergence, resulting in outlines of two areas. Some researchers define educational technology as a set of techniques for the use in schools of various technical means

and programmed instruction, others - like implementing a systematic approach to the study of educational phenomena, which leads to increased efficiency of the educational process. After 70 years of the twentieth century, the convergence of these two trends in the interpretation of the definition of "educational technology", as upgrading training equipment has become a prerequisite for the use of innovative techniques and learning. Therefore, since understanding of educational technology is reduced to the application of the principles of learning process optimization based on the latest science and technology. Educational technology is defined in various kinds: personality-oriented, problem-based learning, information, interactive, and others.

The analysis of educational research indicates that a significant number of scientific researches are devoted to the use of interactive technologies in educational institutions of different levels of accreditation, as "interactive approaches are most effective today, for putting one who seeks knowledge in an active position of independent development ... and the seeker of truth" [5, p. 225].

The term "interactive" (from the English. interact, where «inter» - mutual and «act» - do) means cooperation because the essence of interaction lies on active cooperation and communication of its members, and outlines the process of "interaction" [2, p. 15].

Raising interactive learning to a scientific level, researchers are beginning to use the term "interactive technology", seeing purpose of interactive process in improvement and change in behaviors of its members. "By analyzing their reactions and reaction of a partner, participant changes his pattern of behavior and consciously assimilates it, which makes it possible to speak of interactive methods as a process of interactive education" [7, p. 11], which is important in the educational process of the school.

The researchers argue that within integrated interactive learning new methods of teaching interactions that are increasingly used in the educational and training process. This leads to the analysis of interactive technologies from various scientific approaches and allows to define it as a dialectical process (philosophical approach); the combination of information and operation training (with a focus on personality structure); methods are of general, social, psychological, educational, culture-semantic direction; they are associative and reflex the mechanism of assimilation; social phenomenon as a major factor for development; anthropocentric approach as for the individual as problem-dialogical, explanatory, illustrative superior learning methods; as a group, even, frontal, individual participants for cooperation; by organizational forms - as an alternative to traditional class-task as an innovative teaching, at which classes are held in the active form: problem lectures, workshops, brain-storming, psychodrama, debate, debates, dialogues, polylogue, press conferences, business and educational games, staging, training, etc. [2, p.16].

Thus, due to the use of interactive technologies in educational process different kinds of activity of pupils or students are raised, depending on the purpose of interactive methods. The result of the progressive dynamics of mental activity lies in intensity of thinking, generating ideas, expressions assumptions, design, construction, design, modelling, identifying creative imagination, concentration of

attention, exercise of analytical and synthetic transactions [3]. Participation in simulated life, professional, industrial, educational and other situations involves not only an imitation and performs certain roles, but also activates the participants of interactivity to exchange views, revealing emotions, personal attitude to the discussed issues, formulating their own opinions, determines emotional and social activity. The need of a particular practice, moving in the classroom (performance defined roles, tasks) causes the expression of physical activity.

If in the process of training future teachers will approve all these factors of detected activity through personal involvement in the interaction, it won't only be one of the factors of their preparation for the use of interactive technologies in school, but will also encourage students to their personal development, self-determination, personalization, professional identification, formation of professional identity of teachers, identifying ways to increase the professional pedagogical skills and even more. In this respect, the transmission of their own experience is made to participate in interactions of future professional activity of a teacher who understands the purpose, features and is aware of peculiarities and efficiency, takes into consideration the use of interactive technologies in the educational process of the school. Therefore, the implementation of interactive technologies in training future teachers is being one of the urgent issues.

To optimize the use of interactive technologies in school one should consider their purpose based on separation of certain classifications. Analysis of psychological and educational literature made it possible to specify different approaches to classification of interactive teaching methods. In particular the classification M. Skrypyk reflected conceptual approaches in communication. The scientist singles out the groups of the following interactive methods:

- Information which presupposes using ways of dialogic interaction of participants to exchange material or spiritual values;
- Cognitive, used to acquire new knowledge, their organization, creative improvement of professional skills;
- Motivation, in which each participant of the educational process determines its own position in relation to methods of group, individual participants, himself;
- Regulatory, whereby established and accepted certain rules of dialogic interaction of participants [8, p. 32-43].

The classification V. Melnyk distinguishes three groups:

- 1) preventive interaction (creation of groups, roles distinguishing, consultation, rehearsal);
- 2) imitative interactions (acting, psychodrama, sociodrama, business and operating sports, debate, "brainstorming", collective or group projecting, cross subject, topic discussions etc);
- 3) non-imitative interactions (problematic lecture, seminar, round table, conference) [2, c. 17-18].

On the basis of different methods of information exchange there are three groups of methods (information mode): intra active (students study independently, that is, being the subjects of learning); extra active (students are taught, being the objects of study); interactive, when the

course is based on dialogic interaction.

The classification of C. Kashliev is based on a leading function which interactive methods perform in process of interaction:

1. Methods of creating a favorable atmosphere and organization of communication. The purpose of using this group of interactions is coverage by common work of all students which facilitates their adaptation to established educational situation. Appropriate in this case will be exercises to establish contact, perception and understanding of the emotional state [9, p. 107-127].

2. Methods of exchanging activity. The purpose of using this interactive method is a combination of individual and group collaboration for participants of educational interaction. It is advisable to use exercises on listening, on the reception and transmission of nonverbal information [9, 127-140] exercise group decision-making and focused on obtaining the return of personal communication [9, 154-175].

3. Methods of mental activity. The said group of interactions designed to create a favorable atmosphere, mobilize the creative potential of each student and develops their positive motivation to learn, while stimulates the mental activity by students performing various mental operations. An example of such interactive method can be "brainstorming".

4. Methods of sense and idea making. The main purpose of the use of interactive methods is the establishment of an educational-cognitive process of a new way of educational interaction, participants reflect interactions of their own understanding of the meaning of the phenomena studied, sharing these senses and enrich their individual ideas about certain phenomena. This exercise can

be to diagnose communication, conflict competence, pursuant roles to prepare for typical and complex communicative situations [9, p. 175-222].

5. Methods of reflexive activity. Outlined group of interactive methods is aimed at self-analysis and self-esteem of participants of academic interaction, its activities and its results, allows to specify the state of the cognitive activity of pupils or students and determine the causes and consequences of this process.

6. Integrative methods (interactive games), which, according to scientists, combine all of the features of interactive teaching methods [1, p.23].

**Conclusion.** Therefore, improvement of educational process in school requires objective training of teachers to use innovative pedagogical techniques that promote expression activity of students, implementation-centered approach will be based on dialogic interaction of interpersonal members of the educational environment, which forms the basis of interactive technologies. One way to prepare future teachers to use interactive technology in schools is a direct participation of students in interactions while studying in high school. Purposeful selection of interactive technologies should be based on consideration of classifications of certain groups of interactions. In order to use pedagogical innovations in schools a teacher should be aware of the criteria of their effectiveness; consider compliance with the age peculiarities of students; analyze the effectiveness of the selected innovations in teaching practice; apply only the pedagogical innovations that meet the goals and objectives of students; use innovative teaching technologies provided systematically; take into account that innovation should wear evolving nature [3].

#### Literature used:

1. Kashliev S.S. Tekhnologia interaktivnogo obuchenia / S.S.Kashliev. – Mn. : Belaruskii verasen, 2005. – 196 c.
2. Melnyk V.V. Interaktsia v osvitiomu protsesi: tekhnologia organizatsii / V.V. Melnyk // Upravlinnia shkoloiu. – 2006. – № 13. – С. 15–34.
3. Pitiukov V.Y. Osnovy pedagogicheskoi tekhnologii : uchebno-metodicheskoe posobie / V.Y. Pitiukov – [3-e izd.]. – M. : Izdatelstvo «Gnom I D», 2001. – 192 c.
4. Pidlasyi I.P. Praktychna pedagogika abo try tekhnologii. Interaktyvnyi pidruchnyk dlia pedagogiv rynkovoi systemi osvity / I.P/ Pidlasyi. – K. : Vydavnychi Dim «Slovo», 2004. – 616 c.
5. Pometun O. Actyvni ta interaktivni metodi navchannia: do pitannia pro diferentsiatsiu poniat / Olena Pometun // Shliakh osviti. – 2004. – № 3. – С.10–16.
6. Skrypnyk M. Interaktivne navchannia: osnovni poniatia / M. Skrypnyk / Interaktyvni metodi navchannia . – K. : Red. zagalnoped. gaz., 2005. – С. 30–44.

*В статье аргументированы преимущества использования интерактивных технологий в учебном процессе школы. Отмечено, что совершенствование учебного процесса в школе нуждается в целенаправленной подготовке будущих учителей к использованию инновационных педагогических технологий, способствующих проявлению активности учеников, реализации, личностно-ориентированного подхода, будут базироваться на диалогическом межличностном взаимодействии участников учебно-воспитательной среды, и которые составляют основу интерактивных технологий. Поданы различные научные подходы к классификации интерактивных технологий.*

**Ключевые слова:** педагогические технологии, интерактивные технологии, интеракции, классификация.

*У статті аргументовано переваги використання інтерактивних технологій у навчальному процесі школи. Зазначено, що вдосконалення навчального процесу у школі потребує цілеспрямованої підготовки майбутніх учителів до використання інноваційних педагогічних технологій, які сприятимуть вияву активності учнів, реалізації особистісно-орієнтованого підходу, базуватимуться на діалогічній міжособистісній взаємодії учасників навчально-виховного середовища, і які складають основу інтерактивних технологій. Подано різні наукові підходи до класифікації інтерактивних технологій.*

**Ключові слова:** педагогічні технології, інтерактивні технології, інтеракції, класифікація.