

Mechanisms and Principles of Development of Students' Intellectual Areas Using Modular Teaching Technologies

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Abstract: This article provides information on effective mechanisms for developing students' intellectual fields, certain principles of modular teaching technologies (modularity, structuring of educational materials based on mutual compatibility, dynamic nature, implementation of an active approach, compatibility principles). Also, didactic processes, didactic games and problem assignments aimed at systematic development of students' intellectual spheres were discussed.

Keywords: Intellectual, educational process, pedagogical process, knowledge, learning-cognitive activity, principle didactic process, role-playing games, working games, thinking.

Development of students' intellectual fields is one of the leading problems of didactics. This implies the implementation of effective mechanisms for the development of students' intellectual spheres in the educational process. In order to successfully solve the problem of developing students' intellectual spheres, it is necessary to improve the pedagogical process model aimed at this goal, to regularly enrich the educational materials used in it, to use the most effective methods and technologies, to form motivations for their own development, and to help them master the methods of independent research. As a result of such memorization, students' thinking processes develop rapidly. Based on the development of students' intellectual fields, a convenient opportunity is created for them to form logical, critical, creative thinking in a mutually harmonious way. On the basis of the successful development of students' vocabulary, their thinking capabilities expand and their intellectual fields develop.

In the encyclopedia of pedagogy, the term knowledge is defined as follows: "Knowledge - 1) level of assimilation of educational material presented to pupils and students during the educational process; 2) the form of learning, mastering, acquiring existence and its objective laws" [1. Volume 1 is 140-b] process.

In the process of learning, the student reflects the content of the educational materials in his mind. During the learning process, students perform educational activities. In this process, students are able to develop intellectually, spiritually, and morally based on mastering the educational content. The teacher guides the students' learning activities during the learning process. They help in the formation of learning motives. Evaluates the results of intellectual activity and encourages students to develop themselves. As a result of intellectual development, students learn various connections and relationships in objective existence as concepts, laws, principles, and theories based on the acquired knowledge. In order to carry out such activity, students must have cognitive activity. In order to turn all the knowledge presented to them into their own social experience, they are required to successfully complete educational tasks, exercises and problems, to have the ability to independently search and acquire knowledge. Knowledge provided to students as educational information serves to develop their intellectual fields. In order to successfully master the presented knowledge, students must have developed logical and creative thinking skills.

In order to develop the intellectual spheres of students, it is required to provide them with educational materials incorporating new information. Students, realizing the practical value of knowledge, integrate it into their social experiences. For example, they learn the methods of intellectual activity during dialogue. When students are given tasks of a reproductive nature, they acquire knowledge based on the model. We focused on a number of situations in the process of developing students' intellectual fields:

1. In the process of presenting new information to students, create conditions for their use of knowledge methods and help them understand the essence of these methods.
2. To ensure that they use knowledge-based methods in the process of performing reproductive tasks.
3. Creating favorable situations for effective use of knowledge methods in the process of independent acquisition of knowledge, using these methods in familiar situations, and teaching ways to use them in other, unfamiliar situations.

Table 1 Forms of intellectual activity performed by students

REPRODUCTIVE	CREATIVE
Ability to use new information learned in educational situations	Ability to bring new information into the form of theoretical generalizations
Ability to classify evidence	Finding new evidence based on theoretical information
Being able to draw conclusions based on acquired theoretical knowledge	Be able to support their opinions with evidence.
They can give examples of the stated ideas	Being able to express different points of view and personal views
Being able to apply the acquired knowledge to practical activities	Being able to show activity in completing assignments

In this process, students' experiences of intellectual activity are important. They demonstrate their intellectual abilities in determining causal connections between the ideas presented. In order to determine the intellectual abilities of students, it is of particular importance to use the method of drawing up basic outlines. In this process, students divide the learning material they have mastered into blocks. In this situation, they perform intellectual activity methods such as abstraction, making judgments, clarifying situations, summarizing, proving, and classifying. Didactic processes aimed at the systematic development of students' intellectual spheres should be designed by the teacher. Pedagogically describing the methods and methods used in this process is appropriate.

When designing didactic situations, special attention should be paid to:

- a) Accurate consideration of the current levels of intellectual development of students;
- b) creating relations based on cooperation and dialogue among subjects of the educational process;
- c) formation of motives for intellectual development in students;
- d) development of students' needs and fields of independent learning;
- e) pre-planning of information presented to students;
- f) such as creating favorable conditions for students to adequately assess themselves and provide feedback.

It is desirable to achieve the structuring of purposeful, meaningful, organizational, operational, and diagnostic components in the didactic process project aimed at the development of students' intellectual spheres with a certain consistency. These components require each other during the development of students' intellectual fields and serve to ensure the effectiveness of pedagogical situations aimed at this goal. The target component of the project represents the goals of developing students' intellectual spheres. Based on the requirements of the educational programs, it is necessary to systematically present educational materials, questions, and tasks that serve to develop the intellectual areas of students, to create a comfortable pedagogical environment for students to learn independently and develop themselves, to ensure that they acquire knowledge and design their own activities, and to ensure that students' educational activities are intellectual. It consists of such things as organization with a view to the development of the fields. Diagnostics is organized with the aim of determining the level of development of the intellectual areas of students. The content-based component of the development of intellectual areas in students is directed toward the implementation of the goal of selecting and presenting educational materials, questions, and tasks based on the requirements of the DTS and the national curriculum. In this process, the teacher, relying on certain didactic principles, selects educational information that is interesting for students and implements an individual approach, taking into account the level of intellectual development of each learner. Didactic games and problem assignments are also effectively used in the development of students' intellectual spheres. In this case, a sensitive approach to mastering educational materials is applied. Within the framework of the sensitive approach, it is intended to create a favorable environment for the development of the psychological characteristics and behavior of the student. In this process, students' cognitive abilities and social adaptation levels accelerate. Providing educational information that helps students develop their intellectual spheres creates favorable conditions for them to generate ideas, make important decisions necessary for solving problems, and prove their opinions. These situations are formed quite easily during the games. In this process, students will have the opportunity to independently complete educational tasks, come up with many options for correct answers, choose important situations, justify their hypotheses, prove their opinions, show their positive experiences in classes, engage in cooperation and dialogue, and express their points of view.

Modular teaching technologies used in the process of developing students' intellectual fields require reliance on certain principles. These principles make it easier to choose the main parameters, methods, and didactic model for the development of the intellectual areas of students with the help of modular teaching technologies. They are: modularity, structuring of educational materials on the basis of mutual compatibility, having a dynamic character, implementation of an active approach, and principles of compatibility. The principle of modularity is a principle based on the systematization of educational information based on a modular approach. This principle is used to determine the educational content and organizational forms of the educational process. In accordance with this didactic principle, the functional directions of the educational module aimed at developing the intellectual spheres of students are defined. These directions are defined with the aim of achieving certain didactic goals. In a good system, it should be an integrated module designed to achieve the goal of developing students' intellectual fields. It is desirable to ensure that the tasks, exercises, problems, and methods included in this module are presented in the form of educational blocks. It is ensured that each learning module meets the goal of developing the intellectual areas of the students. Various forms of teaching are combined in accordance with the educational materials that serve to develop the intellectual areas of students, and the compatibility of the obtained results with the educational goals is analyzed. Accordingly, the educational module that serves to develop the intellectual spheres of students is a component of modular teaching technology. In this system, educational information is presented to students step-by-step. According to the principle of structuring educational materials on the basis of mutual compatibility, educational materials acquire an integrative character as part of the educational module focused on the intellectual areas of students. This ensures that educational materials are composed of mutually compatible components. Didactic goals of an integrative

nature include specific goals. Educational materials and didactic tasks are selected to achieve the goal of developing students' intellectual fields. Each objective is directly related to the information contained in the learning module.

Within the framework of the principle of ownership of a dynamic character, there is an opportunity to independently determine the content of the educational module. For this purpose, the content of the educational module is regularly enriched and improved. It is possible to form a new didactic module based on the restructuring of the components included in this module. The principle of implementation of the active approach makes it important to rely on the active approach in the development of the intellectual areas of students. Within the framework of modular teaching technologies, it is assumed that the educational process will be directed toward the development of the student's activity. On the basis of an active approach, students' motivation to study is formed. Therefore, this principle serves to form motivations for students' activities based on the development of their intellectual fields. The process of modular education aimed at the intellectual development of students is carried out on the basis of the organization of problem situations. As a result, the qualities of logic, creativity, independence, and activity are formed in students. Pupils with a developed intellectual sphere easily move from one type of educational activity to another. The principles of developing students' intellectual spheres with the help of modular teaching technologies require each other. All of them contribute to the systematic selection of content for the development of the intellectual areas of students. Modular teaching technologies that serve to develop the intellectual fields of teachers are formed on the basis of certain principles: the principle of systematization of educational information based on didactic goals, the principle of setting integrative and specific educational goals, the principle of ensuring the detailed description of didactic materials in the module, the independence of the educational elements in the module, and the intellectual development of students. the principle of ensuring the possibility of development, the principle of creating the possibility of feedback in the process of developing students' intellectual fields, the principle of systematic presentation of educational information, questions and tasks, and activity methods.

Within the principle of systematization of educational information based on didactic goals, it is ensured that the content of didactic materials is determined based on educational goals. In the implementation of the principle of setting integrative and private educational goals, it is envisaged to systematize, integrate, and make the educational materials in a form convenient for the development of the intellectual spheres of the students. Integrative and specific learning goals embody the main, intermediate, and final goals of the intellectual development process of students and allow systematization of didactic materials, questions, tasks, exercises, and control materials necessary for implementation in the learning process. The principle of providing a detailed description of the didactic materials contained in the module creates an opportunity to present educational materials aimed at the intellectual development of students in the form of a module. This allows students to develop their intellectual areas in a systematic way, ensuring that the learning materials are presented in a coherent way. Teaching technologies aimed at developing students' intellectual fields embody didactic materials and methods that serve this purpose. Accordingly, modular teaching technologies aimed at the development of students' intellectual spheres serve to determine forms, methods, ways, methods, and means of developing students' intellectual spheres based on pedagogical-psychological approaches and theories. Therefore, modular teaching technologies represent a pedagogical model aimed at developing students' intellectual fields. Modular teaching technologies determine the main directions and nature of pedagogical activities aimed at developing the intellectual spheres of students. The teacher creates an atmosphere of interaction, dialogue, and cooperation between the students. It allows students to accelerate their intellectual activities through dialogue and question-and-answer. As a result, a creative atmosphere is established among the class team.

Role-playing games are of particular importance in the development of students' intellectual fields. In the process of such games, pedagogical activities are carried out related to the distribution of roles among students, the creation of favorable conditions for their assimilation and processing of educational information, and the preparation of materials specific to a specific

role. In the process of role-playing games, students act within the framework of the scenario, based on this, it can be said that in the process of working games, students show more intellectual activity than in role-playing games. Between role-playing and work games, students are presented with problems. In order to organize role-playing games, the teacher should have a clear idea of the level of intellectual development of each student. In the process of playing games, it is important for students to be active, independent, responsive, find solutions to problems, and be able to approach them creatively. The assignments given to students should correspond to their level of intellectual development. Role-playing games serve to form motivations for independent learning and intellectual development. Role-playing games aimed at developing students' intellectual fields are organized in the following order: the science teacher determines the main goal of the game, describes the expected results with a clear idea, develops the game scenario, and only then explains the main goals and tasks of the game to the students. Based on the purpose of the game, they divide the roles, and the students begin to play the roles, and the students who are not assigned to the roles participate in this process as observers; in turn, they express their opinions and make their final conclusions about the game. The scenario of the game should serve not only to develop students' intellectual fields but also to socialize them. In the course of such games, the skills of interest in life problems, interpersonal communication, cooperation, mutual support, and joint solutions to problems are developed. As mentioned above, active games are of particular importance in the development of students' intellectual fields. In the process of such games, students learn the motives of professional activity and get acquainted with the social foundations of a particular profession. As a result, students will have experience with creative activity and modeling skills for labor processes.

Working games as an imitation model representing a specific situation serve to prepare students for social cooperation and interpersonal relations. With the help of such games, students get acquainted with behaviors, attitudes, norms, and conditions related to social activities that they can perform in the future. Elements of professional thinking are formed in them. With the help of active games, students will have the opportunity to simulate the decisions they have made, create a plan of action, and express their point of view. During active games, students acquire skills such as teamwork, movement in a micro-society, and the ability to defend their opinion. In the process of taking on different roles, students acquire the experience of making informed decisions and resolving conflicts. In the process of playing active games, didactic situations are created that help students develop their intellectual fields. Educators and psychologists believe that when students learn learning materials with special interest, their intellectual areas develop, and these learning materials stimulate their curiosity about the learning process. It is recommended to use the following types of active games for the development of the intellectual areas of students:- games and trainings that help students to develop physically and intellectually, games that encourage students to be active, games that invite debate during such games, games that encourage question-and-answer, games with an emotional spirit;intellectual-creative games. They are: games with the participation of interesting objects; plot-intellectual games; didactic games; games related to construction; games representing creative work; games encouraging technical creativity; computer games;games encouraging students to engage in social relations: creative, plot-role games, work games;games that develop students' complexes; they include team-creative games.Communicative games serve to encourage students to dialogue and cooperate. With the help of these games, the experience of interpersonal relations is formed in students.

With the help of problem-dialogue technology, the intellectual areas of students develop rapidly. This technology is theoretically based on E.L. Melnikova. As a result of the use of this technology, students are involved in the process of completing problematic tasks. They will have the opportunity to creatively apply the acquired knowledge in new situations. In dialogue situations, students are able to creatively apply their new knowledge to practical experiences. They develop creativity and a critical attitude towards the environment. The teacher addresses the students with problematic questions, and the students return answers to these questions with deep thinking. In this situation, they manage to conduct small research. At the stage of acquiring

new knowledge, students put forward hypotheses and conduct research in order to find solutions to problems. As a result, pupils are motivated to conduct small studies, to conduct research, and to find solutions to problems. The need for and interest in learning new information ensures the activation of motivation to learn in students. Students' assimilation of new information activates their motivation to engage in dialogue by developing their intellectual spheres. With the help of problem-dialogue technology, successful situations are created that are favorable for the intellectual development of students. Reading and listening technology can be included among the technologies that help the development of intellectual areas in students. This technology was initially introduced into scientific pedagogical treatment by O.V.Chindilova and based theoretically. Pupils are presented with texts and are required to listen, understand, and perceive the essence of the content. Texts can be artistic, scientific, popular, or scientific. For example, 5th–6th graders can be presented with artistic texts and informational texts; 7th–8th graders with scientific popular texts; and 9th–10th–11th graders with scientific texts on various topics. It is necessary to ensure that the texts correspond to the students' artistic aesthetic level and scientific worldview and are related to the topics of the program. They are required to express life events and scientific information corresponding to the knowledge acquired by students. It is desirable for the teacher to use different methods at each stage of listening and understanding the text. Each stage of reading and understanding the text requires the use of separate methods. This technology helps students develop critical thinking, interpersonal, and communication skills.

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