Development of environmental competences of students in teaching natural sciences methodology

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Abstract. The article describes the importance of imagination development methods in the development of students' creative activity. In addition, a methodology for developing cognitive-pragmatic competence based on problem-solving technologies was developed. Problematic educational technologies in education, their specific features are revealed in detail. Key words: thinking, creative thinking, creative activity, temperament, continuous education, innovative processes, facilitation, modern approaches, problem-based educational technologies.

1 Introduction

The teacher sometimes thinks of using an exemplary tool to develop ideas that stimulate the imagination, even if they are not related to the content, so as to enrich the students' knowledge of complex concepts. Imagination is "like in the state of play of thinking, which creates a new interpretation of the content and enriches the existing experiences, but combines them with unusual methods. Novelist and professor of the Creative Writing department at Boise State University, Ridley Pearson reveals the essence of imagination in the extensional description. In his "Shaw does not talk" (talking about the English dramatist Bernard Shaw), he presents ideas that allow teachers to creatively develop the imaginations of students in the audience. When the teacher presents the evidence to the students, they start to think. The first teacher can only inform the students about the content, the second teacher can show them the essence of the concept in a demonstrative way, and the third teacher can show the students how to use their imagination to find a connection between two situations that are close to each other. Materials, methods, analysis and discussion. Many teachers use Pearson's view of the three-stage movement structure when introducing students to the history of reality and introducing information about different stages: the beginning, the middle, and the end.

2 The main part

This text can be used to help enrich the imagination of students, as well as to show the information quality of a part of a category with a certain meaning. Instead of universal

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concepts from various disciplines, it is possible to use the terms "introduction, development, rise to the top" to describe the three states of a given movement. This "triangle approach" provides a structure that serves to develop free imagination in students. Tina Seelig offers three ways to improve your imagination. The first way is to pay attention to how the question is asked. This structure is aimed at visualizing the answer. The best way to make presentations for students is to use humor. The humor used in the lesson may not be the funniest joke in the world, but it shows how well the student understands the subject matter. Researcher Tina Seelig's second proposal is based on combining and connecting ideas of creative thinking. Ideas can be fanciful or realistic. For example: students study the influence of ultra-arts on the interior. Special protective clothing, glasses, sun creams, umbrellas, and other means are being developed to reduce the harmful effects of ultraviolet radiation. Students are encouraged to fill in ideas that protect people from the sun's ultraviolet rays, coordinate them and discuss the list of ideas in a group. Tina Seelig also suggests advancing new assumptions while challenging existing assumptions as an effective way to stimulate imagination. It is in accordance with the purpose of presenting the situation to the students in the auditorium, and creating the conditions that allow them to research the assumptions involved in finding a solution, which is directly observed in the scenario. He tells the teacher that he can prepare a futuristic scenario for the students. The students are tasked with imagining the situation according to this scenario, analyzing the probability of its occurrence and enumerating the possible effects of this situation. For example, in our research, it is possible to use not only creative thinking, but also temperament to generate creative imagination and turn it into creative activity. In this place, the methods of determining creativity through colors are combined with traditional temperament grammar.

Any methodological model is characterized by a number of features to achieve pedagogical goals. It is customary to distinguish its first characteristic as a hierarchy. It includes subordination of some elements of the model to others, arranges them. Another feature of the methodological model is its integrity. In this case, the model is considered as one of the system consisting of several components. The interrelationship of these components is not a structural feature. A special feature of methodological models is multiplicity, which indicates the presence of several elements at the same hierarchical level of the model. The last characteristic of methodological models is sensitivity. This feature is impossible when the model works as a single, organized and efficient system. Considering the specific features of the methodological model, we can propose the following concept of the methodological model: a set of organizational-pedagogical instructions for all participants of the structured training course.

Various models are available. If we refer to history, one of the oldest education models is the traditional education model. According to the essence of this model, the teacher imparts knowledge directly to the students. This model puts the teacher at the center and the students act as passive receivers of the information the teacher provides. As an expert in the teacher's field, there should also be a lecturer who monitors how the content is interpreted by the students. This model has its advantages and disadvantages. On the one hand, the traditional model is very convenient for the direct transfer of information from the teacher to the students. On the other hand, such a model is based on only one form of learning - memorizing the material mainly by listening or by repetition. This shows the limitations and ineffectiveness of the student in some situations where he is more kinesthetic, visual, digital than auditory.

The theory of behaviorism is the basis for building a behavioral model of learning. Experts who adhere to this model believe that changes in student behavior are an indicator of completed training. Modeling the assimilation of material behavior is the result of a conditioned reflex. The basis of the conditioned reflex is that the reward for the desired
response plays the role of reinforcement and increases the probability of the repetition of the desired response. Reinforcement is the basis of behavioral conditioning. Continuous reinforcement at each instance of the desired behavior is useful when the behavior is being introduced. After the desired behavior is established, intermittent reinforcement provides the behavior. Behavioral approaches are often used in weight loss, smoking cessation, persistence, and anxiety reduction programs. Learning the importance of immediately rewarding and rewarding desired behaviors and not rewarding unwanted behaviors is critical to the success of behavioral therapy. Education is divided into small steps so that a person can be successful.

Cognitive learning theorists believe that learning is an internal process in which information is integrated or assimilated into cognitive and intellectual structures. Learning can be achieved through internal processing of information. From a cognitive point of view, the way new information is processed is important. At the first or cognitive stage of education, the student knows the task and the general idea about the sequence of actions. In the second or strict stage of training, the student completes the task and begins to acquire skills. Learning of the physical task in full or in parts depends on its complexity. For example, learning to measure blood pressure is difficult. The student should learn to physically manipulate the sphygmomanometer, learn to hear blood pressure sounds and understand the meaning of the sounds. Each of these tasks can be performed separately and then combined. In the final stage of learning, the automatic stage, the patient becomes more proficient at performing the task with confidence.

Humanistic educational theorists view learning as a function of the whole person and believe that learning cannot be accomplished unless the cognitive and affective domains are engaged. The ability of a person to determine his own destiny is an important part of the humanistic theory. For example, humanistic theory is used to help restore a sense of personal satisfaction in treating patients with myocardial infarction. Another model of education is constructivism. This model is aimed primarily at students. They learn and organize information from them, and use its elements for their professional goals. The role of the teacher in this model consists in changing and adapting the educational material, taking into account the characteristics and goals of each student. It is also worth noting that the teacher only guides the students, encourages research and research. In the constructivist model of education, the structure of material teaching is also important: from less complex to more complex. This approach should serve as a motivating factor for students Learning can be done by observing examples and repeating them, some kind of imitation of real material [1-9].

One of the most popular education models today is the problem education model. This educational model is designed to increase the level of autonomy of students in the learning process. The essence of the model is to create a specific problem that requires students to solve it.

Another currently widely used model is programmed education. In this type of training, the students can perform step-by-step actions by activating a predefined algorithm. Here the task of the teacher is to check the correctness of the questions and necessary corrections.

Another popular educational model today is the project-based educational model. This type of model differs from others in that it does not have a team, because it requires working in groups on a specific project. Through this type of training, other important communication skills, such as role sharing, compromise and mutual acceptance, are improved. This type of learning model is very close to real life situations.

One of the tasks of this dissertation is to create an effective professional model of pragmatic competence formation using corpus technologies, to determine the methodological basis, prerequisites, and the main goal of the research. Any methodological model is characterized by a number of features to achieve pedagogical goals. It is
customary to distinguish its first characteristic, in its hierarchical quality. Another feature of the methodological model is its integrity. In this case, the model is considered as one of the system consisting of several components. The interrelationship of these structural parts is inevitable as a structural feature. A distinctive feature of methodological models is multiplicity, which indicates the presence of several elements at the same hierarchical level of the model. The last characteristic of methodological models is sensitivity. This feature is impossible if the model works as a single, organized and efficient system [3].

Considering the features specific to the methodological model, we can propose the following concept of the methodological model: a set of organizational and pedagogical instructions for all participants of the structured training course. Various models are available. If we refer to history, one of the oldest education models is the traditional education model. According to the essence of this model, the teacher imparts knowledge directly to the students. This model puts the teacher at the center and students absorb the information presented by the teacher as passive receivers. As an expert in the teacher's field, there should also be a lecturer who monitors how the content is interpreted by the students. This model has its advantages and disadvantages. On the one hand, the traditional model is very convenient for the direct transmission of information from the teacher to the students. On the other hand, such a model is based on only one aspect of learning - memorizing the material mainly by ear or repeated instructions. This shows the limitations and ineffectiveness of the student in some situations where he is more visual, digital than auditory. Nevertheless, despite the shortcomings of this educational model, it can be used in the modern educational process. Cognitive education theorists believe that the learner is able to understand, in which information is integrated into a cognitive and intellectual structure. Learning can be achieved through internal repetition of information. From the point of view of cognitive information, it is important how new information is processed. At the first or cognitive stage of education, the student can get a general idea about the task and the sequence of training. To teach or to complete the task, the student has a strict level of appearance. Learning a physical task in full or in parts depends on its complexity.

Humanistic educational theorists consider learning as a function of the whole person and believe that learning cannot be achieved if the cognitive and affective domains are not engaged. The ability of a person to determine his own destiny is an important part of the humanistic theory. Another model of education is constructivism. This model is aimed primarily at students. They learn, build a system based on it, and apply its elements to their professional goals. The role of the teacher in this model consists in changing and adapting the educational material, taking into account the characteristics and goals of each student. It is also worth noting that the teacher only guides the students, encourages research and research. [4]

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One of the most popular education models today is the problem-based education model. This educational model is designed to increase the level of autonomy of students in the learning process. The essence of the model is to create a specific problem that requires students to solve it.

Another currently widely used model is programmed education. In this type of training, students can perform precise step-by-step actions by activating a predefined algorithm. Here, the teacher's task is to check the correctness of the answers. The purpose of this study is to form students' pragmatic competence based on corpus technologies. Let's consider the necessary conditions for creating a methodological model of students' pragmatic competence based on corpus technologies. As the above conditions, we distinguish the following three proposals. The first of them is to prepare students with pragmatic skills in
second language. The second method of creating this methodical model is the need to meet the national requirements of higher education at the undergraduate level. The third condition is the existence of contradictions between the use of corpus technologies in the formation of linguistic and didactic skills and pragmatic competence. The next stage of creating a methodological model is to build a theoretical block. This element includes principles and approaches used in the learning process. The principle is an inseparable starting point of the educational process. The approach incorporates various principles, thereby directing the learning process in one direction or another. It comes from the importance of selection of activities and principles in the development of a certain methodological model. Therefore, in this article, we consider it correct to include the following approaches:

- a) communicative-cognitive
- b) systematic
- c) personal-active
- d) based on competence.

Let's take a closer look at each approach and justify its choice. Communicative and cognitive interaction. It helps the students to develop the speaking skills that observe the balance and master the theoretical knowledge of the studied language. This approach has a communicative-cognitive approach, it has a basic principle. The cognitive component of this principle is designed to use knowledge about linguistic systems, to absorb meaning in the process of language learning. This attention is considered effective due to the use of linguistic experience. From this comes the principle of Philology, which implies the activation of knowledge about the native language, literature, linguistics, other languages and cultures in the process of teaching foreign languages. A part of human culture aimed at teaching the theoretical aspect is influenced by the qualitative system. At this level, there are several ways to achieve philology. First, as a linguistic system, it can be considered from the point of view of its development in various directions: historical, grammatical, social, and others. Second, the knowledge of mother tongue or other languages learned can be used as a special aid in teaching foreign language. Thirdly, the socio-cultural component can actively participate in the formation of students' commutative competence. As for the practical nature of philology, it is in the use of various texts. Thus, we believe that the harmony of communicative and cognitive skills determines the effectiveness of the formation of pragmatic competence. [6]

Any teaching method has a basic system. Unsystematic nature of education hinders the development of students and also reduces their motivation. Therefore, we consider it necessary to use the proposed model system for the formation of pragmatic competence based on corpus technologies. The system that appeared in Russian pedagogy in the 60s of the last century organizes and organizes the teaching methodology. One of the partners of the system I.V.Blauberg proposed the composition of communication. [1] The scientist was suggested to consider integration as the first element. According to the author, this feature is the key and shows the known integrity of the system. Along with integration, a number of principles of cooperation are also distinguished. It shows the existence of a systematic development of the elements of the hierarchy principle. This leads to the next principle - structure. This includes the organization of the system in accordance with certain criteria.

It is worth noting the advantages of using the system in training. First, the extension establishes a strong connection between the structural elements of the model and directs them to the general educational goal. Secondly, in any case, the methodological model has a hierarchical structure, and its elements are also organized in a hierarchical manner. Thirdly, the interdependence of the structural elements makes it possible to adapt it to the demands and needs of the teacher without affecting the essence of the model [7].
The personal-activity approach is usually considered in terms of the two components that make up its name. The first of them, personal, involves considering each student as an individual person - taking into account all sociological and psychological variables, this approach will certainly help the teacher to build the educational process in accordance with the personal qualities of the students.[2] All of these approaches are aimed at maximum adjustment of the educational process, including the understanding of its content, individual age, gender and psychological characteristics of students. The second component is activity. Its essence consists in the application of educational activity in the process of forming the personal qualities of students. This approach originates from a number of psychological and pedagogical studies and theories. [5] It should be noted that reflection plays an important role in the application of extension. After completing the task, the student should analyze what he was able to learn from the process of improvement, as well as understand the amount of new knowledge. Therefore, it is necessary to use the approach of personal activity to successfully form the personality of the student. The technological advancement of the educational process was recognized as an important direction of the reform being carried out in order to improve the continuous education system of Uzbekistan. The effectiveness of the process has ensured by the following conditions: active use of modern educational technologies by teachers in the field of education [1-9], as well as awareness of modern technologies used in the educational practice of developed foreign countries. The content, tools and projects of the teacher's and student's activities contribute to the fulfillment of the pedagogical task. Modern conditions require a relatively new approach to the technological advancement of the educational process, the need to align the educational process with the technological structure (fig.1).

EDUCATIONAL APPROACHES

![TECHNOLOGICAL STRUCTURE](Fig.1. Technological structure.)

Problem-based education is the cognitive activity of students and increases creative independence. The essence of problem-based education is the creation (organization) of situations and solving them in cooperation between the student and the teacher. In this case, students' independence (thinking, solving problems, etc.) should be at the maximum possible level, and the activity of the teacher should be the best.

Problem - (Greek, problema - problem) - a complex question, a problem that requires a solution. The problem of educational technology has been forming since ancient times. In particular, questions and answers on Ancient Greece, Ancient India and China, and debates are widely used. American psychologist, philosopher and pedagogue John Dewey is based on the ideas of problem-based education. In 1894, he organized an experimental school in Chicago that organized games and labor activities rather than the basic curriculum. The main goal of problem education is to learn to fully understand the problem and solve it. In order for the problem to be at an adequate level, it should be an integral part of the whole educational process. One of the pressing problems of today is the idea of continuous development of a person as a subject, lifelong learning, the need not only to understand the
educational activity of educators, to develop human abilities, but also to change the world for the better. Changing the world for the better is a process related to the concept of creativity. Creativity is an activity in which human qualities such as efficiency, high level of thinking, problem solving, research, intuition, speed of mental reaction are demonstrated. Exactly, the ability of each person in the educational process development, promotion of creativity, and the failure of the use of educational technologies are emphasized in today's world. So, in order to ensure the value of today's education:

1. Using life skills training methods;
2. To determine and evaluate the formation of life skills development of directed methods is gaining importance.

As a result, the following general skills and attitudes are achieved:

- Teamwork
- Listening to others
- Resolution
- Cooperation
- Solving problems
- Critical analysis of information
- Determining one's own educational direction
- Ability to demonstrate knowledge

There are many approaches to the educational process in the theory and practice of pedagogy. Pedagogical technologies are characteristically derived from this approach. Despite this, many pedagogical technologies are similar to each other in their content, purpose, methods and means. Based on these similar features, pedagogical technologies can be divided into several types.

They are divided into three groups based on their application and scope (scale):

1. General pedagogical technologies.
2. Special methodical pedagogical technologies.
3. Small-module (local, aimed at filling the local gap) universal technologies

The organization of the teacher's professional activity is important in the design of the educational process. The study of each educational course is carried out on the basis of the project of individual chapters.

Modern conditions correspond to the goal of renouncing officialism in the conduct of cultural and educational events. After all, in the process of organizing a specific event based on a ready-made scenario, the audience, who are the main subjects of the event, participate not as an active participant, but as a simple performer. In this case, the controller will bring negative consequences.

In particular:

- students develop a negative attitude towards educational activities;
- opportunities for education of independent thinking and creativity in students are not created;
- Conducting activities with students is not aimed at ensuring their personal development, but rather for forming the conclusion that the class is a useful tool for gaining a "false reputation" in front of the educational institution community.

During the discussion, it is important not to allow the teacher to give various criticisms, on the contrary, to determine the mistakes made by the students themselves and to determine the measures to eliminate them (to prevent their repetition in the process of conducting the next event).
3 Conclusion

As a result, the performance of each asset is independently analyzed and corrections are made when errors are identified. In this, every spiritual-enlightenment event should use modern educational technologies, clearly define the goal, plan the events to be implemented in advance, and create opportunities for the development of the creative abilities of each student.

Based on the above ideas, a model of pragmatic competence formation in students based on corpus technologies was developed. Any teaching method has a basic system. We were able to systematically express our thoughts and aim to develop students' pragmatic competence.

References

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