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DEVELOPMENT OF CREATIVITY IN LEARNING LABORATORY ACTIVITIES IN INFORMATION TECHNOLOGY

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Abstract. This article focuses on increasing creativity in the study of laboratory activities in the science of information technology. The formation of creative abilities is considered one of the urgent problems of today, and the improvement of creative abilities is taken into account in the study of laboratory exercises.

Key words and concepts: Creativity, ability, creative ability, innovative methods and approaches, innovative pedagogical technologies, laboratory training.

INTRODUCTION.

President of the Republic of Uzbekistan Sh. M. Mirziyoyev: "There are complex tasks ahead of us in terms of educating young people, training and retraining personnel in psychology and various other fields. It is important to solve another problem: it is the professional level of pedagogues and teaching staff, their special knowledge. In this regard, it is necessary to create an environment that actively supports the processes of education, spiritual and educational maturity and the formation of real values.

Fundamental improvement of the education system in our country is recognized as a priority direction of state policy. In order to achieve this goal, new models of education are being created, the theoretical and methodological foundations of which are scientifically and practically proven by leading experts and scientists.

In the Concept of the development of the higher education system in the Republic of Uzbekistan until 2030, it is necessary to increase the quality of training of highly educated specialists, to increase students' independent education, critical and creative thinking, systematic analysis, formation of entrepreneurial skills, and to strengthen competencies in the educational process. introduction of targeted methods and technologies, orientation of the educational process to the formation of practical skills, in this regard, advanced pedagogical technologies, educational programs and teaching-methodical materials based on international educational standards are widely used in the educational process measures for its introduction have been determined [1].

DISCUSSION AND RESULTS.

Our main goal is to educate an educated and intellectually developed generation that will be a decisive force in achieving the desired results in terms of democratic development, modernization and renewal in the era of rapid development of today's information and communication technologies, globalization and competition in the world market. Because the personnel who develop the country's economy study and grow up in educational institutions. So, a quality education system builds quality personnel, and quality personnel builds a developed, rich society. In the declaration of education until 2030, adopted at the International Forum of the United Nations (UNESCO, NENISEF), it was recognized that "... improving the quality of education and coordinating and monitoring the learning of a person throughout his life" it is said that in the process of training qualified, competitive personnel, there is a need to increase the quality and efficiency of using modern knowledge - experiences, educational technology, innovative and interactive methods, didactic tools of education, and information technology.

A number of scientific results were obtained as a result of the research conducted on the use of interactive software tools and their quality and efficiency in the world-class education, including the development of interactive educational technologies of problem-based teaching (Leiden University), laboratory interactive software tools have been created to develop the thinking of future vocational education teachers when performing their training on the basis of information technologies (Polish Society For Himan Evolution Studies), modular training based on the priority of integration and differentiation of educational-methodical, scientific research processes lim system was developed (Center for Cellular and Molecular Biology); The methodology of using international assessment programs PISA (Program for International Student Assessment) in the development of scientific literacy has been developed (Russian Institute of Educational Development Strategies) [2].

Creativity is the worldview of future vocational education teachers, firstly, it shows the strategy of creative activity; secondly, it serves as a reliable regulatory indicator for evaluating its results. And, of course, M. Planck was right about this, he says that the researcher's worldview always determines his creative direction. Creative ability performs very important tasks in the process of development.

It should be noted that worldview is an important component of the creative potential of future vocational education teachers. One can fully agree with B.S. Shaygina's opinion that "The worldview of the creator is the main factor in the experience, its lack can destroy the entire creativity of vocational education teachers."

In addition to high-level intellectual ability, goal-seeking and organizational skills in any creative activity are important for the creativity of vocational teachers. These can be summarized as management and self-management skills of future vocational education teachers. Future teachers of professional education should demonstrate the rationality of the intelligence component of their creative abilities.

A person's creativity is manifested in his thinking, communication, feelings, and certain types of activities. Creativity describes a person as a whole or his specific characteristics. Also, creativity is reflected as an important factor of talent.

Creativity (lat., eng. "sreate" - to create, "sreative" creative, creator) - describes the readiness of an individual to produce new ideas and expresses the meaning of creative ability that is part of talent as an independent factor.

According to P.Torrens, the concept of "creativity" covers the following: putting forward scientific hypotheses or problems; hypothesis testing and modification; identifying the problem based on the formation of decision results; sensitivity to the conflict between knowledge and practical actions in finding a solution to a problem.

As long as creativity is a mental process, there are certainly endless ways and methods to improve and develop the human mind, to use its unlimited possibilities. In his opinion, a teacher cannot direct his students to creative thinking without identifying their inclination, desire, activity, ability, talent and ability.

Thinker Jalalidin Davani in his work entitled "Ethics of Jalali" emphasized that in order to cultivate mental ability and intellectual talent in human qualities, it is necessary to be clever, intelligent, understanding, creative, and to remember knowledge quickly, to understand them.

We can also see creativity in the views of the thinker Zahiriddin Muhammad Babur: He understands the problematic situation and creativity as one of the main ways of development of the human personality, and he used it effectively in his work.[3]

Creativity is the ability to create something new, unique, a mental process that leads to new thinking, original ideas and solutions. From the definition given to the concept, it is clear that creativity, like the qualities of initiative and creative approach to work, does not necessarily have to be innate or a divine gift.

The development of creativity requires the proper organization of the teaching process, depending on the level of knowledge, the level of mastery, the source of education, and didactic tasks of students in mastering the educational content.

This implies the need to follow the following pedagogical conditions: to determine the inclinations of students to acquire creative activity, to form knowledge needs and to provide an environment for the manifestation of independence in the educational process; "tolerantly accepting various opinions and ideas expressed by students and ensuring their activity in the educational process, regularly encouraging their creative activities; formation of individual, small group and teamwork skills among students, expanding their creative capabilities, encouraging them to accept non-standard solutions along with standard solutions ready for solving problems; selection and implementation of interactive training forms and methods that allow to redevelop and improve the knowledge that is the basis of creative activity development, etc. [4].

The desire to get a high grade in performing laboratory training on the basis of information technology, success in creative activity is expressed by the importance of evaluating the result for future vocational education teachers. based on his frustration with failure in performing his training on the basis of information technologies, his attitude to encouragement, and his effect on his results by evaluation and praise.

The creative situation is the solution of some dialectical contradictions in the outlook of future vocational education teachers, which at the same time encourages the search for new methods, techniques, and means of activity that stimulate the development of individual competence.

Creative situations include:

controversial situation;

situation requiring critical thinking, assessment;

a situation requiring the use of analogies;

guessing, hypothetical situations, etc.

Personal creativity of future vocational education teachers is reflected in their thinking, feelings, and certain types of activities. For example, when performing laboratory exercises, they are manifested in organic unity and a high level of creative ability, which allows to achieve advanced social, personal and creative results.

Vocational education teachers' teaching material for performing laboratory exercises is expressed in different forms. For example, the main idea of the educational material related to the implementation of problem experiments in the form of text, the formation of the planned activity at the level of skill or qualification in the form of an exercise, in the form of a test assignment of knowledge whose level of mastery is determined, in the form of performing problem experiments, in the form of a problem to increase the motivation to learn in future vocational education teachers, in the form of a task to encourage them to creative activity, a game to develop activity, etc. can be expressed in the form. All of them only serve as a tool for future vocational teachers to acquire knowledge in the educational process.

We will briefly touch on each of these tools below. In computer-based education, the content of the educational materials for the performance of laboratory exercises by vocational teachers is displayed on the computer screen as a text. Texts of educational materials related to the implementation of such laboratory exercises should be in a deep scientific-ideological and logical sequence, and should be explained in an understandable, emotional and simple language for future teachers of professional education.

The degree to which future vocational education teachers acquire theoretical knowledge, practical skills, skills and competencies directly depends on the visual aids used in the presentation of the educational material for performing laboratory exercises. Teachers are required to use methods for independent performance of laboratory exercises on the basis of information technology.

The use of interactive methods allows vocational teachers to:

- to know the basic concepts encountered in performing laboratory exercises of future vocational education teachers on the basis of information technologies and to determine how they are interrelated;

- to achieve independent performance of laboratory training by future vocational education teachers on the basis of information technologies;

- to increase the activity and creativity of future vocational education teachers in performing laboratory exercises on the basis of information technologies;

- the independent use of educational-methodical complexes in the performance of laboratory training on the basis of information technologies by future vocational teachers and the expansion of their theoretical knowledge, practical skills and competences.

The use of modern computer and information communication technologies in the performance of laboratory training by vocational education teachers, firstly, increases the level and quality of knowledge of vocational education teachers; secondly, computer and information communication technology will become a daily work tool of future professional education teachers. This, in turn, requires the extensive application and use of computer and information communication technologies by teachers of vocational education in the performance of laboratory exercises, as well as the formation of computer literacy is an urgent problem[5].

In particular, in the process of creative activity of vocational education teachers to perform laboratory exercises on the basis of information technologies, the control and practical tasks set before the future vocational education teachers are the driving forces of this process. The periodicity of creative activity in the process of performing laboratory exercises on the basis of information technologies from vocational education teachers, with its complexity, creates conflicts about creative activity in the minds of future vocational education teachers. There are two types of conflicts that follow the periodicity of creative activity in the minds of future teachers of vocational education in the process of conducting laboratory training on the basis of information technologies:

1. Negative conflicts. This type of conflict needs to be resolved by vocational education teachers during the implementation of new laboratory exercises. After all, they prevent the periodicity of creative activity, and therefore, the conscious passage of theoretical knowledge, practical skills, skills and competences of future vocational education teachers.

2. Positive conflicts. The contradictions necessary to act according to a certain regularity of the periodicity of the creative activity of future vocational education teachers in conducting laboratory training on the basis of information technologies. This type of conflict cannot be resolved. On the contrary, they are developed through special methods during the periodicity of creative activity of future vocational education teachers.

There are the following situations during the laboratory training period:

setting the general goal of creative activity;

transition from general formation to clarification of the goal of creative activity;

to diagnose the level of preparation for creative activity of future vocational education teachers;

correction of theoretical knowledge, practical skills and competence issues of future vocational education teachers;

checking the result of creative activity.

Future professional education teachers can divide the connections between the material related to the performance of laboratory activities into the following groups:

target connection communication between future vocational education teachers and one or another educational material;

meaningful connection between future vocational education teachers and the content of the studied educational material;

functional connection is the connection between future vocational education teachers and the problem experience performed in the activity of the object being studied;

methodological connection is the connection between future vocational education teachers and the method of teaching the material for performing laboratory exercises on the basis of information technologies;

management activity - this is the guidance of future vocational education teachers from one level of mastering the material on performing laboratory training on the basis of information technologies to another level;

creative activity is the cognitive activity of the teacher in analyzing the results of education, classifying the positive and negative relationships that occur in the educational process.

From the teachers of vocational education, after acquiring the theoretical knowledge of performing laboratory exercises on the basis of information technologies, performing practical work and using them in creative activities - comparing, grouping, classifying, harmonizing with each other, getting the result. Qualitative changes in the implementation of laboratory training based on information technologies will occur as a result of the creative activity of future vocational education teachers. From time to time, future teachers of professional education move from abstract, static, not fully understood knowledge to clear, understood, active knowledge. The acquisition of knowledge will increase from a lower level to a higher level.

The following system of assignments directed to the development of a project for the implementation of laboratory training on the basis of information technologies for teachers of vocational education was determined:

1.Get acquainted with the general description of the program, textbooks, training manuals, instructions for laboratory assignments.

2.The set of main tasks of performing laboratory exercises on the basis of information technologies in creative activities: defining teaching, educational, educational and developmental goals and tasks.

3.Correctly, precisely and consistently placing the main stages of performing laboratory exercises on the basis of information technologies in creative activities.

4.Allocating the main place in the content of each stage of performing laboratory exercises on the basis of information technologies in creative activities.

5.Selection of interactive methods for each stage of creative activity, as well as methods and means of performing laboratory exercises based on information technologies.

6.Selection of its leading: general class, small group and individual forms for each stage of performing laboratory exercises in creative activity based on information technologies.

7.Selection of differentiated laboratory classes for teachers of future professional education who are free to assimilate and have strong preparation in the process of creative activity.

8.Choosing the optimal size and content of homework for vocational education teachers in accordance with time standards.

Vocational education teachers need to determine the type of contradictions that occur in order to create problematic situations in classes when performing laboratory exercises on the basis of information technologies. According to our research work, the following three types of contradictions can be used to create problematic situations for teachers of vocational education in performing laboratory exercises on the basis of information technologies:

1. The contradiction between the life lessons of future vocational education teachers and the knowledge they are learning.

2. Contradiction in the cognitive process. In other words, the contrast between the learned knowledge and the newly learned knowledge.

3. Contradiction in objective reality itself.

Laboratory classes are organized in groups and are conducted in computer class in an active and interactive form, together with out-of-class work in order to learn the possibilities of using information technologies and develop basic practical skills. In the process of experimental work, the main theoretical rules of the academic discipline are also explained and interdisciplinary relations are determined.

During the preparation and performance of laboratory tasks, future vocational education teachers will be provided with information from Microsoft Office software references, C ++ and HTML programming languages, the electronic government system of the Republic of Uzbekistan, recommended literature and digital education. it is recommended to use sources. As part of the distribution of relevant educational materials posted on the Internet and on the local network of the university, future teachers of vocational education are provided with advance electronic versions of the instructions for laboratory work, if they need them, independently the necessary amount of paper is multiplied by bit or stored in flash memory.

Necessary structural elements of laboratory work, in addition to the independent activity of future teachers of vocational education, as well as the organization of discussion of the results of laboratory work. For each laboratory experiment, the purpose of the work, instructions and instructions for completing the learning task are given, and some contain the main theoretical rules of the subject.

CONCLUSION.

From the obtained conclusions and recommendations, to ensure the quality of the educational process, to reveal effective ways to develop the qualities of creativity in the study of laboratory training of vocational teachers, to improve teaching based on a creative approach in the activities of educational institutions. serves the process.

The conclusion is that it is possible to analyze laboratory exercises with the help of technical devices using computer programs. It is important to use these laboratory exercises to improve the creative thinking skills of future vocational teachers and to be able to use computer programs independently and practically.

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