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Research Article

STUDENTS' CAPABILITIES FOR CREATIVE ACTIVITY IN TEACHING BIOLOGY IN INTERDISCIPLINARY AND VERTICAL CONNECTIONS

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ABSTRACT

In this article, the content of students' abilities to creative activity in the teaching of biology by interdisciplinary horizontal and vertical connection is logically sequential, consistent and scientifically stated.

KEYWORDS

Activity, creative, ability, subject, feature, method, quality, imagination, component, judgment, intellect, mind, thought, affect, will, need, analysis, synthesis, creativity, creativity, communicative, problem, result, ethics , process, problem.

INTRODUCTION

It is known to every teacher that in biology, i.e. interdisciplinary teaching, students' abilities to creative activity are not equal. But what is creativity? pedagogues, even psychologists, do not have a clear answer to this question . The various definitions of "ability" are given below. They shed light on various aspects of the concept of capability. Including:

V.I. Myasishev, A.G. Kovalev, N.E. Paytes, K.K. Platonov, M.G. Davletishi, B.R. Psychologists such as Kadyrov determine ability through the sign of student quality . This about A.G. Kovalev's point of view is unique. A.G. This is how Kovalev defines its content in the "ability" chapter of the book "General Psychology". A learner who can meet the requirements of the activity the totality of qualities in the style of can be specified. But S.L. Rubinstein, V.A. Krutetsky and others define the concept of "ability" through the individual characteristics of the student. For example, in "Basics of General Psychology" S.L. Rubinstein

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defines ability as follows: " ability is a complex synthetic characteristic of a student that determines his ability to creative activity." A similar definition of the concept of "ability" is given in the encyclopedia dictionary.

Ability is an individual characteristic of a student and is a subjective condition for a certain type of activity . It does not depend on theoretical knowledge, practical skills, skills and competencies. Activity is determined by the strength, speed and depth of acquisition of methods and techniques . Aptitude testing is determined using tests that allow for the development of quantitative ability assessment methods. A high level of ability development is expressed by the concepts of intelligence and talent .

According to the above , it is necessary to take into account its individual constituents when analyzing the characteristics of the ability. At the same time, it is important to study taking into account the suitability of individual qualities of the student. For example, the interdependence of intelligence and will represents unique, individual characteristics of student ability manifestations. If these ideas are transferred and applied to the creative ability of the student, then the teacher is on the right path. The student's creative ability is a synthesis of qualities and characteristics that can meet the requirements of a certain type of creative activity and the level of its effectiveness . But in order to go further in understanding the composition of creative ability and its structure, it is appropriate to refer to experiments on their study.

Creative ability structure in the inspection V.A. Krutetsky's research is considered scientifically valuable, and he is the following biological student distinguishes abilities :

1. Biology interdisciplinary horizontal and vertical teaching receiving information about

2. Biology interdisciplinary the ability to understand the structure of materials related to horizontal and vertical linking teaching .

3. Biology interdisciplinary Data processing for horizontal and vertical cross-training is as follows:

a) the ability to think with logical and biological symbols within the framework of numerical and symbolic symbols;

b) the ability to quickly generalize biological objects, relationships and actions;

c) the ability to reduce the biological reasoning process and the corresponding action system.

4. Common synthetic component:

a) biological orientation of mind;

b) natural-scientific orientation of mind;

c) orientation of the mind in specific sciences.

It should be said that among the components of biological ability , V.A. Krutets-kii's question distinguishes the biological orientation of the student's mind along with intellectual abilities. The framework of causality is the mechanism for launching intellectual activity. Especially since this P.S. It is clearly shown in Vygotsky's research work. Thought is not the final stage, thought itself is not born from another thought, but arises from the causes of the circle of consciousness, which includes demand and desire, interest and desire . There is an affective and volitional idea between thought . Only he can answer the final "why" question in thinking analysis.

Therefore, it is correct to analyze the structural elements of the creative ability of a schoolchild and highlight their cause - creative activity and direction as an important part of their creative ability. A.D. from the research works of scientists of foreign countries on the theory of causality. Maslad's research is of great

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interest because it takes into account the demand for student creativity. A.D. In Maslad's theory, the following five levels of the cause of behavior and the necessary needs of the learner are indicated:

1. Physiological (food, clothing, rest, etc.).

2. Safety, protection from danger and violence.

3. Relationships, kindness and love.

4. Respect, self-esteem, independence, success, honor, reputation, consideration.

5. Demand for self-expression, realization of one's talents and abilities, development of one's capabilities and creativity.

In addition, A.D. Maslod distinguishes high demands: curiosity, the need to understand the world, beauty, symmetry, content and the aesthetic demand for simplicity. A simple analysis should take into account not only the requirements of the first level, but also the requirements of the third, fourth, and even the fifth level when explaining the reasons for the results of the student's creative activity and creative abilities. At the same time, it is necessary to pay attention to the following requirements. These are requirements for attitude, they should be taken into account when estimating the student's communicative qualities and characteristics. Of course, it is necessary to take into account beauty, symmetry, simplicity in the analysis of aesthetic qualities in the system of the student's creative abilities. In this regard, A. Run was right. This is how he expresses his opinion. Creative skills do not translate into creative results by themselves. In order to achieve a result, that is, a creative achievement, a "drive belt" is needed, it is necessary to move the mechanism of thinking. In other words, desire and will, "causal grounds" are needed. But along with the framework of causality, it is necessary to take into account what else to learn when evaluating the student's creative abilities.

Uzbek psychologist E. Ghoziev summarizes the qualities of the student's creative activity, distinguishing them, for example, from the work of American scientists on the problems of the psychology of scientific creativity, and brings the following experience to the skills necessary for work in the field of science and technology. Strive to have great mobility, diligence, creativity, perceptiveness, truthfulness, correctness, openness to facts. Persistence, discovery, innovation, information skills, dexterity, entrepreneurial skills, mental sharpness, the ability to easily adapt to new conditions, perseverance, stability, independence and so on.

Although the specified qualities of a creative student are of some interest, the multifaceted and hierarchical non-connection of their components is noticeable.

In the scientific-research works of foreign scientists on the structure of creative abilities, more attention is paid to the creative qualities of the student, and almost no attention is paid to the worldview , spiritual-aesthetic qualities .

Today, psychologists are characterized by an approach to personal activity. For example, K.K. Platonov showed the following in the structure of human management abilities. Social qualities (patriotism, humanitarianism); moral qualities (honesty, friendship); professional qualities (experience, striving for innovation); organizational qualities ; pedagogical skills. Among these components, it is appropriate to highlight the worldview and moral qualities of a person.

performs important functions in any creative ability . They determine the point of view of the student during the activity, play an important role in evaluating his

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results . The student develops an attitude and respect for his creative activity .

The worldview of a creative student, firstly , shows the strategy of creative activity; secondly , it serves as a reliable, regulatory indicator in evaluating its results. And, of course, the great physicist M. Planck was right about that, he argues. The worldview of the researcher always determines the direction of his creativity.

In the structure of the ability, the student's moral qualities and characteristics perform specific functions. They express the student's moral code and high goals, moral decency and requirements. Creative ability performs very important tasks in the process of development.

As creative ability is manifested in any activity, at the same time, in guiding the student, the moral and worldview components are included and taken into account in the analysis of the content of the student's creative ability. need To confirm the correctness of our opinion in this matter, B.S. Shaygina and A.L. Graceman's GITIS requirements are important in organizing creative abilities and learning experiences. So B.S. Shaygina's A.V. In the results of the analysis of separate descriptions used in the GITS named after Lunacharsky, the first data of the examination of biological ability and its creative possibilities show the following general and preliminary signs:

1. The presence of an active lifestyle outlook.
2. The unique individuality of the student's human wealth.
3. The ability to imagine and understand the world.
4. Development of imagination and fantasy.
5. The ability to think with real categories.
6. Imaginary , periodic feeling, seeing.
7. Information about T novelty.
8. The presence of creative will .
9. Interest in the future profession, striving for the goal.

10. Organizational and pedagogical skills.

It is worth noting that worldview is an important component of the future biologist's creative potential. B.S. One can fully agree with Shaygina's opinion that "The worldview of the creator is the main factor in the experiment, its inadequacy can destroy the entire creative activity of the biologist."

biological creative activity, goal-seeking and organizational skills are important in any creative activity. Summarizing these can be defined as learner management and self-management skills. The intellectual component of the student's creative abilities should show its logic.

Psychologists and pedagogues have drawn attention to the fact that it is a habit for some students to think logically and make decisions in many ways. Other people have a great ability to imagine and imagine. Therefore, in ancient Roman mythology, there was Apollo, the god of logic and understanding, and Dionysus, the god of irrationality and self-indulgence.

We know that nowadays any normal person is born with logical and intuitive (heuristic) thinking abilities? At the same time, science has confirmed the existence of "people with a developed left hemisphere of the brain and people with a developed right hemisphere". "Left hemispheres" are more capable of abstract-symbolic, verbal and logical thinking. "Right hemispheres" are generally synthetic, capable of vital thinking. They perceive music well, for them not only the meaning of the words, but also the tone of its sound is important.

Based on the theoretical understanding and generalization of the above-mentioned and based information, the integrated components of the

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student's creative ability when performing experiments below (Scheme 1):

1. The student's reason - creative activity and his direction (learning - creative activity).
2. Intellectual and logical ability of the student .
3. Intellectual - heuristic, intuitive ability of the student.
4. Qualities of the student's worldview that contribute to the success of creative activity.
5. Student's moral qualities that help creative activity to be successful.
6. Student's aesthetic qualities that contribute to the success of creative activity.
7. Communicative creative ability of the student.
8. Creative student's ability to self-manage in activities.
9. The ability of students that is manifested in the process of creative activity and helps to make it successful.

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