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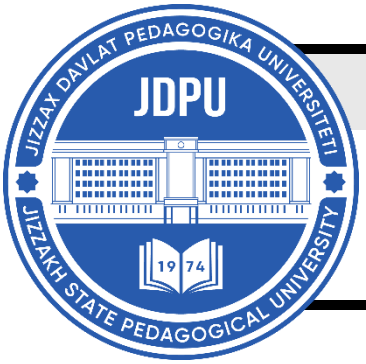
MENTAL ENLIGHTENMENT SCIENTIFIC – METHODOLOGICAL JOURNAL



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STEPS OF DEVELOPING CREATIVITY IN STUDENTS IN TECHNOLOGY LESSONS

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ABOUT ARTICLE

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Abstract: The formation (development) of one or another quality in a person is a process that takes place in certain stages. The development of creative qualities in students is a step-by-step process. At each stage, specific tasks are solved in Hola based on the goal. In essence, the process of developing students' creative qualities takes place in four stages. Baskichlars have adaptation (adaptive), developmental, practical-active, analytical-evaluative character. The article talks about the specific aspects of the stages of development of creative qualities in students.

INTRODUCTION

In the conditions of globalization, the socio-pedagogical requirement, which expresses the upbringing of an independent thinking, creative person, is being improved, enriched with new principles. In this case, the demand to bring up an independent thinking, creative person was met on the basis of pedagogic thoughts and achieving the enrichment of aesthetic feelings of the social subject in the early stages of the history of the development of schools. In the later periods of the history of human relations, personal activity was characterized by the achievement of its own original, subjective ideas. The formation of an innovative educational environment confirms that the development of individual intelligence is the basis of effective use of human capital.

After all, the effective use of human capital ensures the development of society. For this reason, the need to develop the individual's intelligence on a global scale and to form the ability to think critically, creatively, and creatively in it is becoming more and more urgent. World educational experience STEAM subjects that play an important role in the development of modern society -

science, technology, engineering, design, mathematics "STEM - forward" guarantees the rapid development of society in terms of social, economic and cultural aspects. At the conference entitled "STEM - in the future"; Jerusalem, 2014, it was recognized that it is appropriate to evaluate the level of mastery of students with the criteria of communication, cooperative (mutual cooperation), critical thinking, and creativity. In addition, starting from 2021, PISA (Program for International Student Assessment; Student assessment The fact that the International Program for the Evaluation of Educational Achievements) is enriched with the criteria of creativity shows that it is gaining actual importance.

MATERIALS AND METHODS

STEAM schools and centers such as "Development Point" (Russia), "Smart schools" (Belarus), "Children's Engineering Academy", "Five Sciences" (Ukraine) were established in the CIS countries, and about 70 of the capital schools in the Republic of Kazakhstan in 2016 Since 2017, the teaching of the subject "Robotics" has been introduced.Formation of creativity in students is a complex process, and it is required to implement this process step by step. Scientific research conducted within the research problem - Wallace Graham, Betty B. Rossman, Alex Osborne, Dwight H. Perkins, Don Koberg, James F. Bandrovsky, Scott G. Isaksen, Robert Fries, Sidney J. Parnes, based on their research It was concluded that the development of creativity qualities in students through familiarization with creative thinking models takes place on the basis of the following stages:

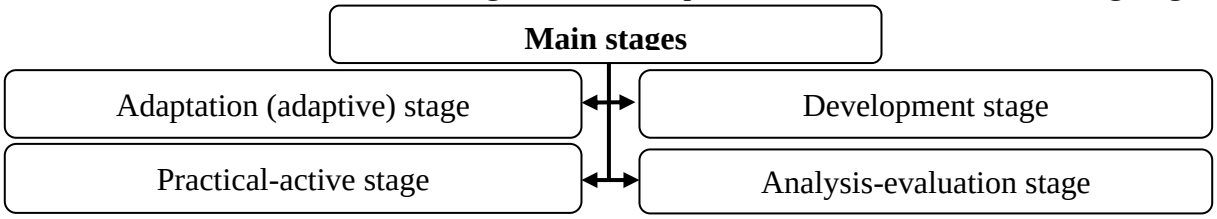


Figure 1. Creativity qualities in students

RESULTS AND DISCUSSIONS

1. Adaptation (adaptive) stage: formation of students' ability to thin Creatively with the help of special exercises. At this stage, the of the tasks becomes general, and the students are required to put forward original ideas in different fields. At the adaptation stage, the "Random associations" method [1], E.P. Torrens' "Unfinished pictures" test [2; 3] is used. They are used as follows:

1. Students are given freedom in using the "Random Associations" method; without limiting the scope of the topic, the opportunity to use a book or magazine of their choice is created, and the task is performed according to the "Random Associations" method.

2. Using E.P. Torrens' "Unfinished Pictures" test, students are given freedom to create images based on lines; students create images related to different fields for each line; the most important thing is that students are the wealth of the world of fantasy, and it is necessary to pay attention to the originality of the images.

II. Developmental stage: development of students' ability to think creatively with the help of special exercises. At this stage, the performance of the findings becomes private, and students are required to put forward original ideas in the fields of "Technology" science. The "Random Associations" method, E.P. Torrens' "Unfinished Pictures" test are also used in the development stage. They are used as follows:

1. When using the "Random Associations" method, students are restricted in terms of freedom; the scope of the topic is limited, and the task is performed by the method of "Random associations" using a textbook, study guide on the subject of "Technology" or scientific, popular and popular magazines and literature on the fields covered by the subject.

2. Students' freedom is limited in creating images based on lines using E.P. Torrens' "Unfinished Pictures" test; students create images related only to the fields covered by the science "Technology" for each line; the most important thing is that students are the wealth of the world of fantasy, and it is necessary to pay attention to the originality of the images.

III. Practical-active stage: development of students' creativity based on the assignment of educational tasks in the subject "Technology". At this stage, students will complete educational tasks in the field of "Technology".

IV. Analysis-evaluation stage: assessment of students' creativity. In this, the solutions of the educational tasks presented by the students are analyzed and evaluated. In evaluating students' solutions, work based on criteria such as those put forward by Joy Paul Gilford (speed, flexibility, originality), supplemented by T.I. Vinogradova (Gritsay) (acuity of mind, ownership of figurative meaning (metaphor), satisfaction). will be seen.

That is: 1) the learning activity of students when completing tasks is to quickly complete the task (speed); 2) quick adaptation to the next task after completing one task (flexibility); 3) promotion of many unique (original) ideas (originality); 4) understanding the essence of the task in a short period of time (mindfulness); 5) being able to interpret the solution in a figurative (symbolic) sense (metaphor); 6) the ability to enjoy (satisfaction) the result of work is taken into account.

In the development of creativity in students in "Technology" lessons, first of all, it is necessary to change the nature of the tasks given by the teacher, to develop a set of questions or tasks based on the instructions that motivate them and encourage them to think creatively. is important. During the research, attention was paid to the positive solution of this task. As a result, the following set of creative, innovative, creative questions and tasks was formed:

I. A set of tasks of a theoretical nature: 1. When bending metal, the main attention should be paid to the correct determination of dimensions, so that.... Continue the idea. 2. "Underwear (undershirts, t-shirts, corsets) serves to maintain a moderate human body temperature. Because they are worn directly on the body and stick to it. Comment on this idea.

Respondent-students expressed the following counter-opinion: "Not all underwear, for example, petticoats, nightgowns, baby clothes, underpants, pajamas, are tight-fitting. Therefore, they cannot fully maintain their body temperature."

3. The hardness of wood is determined by the level of resistance to the penetration of another solid object into it. The simplest way to determine the hardness of wood is to try to drive a nail into it.

Make three points about the idea. Their: let the first confirm the opinion; let the second complete the thought, and let the third negate the thought.

1. Confirmatory opinion: the hardness of wood is determined by dipping the tip, blade, edge of harder objects into it.

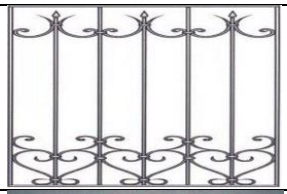
2. Complementary thought: ordinary nails are not driven into hard woods such as elm, oak, boxwood, pear, acacia, but soft woods such as willow, poplar, pine.

3. Negative thought: no matter how hard wood is, it is subject to dirt, moisture, water, harmful microorganisms, and wood-gnawing worms.

is harmed by

II. A set of tasks of a practical nature (the tasks provided information on the topics "Embroidery samples", "Metallicheskie reshetki", "Detskie odejdy"

The texture of wood is a cross-section directed along a radius or an attempted curve, and the natural pattern of wood fibers is clearly visible on the treated surface. The following indicators can be estimated through the texture of the wood: the width of the annual layers; that it is wood that has been treated long ago or recently by color (color); core rays; showed large roots. Finish the indicators determined by the texture of the wood.

1		Fill in the new details	
2		Enrich the product with a new color. Explain why you chose this color	
3.		Do you think this What is extra about the product?	

4.		Complete with a new ornament	
5.		Complete the process	
6.		Make changes to the composition	

Pupils mastered the skills of presenting creative ideas, substantiating them, distinguishing unique (original) ideas on the topics studied in the "Technology" classes.

CONCLUSION

So, in its essence, creativity represents creativity. Personal creativity not only increases the efficiency of the activity organized by him, but also ensures that it does not lose its relevance for many years and does not decrease in practical value. Enriching the content of the activity with new ideas, filling it with innovative components helps to make it interesting and enjoyable for the person who organizes it, as well as for the people around. A person who manages to establish his activity in this way can withstand the complex and strong competition in market conditions. Therefore, formation of creative qualities of students in general secondary schools, their consistent development will help them gain a place in the labor market, and also create a foundation for the development of the industry.

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