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# PSYCHOLOGICAL ANALYSIS OF CREATIVITY IN ADOLESCENTS

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***ABSTRACT--****This article proves that the factors influencing the creative characteristics of adolescents, the transfer of intellectual activity to new conditions, the compatibility of the general intellectual components of adolescence with the characteristics of creativity have their own dynamics. The priority of the cognitive approach is emphasized in the methodological solutions proposed by many authors as methods of developing creative thinking. The authors also provide a psychological analysis of effective ways to develop adolescent creativity. It has been proven that the creative expression of adolescents is related to its general intellectual dynamics. Among the components that directly affect the creativity of adolescents: cognitive, emotional, practical, internal loci of control, behavioral scales, differences in gender were studied, and the results of the study were psychologically analyzed. The research results were processed using statistical methods and scientific conclusions and recommendations were developed.*

***Keywords****--adolescence, creativity, cognitive, intellect, creative thinking, practical thinking, emotionality, inner locus of control, behavior, psychotraining.*

## I. INTRODUCTION

At present, a number of positive projects are being implemented by our state to create the most favorable conditions for intelligent, creative, inquisitive and independent-minded boys and girls. Special attention is also paid to the wide involvement of young people in research and innovation, the creation of the necessary conditions for talented, enterprising young people to demonstrate their intellectual potential and social adaptation. The work of the state to support gifted and talented young people [1] is a direct proof of this. Mentally developed, highly capable and talented young people are a huge force driving the scientific and technological progress of society. It also has the power to develop the creative abilities of young people, support their aspirations and bring them to the level of world standards in the values, spirituality, psyche and science, culture, arts and crafts. In this case, the creative features of the individual are of particular importance.

We know that in the science of world psychology, the problem of intellectual activity of creativity is given special attention. Therefore, a lot of research has been done in foreign psychology and in former Soviet psychology to study this problem. It is well known that the former Soviet psychologist D.B. Bogoyavlenskaya had identified 3 (three) levels of intellectual activity: reproductive; heuristic; creative.

We will try to reflect on creativity below, which is a high level of intellectual activity, as this is a little-studied but important aspect in the science of psychology. In general, the concept of creativity encompasses past, present, or future features of the process. As a result of this process, a person or a group of people creates, discovers, creates elements of innovation that did not exist before. H.E. Trick identifies four areas of creative learning and seeks to explain each of them [9,10]:

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• creativity as a result;

• as a creative ability;

• as a creative process;

• Creativity as a personality trait.

Well-known psychologists McFerson, K.Taylor, D.Taylor and others are among the proponents of the first approach. They define 3 (three) characteristics of the creative result: quantity, quality, importance.

Many researchers consider the result to be the only criterion of creativity, sometimes expressing disbelief as an antithesis to this idea, looking at it with suspicion. In particular, K. Taylor, H.E. Trick, and other scholars have shown that the many definitions of the creative outcome are only directly related to creativity in some respects. The rest are focused on describing the overall results of the work of the subjects being tested. Several stages, levels, and types of creative thinking are emphasized in the study of creativity as a process. Psychologist Graham Wallace began researching the stages of the creative process in 1926, as this research is descriptive in nature. The author emphasizes that there are 4 stages in the creative process [12, 21]:

• psychological preparation for the situation;

• maturity with all personal, cognitive, motivational aspects;

• Encouragement of the situation;

• Check the validity of the problem or situation.

Experimental research by researcher E. Patrick showed that for 55 poets and 50 artists, the 4 (four) stage creative process occurred in a unique way. As a result, Wallace's famous scheme undergoes only minor changes.

The study of the levels of the creative process is inextricably linked with the psychological direction. It is known that Z. Freud described the creative act as a result of sublimation of libido power. The research proposed by Mednik is the most common of the studies in which the distance learning (RAT) test is seen as a view (type) of creative thinking. Mednik sees the creative process as a re-creation of associative elements in the form of new combinations.

Representatives of the third direction interpret creativity as an ability. Simpson sees creativity as the ability to reject monotonous ways of thinking.

According to Dj.Gilford, ability is located within the general model of intellect, so he distinguishes 4 factors of creativity [13,14]:

• *Originality - the ability to show the results of unusual (unexpected) responses, compounds intended for interpretation;*

• *semantic* flexibility - *the ability to separate the function of the object and suggest a new use of it;*

• *expressive adaptive flexibility - the ability to change the shape of motivating factors to see new opportunities;*

• *semantic* self-*generating flexibility - the ability to generate different ideas in relatively limited situations.*

Dj.Gilford understands creative abilities as some approximate structures, as a result of which these structures manifest as intercorrelation between test forms. He describes these abilities as differences that do not exist among people. Torrens understands creativity as the ability to perceive imperfections at an extremely powerful level, to perceive gaps in knowledge, missing elements, disharmony, and so on. The creative act then involves perception, the search for a solution, the emergence and formation of a hypothesis about missing elements, the verification and

re-examination of these hypotheses, the possibility of modification, and, finally, the announcement of the results [14].

The results of the study of creativity showed that it consists in looking at it as a personality trait, in which the personality problem is adapted to the situation. Representatives of this trend, Goldstein, Rogers, and Maslow, tried to explain the creative process by linking it to “self-activation” (self-actualization). The experiments of Barron and Walsh show that in the creation of complex drawings and pictures, the positive features of the individual are inextricably linked with his creative abilities: speed of speech, independence and independence of judgment, breadth of interests and intelligence.

According to psychologists Kettel, Holland, McKennon, and Madley, it is never helpful to study the personal opinions and opinions of test takers when administering tests that measure creativity and serve as a criterion. Research at the University of California has shown that people who are creative enough don’t have to have significant intellectual superiority because their intellectual level is high enough on their own. The essence of the psychological characteristics of a creative person is that he is able to combine the cognitive skills of a person of mature, practical (with life experience) age with the honesty, imagination, surprise, surprise of the adolescent [11,19, 20].

As a way to develop creative thinking, the predominance of the cognitive approach is felt in the methodological solutions offered by many authors today. Many authors suggest methods of exercises and assignments designed to activate the cognitive processes (creative imagination, critical thinking, etc.) that form the basis of creativity as effective ways to develop creative thinking. For example, E.P. The methodology proposed by Torrens for the development of creative thinking gives a task that encourages thinking about what purposes different objects can be used in addition to their original function [2].

As a means of developing creative ability, a number of authors offer techniques designed to train creative imagination based on a variety of materials. In particular, in the exercises proposed in the practical manuals of E.P. Rogov, which are planned to be held in groups, for example, one of the participants asked a fantastic situational question (for example, “What would happen on Earth if people could read each other's minds? ?), The rest of the group can be given the task of forming their own as diverse answers as possible [3].

One of the leading scientists in the study of the problems of creative psychology, Ya.A. Ponomarev, who has created his own scientific school, also has his own approach to identifying methodological opportunities for the development of creative thinking. In particular, the scientist's research notes the use of both diagnostic and developmental exercises to identify movements aimed at getting a pedestrian placed in another cell without violating the rules of the game with a horse placed in different parts of a nine-cell (3x3) chessboard [5].

B. Kleg developed a unique intensive course for the development of creative thinking, based on how associative events (e.g., "ice cream with nails", "teapot with a hat", "cook in an aquarium", "basement on the roof") evoke associative connections that do not occur in the unit shown under normal conditions. ”To what units are associated with) [6].

The world-renowned expert in the field of development of creative thinking, the development of methodological bases for the study of non-standard thinking E. As an effective method, de Bono suggests a method of “provocative idea” - a way to continue to develop, avoiding the evaluation of a seemingly absurd, illogical idea (for example, “car wheels should be rectangular” )2. According to the author, when “provocative” ideas are

allowed to be evaluated, the thinker immediately rejects them because they do not correspond to the existing patterns in practice.

And for the development of creative thinking, it is clear how much such ideas fit into the boundaries of personal experience

## II. METHODS.

The results of the study of adolescent creativity showed that it consists of looking at it as a personality trait, a systematic understanding of the large volume of research on this problem makes it possible to 1) understand the role of cognitive factors in the development of adolescent creativity; 2) It allows to distinguish the basic directions of study in connection with the separation of the advantages of the features of the cognitive, emotional or behavioral components in the manifestation of adolescent creativity.

Taking into account the above, we chose the following methods: interview, observation, test methods, including the following methods, which are subtests of Wexler's and Amthauer's methods: "Important sign separation" method, "Quantitative relations" method, "Intellectual lability" method, "Complex" analogy ”methodology.

To study the determinants of adolescent creativity: Questionnaire "Behavior Management Rhythm" (V. I. Morosanova), self-efficacy scale (R. Schwarzer, M. Jerusalem), test questionnaire to study the level of subjective control (E. F. Bajin, E. A. Golynkina, A. M. Etkind).

Research Analysis: As can be seen from the brief analysis above, most of the methodological tools designed to develop creative thinking consist of tasks that require a creative approach from the person. Here we are witnessing an analogous situation to the approach in exercises and training that serves to develop different cognitive processes or communicative skills. It is known that in most of this category of practical training, the tasks and assignments will be in a context that activates the relevant process. For example, the recommendation to use the correctional test method for correctional-developmental purposes is based on the fact that the task force is forced to focus on a specific area, limited by the distracting effects of the environment, in order to identify a shape that is not clearly distinguishable on a flat background. Similarly, the methods used to develop memory include psychological techniques aimed at activating various mnemonic processes, artificial expression of a sense of resilience in external behavior, or changing the cognitive position in relation to the emotiogenic factor.

Of course, the described methodological approach is based on scientific insights into the nature of the relevant mental process, state and feature, the nature of manifestation and development. However, in our view, when it comes to developing creative thinking, creativity, limiting oneself to the approach described above cannot be a sufficient guarantee of highly effective practical work, as in the case of cognitive processes. The main reason for this, in our opinion, is that creative thinking has a very deep and complex relationship with personality traits in relation to other cognitive processes. Indeed, the results of the study of a creator of high creative ability, both on the basis of biographical sources and on the basis of direct empirical examination, repeatedly confirm that they are distinguished not only by intellectual qualities but also by unique individuality in personality. This fact is reflected in the content of the development of creative thinking in the scientific views, which are the basis of the programs of a number of authors. For example, B. Clegg's intensive course on the development of creative thinking is based on the author's assumption that the achievement of the creative level should be based on five factors - the positive

impact of the cultural environment, effective use of special techniques, personal development, mental energy and a high sense of humor. The effectiveness of practical work aimed at the development of creativity depends not only on the effectiveness of methodological tools, but also on the extent to which the relevant personality traits are contained in the person who is the object of formative influence.

In the described case, in our opinion, in order to increase the guaranteed effectiveness of work aimed at the development of creative thinking at the expense of active external pedagogical and psychological influence, it is necessary to encourage such changes in the individual. Even according to the methodology of the humanistic approach, which occupies a central place among the areas of modern psychological care practice, it is impossible to develop a person's creative ability without creating certain changes in his personal structure. There is no way to teach creativity as if it were a skill, to be creative requires a person to change qualitatively and in a holistic way. Therefore, humanistic technologies for the development of creativity are inherently indistinguishable from technologies for the formation of a person who is able to fully realize their potential [2].

Almost all researchers in the field of creative abilities and creative psychology note that creative individuals are usually highly emotional, and some great artists are overwhelmed or even lose consciousness in the process of learning about different works of art [1]. After all, in all kinds of creative activity and its products can be found elements of unique aesthetics, elegance of form, compositional order, structure.

Studies have shown that creativity is often closely related to traits such as self-confidence, ability to feel beauty in the broadest sense, curiosity, and a tendency to perceive the world as a teenager, even though it achieves high levels of maturity as a person [2].

Analysis of the research shows that the complex interaction of cognitive, emotional and behavioral components and socio-psychological factors of adolescent creativity is not sufficiently studied.

The above analytical considerations and the scientific evidence on which they are based are the basis for the hypothesis that it is possible to increase a person's level of aspiration for creative activity by increasing the tendency to feel intellectual emotions. However, of course, based on the results of empirical studies conducted to test this hypothesis, it will be possible to draw a final conclusion about the level of practical effectiveness of the proposed approach.

Part of the experiment. The experimental phase of our study is aimed at ensuring that the creativity of adolescents is directly related to its mental development, and the interpretation of the results after the implementation of workshops aimed at the use of psychotrainings that develop creativity.

This phase of our study is considered to be a formative experimental phase, in which empirical data from the application of psychodiagnostic techniques on control and experimental (creative adolescents) groups, separated at the beginning of our experiment, are discussed. In the formative phase, the experimental group subjects are trained through a program that develops creativity through psychotrainings and the control group through a traditionally trained program. The special program defines the organization of training in accordance with the methods of psychotraining, tasks and tasks that develop creativity.

After the formative phase of the study and the traditional learning process of the control group, the methodologies on the criteria for assessing the mental development of adolescents were re-introduced. Quantitative indicators from their implementation are given in Table 1 and the analysis is performed below.

In the formative experiment phase as well, in the interpretation of the indicators, the results of the experimental and control groups were analyzed by general comparative, group specific cases, age stages and detection and formative experimental stages by indicators.

**Table 1:** Formative experimental results of experimental and control group adolescents

| Criteria | Groups | **x** | **δ** | **t** |
|---|---|---|---|---|
| Separation of important characters | Experiments | 6,93 | 0,91 | 2,82* |
| | Control | 4,89 | 1,19 | |
| Logical thinking | Experiments | 7,03 | 1,11 | 2,79* |
| | Control | 5,92 | 1,23 | |
| The lability of the intellect | Experiments | 4,93 | 1,74 | -5,95** |
| | Control | 7,55 | 2,13 | |
| A complex analogy | Experiments | 6,85 | 1,04 | 2,61* |
| | Control | 5,21 | 1,50 | |
| Spatial cross-sections | Experiments | 6,12 | 1,01 | 2,11 |
| | Control | 5,26 | 1,54 | |
| | Control | 91,0 | 12,3 | |

**Description:** ** $p \leq 0.01$; * $p \leq 0.05$

A number of positive and different changes were observed in the results of the experiment and control groups compared to the detection phase. Adolescents' “distinguishing important features” (6.93 and 4.89; t=282; $p \leq 0.05$); “Logical thinking” (7.03 and 5.92; t=2.79; $p \leq 0.05$); “Lability of intellect” (4.93 and 7.55; t=-5.95; $p \leq 0.01$); The reliability of differences on the criteria of "complex analogy" (6.85 and 5.21; t=2.61; $p \leq 0.05$) was observed. It appears that special psychotrainings can have an impact on providing adolescents with creativity and mental maturity. But it also explains that it alone is not enough to ensure full mental development.

Now, based on the results we have collected above, we have also studied gender components of adolescents from the creative components: cognitive, emotional, practical, internal loci of control, behavioral scales.

A search for gender differences on the cognitive scale, which is a key component of adolescent creativity, showed that although the overall cognitive scale was higher in adolescent boys than in adolescent girls, these differences were still relative (Table 2). High values on the emotional scale showed that girls were satisfied with their creative activities and were more sensitive to cognitive problems.

**Table 2:** Differences by sex in the manifestation of the components of the creativity of adolescents, N = 150

| **№** | Scales | **Average result** | | |
|---|---|---|---|---|

| | | **Adolescents N = 72** | **Girls N = 78** | **Mann Whitney Mezoni** | **Significance level (p)** |
|---|---|---|---|---|---|
| **1** | Cognitive scale | 130,49 | 126,35 | 7219,0 | 0,05* |
| **2** | Emotional scale | 108,36 | 139,58 | 5704,0 | 0,001* |
| **3** | Practical scale | 121,48 | 132,19 | 6820,0 | 0,200 |
| **4** | The internal locus of control | 130,60 | 151,14 | 8230,0 | 0,05* |
| **5** | Behavioral scale | 133,25 | 123,12 | 7001,0 | 0,337 |

**Note: Statistically significant differences were noted with ***

There are almost no differences between the components of adolescent behavior. Differences on the practical scale are also less pronounced. Also, on the practical scale of creative activity, differences between boys and girls were less pronounced. This makes them feel the need to develop and realize the practical aspects of creative intellect. However, the components of adolescent creativity are valuable indicators - cognitive scale (N = 150, X = 130.49 and X = 126.35 p <0.05) and indicators on the emotional scale (X = 108.49 and X = 139.58 p <). 0.001), the internal locus of the control (X = 130.60 and X = 151.14, p <0.05), identified reliable differences in the indicators (Table 2). These data suggest that adolescent girls are more likely to display creative traits, but have difficulty putting their creative ideas into practice and managing themselves.

According to the analysis of age-related differences in the results of socio-psychological indicators of adolescent creativity, in adolescents and adolescents, firstly, the general manifestation of creativity is more pronounced in adolescence than in adolescence, and secondly, more creative work in adolescents and girls, adolescents and girls. were found to deal with. Adolescents have demonstrated creativity, adherence to educational rules and avoidance of risk, and the importance of social support for them. The fact that the data obtained contradict the characteristics of adolescence can be explained by the tendency of adolescents to give socially acceptable responses.

The factor analysis conducted showed that participants with a high level of creativity in adolescents were more likely to be self-efficacy and constructive. However, no significant differences were identified in the socio-psychological descriptions of the factor structure of adolescents and adolescents due to their age characteristics.

Socio-cognitive motivational-managerial characteristics affect the degree of formation of creative traits during adolescence and adolescence. Adolescents with high levels of self-efficacy and self-management are characterized by a positive emotional response to creativity and creative thinking, a desire to expand their knowledge of relevant cognitive problems. At the same time, adolescents and adolescents with high levels of self-efficacy and self-management are more likely to engage in creative work than adolescents and adolescents with low levels of self-control on these characteristics.

## III. CONCLUSIONS

Thus, the problem of creativity has been widely studied in foreign (Western Europe, USA) psychology, which has been studied on the basis of different theories, concepts, approaches, positions, directions. At the same time,

the criteria for measuring creativity, development indicators, specific features, the creation of the test and its use in the examination of mental development of people of different ages are built on different scientific and theoretical foundations. Therefore, when analyzing them, we tried to divide them into several directions and apply to generalizations aimed at easier understanding, comprehension of the essence of interpretation, the need for a specific feature, form, degree, consistency, coherence of ideas with logical consistency, mutual causal links.

1. Results of socio-psychological indicators of adolescent creativity features According to the analysis of age and gender differences of study participants, first, it was proved that the general manifestation of creativity is more pronounced during adolescence and adolescents show creativity depending on gender and age.

2. Adolescent girls are more creative than adolescent boys, but have difficulty putting their creative ideas into practice and managing themselves.

## IV. RECOMMENDATIONS

From the age of 15-16, a teenager begins to try to think logically. Adolescents begin to learn comprehensive analysis at this age, just as adults do. The faster a teenager's thinking can rise to a theoretical level, the more quickly and deeply he or she will master the learning materials and develop his or her intellect as well. Adolescence is characterized by a high level of intellectual activity. This activity is mainly characterized by extreme curiosity and the need to demonstrate their abilities to others, as well as the need to get high marks from them. Many of the questions a teenager asks adults are meaningful, thoughtful, and on the same topic. Adolescents of this age are able to formulate various hypotheses, make conjectural assumptions, conduct research, and compare alternatives on a particular issue.

In our opinion, there are the following ways to increase creativity in adolescents:

1. Fine arts. As a result of the involvement of adolescents in this activity, the processes of imagination and imaination develop in it. This development, in turn, stimulates the thinking of adolescents. This coordination of imaginative and imaginative cognitive processes gives rise to the exploratory feature of creative ability.

2. Music. Visual perception plays a leading role in humans. Ninety percent of the information we receive is visual. However, the music cannot be seen. It is heard and felt. So, we can assume that playing music leads to the revival of "sleepy" features in the psyche of adolescents.

3. Design games and puzzles. This activity contributes to the formation of cognitive ability in adolescents and the manifestation of the first buds of creative ability in practice. Ensuring that teenagers successfully engage in games and puzzles and achieve effective results through them goes hand in hand with mental activity (mental labor) and willpower. Therefore, it is advisable to give the puzzles presented to teenagers an emotional tone.

4. Establishment of a pedagogical-psychological mechanism for the identification and upbringing of creative adolescents in general secondary schools and DIU schools;

5. Development of content for the development of creative abilities of adolescents (curriculum, targeted program);

6. Development of a mechanism for the creation and implementation of complex diagnostic programs of psychological, scientific and professional potential for creative adolescents.

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