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Theoretical Aspects of Development of Intellectual and Creative Potential of Prospective Teachers

Roza Karpykovna Bekmagambetova,
Tattygul Bekbaltinovna Kenzhebayeva and Beibitgul Zhakarimkyzy Turganbayeva

Kazakh National University named after Abai, Dzhambula street 25, Almaty, Kazakhstan

Abstract: In this article, the author considers the general aspects of the intellectual and creative potential of a personality. The article contains the main concepts of scientists on the problem of intellectual and creative abilities, individual creative potential, as well as the results of an empirical study of the relationship between intellectual and creative abilities of prospective teachers. The study of intelligence, intellectual abilities and intellectual development in psychology are the problems studying for the long-time. The significance of these problems is determined, first of all, by the role they play in the resolution of the numerous social and individual psychological problems of personality. Creativity as a process of creating a new ones occupies a significant place in the public consciousness, due to the need for new concepts that applied to all spheres of human activity. Author assumes that present students are forced to focus on the long term prospects, which is currently insufficiently oriented into the practice and tactically realizable (step by step). This socio-psychological situation is one of the reasons of social infantilism of young people, which prevents the proper disclosure of intellectual creative potential of the person and his social activity. Therefore, there is a need for active development of scientific studies in the field of development of intellectual and creative potential of people and first of all, students. The higher education environment should provide the socio-psychological conditions organized on a scientific basis.

Key words: Intelligence · Creative work · Creativeness · Creativity · Creative thinking · Features of a creative personality

INTRODUCTION

M.A. Kholodnaya has assumed that "the intellect is a system of mental mechanisms, which determine the possibility of building of subjective picture of subsistence "inside" of the individual". Thus, M.A. Kholodnaya considers the intellect as a method of organization of mental experience of a personality. From the point of view of psychology, the purpose of intelligence is creating the order out of chaos based on match of the needs of the individual and the requirements of objective reality [1].

V.N. Druzhinin assumes that the organization of mental experiences, or, a level which can be reached by this organization, is defined by the general ability of the individual to the mental activity or the general level of intelligence, i.e. a property of certain psychic system, different from the mental experience [2].

Intellect determines the success of activity which is performed by a person. The rationality of human behavior and its relationship with others, social value and status of the personality depend on intellect. Intellect is a basic quality of cognitive and the integral development of individuals. The intellect directly related with purpose and orientation, values and self-perception of the personality. Intellect forms the personality and plays an important role in the structure of individuality.

Creativity, according to V.N. Druzhinin, is the creation of new, transformation of behavior and consciousness of the person and the products created by a man. According to this concept, both created the material objects and all types of personal growth can be considered as creative. In case, when the creative work is considered as a specific process, which results in the creation of new and creativity should be considered as a potential and internal resource of a person [2].

Corresponding Author: Kenzhebayeva, Kazakh National University named after Abai, Dzhambula street 25, Almaty, Kazakhstan.

The problem of creative potential of a person (creativity) causes a great number of scientific disputes and different opinions. The Big Psychological Dictionary defines a creativity as "creative potential of a man, which may appear in the *thoughts, feelings, communication*, certain types of *activities*, characterize the *personality* in general and/or its individual features, the products of activity and the process of their creation" [3]. According to F. Williams, the creativity is the ability to generate unconventional ideas, avoid conventional type of thinking and the ability to fast problem solving [4].

According to K.A. Torshina, more than 60 definitions of creativity existed 40 years ago and in present, it is impossible to calculate all these. Differences in the definition of the essence and structure of creativity are a projection of the unresolved problems of the nature of creativity [5].

International theoretical psychology collected a great knowledge explaining the nature of creativity.

Various aspects of creativity became the study object for scientists, primarily due to a general interest to individual differences. The followers of this approach believe that people are psychologically different in particular features or characteristics inherent to individuals [6].

During long time, the creativity was considered only as a mental factor and was studied using the tests of intellect or the method of "problem tests" [7].

V.N. Druzhinin has called a theory according to which a high level of the intellectual development means a high level of creative abilities and vice versa, as "reduction of creativity to the intellect" [8]. Majority of researchers of intellect such as D. Wechsler, R. Weisberg, G. Eysenck, L. Terman, R. Sternberg and others accept this point of view.

According to G. Eysenck, the creativity is a component of the general mental endowments. R. Sternberg has assumed that intellect is involved into the solving of new tasks and automation of actions. In relation to the external world, the intellectual behavior is reflected in the adaptation to the environment, choose of its type or transformation. In the case when a man implements the third type of behavior in relations with the external environment, he shows a creative behavior [9].

Creative thinking has two main features. First, it autonomous, i.e. it is not managed by fixed power or external agent. It is entirely self-oriented. Secondly, the creative thinking is aimed at creating a new form i.e. the person with creative thinking has hardly though about the form before began working on it. Wallis H. suggested the creative thinking as a 4-step process with specific phases of preparation, incubation, brightening and verification or processing of experience. The preparation phase involves the conscious consideration of the objectives and logical approach using the standard tools. In the phase of incubation, the thinking together with the subconscious processes the considered problem. In the phase of brightening, the new synthesis occurs. Phases of verification and processing include everything that occurs after the moment of creation [10].

Requirements of society and intuitive understanding that creativity is not limited by the abilities and knowledge resulted in the emergence of a new concept, according to which, an understanding of the nature of creative abilities has shifted from equating to the intellect to their opposition (according to J. Guilford, E.P. Torrance, Ya.A. Ponomarev, etc.).

J. Guilford allocated 16 hypothetical intellectual abilities, which characterize creativity. These factors were combined in the concept of "divergent thinking" reflecting the cognitive side of creativity. Divergent thinking in the contrast to convergent thinking, which uses the well-known methods leading to a unique solution, allows the changing of the methods of solution and unexpected results. In cases when the problem is unclear and there are no well-known search algorithms, this type of thinking is most effective. According to this approach, the creative abilities exist in parallel to the general and special and have their own localization (the factors of divergent thinking). This is reflected in the study of J. Guilford who allocated the creativity coefficient (Cc), which is different from intelligence quotient (IQ) [11].

Torrens E.P. suggests that creativity is "the emergence of sensitivity to the problems, shortcomings, gaps in knowledge, missing elements, disharmony, etc." [12].

According to the theory of Ya.A. Ponomarev, creativity is based on the intellectual activity and higher sensitivity to the side products of activity. Two personal characteristics are related with creativity: the intensity of the search motivation and sensitivity to the side formations, which arise during mental process [13].

Some of the researchers reduce the problem of human abilities to the problem of the creative personality. According to them, there are no special creative abilities, but a person, that has certain features and motivation. The intellectual endowment is a necessary but insufficient condition for the creative abilities of the personality.

Motivation, values and personal characteristics play the leading role in the creative behavior (D.B. Bogoyavlenskaya, V.D. Shadrikov, A. Maslow, ets.).

A. Maslow considered the creativity as a special method of interact with reality. The main feature of this interaction is spontaneity, independence from the conventions and restrictions of culture, which is peculiar to children. As a result, the idea of development of creativity through release from the "fetters of culture" such as stereotypes, attitudes, general opinions disturbing to see the real state of affairs has emerged [14].

The main tendency of modern studies of the problems of creativity is the combination of cognitive and personal aspects of the psychology of creativity. A.V. Morozov postulates a systemic interpretation of creativity as a value-personal and multi-level education. Creativity is a condition for creative self-development, a reserve its self-actualization; it is expressed in receptivity to problems, openness to the new and inclination to change or destroy the stereotypes for creation a new one [15].

There are numerous of approaches to the study of the special features of creative people. A. Rowe distinguishes such personality features as the imagination, insight or intuition, openness and receptivity, a willingness to take risks and high tolerance to all unclear and ambiguous. He assumes that all these characteristics are the key to successful development of creativity [16].

Some researchers consider the creative potential as the only dimension of personality. Nevertheless, the majority of researchers recognize that there are many potential conditions for the development of creativity.

Recently, cognitive and multivariate approaches to the study of creativity are actively developing worldwide.

M. Boden as a representative of the cognitive approach makes an attempt to extend the term of creativity by artificial intellect, referring to the creation of artificial systems of processing of the information which capable to creativity. According to M. Boden, the computational ideas in particular can help us understand how the creative potential of personality is formed. Giving characteristic of creative ideas, the researcher notes that these are unpredictable. He noted "... the creativity includes the ability to synthesis. The creative synthesis can result in invention of a device, development of a theory, understanding of the problem leading to its solution and creation of meaningful artwork" [17].

The followers of the multivariate approach study the creativity from the position of a combination of cognitive (intelligence, knowledge), conative (cognitive style, personal features, motivation), emotional and environmental factors. Creativity, in their opinion, is the ability to create a new product appropriate to its purpose. T. Amabile distinguishes the three components that form the basis of creativity: motivation, ability in a particular area and the processes associated with creative work [10].

The concept of "non-typical thinking" of E. de Bono, the British exert in the field of creative thinking is also wide spread along with existing approaches. This concept includes a systematic approach to the creative thinking using the formal methods based, according to E. de Bono, on patterns of human perception as a self-organizing system and deprived of any mystery. The main feature of these systems is their ability to form and use the templates-the stable models of the method of perception and reactions. Carrying out the analysis of the actual and possible behavior of self-organizing systems, E. de Bono provides an idea about the nature of creativity. It provides us with understanding of the principles of non-standard thinking and motivates the person in this direction [18, 19].

In the Kazakh Research Institute of Psychology, the problems of development of intellectual and creative potential of a man and first of all students has been developing at the supervision of academician S.Zh. Praliev.

Interesting results on the problem of creative abilities have been received by D.T. Ikhsanova conducted the longitudinal study in 2007-2011 of the regulatory mechanisms of creativity through the values of different groups of people. She compared the dynamics of the regulatory functions of the creative activity and reflection of persons who found a job after school and those who entered the higher education institutions. It appeared that the level of reflection is lower in working people characterized by different forms of reflection, time parameters, goal setting and the content of motivation. The aspiration to solve the problems by reflection was noted more often as well as diverse characterizing by diverse life goals [20].

Thus, we can conclude that the students and scholars have the highest creative potential.

Another question in the context of the considered problem is the quality of intellectual and creative activities. Sadykova A.B., the undergraduate student at the Kazakh Research Institute of Psychology has studied the psychological and pedagogical topics of the inner world of the people with different cognitive styles and experimentally proved that the creative and intellectual activities are characterized by the individual features.

These features significantly optimize the educational process and what is the most important reveal the creative potential of each student, taking into account the originality of the personality. She has systematized the quality of intellectual-creative characteristics of the students and their manifestations in the individual image of the world.

An empirical analysis of the relationship between the intellectual and creative individual characteristics of prospective teachers was carried out in the Kazakh National Pedagogical University in autumn of 2012.

We used the following diagnostic methods.

The Cattel's 16-factor personality questionnaire was used for the diagnosis of intellectual qualities of personality-intelligent module; factors: B-developed/limited thinking; M-developed imagination/practicality; and Q1-radicalism/conservatism.

To estimate the creative personality traits, we have used the diagnostics of personal creativity of E.E. Tunik, allowing determination of the four features of the creative personality: inquisitiveness (I); imagination (Im); the complexity (C) and risk appetite (R).

The main features of the investigated factors on the methodology according to E.E. Tunik are:

-inquisitiveness. A man with expressed inquisitiveness asks everyone about everything, investigates the structure of things, always looking for new ways (types) of thinking, exploring the new things, ideas, etc. to learn as much as possible;

-the imagination. A man with developed imagination contrive the stories about places which had never visited; dreaming about various places and things; thinks about the phenomena, which had never encountered; sees the depicted sense in the paintings and drawings by different way; astonishes the various ideas and events.

-complexity. A man is focused on the complex phenomena and events, interested in complex ideas; pose the complex tasks; independently studies the things; persistent in achieving the goal; looking for complex solutions of the problems more than necessary; finds of the complex tasks.

-risk appetite. A man defends own ideas, despite of someone's reaction; pursuing the ambitious goals and tries to implement them; allows the mistakes and failures; not amenable to people's opinion; prefers to risk.

The relationship between the intellectual and creative characteristics of the personality of prospective teachers was determined by correlation analysis between the results of the diagnostic of creative features of personality and the results of intellectual module of Cattel's personal questionnaire.

The obtained results of statistical data delivery show that there is a direct relationship between personal factors of intelligent module and the characteristics of the creative personality (inquisitiveness, imagination, complexity and risk appetite). There are close relationships found between the factor B (developed/limited thinking) and inquisitiveness (I); between a factor Q1 (radicalism/conservatism), complexity (C) and risk appetite (R).

We can distinguish four general theoretical approaches to determination of the nature of the creative abilities and their structure:

- the level of development of creative abilities depends on the level of the intellectual development;
- creative abilities insufficiently depend on intellect and are determined by the independent factors such as the sensitivity to the side product of activities (Ya.A. Ponomarev), divergent thinking (J. Guilford), sand sensitivity to the problem (E.P. Torrance);
- the level of creative abilities is determined, first of all by personal characteristics;
- the creative abilities are integrative characteristics of the personality stipulated by interaction of cognitive-intellectual and motivational-personal factors.

We believe that the concept of the creative personality can be precisely revealed if consider the personality in the context of an integrated approach to the development of its various components, their relationships, the characteristics of criteria taking into account the integrative and systematic approach to the human mentality (L.S. Vygotsky, B.G. Ananiev, K.A. Abulhanova-Slavskaya, Zh.I. Namazbaeva etc.).

A creative person is a type of personality characterized by a stable and high level of focusing on creativity, motivational and creative activity appearing in an organic unity with high level of creative abilities and allowing the personality achieve progressive socially and personally significant creative results in one or more activities.

CONCLUSIONS

The study revealed the relationship between personal factors of intellectual module and the characteristics of the creative personality (inquisitiveness, imagination, complexity and risk appetite). We found the sufficient relationship between the factor B (developed/limited thinking) and inquisitiveness (I); between a factor Q1 radicalism/conservatism), complexity (C) and risk appetite (R).

Thus, the development of intellectual potential of a personality through the development of personal features B (intelligence, ability to analyze the situation and ability to meaningful conclusions) and Q1 (aspiration to revise the existing principles and the inclination to experimentation and innovation) will entail the development of creative potential of prospective teachers.

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