

## Formation of Creative Thinking of Teachers in Educational Environment of Higher Education Institute

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**Abstract:** Modern trends in society call for bringing the level of preparation of institute graduates with compliance of knowledge economy requirements which mean that future teacher must not only possess necessary set of expertise but be able to generate such knowledge in future, orientate himself in difficult pedagogical situations. In the article necessity to form creative thinking is proved, different approaches to the problem of creative thinking, its formation in educational environment are shown. The results of investigation of creative thinking of future teachers are given, pedagogical technologies used for formation of creative thinking cultivation are described.

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### 1. Introduction

Traditional system of education is aimed for obtaining knowledge in ready form, not for generation and active practical use of it. New situation in society and in education system demands training of a new type of teacher who is able to effectively work in constantly changing conditions. Not only high level of knowledge and skills is necessary but ability to solve different psychological-pedagogical situations in non-traditional way, organize activity in creative way.

Mastering of creativity as a kind and component of modern pedagogical activity allows to simulate different changes in organization, structure and contents of educational process, to implement personality-oriented approach to students based on assessment of their potential opportunities.

By this reason which was proved by practice the formation of creativity and development of creative individuality of a teacher go hand in hand with increase in his professionalism and competence. Social significance of creativity formation during period of training of the future teacher is determined by the fact that it is the base for professional creative work, it aids to develop creative potential of a specialist and to realize his self-actualization in social sphere.

By now creativity is a kind of adaptation (adjustment) mechanism of the specialist's personality to current social changes. Dynamic development of Kazakhstan in economic and political spheres led to significant changes in spiritual life of people. In order to correspond better to modern activity on internal level a teacher must not only adjust himself to new situations but be able to change them in the same time developing oneself as well. That is why studies devoted to analysis of creative

activity of a person, mechanism of creative thinking evoke special interest.

So, high level of creative thinking is a key characteristic of a future teacher's personality which determines his readiness to find out and analyze actual problems of pedagogic activity, find ways and means to solve them in creative manner.

Problem of creative thinking development and organization of the process of formation of creative personality was considered in many psychology-pedagogical works. But the nature of creative activity in general has not been clarified in full by present moment in spite of the fact that such analysis is of utter importance. Creativity in thinking is understood by psychologists as ability to refuse from stereo-type ways of thinking, to identify new ways of task solutions or new ways of ideas expression. [1]

Analysis of different psychological and pedagogical sources allows to conclude that creativity is a integral stable characteristic of personality which determines its ability to create, acceptance of the new, distinct (unique) creative thinking, generation of a big number of original and useful ideas. Creativity in professional pedagogical activity first of all manifests itself in quickness, flexibility, preciseness, originality of thinking over problem situation, developed imagination, ability to consider task in detail. [2]

In psychology creative thinking is viewed as the highest level of intellectual activity. In study of a creative work psychology special attention is paid to the Ya. Ponomarev's concept about structur-level mechanism of creative work [3]. In accordance with Ponomarev's investigations main link of creative thinking mechanism includes the following phases of intellectual activity:

- logical analysis of the problem, resulting in refusal from logical methods;
- intuitive decision;
- verbalization of intuitive decision;
- formalization of new knowledge.

Big interest in terms of organization of creative thinking is evoked by component theory of creative work, developed by American psychologist R. Sternberg. In his opinion implementation of creative process is only possible when a person possesses 3 intellectual abilities:

- synthetic ability to view problem in new way and avoid common way of thinking;
- analytical abilities to evaluate future “price” of the idea;
- practical and contextual ability to persuade the others about the value of the idea, in other words ability of “implement” idea into other people.

Analytical ability which is used when too others are absent is followed by highly developed critical but not creative mind. Synthetic ability when too others are absent leads to appearance of new ideas not verified by detailed testing, firstly, to evaluate their potential, secondly, to realize them in practice in future. Practical and contextual ability at absence of too others will possibly lead to implementation of some ideas, however, not in accordance with their real value but thanks to ability to persuade anybody into anything [4].

Also it is necessary to pay attention to one of the main conditions of creative thinking - availability of appropriate environment which matters not only for the process of professional pedagogic activity but first of all for professional formation of a teacher because the environment organized in a special way allows to fix internal mechanisms for creative thinking.

Need for creative staff and social order to education system for formation of creative thinking of a future teacher evoke special attention of scientists to study of personality characteristics which provide this process.

For example, in E. Adakin's study the analysis of “creative potential of personality” is made: it is understood as integral “feature of a personality which determines realization of its creative potential and thinking in existing educational practice aimed for obtaining quite new, socially significant, self-elaborated skills, abilities to act and use the result of their realization in some sphere of professional activity” [5].

Conclusions formulated by I. Pufal-Struzik about the essence of creative thinking which in her opinion is the need to create as a wish to solve

difficult, sometimes unsolved tasks are of utter importance; this main need is added by secondary motives: motives to learn and to assert oneself. Creativity as leading trend stipulates specific behaviour pattern, enables the person to realize his creative ideas and chosen way of life by all means in which main value is value of creative work and novations [6].

While considering methodological approaches to formation of creative thinking special attention must be paid to conclusions formulated by N. Vishnyakova [7] that development of creative thinking which results in formation of creative maturity of personality takes place in the process of its self-actualization, and with high level of self-actualization creative thinking is more steady, productive and long-lasting. That is why one of the key tasks of modern education system is to facilitate development of creative thinking, create conditions for maximal and successful self-actualization. Initiativity as one of the key aspects of creative thinking suggests ability of a person to set the tasks independently from others, perform depth analysis on the base of only one single task solution without external incentives. Significance of initiativity in formation of creative thinking was investigated by D. Bogoyavlenskaya who introduced the idea of “creative activity of personality”, determined by special creative psychological structure attributed to personality of creative type. Creative thinking in this case is a situationally-non-stimulated intellectual activity which is manifested in inclination to go beyond limits of a specific problem [8].

While forming creative thinking of future teachers 3 levels of intellectual activity must be emphasized (in accordance with Bogoyavlenskaya's classification) - incentive-productive (reproductive, passive), heuristic and creative. The 1st level is characteristic of those persons who act under influence of some external factor. Heuristic level is characterized by manifestation of intellectual activity which is stimulated neither by external factors nor by subjective dissatisfaction with the results of activity. Persons referred to the 3rd (creative) level are characterized by own task-setting, depth analysis of the problem even if there is only one problem.

Pedagogical activity determines significance of one of the key manifestations of creative thinking - communicative creativity which is understood as ability to create in the process of inter-personal communication in the course of solution of cognitive-behavioural problems which results in either brand new solution or updated solution of some communicative task [9].

Indicators of communicative creativity, in the same way as indicators of intellectual activity, are

3 cognitive and behavioural characteristics: easiness, flexibility and originality. Easiness must be understood as ability to create different variants of response and behaviour while solving tasks of interpersonal interaction. Flexibility must be understood as ability to change depending on situation the style of response and use different techniques and strategies of communication, originality is ability to use new and unusual forms of communication, to adopt non-standard solution in communicative situations.

Analysis of different approaches to identification of creative thinking allows to argue that creative thinking is connected with the level of intellect but is not equal to it. Creative thinking must be regarded as general feature of personality formed in the process of upbringing and as special stage of intellectual development achieved in the course of targeted activity in specially organized educational environment [10].

Creative thinking as a process is complex, multi-level, system phenomenon centered around creativity as universal ability to perform professional creative activity. Characteristic feature of creative thinking is appropriate level of intellectual activity determined by personality's abilities and possession of creative methods. Result of creative thinking can be both personally significant, showing readiness of a personality to elevate on creative level of intellectual activity and socially significant which gives an impulse to innovative development of pedagogics [11].

However any result of creative thinking achieved in the course of cognitive activity within university allows to master technology of creative work on a higher level.

Development of creative thinking of students in universities must be regarded as their targeted development achieved by means of formation of such education environment in which their individual skills, first of all intellectual and creative, can be maximally developed and used. It must be emphasized that such educational environment must in turn support and reward creative ideas of students. You can possess all necessary internal resources for creative thinking but without aid from environment your creative abilities can never be realized.

Wide range of problems set before the students, multiplicity of spheres of their living activity and application of their skills as well as scarce resources needed for carrying out of their duties determine the use of innovative pedagogical technologies based on intensification and actualization of students' activity (active methods of teaching) and creative technologies which allow not

only to develop creative potential of a person but to modify known technologies in the sphere of learning and professional activity.

Investigation of creative thinking of future teachers in educational environment was performed on the base of Eastern Kazakhstan state university named after S. Amanzholov in summer of 2013. The participants were 55 students of full-time department of the pedagogical faculty.

In order to assess creative thinking modified and adapted variant of Williams-Torrence tests was used, proposed by E. Tunik (2003).

Thinking divergence was evaluated by 4 factors:

- fluency (easiness, productivity) - reflects ability to generate big quantity of ideas;
- flexibility - evaluates ability to put forward different ideas, to go from one aspect of the problem to the other, use different strategies of solution;
- originality (distinct character) - ability to put forward ideas which are different from common ones, trivial or indisputable;
- developed character - logics of creative thinking, choice of adequate solution corresponding to specific goal.

Test of creativity characteristics of personality included 50 questions intended for self-evaluation to be made by a student. The results are presented in the form of 4 separate estimates which reflect curiosity, imagination, complexity and risk. These are factors which are intrinsically individual-personal.

Analysis of test values of creative thinking showed the following: fluency - moderate-average norm, value below average; flexibility - moderate-average, corresponds to the norm; originality - corresponds to low norm; developed character - average.

Analysis of the results of evaluation of level characteristics of personality connected with creative abilities discovered that curiosity is moderate-average and below average; imagination - below average and below the norm; complexity - moderate-average; risk - moderate-average.

In this case values obtained by means of personality's creative characteristics questionnaire are below average and directly correlate with the results of creative thinking test, which proves adequate evaluation by students of their creative abilities.

Results of empirical study show that insufficient level of creative thinking, imagination, curiosity is connected with the fact that education system keeps the personality being well-informed factor superior to its creative features, and rational side dominates over intuitive one. This means that

activity in such system of education is intended for transfer of knowledge to students and the education process itself is based on didactic-centrist technology, in which subject-subject relations between students and teachers prevail.

Thus, current ways of teaching and applied methods do not allow to elevate students to a higher level of exploration of education's contents because the traditional technology is based on authoritarian requirements pedagogics which lacks conditions for manifestation of individual skills and creative features of personality.

Taking the results of empirical study as the base, in order to develop creative thinking of students in pedagogical process we used the following forms of group work: free creative debates, Balint session, problem seminar, dramatization, "auction" of projects, solution of problem situations, business game, discussion of reports and papers, reviewing of works, life experience analysis etc.

We shall consider problem seminar and Balint session in more detail. We are going to describe the stages (technology) of work.

Problem seminar topic "Barriers in development of creativity personality" was formulated beforehand in order to prepare questions and messages. Form of work at the seminar was group debates. The technique of work used by us at the seminar was as follows: in the beginning the problem was set before the students (identification of barriers which hinder development of creativity of personality and ways for their elimination), students were given time to understand the problem. Then students gave different variants of solution of the problem, found out arguments supporting given solution of the problem. In the course of debates the most grounded solutions were selected, then they were criticized. At the end those ways of eliminations of barriers left which proved to be resistible to critics. These ways were discussed, the results of problem seminar were formulated, inference was made.

Pedagogical tasks of Balint session were as follows:

- to teach students how to analyze information about real situations, detach most important from secondary, formulate the problem;
- to inculcate ability to listen and interact with each other;
- to teach to simulate the most complex situations;
- demonstrate multiplicity of meanings and many-aspect character of possible solutions which can be attributed to the most problems [12].

We shall describe, as an example, stages of one of our Ballint sessions. One of the students

briefly and fully stated his problem to be solved; then students from learning group in turn asked him questions about the problem and got the answers; then all group's members stated their variants of solutions, gave advices and recommendations; in the end generalization and conclusions were made using which the student had to arrive at the correct solution of the problem. It is worth noting that at this session the task was not finding optimal solutions at once; the main task was to facilitate the student to understand the problem more comprehensively, to look at it in a new way, to put his thoughts in order. Discussion was an aid for future solution.

Relying on the idea of S. Polyakov and V. Yasnitskaya [13], of transfer of collective creative activity method to studies, we used such a form of work as collective creative "pass-test exam" which was viewed as group work aimed not only to assess in different ways but facilitate formation of creative thinking of students. The conditions for the carrying out of it were as follows: competitive character of the work at "pass-test exam"; teams of 6-10 persons; questions were unusual, requiring erudition, creativity, cleverness; evaluation was made by points, jointly by teacher and students, beforehand developed criteria were used.

Thus, pedagogical technologies based on intensification of students activity in a group were as follows: technology of active teaching (group debates, brainstorm and its forms, method of synectics, morphological analysis etc), interactive play-like technologies (trainings), technology of creative design, technology of solution of creative tasks, technology of collective creative activity.

Back-up (repeated) diagnostics of creative thinking of future teachers confirmed effectiveness of applied group methods.

Results of statistical processing of data by Student T-criterion demonstrated reliability of differences between results before and after the events: in such indicators as fluency, flexibility and originality and in evaluation of level characteristics of a personality, such as imagination, complexity and risk.

Performed by us empirical study demonstrates that use in educational process of pedagogical technologies facilitates creative thinking of future teachers.

Thus, as the main value of education development in Kazakhstan today is development of human need to go beyond the boundaries of studied material, ability to realize creativity potential and orientation to self-development inculcation of creative thinking in future teachers in educational environment of universities is of utter importance.

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