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Methods of organizing creative process at the modern university

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Abstract

The aim of the study is to point out the most significant methods that can be applied in the system of education in innovative universities. We believe that it is not quite correct to consider education as the process of exact type personality formation within social system as well as a single-discipline professional training. In the study the ways of overcoming the crisis situation developed in education in the XX century are designated. We focus on the personal characteristics of a trainee, his/her creativity and personal guides. In the article the peculiar features of such creative methods as a method of "brain storm", a synectics method and the Theory of Inventive Problem Solving (TIPS) as well as the opportunities of their application in educational process are analyzed. As consequence of applying the methods described the new knowledge can be denoted as an innovation. We conclude that one of the way to overcome crisis situation of the present day system of education is to form the model of Research University of an innovative type, where the liberal tendency is supplemented with the pragmatic one.

Keywords: Creative capacities, education, creative personality, brain storming, TIPS, synectics.

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1. Introduction

The history of civilization development allows detaching education as the most priority value capable to provide social progress of society. It endows with the importance in all spheres of human life – from adopting examples of culture up to professional activity.

Modern researchers in their works often mention "anthropologic catastrophe" as a situation in which there are no people capable to understand current changes not within the ready stable concept, but in a transfer state. Thus, a basis of anthropological catastrophe, which exists in modern society, is an inability of a person to adapt for constantly changing reality.

Many of the Russian and foreign investigations prove that the traditional model of education does not satisfy the requirements which contemporary society demands (Vorobjev, 1999). Why does such a critical situation occur?

The classical model of education includes ideas of European philosophers and others. The tasks of this model were interpreted variously, included humanistic and humanitarian ideas. But as time has gone civilization evolution changed cultural problematics and defined as an orienting point for educational process not forming a personality but preparing a narrow-oriented specialist. If it was possible in XIX to form an integrated system of education standards, then in XX researchers have to face not integrated educational practice but a great variety of, often quite different from each other educational models (traditional, religious, advancing education, lifelong learning etc.). In XXI century it is essential for modern university to be innovative that provides it joining world-class universities.

2. Methods and results

Views that education is an instrument to form a certain personality according to social system (liberal approach) as well as leading education to single-discipline development of competence (utilitarian view) do not correctly reflect contemporary public demand (Vorobjev, 1999). Education system as the most conservative does not manage to adapt to the changes happening in all areas of people activity. As the result, that gap made an essence of world crisis in education.

"The conflict between the person and institution of education is concluded in an initial contradiction: being in contact with education, we are eager to meet culture, but we face knowledge" (Dolzhenko, 1995).

How is it possible to overcome the crisis situation which has developed in modern society?

One of the ways is to form the model of research university of an innovative type where the liberal tendency is supplemented with a practical focus on receiving result. Thus, it is necessary to take into account trainee's specific feature, his creativity and personal reference points.

Creative capacities are abilities of a person to find a special view on habitual and daily things or tasks. The creative person constantly seeks to learn more about world around not only in the field of the primary activity, but also in allied industries. In most cases a creative person is first of all an extraordinary thinking person, who can make non-standard decisions.

The main criterion distinguishing creativity from production is a uniqueness of its result. The result of creativity cannot be output from entry conditions directly. Nobody, excepting author, cannot receive quite the same, even if s/he is in the same initial situation. Consequently, in the process of creativity author puts into a material some opportunities irreducible to labor operations or to a logical conclusion. Authors express some aspects of his/her unique personality in final result. This fact gives an additional value to creativity products in comparison with making products.

How is it possible to learn creativity, to bring up the creative person and is it possible to do?

There is an opinion that all people have creative capacities. But the majority of them simply does not know about the opportunities or does not even think of it. A person can bring up by her/himself, or awake in himself a creative capacity. It certainly does not mean that it is possible to convince that you are capable to create something ingenious, but each person can try to look at world around or at a specific problem under another aspect.

Not everyone can create something new. To create something that has not existed before is necessary to be out of system of the relations existing at present, to be able to look at system alternatively. Creative capacities depend on outlook of a person as well. The more s/he knows the easier for him/her to look at a studied question from a new position. In most cases a creative person thinks and does everything unusually.

Is it possible to bring up a creative person who is capable to make independent decisions, to create something new, to react to constant changes of the modern world adequately?

Certainly, the ability to creative decisions appears not at once, but each person has a certain potential. Creative opportunities are possible and necessary to develop. The focus on searching answers can exist not only at the directed scientific search, but also at a context of everyday life as attentive and versatile approach to the world around (Mahmood, 2013;Brylina, 2014).

At the same time fast and qualitative decision is an exception to the rules. As a rule, creative process is a chain of decisions arisen one from another as a result of reflection (independent search) or discussion (in case of group creativity). In other words, the invention or breakthrough is not a godsend, not an accident, but a result of goal-oriented thought process. And if suddenly any accidents actually occur, to see these "accidents", the attentiveness to trifles, hard work, persistence and patience are quite often necessary.

For group creativity there are methods and techniques of creative process organization, such as brainstorming, the Theory of Inventive Problem Solving (TIPS), synectics, morphological analysis and others. They can be used in universities for teaching students to make an invention by themselves (Gordon, 1961), (Kelley, 2001).

One of the most popular births methods of new ideas is "brain storm" which was invented by Alex Osborn. As well as many similar technologies, method of brain storming gained new features on the way to quality.

The term "brain storm" is familiar to the majority of people, but many do not know what it means exactly. As a rule, it is mistakenly considered as a live discussion between two or more people aimed to exchange new ideas. It is an informal, unstructured and relaxed exchange of opinions between participants. The actual task of this brain storming method is that all participants freely propose solutions for a discussed question, nobody can critically treat directly or indirectly to other's idea, each person has to approve others as far as it is possible. Each person has to create or inspire others for creation as many ideas as possible, independent from their absurdity. Speed, quantity and spontaneity are the motto of this process.

Exact following such strategy is necessary as it helps to break unconscious restrictions and prejudices which are present in our thinking in usual situation, and allows us being rather creative.

In most cases there is nothing bad in our prejudices (prejudices – in hermeneutics terms); actually we need them to work rationally. It is difficult to imagine, for example, reconsideration of daily routine questions. It is much more correct to do it in the usual way, without unnecessary thoughts. But when the usual way stops working, it has to be rethought, estimated by a new view.

The developing of "brain storming" made new method, such as synectics, an instrument to solve controversial tasks stimulating thought processes, which orientated, as a rule on surprise and accident.

Synectics is an approach to the creative thinking, depending on understanding the possibility to combine different things incompatible at first sight. In general, the goal of synectics is to make extraordinary usual and usual extraordinary. On the one hand, it helps to carry out analysis of the research question thoroughly. On the other hand, it helps to eliminate creativity problems via creating analogies. Consequently, new incredible solutions appear.

The main tools of synectics are analogy and metaphor. Work groups often use this instrument, it helps participants to find creative answers when doing tasks and research a question. Users can break the mind rules and study abstract thinking as well as to look at old problems in a new perspective

Synectics suggests an instruction manual for generating new ideas. Despite synectics is usually considered as a methodics or creativity method, it can be considered as a state of mind or even philosophy. It is a combination of substances, imagination of being them, including ideas and physical objects.

Altshuller, a soviet engineer, writer and scientist, elaborated the Theory of Inventive Problem Solving (TIPS), having denoted the goal to turn the art of invention into hard science (Altshuller, 1956, 1969, 2004).

There is a widespread point of view that inventions are made unexpectedly, as a result of so-called "creative flash". G. S. Altshuller tried to determine whether inventions were spontaneous or whether there were regularities of creative process. He marked nearly 40 standard techniques, which are more often used by inventors. They were supplemented by the algorithm of solving inventive problems (so-called AIPS). They became the basis of the Theory of Inventive Problem Solving (TIPS). Early in the work he defined a number of rules which corresponded to the scheme "solving a problem is an overcoming contradiction, problems". Later G. S. Altshuller continued developing his technique and formulated basic laws of functioning and developing technical systems (Altshuller, 2004). For the last 60 years this concept has underwent a set of changes and improvements. The general theory was added with experience of introducing the inventions, concentrated in its vital strategy of the creative person. Subsequently this integrated theory was given the name of "the general theory of strong thinking".

TIPS is the technology of creativity based on idea that "inventive creativity is connected with techniques change developing according to certain laws" and that "creating new means of labor has to, apart from the subjective relation to this, comply with the objective regularities" (Giniyatova and Pankova, 2004).

Appearing TIPS was caused by the requirement to accelerate the inventive process, having excluded from it the elements of randomness: the sudden and unpredictable inspiration, blind search and versions rejection, dependence on mood, etc. Besides, the purpose of TIPS is to improve quality and to increase the level of inventions due to removal of psychological inertia and strengthening creative imagination.

TIPS is not a strict scientific theory, but it represents the experience of invention, and science, and equipment developments generalized in an abstract form. As a result of its development, TIPS was beyond the solution of inventive tasks in technical area. An old proverb says "Everything new is actually well-forgotten old", it illustrates today's situation, and this technology can be used in such nontechnical areas as business, art, policy and in educational process as well.

3. Conclusion

The new knowledge which can be denoted as an innovation is the result of applying the methods we described above. The term "innovation" (lat. innovation, updating) means the process leading to appearance of any advance, and as the end result of intellectual activity presented in the form of any new object (system, technology, goods or service) or in the form of the object which qualitatively

differs from the existing one. The innovation is characterized both higher scientific level and new product qualities.

In modern society the new model of higher education institution is formed. This is the model of the research University of an Innovative Type, where there are all conditions for preparing future experts capable both to do tasks set before, and to set the new tasks meeting the requirements of time as well as to search new solutions for problems set earlier. Formation of innovative academic university represents innovative process. Consumers use scientific and educational services of the innovations created on the basis of the knowledge from receiving new and generalizing already available knowledge.

Inherently an innovative process is the process covering all cycle of transforming scientific knowledge, scientific ideas, breakthrough and inventions into an innovation from idea elaborating up to its implementing. It is possible if there are all conditions for creative process, and when new methods are used.

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