*Materials of Conferences*

## UNIVERSITY SCIENCE AND ITS INNOVATIVE POTENTIAL

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Higher school is the corner-stone in the development of science. In the universities of developed countries science is surely profitable.

Higher school science is seen as a strong innovative development resource in education system.

We understand that a traditional role of the institute to transfer knowledge to society, to teach and train specialists, to satisfy the needs of economics is rather scare.

Modern university can and must influence fundamental knowledge development and practical innovation.

Fundamental development of science and its support in university training is very urgent now.

Higher schools tries to attract modern information-instructive and teaching project to direct staff of a higher school in integration process and support fundamental scientific and university education.

The development of scientific-research work and profound training of students is a part of modernization of education.

Integration of science and education in intensive process of training promotes improvement of staff qualification, development of the youth creative initiative ability and its active participation in solving problems connected with inventive and rationalization activity, with search of effective nonstandard decisions of scientific and technical problems.

The epoch of innovative development of society in intellectual labour market demands the appearance not only specialists of high professional knowledge, but also people possessing teaching, organizational, management skills and their own scientific world outlook.

Scientific research in institutes ensures guarantees and conditions in training highly qualified specialists. Qualified training of specialists is raised by anew set departments of chairs of main specialties at the Kursk State Technical University.

These formations successfully solve problems of the fastest adaptation of future engineers at the expense of thorough registration of all needs of industry, their perspective development, the use of modern production equipment in training and research work.

Such approach attracts students to innovative activity.

It is very important to give all students the opportunity to take part in different competitions and projects.

We are sure that the main subject of any project is a scientific-educational part directed to the development of scientific research interest, to knowledge extantion.

Such approach helps our instructors to connect modern science and great experience of industry with the cognitive possibilities of future specialists.

The fulfillment of our project gives us the opportunity to realize some principles that are very important in creative upbringing of any personality.

– principle of cognition through the most advanced fields of knowledge both science-based and art-based

– principle of group integration and responsibility for everybody

– principle of cooperation with the ability to respect the work and achievements of colleagues.

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## THE PRINCIPLES OF THE CONSTRUCTION OF NON-LINEAR THINKING STYLE COMPONENT FOR SCHOOLCHILDREN

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In this publication «non-linear» implies the thinking style that studies the man and the surroundings as a complicated and open system that is capable of self-organization and is oriented for the exposure of general connections and relations and for the necessity of the constructive nature of instability and chance. For the main characteristics of non-linear thinking style in this research we study (detailed analysis and outlined characteristics motivation are available in [1]):

- criticism, logical strictness, conclusiveness and argumentation in combination with readiness to study the alternative position;
- abstractness in combination with the ability to set relations between the ideal model and real process;
- the desire to study the nature of conceptions and ideas;
- scale range, orientation for the exposure of the deep relations and mutual correlations between processes and phenomenons of different nature;
- versatility (an approach to the problem from different sides, the readiness to objective analysis of the opponent's point of view);
- the readiness to take action in an instable situation, crisis, when it is necessary to study and analyze the range of possible consequences while considering their coordination with the inner state of the system;
- complementarity (the unity of conscious and subconscious, reasonable and emotional, rational and intuitive).

From the point of the formation of the outlined non-linear thinking characteristics for the schoolchildren the following content blocks play the major role: logical, probabilistic-statistic and synergetic. Let's look at the major principles of the outlined content construction.

The school working practice shows us that while studying the theoretic material of the mentioned blocks without any relation (or with weak relation) with other school content their developing and world outlook material is not often realized. In that case the idea can be advanced: in the process of studying of the outlined content blocks a great attention should be devoted to its applications and the processing of skills and knowledge in various situations and on different material. The scholars does not only learn a content block but also try to use it, they master general methods and approaches to the analysis and evaluation of the real existing situations. In that case we can not only think of the strengthening of the implementation orientation but also of the principles humanitarization of studying the outlines learning blocks. The humanitarization principles mean not only the strengthening of the human content of those blocks but also the evaluation of skills and knowledge as tools within the «human-world» system; the disclosure of the co-evolution idea; the strengthening of the studied content's application orientation.

After that it is necessary to study two questions: the correlation between the outlined content blocks and their correlation with other educational subjects.

First of all, in order to comprehend the material more consciously and to realize its place and meaning it is necessary to reveal the relation between the content of the studied blocks to the scholar. It is needed to be shown that they do not deny each other and not only widen each other but also are the additions for one another. Probabilistic- statistic and synergetic content helps us to understand the limits of the logical apparatus implementation. Moreover, the synergetic content gives us the opportunity to evaluate the place and meaning of the logistic and probabilistic-statistic content blocks.

So we can conclude that the contents of the studied blocks are linked to each other, they amplify and widen one another.

Secondly, within the process of the studied contend learning a great role is played not only by the relations between the blocks but also by intersubject relations. School academic subjects provide material for the processing of logical, probabilistic-statistic and synergetic content. For example, while studying natural science and social science the scholars obtain the real comprehension of the accidental natural phenomenons spreading, existing systems and the effects of self-organization.

The content of the outlined blocks creates the possibility for deeper study of different subject's material where the necessity of knowledge and logical, probabilistic-statistic, and synergetic skills implementation is commonly needed.

As the block's content integrates into the canvas of various school subjects it creates the conditions of complex solution for the problem of the formation of non-linear thinking model for scholars.

Thus, we can formulate the principle of **intersubjectivity** of the construction of three outlined blocks according to which the mutual integration of their content and other school subjects will happen. The content of these blocks should be actively used within the process of studying of different school subjects and the knowledge that scholars have obtained from those subjects must be drawn in while studying logistic, probabilistic-statistic and synergetic material.

Manu tutors draw their attention to the necessity of early and balanced work aimed for the formation of logical, probabilistic and statistic thinking for schoolchildren. The study of self-organization (synergetic) theory also requires preparation works. In that case we come to the principles of **complexness and duration,** that describe the necessity of the organization of the committed work aimed for studying the outlined block's content and the formation non-linear thinking style on different education levels.

It is purposeless to study the logic, stochastic, and self-organization theory elements only from the position of school material comprehension by scholars. This material has been specifically selected and adapted. It is important to help scholars to form a single interpretation of the world and realize the non-linearity and instability of the modern world, teach them to orient and act within the real situations. The abilities of the studied content lines are pretty high since provide us with tools of description and studying the object of the reality. For that the outlined block's content study orientation for the forming of skills and ideas that correspond to non-linear thinking style is highly needed. And so we have the principle of the **developing and personally-oriented** education model.

Within the process our problem solution we should also look into the implementation of the humanitarization and individualization principles according to which the pupil is put into the centre of education process, his personality and consideration of his peculiarities. Those principles imply the creation of the conditions for each scholar's abilities development and the creation of the conditions for his self-expression and self-determination.

The realization of the described principles of the three outlines content block (logistic, probabilistic-statistic and synergetic) construction must provide for the achievement of our goal: the formation of non-linear thinking style for scholars within the education process. The material of various school subjects is also involved in the work.

**References**

1. Shestakova L. Non-linear thinking style and some ways of its development for scholars within the process if their education // Education and science: The intelligence of Ural department of Russian Social Science Accademy. – 2004. – № 5. – P. 34–42.

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