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**THE COGNITIVE ACTIVITY DEVELOPMENT OF MIDDLE-
CLASS STUDENTS**

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Abstract

The topic of the problem under study is justified by the dynamic development of the modern Russian economy, fast equipment and technologies change, growth of competitions, and the reduction of unskilled and low-skilled work. Under these conditions, the society is in need of a personality with an active cognitive stand, capable of studying and retraining, in order to be able to meet the requirements of the society of the 21st century. The purpose of this article is to identify, give scientific credence, and carry out an experimental analysis of the cognitive development of middle class students. The methodological and theoretical basis of this research consists of the basic provisions of the theory of knowledge in dialectical materialism, relational dialectics, inter-conditionality and integrity of the phenomena. Under the influence of the object-oriented pedagogical management in this course of the cognitive learning process, the opportunities for the formation of socially valuable qualities and cognitive activity of the students are actively created. In the long term, it will lead to the formation of personalities with a proactive approach to life. The presented and approved results of the research can be used in comprehensive schools: to diagnose the level of formation of cognitive interests of the students; to organize a developing environment in the educational institution; and last but not the least, to organize the students' activity during curricular and non-curricular activities.

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1. Introduction

The objective requirement of society for the cognitive activity of the person lies under the necessity to change the existing didactic system. This system is oriented to memorizing the material and passivity of the trained. The student in this system is a vessel that is required to be filled with knowledge. The outstanding teachers of the past didn't agree with such a tough scheme of the educational process and were looking for another one, which would induce the student to think, create, and not just to memorize the material from the textbook.

Nowadays, there are convincing didactic and methodical systems directed to the effective development of students' learning processes, and are cognitive in the way they're being carried out - activating the thought processes. In this case, it is the main point leading to the concept stated by a group of authors in the book "School Students Learning Activity Formation".

At the same time, in modern schools there are also poor, passive, inert, disinterested students, leaving school with an indifferent attitude to learning in general or at least to several subjects. Some of them, leaving school, understand it as an almost irreplaceable gap in their development and education. This situation of the social and professional self-determination aggravates the experiences connected with these feelings and induces us to look for the untapped resources in the problem of cognitive development over and over. One of them, in our opinion, is to redouble the attention to didactic and methodical conditions of the school students' cognitive activity development. Our research is devoted to this very problem.

Cognitive activity development is an important condition for the realization of school reform. Theoretical development of the problem and its practical application contribute to the improvement of the educational processes in modern schools.

2. Problem Statement

The problem of the school students' cognitive activity development is being considered by many Russian professors and scientists (Gabdulchakov, 2015; Zakirova & Koletvinova, 2014).

When developing theoretical aspects of the research we relied on the ideas of the systematic approach (Anisimova, 2009); activity approach (Aristova, 1998; Brown, 2004); along with learner-centered and person-centered approaches (Yakimanskaya, 1989).

Work on activation of cognitive and creative activity of the students (Sabirova, Zakirova & Masalimova, 2016; Shamova, 2012); scientific management of work (Babansky, 1985) were of vital importance to our research.

Considering psychological and pedagogical aspects of the problem under study, we relied on the ideas and provisions of the learning activity motivation theory (Baburina, 2004; Bobrova, 2008); developmental psychology and pedagogics (Johnston, 2008); and theories of pedagogical technologies (Yasyukova, 2005; Krasnoperov, & Krasnoperova, 2014).

3. Research Questions

In spite of the fact that the cognitive activity problem is being widely discussed, the problem of its development remains insufficiently studied. In the researches on this problem, they don't pay attention to

the definition of the "cognitive activity development" concept; distinguishing it from such related concepts as "activation", "stimulation", and "formation" of cognitive activity. The systematic organization of the process of cognitive activity development, were used to determine the basic features of the middle class students' cognitive activity development where they lose their interest in studies.

The basic theoretical provisions of the research and study findings can be used in the system of retraining and professional development on the problems of youth cognitive activity development (of the employees of the preschool), and in educational institutions, comprehensive schools and colleges, along with pedagogical highest professional educational institutions.

Studying the condition of the process of cognitive activity development in practical terms testifies to a formalistic approach to the problem solution which doesn't allow to achieve real positive results, especially in the cognitive activity development of the middle-class students. In this regard, it is necessary to search for the instruments which would promote the realization of the studied process. Therefore, the relevance of the research at the scientific and methodical level is justified by the discrepancy between the practical demand in the problem solution for modern comprehensive school and its scientific and theoretical justification, which doesn't allow to bring the studied process into the technological level yet.

On this premise, we have formulated the research problem - search and selection of the way to develop middle-class students' cognitive activity in the course of learning.

4. Purpose of the Study

Objectives of the study:

- to analyze the conditions of the problem of middle class students' cognitive development in pedagogical theory and practice in order to define a personal way of scientific search;
- to work out the system of middle class students' cognitive activity development based on systematic, activity, and personal-oriented approaches;
- to design a technology of realization of the system of middle class students' cognitive activity development;
- in the course of the experimental work, to check the system effectiveness by means of realization of the technology on the basis of the idea "to teach the students how to obtain knowledge".

5. Research Methods

The solution of the objectives was carried out by the following methods:

- theoretical (comparative and logical analysis, synthesis, generalization, modeling);
- empirical (synthesis of effective pedagogical experience of school teachers on the students' cognitive activity development, questioning, supervision, experimental work, conversation, expert assessment, self-assessment, mutual assessment, analysis of the products of the students' activity; methods of mathematical statistics).

The research experimental base includes basic schools of the Kazan (Volga region) Federal University, comprehensive schools and gymnasiums of Kazan: No. 3, 4, 10, 13, 27, 103, 155, 167.

The research was carried out in three consecutive stages:

At the first stage, in the course of the scientific literature, normative documents and school practice study of the condition of the process was estimated; the purpose, object, subject, hypothesis, tasks, research program were defined; the level of the middle-class students' cognitive activity was studied. At this stage, the idea of the research was singled out – "to teach students how to obtain knowledge", the essence of students' cognitive activity development was studied and the principles of its successful realization were designed. At this stage, the system of the students' cognitive activity development was worked out, the technology of the system realization on the basis of the idea "to teach the students to obtain knowledge" was thought over.

At the second stage, the erected propositions were evaluated; the system of the students cognitive activity development was realized on the basis of the offered idea "to teach the students how to obtain knowledge". Based on the obtained results adjustment and improvement of the designed system and technologies was carried out.

At the third stage generalization of the materials according to the results of the experimental work was carried out; final conclusions were formulated, the obtained results were checked and processed; the thesis research was prepared, and its practical importance was defined.

In this work, the following assessment criteria have been defined:

- ability to work with primary sources and scientific literature;
- ability to use the obtained theoretical knowledge in the solution of specific pedagogical objectives;
- ability to express opinion on a pedagogical problem;
- ability to use the method of historical analysis of pedagogical facts and ideas;
- skills of a critical approach to the analysis of pedagogical ideas and concepts.

6. Findings

The main objectives at this stage of the experimental work were:

- evaluation of the efficiency of the carried-out work based on the dynamics of the students' cognitive activity development;
- analysis of the research results, conclusion statement and summing up the experimental work.

To solve the first task, we analyzed the results of the intermediate and control cuts of the experimental work. As the evaluation criteria of the students' cognitive development, the presence and the level of cognitive motivation, well-formed learning activity, independence and will power exertion were used.

The intermediate cut of the level of evaluation of the students' cognitive development was carried out in 2013. The diagnostics was realized considering the age peculiarities. At this stage of the experimental work, we used the system of tests designed for different age periods by Lukyanova (2013). To evaluate the will power criterion, we used the method of mutual and expert assessment. The results of evaluation of the middle-class students cognitive activity development received as a result of an intermediate cut are presented in the table 01.

Table 01. Evaluation of the middle-class students' cognitive activity development at the constructive stage of the experiment (intermediate cut)

Group	Number of people	Students level placement					
		Low		medium		high	
		number	%	number	%	number	%
Group №1	25	9	36,0	14	56,0	2	8
Group №2	26	8	30,8	15	57,7	3	11,5
Group №3	26	7	26,9	16	61,6	3	11,5
Group №4	25	12	48,0	13	52,0	0	0,0

The results of the intermediate cut demonstrate positive changes in the first three experimental groups of the students where the system of the cognitive activity development was realized based on the offered idea "to teach the students how to obtain knowledge".

As a result, the number of the students with a low level of cognitive development has decreased on average by 3-4 people.

The students of the experimental group No., 4, where the cognitive development system was not used, have confirmed our hypothesis - as a result of an intermediate cut, the level of the cognitive activity development of students remained the same.

We should mention positive dynamics in the students transition from the average level to high: in group No. 1 and group No. 2 the number of people with a high level of cognitive development increased by 2 persons, in group No. 3 – by 3. It is demonstrated visually in the chart (figure 01).

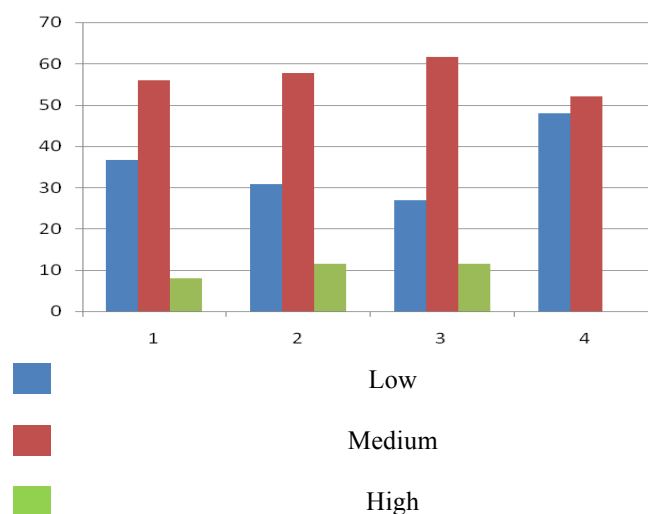


Figure 01. The results of the intermediate cut of the evaluation of the middle-class students' cognitive activity development at the constructive stage of the experiment

According to the obtained data, we can notice positive changes in the level of the middle-class students' cognitive activity development in the course of realization of the designed system.

At the same time, as we assumed, within the first two years of realization of the designed system there was an insignificant increase of the level of cognitive activity of the students in their learning abilities and ability to transfer them into a plan of independent actions.

We have explained it with the fact that most the students could not get used to the questions and tasks unusual to them. Moreover, they were surprised at the fact that they were not only able to reproduce the obtained material, but also to answer how they memorized it, what they were capable of now, and how to perform the task in a more rational way. The students were not ready to answer non-standard questions which demanded manifestation of personal experience.

But at the same time, we have noted changes in the students with a good imagination. Having involved cognitive process, we "have awakened" the students who are hardly able to use their memory while learning. The students have understood that the process of studying one of the most difficult school subjects, such as mathematics, can be accessible and interesting to them.

The greatest difficulty the students had was to assess their own activity, as most the school teachers don't consider this ability development as an important one. As a result, the students aren't accustomed to constantly comprehending and assessing their own actions.

According to the results of the intermediate cut, the students of the first, second and third experimental groups started showing the ability to comprehend and consciously implement their own activity, and showed interest in comprehension of the "mechanisms" of it.

At the same time, thanks to the personal-oriented direction of the research, we was noted that the students developed a higher level of the ability to listen to others, ask questions, state their own version of an answer, and present personal activity results in front of others.

Carrying out 5 to 15 individual creative works, not less than 7 collective tasks, participating in intellectual games and linguistic marathons, the students have understood they have an opportunity to show their worth, to fulfill themselves, and increase their status in the class. We have also noted the students' aspiration to regulate their actions and behavior, to express their will power in pursuit of personal and collective purposes.

It's also important for us that the carried-out work on the basis of the native language studying heightened the students' interest both in the subject, and speech culture of Tatar and Russian languages.

The intermediate cut allowed us to draw a conclusion that the students of the experimental group No. 3 have shown the best results in their cognitive activity development. We assumed this result because, this experimental group realized the system of cognitive activity development and it was enabled under a complex of conditions: inclusion in various kinds of activity, methodical maintenance of the learning process, and creative environment directed to form of cognitive interest. These conditions, from our point of view, are optimal in helping to realize the idea "to teach the students how to obtain knowledge". It allowed students to become valid participants and subjects of learning activities.

The constructive stage of the experimental work at the end of 2014-2015 academic years was followed by the control cut. The data obtained is presented in the table 02 and in the figure 02.

Table 02. Evaluation of the middle-class students' cognitive activity development (control cut)

Group	Number of people	Students level placement					
		low		medium		high	
		number	%	number	%	number	%
Group №1	25	4	16,0	5	20,0	16	64,0
Group №2	26	4	15,4	6	23,8	16	61,5
Group №3	26	0	0	4	15,4	22	84,6
Group №4	25	11	44,0	12	48,0	2	8,0

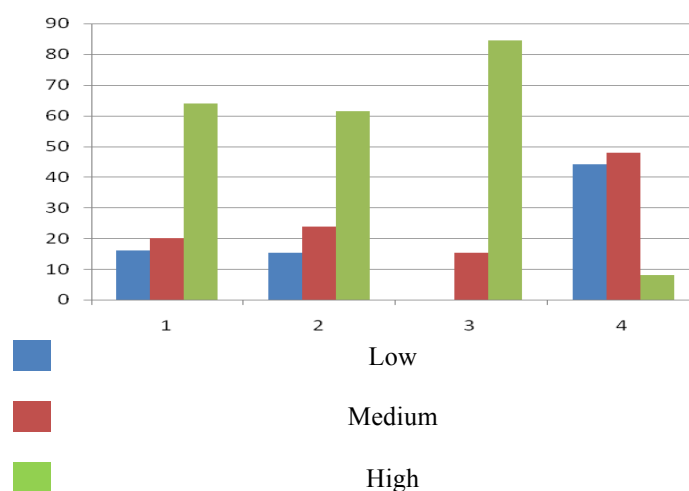


Figure 02. The results of the control cut of the evaluation of the middle-class students' cognitive activity development

The numerical data of the values of the mean score presented in table 03 have confirmed positive dynamics in the first (Group No. 1), the second (Group No. 2) and the third (Group No. 3) experimental groups.

Table 03. The summary table of the results of the evaluation of the middle-class students' cognitive activity development received after the initial, intermediate and control cuts of the experimental work.

Group	Number	Levels of the middle-class students' cognitive activity development																	
		Initial cut						Intermediate cut						Control cut					
		low		medium		high		low		medium		high		low		medium		high	
		number	%	number	%	number	%	number	%	number	%	number	%	number	%	number	%	number	%
Group №1	25	12	48,0	13	52,0	0	0,0	9	36,0	14	56,0	2	8	4	16,0	5	20,0	16	64,0
Group №2	26	11	42,3	14	53,8	1	3,9	8	30,8	15	57,7	3	11,5	4	15,4	6	23,8	16	61,5
Group №3	26	11	42,3	15	57,7	0	0,0	7	26,9	16	61,5	3	11,5	0	0	4	15,4	22	84,6
Group №4	25	12	48,0	13	52,0	0	0,0	12	48,0	17	68,0	0	0,0	11	44	12	48	2	8

It should be noted that according to the results of the control cut in Group No. 1, Group No. 2, Group No. 3 positive changes take place in all the criteria of the middle-class students' cognitive activity development. This coincides completely with the conceptual provisions of our research, validates the chosen way and means of the organization of the pedagogical process, and confirms their efficiency.

The comparative analysis of the data (table 03) of the initial, intermediate and control cuts allows to draw a conclusion that as a result of the carried-out experimental work on the middle-class students' cognitive activity development, the number of the students with low (imitative and performing) level has decreased in Group No. 1 by 32%, in Group No. 2 by 27%, in Group No. 3 by 42%, and in Group No. 4 by 4%.

The number of the students with the average level (partial and initiative) has decreased in Group No. 1 by 32%, Group No. 2 by 30%, Group No. 3 by 42%, and Group No. 4 by 4%. It must be kept in mind, that the negative growth of this indicator in Group No. 1, Group No. 2, Group No. 3 is a consequence of the redistribution of a significant amount of the students to a higher level. It can be confirmed with the following quantitative data: in Group No. 1 their number has increased by 64%, in Group No. 2 – by 58%, in Group No. 3 – by 85%, in Group No. 4 – by 8%.

The best dynamics shows group No. 3, where the complex of conditions of the designed system was applied: special tasks aimed at the development of learning abilities, their application in different types of activity and their transformation into a plan of independent, and creative activity were included in the educational process.

The least successful were the students of group No. 4, where the designed system of cognitive development according to the idea "to teach the students how to obtain knowledge" wasn't implemented. At the same time, it should be noted that in this group, there was no reduction in the number of the students with low and average levels of cognitive activity, and there even appeared 2 students showing a high level of cognitive activity. We explain it the following way: the students of group No. 4, studying and being in contact with the other experimental groups, participated in competitions, intellectual games, and developed projects. Surrounded by the atmosphere of activity, they got interested in the events of other classes, sought to show their worth, and test their capabilities.

Thus, thanks to the comparative analysis of three cuts, it is possible to draw a conclusion on positive results and, in general, on the efficiency of the research conducted.

Based on the obtained data, it is possible to consider the hypothesis of the research to be reliable. Therefore, we come to the point, that the level of the middle-class students' cognitive development improves considerably on the condition that the educational process at comprehensive school is based on the designed system according to the idea "to teach the students how to obtain knowledge".

Thus, if at the stating stage of the experimental work the middle-class students typically showed situational cognitive interest with lack of initiative at lessons, then at the constructive stage they got confidence in learning activity due to the obtained informative, organizational, reflexive and communicative abilities, sought for activity in individual, pair and group work at lessons and during various events, and showed high levels of independence in the choice and implementation of activity.

The students of groups No. 1 and No. 2 have felt a lack of inclusion in the educational process of the condition that was not used in their groups. The students of group No. 2 constantly complained they

did not have the same variety of forms as in the group No. 1. It allowed us to draw a conclusion that the offered terms are only effective in a complex.

The interest of students of the experimented groups in intellectual games, projects, competitions, creative workshops testifies to productivity of our work on the development of their cognitive activity.

Moreover, work on the projects, involvement of the students in events has allowed changing their life interests, to the avoidance of negative hobbies, and to switching their attention to interesting activities that are very important for teenagers. The middle-class students' cognitive activity development allows improving "the knowledge tool", thereby facilitating the learning itself.

The analysis of the data allows to conclude on a positive note of the middle-class students' cognitive activity development. Therefore, the formulated hypothesis can be considered as reliable and provisions of our research fully confirmed.

Thus, in the course of the experimental work it was stated that realization of the designed system of cognitive development based on the idea "to teach the students how to obtain knowledge" promotes positive dynamics of the level of middle-class students' cognitive activity. On the basis of comparative analysis of the initial, intermediate and control cuts, it was revealed that, the most significant results on the defined criteria were achieved by the students of the third experimental group where the training was carried out in a complex of the defined conditions.

It has been revealed that middle-class students' cognitive activity development is carried out effectively if the system is didactic (the system includes the purposes, contents, methods and forms of education) the following conditions are observed:

- the structure, system, generality, informational content of the selection of the contents of the learning material provides the students cognitive development at each age stage;
- both didactic and methodical systems serve as the basis for defining the role of the teaching methods and training devices, their completeness, depending on the purposes of the training and character of the training material;
- the principle of training differentiation is realized;
- mastery of certain information, knowledge, and skills of the students are as important as development of the intelligence skill, learning activity, ability to carry out an educational task in a creative way;
- activity approach is carried out based on inclusion of the students in different types of cognitive activity when they learn the contents and methods of a certain activity and the emotional and valuable attitude to it;
- analytical thinking, ability of system analysis to proof a theorem or a task is formed on the basis of cognitive activity.

Thanks to the experimental part of the research we are convinced that in the course of the learning and cognitive activity under a purposeful pedagogical management, the opportunities for the formation of social and valuable qualities of the student, his informative activity, and active life stand are created. Our research has confirmed that a correct basis of thinking peculiar to a certain subject is formed on the condition of a correct organization of practical activities.

Development of this problem and its practical implementation demands serious methodical justifications based on gnoseology - the doctrine about knowledge, methodological principle of activity developed by philosophers, teachers and psychologists and the dialectic materialism from the position of social determination.

The interdependent activity of the teacher and the students (learning activity), which includes a complex, a convergence of different types of activity based on knowledge, work, and communication assists in real educational process to identify, form and develop potential of the students, enriches the teacher with knowledge and activates mutual learning activity.

Achievement of the main object of the training – formation of the personality meeting the requirements of the modern society is carried out by every possible development of cognitive activity; independence, interests of the students, transferring learning and cognitive activity onto the highest, productive and creative level of its development.

The functional purpose of the learning activity of the students consists in their theoretical interpretation of the obtained knowledge, obtaining effective knowledge and abilities, and development of their creativity, initiative, activity.

7. Conclusion

This research was conducted to theoretically justify and experimentally validate the efficiency of the didactic system in the students' cognitive activity development. However, the conducted research doesn't settle all the aspects of the considered subject. It is necessary to continue developing pedagogical technologies allowing to carry out effective students' cognitive activity development. There is also a need to carry out standardization of the indicators of the middle-class students' activity as it is a basis for psychological and pedagogical researches.

This article is addressed to the students of pedagogical institutions, professors and teachers, students of the institutes of professional development and retraining.

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