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**RESEARCH ACTIVITY AND THE UPBRINGING
OF INTELLECTUALLY GIFTED PUPILS**

SUMMARY. The author of this article did a transformative experiment in Komsomolsk-on-Amur in MOU-lyceum № 1. The material presented in this paper is part of the results obtained during the experiment on the subject "Creating a psychological and educational environment for the development of pupils intellectual giftedness".

KEY WORDS. Intelligence, talant, study, holiday, Olympiads.

The consideration of educational study of intellectually gifted schoolchildren from a position of psychological and pedagogical preconditions lets us build up a culture of personality achievements. The foundation of this theory is the realization that investigation is significant for a human not only to obtain a new product, but it has its own value. The individual can find satisfaction in the process of research, not only in the results of the study.

Moreover, scientists perceive biological background in research behavior. While studying the psychosomatic disorder of a child, the necessity of research behavior was ascertained. Unsatisfied necessity can lead to major nervous disorders, even to mental illness or depression of all kinds. V.S. Rotenberg notes the following: "The continual absence of searching activity leads to the fact that the individual finds himself helpless faced with difficulties, even situations that in other respects seem distant" [1; 25].

Unrealized research activity in a child brings detrimental conduct and behaviors. The destructive activity of little children doesn't interest society in contrast to the destructive actions of teenagers that sometimes turn out to be dangerous. Mankind invents many constraints and bans to preclude research activity. This results in constriction of the child's cognitive advancement and the consequences are major disorders and diseases.

The research logic of both a scientist and a little child is the same, mentioned A.I. Savenkov [2; 72]. In order to study, a person should see a problem, ask questions, suggest hypotheses, define notions, classify, observe, carry out an experiment, structure the material, come to conclusions, prove and speak in support of ideas. In that way, any child, following that logic, gains new knowledge about different phenomena.

In view of the facts mentioned above, the author of the given article carried out a transforming experiment in Komsomolsk-on-Amur at MOU-lyceum № 1. The objective of the experiment was to develop a system of scientific and research work and to teach children research procedures.

In the course of the experiment the pedagogical team was guided by the idea that studies are mutual research carried out by a teacher and a pupil. The school must be a research laboratory where a pupil comes to discover, with the difference that this discovery is not for humanity but a child.

To increase the level of teachers' theoretical grounding, training seminars on "The theory and practice of research work" were conducted. This makes it possible to enrich the educational process by adopting the models of research education.

The system of scientific and research work is built into the lyceum today. This scheme is divided into stages. Primary school implements the "Educational standard for the genius-to-be" project; secondary school realizes the "Small school academy" activity; senior school deals with the work of pupils' research societies.

The project "Educational standard for the genius-to-be" includes different branches. The object of this project is to involve younger pupils in research activity.

The first branch is "The school of home thinking" (the teacher is O.A. Shushunova). The main goal is to develop pupils' intelligence and creative faculties, to teach them to give objective and adequate self-appraisal and to evolve personal qualities in psychological and social fields, also in the field of cognitive development. "The school of home thinking" is the broadening of pupils' educational area and involves parents in the process of the development of children's cogitative abilities. The principal condition of a lesson is the mutual desire of a child and parents to study together. The functioning of "The school of home thinking" begins with a lead-in course. The purpose of this course is to familiarize parents with the main frames of psychological, social and cognitive areas of development. Another aim is to teach parents the lesson's procedure, to show typical variants of parents' behavior and attitude that stimulate the cognitive development of a child. The set of assignments is done in test format and given to pupils for a term. Parents regulate and organize child's homework activity. During this process parents can help children or carry out joint searches or decisions.

The second branch is the systematic course "Intellectica" (the teacher is A.M. Prokopieva). The aim is to ensure a higher-than-usual intellectual level among pupils of primary school, who should be ready to study in the intermediary classes. Moreover, it is necessary to develop pupils' cognitive activity and initiative, to create favourable conditions for independent solutions in tests, to reveal individual peculiarities. The course consists of several areas. They are directed towards developing the ability to combine, to analyze, to plan, to reason. Children trained on the "Intellectica" course with different intellectual backgrounds can solve unusual research problems that are not connected with school material. Problems of different complexity are used and favourable conditions are created to advance creative aptitudes. During

this process the flexibility, the depth, the criticality, the validity of thinking are formed. The teacher has an opportunity to observe the intellectual development of every child, exceeding the frames of study success.

The third branch of the project is “The upbringing of the intellectual leader” (the teacher is N.N. Pekar). Through the lessons of the Intellectual Games Club, cultural and communicative development is inspired.

The task is to widen erudition; to expand the scope of knowledge; to teach to reveal the connection between items, events, phenomena; to train to coordinate the process of thinking; to develop skills to resolve problems in an individual way. A knowledge-based game helps to find out the level of development, the breadth of knowledge, memory, cognition and the speed of cogitative reactions among all the participants. It is safe to say that the complex of intellectual exercises offered provides all the conditions to help the development of child’s intellectual skills. Automatic perception in schoolchildren changes to purposeful original understanding. The procedures are connected with the development of visual, acoustic memory, concentration and cogitation. In the process of working with linguistic material, schoolchildren easily use such techniques as analysis and synthesis, comparisons, analogy, generalization, classification. In that way, thanks to the training offered, the level of intellectual skills and psychological cognitive processes increases. Moreover, the quality of knowledge and motivation to study improves.

For the detection of the level of the cognitive processes, methods of studying the level of the cognitive processes and the level of auditory short term memory, visual short term memory and concentration of attention were used.

Primary diagnostics are carried out at the beginning of the second academic year. The diagnostic to know the results of the work is conducted at the beginning of the fourth academic year.

As a result of monitoring, the following conclusions were made. There is a decrease in the number of pupils who have a level of cogitative processes below the average. There is a reduction in the number of pupils who can use cogitative operations such as “comparison” and “visual short term memory”, and an increase in those able to use such a cogitative operation as “generalization” at the average level. Moreover, there is a growth in the number of pupils who become proficient in a level of psychological cognitive processes beyond the average.

Thus, the implementation of the project “Educational standard for the genius-to-be” in primary school lead to the conclusion that junior schoolchildren learnt the following higher intellectual skills: to summarize, to systematize, to classify and to work with conceptions. This let them participate in different contests, Olympiads; to work at educational research by themselves.

At the intermediary level of the educational institution, the “Small school academy” was established. This project is a voluntary union of lyceum pupils, who aspire to improve their knowledge, to increase their scientific and cultural level, to acquire skills and practice of scientific and research activity under the guidance of teachers and invited specialists. “Small school academy” is a system of optional classes. It

includes the realization of supplementary educational programs, “The school of young Olympiad competitors” (training for Olympiads), school rounds of Olympiads, subject weeks, days of science, intellectual marathons. Vocations in the lyceum are organized as intellectual and health camp. This camp implements a program called “Thinker”. The central humanistic idea of the program “Thinker” is pedagogical support for, and the development of, the intellectual endowments of a child, favouring the ability to researching questions for the world and answers to them, care for psychological and physical health. The program of summer camp implements “Small school academy” as a “summer session”. There is a variety of faculties: mathematical, heuristic, philosophical, the faculty of psychology, virtual faculty, the faculty of tourism and excursions. 85% of pupils in secondary school are involved in different forms of activity in “Small school academy”.

Organization, support and improvement of pupils’ creative activity are taken place through the lessons of pupils’ scientific societies (PSS). In the lyceum the pupils’ scientific societies oriented to mathematics, physics, foreign language, geography, biology. Moreover PSS can exist under the school museum “Cultural legacy”.

Such work is not only actual, but of great importance both for pupils and the educational institution. Lyceum pupils get practical skills and new information about research objects. Also they work at the development of their cognitive field and improve their mind. Learners who have high educational motivation and needs in intellectual activity realize their opportunities studying at the physics and mathematics correspondence schools in Moscow, Novosibirsk, Khabarovsk, Nakhodka. In particular: 2003-2004—29 pupils; 2004-2005—34 pupils; 2005-2006—41 pupils; 2007-2008—50 pupils; 2008-2009—56 pupils.

The results of pupils’ participation in lyceum № 1 (community educational organization) in pan-Russian contest of scientific and original works “The first steps” are presented in Table 1.

Table 1

2007-2008	2008-2009	2009-2010
The number of pupils		
22	24	30
The number of awards of the First Class		
9	8	15
The number of awards of the Second Class		
5	14	12
A. Galua medal recipients — 4		
“Inspiration” medal recipients — 2		

The “Research activity” elective course for lyceum pupils had the task of solving the following problems: to train the pupils for research activity and to teach them how to implement exploratory research. This course was elaborated and exercised into

practice through the realization of the second stage of the experimental work. The introduction of research procedures in teaching raised interest in studies and research work. The subjects of research work touched upon different fields. The results of exploratory work are presented at scientific conferences. Scientific and practical conferences for lyceum pupils (not only senior but intermediary) increased the pupils' interest in such kinds of activity. Conferences made it possible not only to increase the number of pupils concerned with research activity, but also to improve the quality of research papers. The effect of this was the pupils' active participation in the pan-Russian contest of scientific works "The first steps". Altogether, 61 works were sent during the last four years. Among them 29 papers received First Class awards. The annual growth of participants and winners at school, town and country competitions confirms the rise in educational motivation among lyceum pupils.

The Regional non-government organization "Let's reach Monday" Teachers' Club thanked officially the teaching staff of the lyceum for involving pupils in scientific and research activity.

The following activity was organized over three years:

— more than 500 studies were organized; more than 400 speeches by members of student scientific societies were heard at lyceum scientific conferences, Days of Science, scientific festivals, university conferences for students, postgraduate students and young researchers;

— 212 pupils participated in the International mathematical game "Kangaroo", 11 pupils displayed the best results in the region;

— 197 participated in the all-Russian linguistics contest "Russian Bear", 12 pupils displayed the best results in the region;

— 6 participated in the pan-Russian intellectual game for pupils "Eureka!" and 2 were winners;

— 5 award winners in the "Amazing discoveries" pan-Russian festival of creative and research works;

— 176 participated in the "Aidos" all-Russian heuristic distance Olympiads, including 3 laureates and prize winners in team competitions;

— 29 participated in the "Avangard" physics and mathematics correspondence Olympiads, 15 were prize winners;

— 14 participants, 12 winners and prize winners at the AmGPGU mathematics and physics scientific conference for students, postgraduate students and young researchers.

For three years, 128 pupils from Moscow, Khabarovsk and Novosibirsk have been studying at physics and mathematics correspondence schools. At present 53 pupils study in this way. 147 pupils' works on different themes were published by the lyceum publishing house "Vunderkind". Moreover, 136 pedagogical research works important for process of education were published too. The school-leavers entered the leading universities of the country in light of the Olympiad results. They were invited to the special schools of Moscow State university, Novosibirsk university. They have study course in America. Five school-leavers were awarded the Russian Presidential Prize

“The support of gifted and talented youth”. It was offered as a part of the priority national project “Education”.

As a result, the evidence proves that specially organized research activity increases the level of motivation in gifted schoolchildren and presents a dynamic phenomenon of intellectual development.

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