

CHESS FOR OVERALL DEVELOPMENT PROJECT: HISTORY AND EXPERIENCE

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ABSTRACT

This article discusses the development, implementation and future of the “Chess for Overall Development” project, which was started in the city of Satka (Russia) in 2004 and continues to this day. Initially, this project aimed to create and test an experimental educational methodology that would achieve the positive impact of playing chess on the development of student’s intellectual culture. This technology is based on the Cultural-historical psychology of development by L. S. Vygotsky and other practical-oriented approaches, including the most important one, the Reflective-Activity approach. The main aim is to create the conditions for developing a mental plan of action and student’s subjectness position for an individual path of development and education for everybody. The results of the longitudinal study are presented. They show the effect of chess on the

development of high psychic functions for the students and for their successful education as a whole. The experience of the project includes examples of successful work with disabled children and adults. The modern stage of the project is the transfer of its experience to the school and kindergarten teachers of other regions of Russia.

Keywords: *Satka, chess for overall development, ability to act in the mind, subjectness position, zone of proximal development, reflective-activity approach, child-adult collaboration, pedagogical and psychological help, longitudinal study method, cultural-historical psychology*

INTRODUCTION

The subject of consideration in this text is the history of the creation and implementation of the “Chess for Overall Development” project in the city of Satka, Chelyabinsk region (Russia). Currently, the idea of introducing chess into schools is becoming very popular. This is done by national chess federations in different countries of the world. In Armenia, chess has been introduced into all schools in the country. In Russia, chess is also being introduced in many regions, while chess is taught for different purposes and is based on different scientific foundations. One of the problems that makes it difficult to assess the effectiveness of teaching chess at school is that the results of the effect of chess are usually not tracked. Against the backdrop of the enormous, large-scale work to introduce chess into schools, isolated individual attempts to evaluate the results by which one could judge the usefulness of chess for students are almost invisible.

The Satka experience is unique in that from the very beginning, from the moment the project idea was born, it was planned to conduct regular diagnostics of the development of children playing chess using innovative technology. This work has been carried out for 19 years. Not all data from diagnostic examinations have been processed to date, but the results that have already been obtained show that teaching chess in primary schools using the “Chess for Overall Development” technology contributes to the cognitive and personal development of students.

It is important to note here that for those who pursue the goals of sports development of chess when introducing it as a compulsory subject in school. This project focuses on the idea of building developmental activities based on chess material rather than teaching children chess to achieve high sports results.

That is a short history of the idea of the “Chess for Overall Development” project.

In the small town of Satka, Chelyabinsk Region, in 2004, on the initiative and with the support of the President of Magnezit Group LLC S.P. Korostelev, on the basis of the Vertical

chess Club (Foundation), with the support of the MCU “Department of Education” of the Satkinsky Municipal District, an experimental platform was launched to create a completely new unique chess technique aimed not at training chess players, but at the general development of students with any development opportunities (also when working with children with special needs).

The implementation of this idea was undertaken by the Executive Director of the Vertical Sports Complex, FIDE master A.M. Gilyazov, Honored coach, international grandmaster Yu.S. Razuvaev and Professor of MSPPU, PhD in psychology. V.K. Zaretsky (Razuvaev, J. S., & Zaretskii, V. K. 2004).

The main idea was worked out by Nikita Alexeev, psychologist and chess player, in 1979, and the idea was that chess is the game that was created by God for the development of the ability to act in the mind. Grandmaster and chess coach Yury Razuvaev was inspired by this idea, and in 2003, we decided to work out the project “Chess for overall development”, and a possibility was opened in the small Ural town of Satka when the executive director of the chess club “Vertical” Amir Gilyazov invited us to realize our idea to this town.

SCIENTIFIC BASIS OF THE PROJECT

What was the main idea of the project?

1. To develop the mental activity ability;
2. To spread abilities developing in chess over other academic subjects;
3. To involve teachers in the development of methods similar to those of the authors of this idea and all the projects.

And very important was the idea to track the results by making regular psychological diagnostics.

The scientific base of the project consists of the ideas of Lev Vygotsky about the connection of education and development (Vygotskii, L. S. 1982), P. Galperin’s theory of step-by-step formation (Gal’perin, P. Ya. 1966), the ideas of N. Alexeev about chess role in development and reflection (Alekseev, N. G. (2002), S. Soloveichik, who supported the idea of cooperation between teachers and students, and Reflective-activity approach to psychological and pedagogical help in overcoming learning difficulties that was worked by V. K. Zaretsky with colleagues (Zaretsky, V. K. 2013).

The basic ideas of technology are the provisions of L. S. Vygotsky that learning leads to development, that development occurs in the cooperation of a child and an adult, and that the key process is the internalization of the experience of joint activity of a child and an adult.

An important condition is to work with the child in his zone of proximal development, i.e. in the area of actions that the child cannot successfully perform on his own but can do consciously in cooperation with an adult. Under certain conditions, according to L.S. Vygotsky, one step in learning can mean a hundred steps in development (Vygotskii, L. S. 1982).

L.S. Vygotsky's idea of interiorization, as the rotation of external experience inside, was developed by P. Ya. Galperin is embodied in the theory and method of step-by-step formation of mental actions. The elements of this method, in particular, the organization of sequential movement from the material stage of performing an action to its implementation completely in mind, are implemented in the "Chess for Overall Development" technology. The idea of building an educational process based on cooperation between a child and an adult was embodied in the practice of cooperation pedagogy, which was actively supported by an enthusiast of cooperation pedagogy, teacher S.L. Soloveichik. Another component of the technology was the ideas of N.G. Alekseev and other Russian psychologists about the role of reflection in the development of a child. Reflection has become the most important process in the procedure for constructing chess lessons. The child himself began to be considered as a subject of educational activity and its reflection, which became the basis for the introduction of the term "reflective-activity approach" (Zaretsky, V. K. 2013).

The Chess for Overall Development technology attempts to integrate the conceptual tools of these approaches. The core of integration is the idea of promoting the development of the ability to act in the mind. At the initial stage of the project, the work of P. Ya., Galperin and Ya. A. Ponomarev served as a guideline for organizing chess lessons in order to develop the ability to act in the mind (Gal'perin, P. Ya. 1966), (Ponomarev, Ya. A. 1967).

THE IDEA TO WORK IN THE ZPD OF EVERY STUDENT IN EVERY LESSON

The typical process of chess lessons is organized in a way that every student works in his own zone of proximal development. For example, some students may work with the chess board and pieces (in the material plan). The other group of children may work with symbols of pieces, so they need to keep in mind the images of pieces. Somebody may work with a pen and a sheet of paper and have the possibility to write down the position. And those who are ready to work in mind have no materials. They sit, eyes shut and thinking. All of them solve one and the same task according to the level of their ability to act in mind partially or completely.

Program of diagnostics and some results of longitudinal study

From the very beginning of our project, we started to track the results of our work by

diagnostics of different high psychological functions such as memory, visual memory, verbal intelligence, nonverbal intelligence, attention, performance, and ability to act in mind. Oksana Glukhova is the main person in this work. For 19 years, she has been conducting longitudinal research, and that is the fragment of these results. The diagnostics program was worked out by MSUPE psychologists (A. B. Kholmogorova, S. V. Volikova, Yu. V. Zaretsky) and modified by O. V. Glukhova for the students of primary and middle school) (Glukhova, O., Volikova, S., Zaretsky, Y., & Zaretsky, V. K. 2022).

The relevance is due to the expansion of the practice of including chess in school as an academic subject. At the same time, there are very few studies devoted to the analysis of the influence of chess on the development and academic performance of students studying chess as a school subject. This diagnostic study is being carried out as part of the Chess for Overall Development project, which has been implemented in the city of Satka, Chelyabinsk Region, from 2004 to the present.

The aim of the study is to establish a relationship between teaching chess in elementary school using the «Chess for Overall Development» technology and the dynamics of the development of higher mental functions of students playing chess using the «Chess for Overall Development» technology (N=331), not playing chess (N=146) or engaged in other methods (N=160). In a cross-sectional longitudinal study, methods are used to diagnose the development of attention, memory, verbal and non-verbal intelligence, performance, and the ability to act in the mind. In total, three cross-sectional studies were conducted: with students in the second grade, in high school and in the ninth grade. The results of a comparative study show that in the second grade, students who played chess using the «Chess for Overall Development» technology for a year were ahead of their peers from the comparison groups in almost all indicators. According to some indicators, the advance in development remained until the ninth grade. In terms of academic performance, students who studied using the “Chess for Overall Development” technology showed significantly higher results than their peers from the two control groups: every third graduate from those who entered the tenth grade became a gold medalist. The conclusion is made about the expediency of using the «Chess for Overall Development» technology in elementary school for cognitive development and growth in academic performance in middle and high school.

Time of the research Indicators	October N=24 M (SD)	May N=24 M (SD)	Significance level (p)
1. Memory	6,64 (2,71)	7,4 (2,20)	0,004*

2. Visual memory	5,67 (2,16)	6,29 (2,23)	0,021*
3. Verbal intelligence	5,89(3,05)	7,69(4,77)	0,001**
4. Nonverbal intelligence	8,07(1,74)	8,88(1,23)	0,001**
5. Attention	0,83(0,21)	0,90(0,16)	0,000**
6. Performance	237,9(194,86)	282,13(99,96)	0,000**
7. Ability to act in the mind	2,13 (0,79)	2,48 (0,77)	0,000**

M – average value

SD – standard deviation

* – significance level $p < 0,05$ (Mann—Whitney U-test)

** – significance level $p < 0,001$ (Mann — Whitney U-test)

t – significance as a tendency.

Table. 1 Comparison of the level of development of cognitive processes of students of the 2nd school grade, No. 40 (main group) (the first year in the project)

After 10 years of studying at school, our experimental group finished school and among 18 graduated 11 class students, 5 got gold medals. That was the best result in Satka and in Chelyabinsk region. This result inspired us to continue our work and to think, what is the secret of this effect? This effect on the overall development of our students was stable and unexpected for us, and looking for an explanation, we came to the following ideas of the mechanism how it was possible (Glukhova, O., Volikova, S., Zaretsky, Y., & Zaretsky, V. K. 2022).

“Heart” of methodology “Chess for overall development”

The methodology of “Chess for overall development” includes two components:

- Work for developing the ability to act in mind on chess lessons
- Secondly, the organization of the educational process on the basis of Reflective-activity approach (Zaretsky, V. K. (2013).

The explanation we had found looking at the educational process through the Multidimensional Model of the Zone of Proximal Development (Zaretsky, V. K. 2016), (Zaretsky, V. K. 2021) etc.

The diagram (see Fig. 1) depicts a child and an adult (a teacher, an educational psychologist, a counsellor, a parent, etc.) who are agents of the child's progress in the course of learning. In the diagram, the area "above the child" depicts the child's abilities, qualities, and personality features, which relate to the educational activity (learning) being carried out. They are designated as potential dimensions of development, i.e. they can change while overcoming learning difficulties. For example, a successful accomplishment of a challenge can be accompanied by an improvement in cognitive functions (attention, memory, ways of thinking) and improvements in reflection, motivation, self-efficacy, etc.

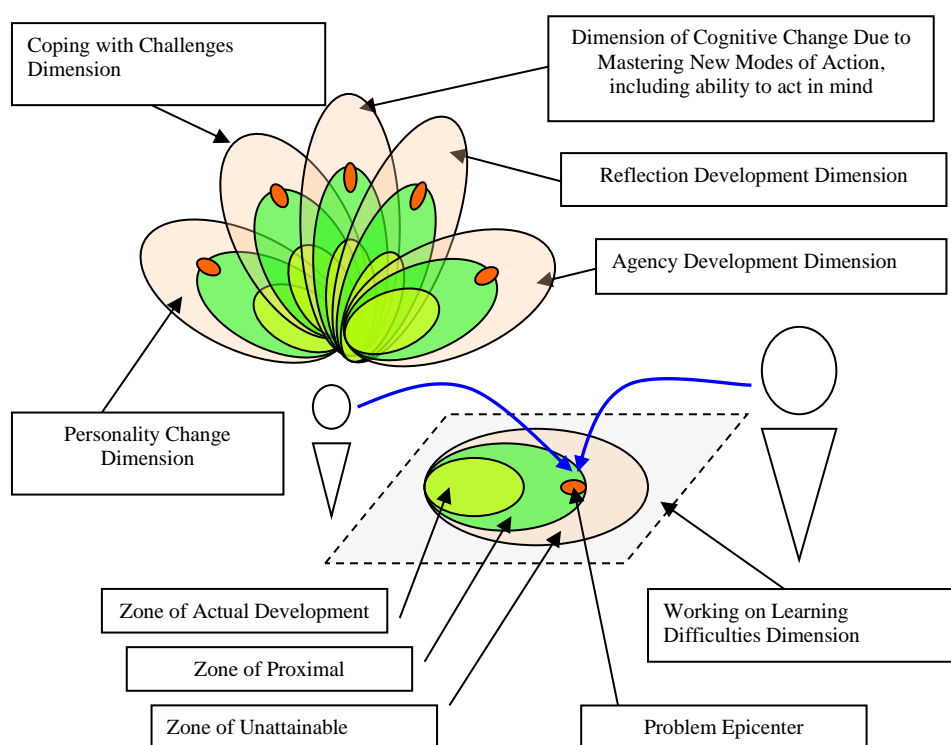


Fig. 1. ZPD as a generality of dimensions of potential developmental steps in the course of learning (V. Zaretsky, 2007)

Each dimension, including the dimension indicated by the plane of a learning activity, falls into three hypothetical zones: the zone of actual development (ZAD), within which the child can solve problems independently without the adult's help; the zone of proximal development (ZPD), within which the child can perform only with the adult's assistance; the zone of unattainable challenge (ZAN), within which the child is incapable of thoughtful collaboration with the adult (the boundary between the comprehensible and the incomprehensible). Assumingly, the steps in learning represent changes in the ZAD and ZPD boundaries on the plane of learning, and the steps in development are qualitative changes in every dimension. Vygotsky's formula - "A single step in learning can represent a hundred steps in development" – gets filled with concrete meaning within the framework of

this model: one-step progress within an educational dimension can be accompanied by simultaneous qualitative changes in many dimensions.

This model is also based on the reflective-activity approach and the ideas of Lev Vygotsky about the connection between education and development.

The most important ideas for us are the following ideas:

- Education goes in front of development.
- Learning difficulty is the most important moment of learning activity.
- A child can overcome learning difficulties in cooperation with an adult, interacting in the zone of proximal development.
- Zone of proximal development (ZPD) is the concept that describes different aspects of personality development.
- It is very important for our work idea that one step in education may mean one hundred steps in development.

What is the system of work that we call the reflective-activity approach?

This is a system of principles and technologies to promote the development of the child in the process of his cooperation with adults and peers, based on the support of the child's position as a subject of the activity, its reflection, awareness, restructuring and designing ways of its implementation.

So, the process of work is the regularly reflective work of the child with the ways of activity and changing, growing up of these ways and different abilities that occur in this process. All the processes may be described in this picture, where you can see a multidimensional model of the zone of proximal development (Fig.1).

Expanding the field of application of the technology “Chess for general development.”

When we got such a result, we thought about the potential of chess for solving different educational problems and, first – the problems of children with special needs.

There was a very important experience in Satka in school for children with mental disorders. First, we thought that it was impossible to teach them chess. It was a rather challenging problem, but it was solved brightly by Satka's teachers and psychologists. Within a year, a special school for children with mental retardation had a team of chess players that competed in the city championship. And even children with mental retardation mastered chess and made significant steps in their development.

At the request of the head of the deti.msk.ru foundation, L.Z. Saltykova, in 2013, MGPPU specialists began working with orphans with disabilities and severe somatic diseases. In this work, chess played a significant role. At first, classes were taught by V.K.

Zaretsky, and then Satka teachers were invited to conduct classes. Many children lagged behind in social and intellectual development, did not go to school, and did not have an education. Through chess, they got a taste for mastering new activities gained experience in overcoming learning difficulties, and those who went to school began to beat their classmates, gaining authority in school. For some children, playing chess became a serious turn in life. One of the most striking examples of the boy Pasha is described in (Zaretsky, V. K. 2016). A boy diagnosed with arthrogryposis, with very limited motor abilities, who was fed, watered, clothed, i.e. who could practically do nothing on his own, for the first time moved a chess piece on the board with his own hand. After reflecting on this event, he came to a vitally important conclusion - "I realized I must invent ways of doing something by myself." After that, he learned to play the piano, guitar, and drums, learned to play football using orthoses, successfully completed school, became the organizer of the vocal-instrumental group "Vegetables", became one of the main performers in theatrical performances staged with director Natalya Shumilkina. Now Pasha lives in his own apartment in Moscow, introduces everyone to various ways to make coffee "without hands," clean the apartment and do many other things, sharing his own experience of inventing various methods (<https://www.youtube.com/@user-hv1yd9wd1t>).

The next important step in this direction was done by Anna Sidorenko in the work with a patient of the psycho-neurological institution. That was the man, 28 years old, he studied chess for half of a year – and went out from this institution, and now he works, he is married and doesn't use any medicine. His trajectory of development may also be illustrated with the Multidimensional Model of the Zone of Proximal Development (Sidorenko, A. 2022) (Zaretsky, V. K., & Kholmogorova, A. B. 2020).

In 2022, the Ministry of Education of the Chelyabinsk Region decided to broadcast the Satka experience of introducing chess into schools in the regional education system. In the summers of 2022 and 2023, more than 600 primary school teachers and kindergarten teachers were trained in advanced training courses organized by the Vertical Chess Club in the city of Satka. Teachers and psychologists from other regions began to show interest in Satka's experience, including. Moscow, Ivanovo, Kemerovo, Surgut, and some areas of the Krasnoyarsk Territory. Perhaps the broadcast of the Satka experience will become the main direction of development of the project in the near future.

SHORN HISTORY OF THE PROJECT

That is a very short history of our project that began in 1979 when Alexeev said that chess is the game that was created by God to develop the ability to act in mind, then the

start of the project in Satka and then the development of the base of this experience the theory and practice of reflective-activity approach.

- **1979-1990**– N.G. Alekseev: “Chess is the game made by God to develop the ability to act in mind”.

- **2003** – the idea of project “Chess for overall development”.

- **2004** – the start of the project “Chess for overall development” in Satka-town in Chelyabinsk district.

- **2006** – the start of cooperation with an enthusiast from Germany – Matthias Dreger.

- **2013** – the start of the work with orphan children with saviour somatic disorders using chess.

- **2014 – 2016** - first graduated students from Satka schools who studied chess in primary school in the frame of the project (school # 14 – 5 golden medals, school # 40 – 8, school # 12 – 3, school # 5 – 1. all 17 among 105 students).

- **2016** – publishing of methodic materials “Chess for overall development”.

- **2017** – translation of methodic materials into English, including the program “Chess for overall development” as a discipline in Moscow schools.

- **2017** – working out the computer program “Chess for overall development” in Russian and English languages (chess-od.com)

- **2018** – victory in the all-Russia competition for the best system of teaching chess at schools.

- **2019** – the start of work with adult patients of Psycho-Neurological Institutions (A.Sidorenko)

- **2020** - N.Storozhenko’s internship in Satka. The virtual Chess Club for General Equality is the answer to the pandemic

- **2021** - training of teachers who know the methodology of FIDE courses

- **2022** – The “Chess for General Development” project entered the top 200 best social projects of the Agency for Strategic Initiatives (ASI). Primary school teachers in the Chelyabinsk region and Yekaterinburg were trained in this approach

- **2023** – Cooperation with the Chess Institute of the Armenian State Pedagogical University (ASPU) began. Translation of experience to primary school teachers and kindergarten teachers in the Chelyabinsk region, Surgut, Krasnoyarsk Territory.

CONCLUSION

1. From 2004 to the present, the project “Chess for Overall Development” has been developed and is being implemented. As part of the project, a new technology for teaching

chess at school was developed for the overall development of students. It was tested in schools in Satka and the Satka region, and the effectiveness of the technology for the cognitive development of students was proven.

2. The scientific basis of the “Chess for Overall Development” technology integrates various practice-oriented approaches in psychology and pedagogy based on the cultural and historical psychology of development by L.S. Vygotsky.

3. The technology is based on the idea of N.G. Alekseev that chess as a game has a special resource for developing the ability to act in the mind, which is one of the most important for the development and successful learning of children at primary school age.

4. The concept of “zone of proximal development” provides a methodological key to the individualization of the educational process and equips the teacher with the tools of working not with the class but with each child in the class during the lesson

5. Comparative cross-sectional diagnostics of the dynamics of development of children involved and not involved in chess using this technology shows that children participating in the “Chess for Overall Development” project are ahead of their peers, first in terms of the pace and then in the level of development of higher mental functions in primary school. In middle and high school, children who studied chess in elementary school using this technology are more successful than their peers: more than 60% of students continue their studies in high school (the average for the Satka district is 30%), and every fifth of those who complete 11(all) classes graduates from school with a gold medal.

6. The “Chess for Overall Development” technology has proven to be in demand when working with children and adults with special needs, including orphans with disabilities, children with mental retardation, and adults with mental disorders. Currently, the “Chess for Overall Development” project is entering a new stage - the translation of the Satka experience into the education system: over two years, about 600 teachers and kindergarten teachers in the Chelyabinsk region have been trained.

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