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CHESS ACADEMY OF ARMENIA
KACHATUR ABOVYAN ARMENIAN STATE PEDAGOGICAL UNIVERSITY
WORLD CHESS FEDERATION (FIDE)

"THEORETICAL AND PRACTICAL ISSUES OF CHESS EDUCATION IN SCHOOLS"

International Chess Conference

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The book comprises articles introduced during the International Conference "Theoretical and Practical Issues of Chess Education in Schools" held in Tsakhkadzor, the Republic of Armenia in 2016. The topics covered refer to the respective aspects of psychological, sociological and methodological researches that will mainly interest the representatives of public education.

CONTENTS

Mr. Levon Mkrtchyan
RA Minister of Education and Science

Firstly, I would like to congratulate all of us on the occasion of this Conference and to convey my thoughts to the participants of the Conference. This year is very important to us as we celebrate the 25th anniversary of Independence of the Republic of Armenia. It is a good reason to make accent on some realities that have become an important part of our life, thoughts, and life philosophy. While trying to value our education system and distinguish the accomplishments, we cannot but voice this purely Armenian phenomenon: chess in school system. We have embraced the entry of the oldest game – which is sports, culture and philosophy at the same time – within school system. Now it is the very time to thank all those people due to whose several years' efforts we were able to turn this beautiful idea into a life reality for our school society. The President of the country Mr. Sargsyan has always been in the pursuit of this idea and due to our dear friend Smbat Lputyan's diligence the institutionalization of this idea became possible. The role of our international partners, chess and pedagogical community has also been important as they believed in this endeavour and thanks to the cooperation we were able to implement the program step by step. We started with the pilot program in a couple of schools and huge work was done to create the educational materials, thus, today we can state that we have measurable and appreciable results. For me, as a Minister of Education and science of Armenia, the educative role of chess is of particular significance as it shapes character and such kind of qualities as calmness, the ability to anticipate and calculate the moves which are utterly needed for young people to confront the challenges of the 21st century. This program immensely contributes to the perception of natural sciences; therefore, children feel the necessity of certain philosophy. The relationships between pupils and teachers start changing due to chess. I am sure the impact of chess will be proven and accessed scientifically during the Conference. Teaching chess is one of the unique programs that is absolutely accepted by all the parties engaged –

professionals, teachers, and parents. We start teaching chess since childhood and it is very important because at an early age the character of the child seeking from freedom to responsibility is formed. Since that age children gain different abilities through knowledge – such as the sense of responsibility towards people and their own actions. So, this subject taught at school plays a great role.

During the talks with Mr. Lputyan I always mention that I am also happy that our experience is very interesting for international community. FIDE senior officials always pay attention to CiS program. Chess also has its unique place in the higher education system in Armenia. Next to me is sitting the rector of Armenian State Pedagogical University Mr. Mirzakhanyan and it is a major institution that finds solutions to the problem of teacher training and retraining process. I want also to greet warmly the rector of Uruguay University and mention that this country is also interested in the Armenian experience in this field. We have great achievements in this field, and I hope that it will be accepted gradually by many countries worldwide. I wish all of you success and I want to imagine that in the near future chess will be taught as part of a school curriculum in many counties of the world. Thank you!

Mr. Smbat Lputyan
First Vice-president of the Armenian Chess Federation,
Founder and President of the Chess Academy of Armenia,
Head of the Chair of Chess and Sports, ASPU named after Khachatur Abovyan,
International Grandmaster

My warmest greetings to all of you! I wish we could establish full of fruitful cooperation within this Conference! As I have taken part in many conferences introducing the major issues of chess education, I want now be honest with you and share my views about the 11-year long way that we have passed implementing chess as a school subject. I am very happy to see all of you! You have come from different countries and, basically, here are present those people who are busy in the field of education.

People in this filed are those who want to see a better future, to see a world more educated, intelligent and creative. In the coming two days we will try to understand how we could contribute to these endeavours. Eleven years ago, having all these thoughts in our minds, together with the president of Armenia Serzh Sargsyan and taking into consideration the important role of chess, we were trying to do our best to make a better change in this field and we decided to include chess in school curriculum. We started the preparatory stages and 6 years later, in 2011 chess was actually involved in the school curriculum as a compulsory subject. To do all these, one needs to have a group of devoted people, and I was able to find psychologists, sociologists and chess methodologists who were working on this program with enthusiasm. When chess was included in the school curriculum, we already knew that chess had its positive impact on children but we wanted it to be measurable. We started doing researches and we saw that raising this or that problem a bunch of new problems was arising and we were confronting the problems that exist in schools. During all these years we understood that we should be more organized and should try solving bigger problems. In ASPU in 2014, was founded a research centre that united different professionals who were working on the researches of chess education problems. Today we will have the chance to get acquainted with the results of the researches that have been done during last two years. I express my gratitude to all those people who have been involved in this process and who try

to do their best for the development of this sphere. I am also thankful to ASPU for its special treatment to chess and for the devoted work they do. While conducting the respective researches and further analyses, we come to a conclusion that there are new different ways to solve the pending problems and those ways lead to better changes. While implementing CiS program in Armenia, we realized that we had assumed the responsibility to help other countries who would like to implement the same program. That is why we started to create the learning materials in the virtual world. It will help teachers not only in Armenia but also the teachers elsewhere. However, the most important problem that we have is the training of chess teachers, and for already half a year the Centre for Educational Research of chess is working to clarify the principles on which teacher training should be based. It is the main problem that we are currently working on. I hope that due to hard work we will solve this problem as well. And we will provide the results also to our international colleagues as we believe that teachers should work according to the same principles no matter in which part of the world they live and work. I am happy that we do all this work with great pleasure and every time we set difficult problems and try to solve them. After 11 years of hard work, I can surely state that chess is an effective tool to develop the children's way of thinking. I wish all of us could jointly create a society that is intelligent and creative. Thank you once more for joining us here!

Mr. Zurab Azmaiparashvili
President of the European Chess Union,
International Grandmaster

We have been friends with Smbat for more than 40 years, and I am very glad to be here! I got an invitation from my friend and it's a pleasure for me to be here and to meet people from different countries who are interested in chess. We live in the 21st century and it is a new era, the era of challenges. You know the main challenge very well: all of us have mobile phones, we watch TV every day. There is a flow of huge quantity of information every day and for us it is difficult to sort out all that information and somehow we are the victims of that flow of information. We need very specific mind to divide all that information, to take the best part of it and forget all the useless information. Today we are facing a lot of problems and, especially, Europe is facing the problem of refugees. All the people and politicians try to solve this problem. Let me make a comparison. Very often people have to go to the doctor to make a surgery. But before it the patient needs first of all to turn to the physician who will try to understand the patient's problem and solve it without a surgery. Unfortunately, today the world doesn't realize that the problem can be solved before surgery. We are chess players and for us it is very difficult to convince people that chess is important for educational system. Armenia is a unique example and it is a synthesis of many factors such as the enthusiasm of my friend Smbat, who was first to start all this process and all the likeminded people who tried to support this idea. Of course, no success would be obtained if there was no political will and, for this, I want to thank the president of Armenia, our friend Mr. Serzh Sargsyan. Chess is a synthesis of science, sports and art, and there was time when chess was mainly connected with art, then it obtained scientific characteristics and there is an element of sports in it as well. Nowadays, in the 21st century, chess obtains also an educational meaning and I absolutely believe that, like thousands of years ago, Noah's Ark stopped here and a new civilization started around the Mount Ararat, the world's oldest civilization who succeeded with chess inclusion in schools will now start a new era in education. I think this is

becoming a modern challenge.
I hope we will reach together our main goal, and people will live in peace and they will realize new successful projects. I want to wish my Armenian friends and all of us very successful two days to find solutions to current problems. Thank you, thank you for your biggest support!

Dr., Prof. Ruben Mirzakhanyan
Rector of ASPU named after Khachatur Abovyan

On behalf of Armenian State Pedagogical University named after Khachatur Abovyan I want to greet you and wish productive work. Now it is a bit cold in the hall because we are in Tsaghkadzor and this is a famous winter resort, on the other hand, I think that it is not cold at all as I know that the Conference will pass in a very warm atmosphere. In 2011 at the Pedagogical University the Chair of Sports and Chess was founded and, as Mr. Lputyan mentioned in his speech, already in 2015 the respective Chess Research Centre was established. The centre carries researches in three main directions: psychological researches where the cognitive factors are being examined, sociological researches and researches that are conducted to explore the impact of chess on children with special needs. The results of the researches will be introduced through analysis during the two days of the Conference. I want to emphasize that all these activities gained international recognition due to Grand Master, First Vice-president of Chess Federation of Armenia and the founder and President of Chess academy of Armenia Smbat Lputyan. Mr. Lputyan has assumed the responsibilities of the Head of the Chair of Sports and Chess and through his every-day effort she has been leading all the researches mentioned above. We are sure that both the work done by the Chair and the Chess laboratory will contribute not only to the Armenian but also to the international educational system. The evidence of this is the greatest interest towards chess. I would like also to assure that Armenian State Pedagogical University in joint efforts with all the partners will do its best to reach our common goals.
Let me restate my deepest gratitude and most heartfelt wishes to you!


International Conference

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Teaching chess, as a mandatory subject in schools, is a new phenomenon for the Armenian reality. It is a unique training tool for developing creative thinking, which requires the ability to independently run a problem,creatively solve it and have a flexibility of thought. Since adding chess to school curricula, we have implemented multi-stage research. As a result, it was found that teaching chess in schools contributes to students' intellect, creativity, memory, attention, and watchfulness development [1]. In this process, the teachers have a particular role. In the modern technology era, high importance is given to the teachers' professional work, which is directed towards the future and creates a new reality. The new reality includes the students who, on their shoulders, have the responsibility to shape the future [6]. In the modern educational system, teachers are given requirements, and thanks to implementing them, they are able to fulfil their mission to educate and bring up a competitive generation. Back in the 19th-century famous Russian psychologist and educator P.F. Kapterev in his research indicated that the teacher's personal qualities are very important factors for the effectiveness of the pedagogical activities. He pointed out the following qualities: purposefulness, persistence, diligence, modesty, observation, and moreover, underlined the importance of wit, rhetorical abilities and acting talent [3]. In addition, at all times the ability

to empathize was considered as an important quality of the teacher's, that is, the ability to understand the mental states of students.

Teachers' professional and pedagogical qualities are reflected in the works by A. K Markova, L.M Mitina, N.V Kuzmina, J. Rayns, N.D. Levitov, A.A Rean, A.A Baranova, A. I. Sherbakov, E. Romanova. A. Markova as important professional qualities of the teacher considers a broad vision, practical and diagnostic thinking, intuition, watchfulness, optimism, prediction, and reflection. By the way, these qualities are seen only in the pedagogical context. L. Mitinaidentified the teacher's more than fifty personal qualities, such as wisdom, strictness, impressiveness, well-mannered, attention, restraint and self-control, behavioural flexibility, humanism, discipline, kindness, conscientiousness, initiative, responsibility, organized, interacting, principled, independence, justice, inventiveness, courageousness, self-motivation, sense of humour, tactfulness, self-esteem, sensitivity and emotionality [5]. E. Romanova identified the qualities which ensure the effectiveness of the teacher's professional activities. Accordingly, she points to the abilities (pedagogical, public speaking, organizational, verbal, communicative, empathy, well-developed memory, a high level of distribution of attention, mental and emotional balance), personal qualities, characteristics and inclinations. The latter are the preference to work with children, attracting with an idea, leading capability, a high degree of personal responsibility, self-control and balance, patience, concern and respect for others, self-knowledge, self-developing, uniqueness, resourcefulness, versatility, tactfulness, goal-oriented, the pretension to itself and others, and watchfulness. The qualities which are disturbing teachers professional activities are the no-discipline, mental and emotional imbalance, aggressiveness, rigid thinking, selfishness and lack of organizational skills [9]. That is why special attention is being paid to the chess teachers' personal and professional qualities. The effectiveness of the chess teaching is related to the teachers' thinking characteristics and personal qualities.

Our research was aimed to reveal their thinking characteristics and personal qualities. The testing method was used during the research. To identify teachers' personal qualities and thinking styles we used R.Cattell's personality factors and J. Bruni's thinking style and the level of creativity revealing tests [2; 8]. 300 chess teachers from 5 regions of Armenia participated in the research (Yerevan city (n = 38), Kotayk (n = 58), Ararat (n = 50), Aragatsotn (n = 52),

Armavir (n = 102)). R.Cattell's test covers the intellectual, emotional and communicative, and the establishment of interpersonal relationship blocks. The study revealed that teachers' intellect, dreaminess and flexibility indicators are on the average level.

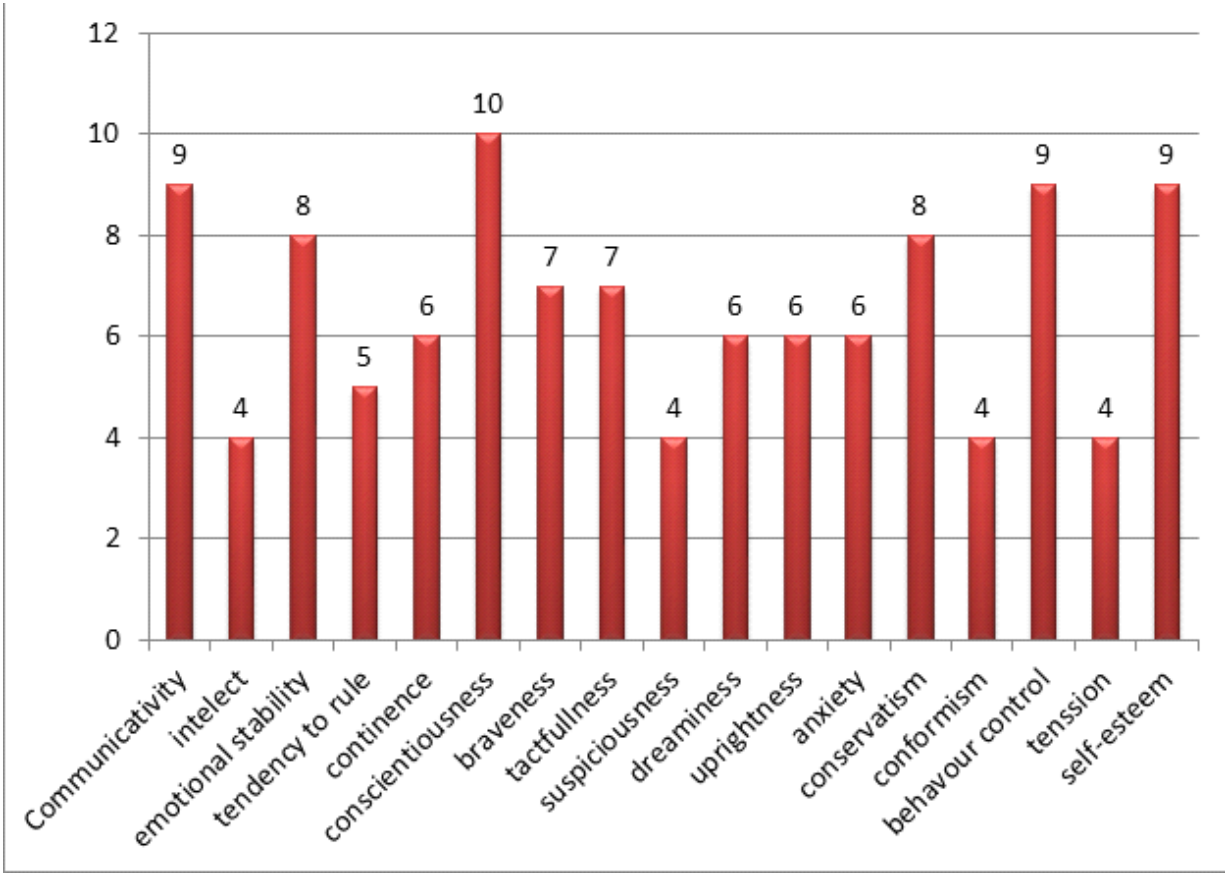

Chart 1. R.Cattell's personality factors test's average indicators (n = 300)

All this testifies to the fact that they tend to solve specific and practical issues. Sometimes they can come up with different and unusual ways of solving them. They are realistic and have a practical orientation. Sometimes easily accept new ideas and changes. In some

situations, they can make experiments. The next block is emotional, which includes emotional stability, conscientiousness, sensitivities, anxiety, behaviour control and tension indicators. Teachers' emotional stability indicators show that they are restrained, calm, emotionally mature, able to manage the emotions and feelings, control behaviour (high indicators of behavioural control). Their interests are diverse and stable. They are led by the sense of duty and responsibility and follow the general norms (high conscientiousness level). Teachers' sensitivity indicators are on a medium level, which shows that they sometimes can be cruel and rude toward others, not always are able to understand people's feelings, emotions and empathize them. Middle rates of anxiety and low rates of tension show that they are self-reliant, self-confident, calm and self-sufficient. Thus, the emotional block is characterized by high rates of conscientious and behaviour control. Next, communicative skills and establishing interpersonal relationships blocks include communicative, the desire to rule, restraint, courageousness, scepticism, uprightness and conformism indicators. It should be noted that teachers establish interpersonal relationships easily, they are ready to cooperate with people and make decisions together and get social encouragement (low indicators of conformism). In the interpersonal relationships, they are direct, naive (low indicators of suspicion), accommodating and patient. Middle indicators of courageousness indicate that teachers sometimes are cautious and perspicacious in the interpersonal relationships (average indicators of uprightness). In some situations, they prefer the personal style of acting. They tend to perceive the reality pessimistically and realistically assess their capabilities. The standard deviation indicators are not high, which indicates that the sample is homogeneous.
To summarize, we can conclude that it is typical for teachers:

- communicative
- average IQ
- emotional stability
- concession
- conscientiousness
- credulity
- conformism
- behaviour control
- self-sufficiency

Referring to teacher's thinking style and the level of creativity indicators, we should note that their objective and symbolic thinking indicators are on the middle level, which shows that in some situations they can transform information to perform subject activities consequentially, as well as with the help of arithmetic rules and signs.

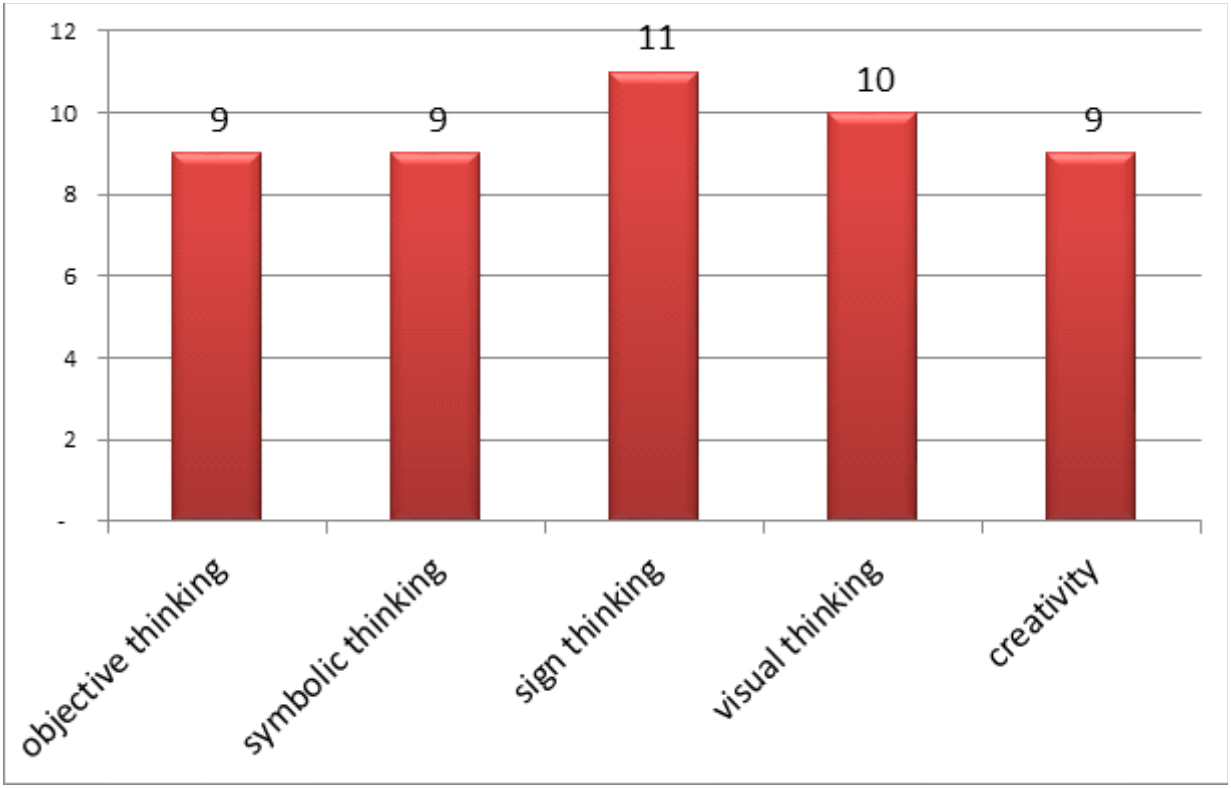

Chart 2. The average indicators of thinking style and creativity level

Teachers' sign and visual thinking indicators are high, which shows that they convert the information into the conclusion, as well as with the help of images and characters. Their creativity is on the middle level, which indicates that they sometimes can offer various solutions to the problem. To justify analysis of the teacher's personal qualities' average

indicators and to get their psychological portrait we revealed the correlative connection. There is a correlative positive connection between the communicative skills and impulsivity (r = 0.23, p <0.001), between emotional stability (r = 0.15, P <0.01) and courageousness (r = 0.15, P <0.01). All of this suggests that as easily as teachers establish interpersonal relationships, therefore they are frank, cheerful, give great value to emotions in the relationship, emotionally are stable, calm, capable, initiative, their interests are stable, willing to interact with strangers in an unfamiliar environment and they are able to accept non-standard solutions and demonstrate leadership qualities. And also there is a correlative connection between the intellect and emotional stability (r = 0.15, P <0,01), between emotional stability and conscientiousness (r = 0.22, p <0,001), self-esteem (r = 0,21, P <0.001). Such contacts indicate that just as easily as the teachers are able to solve the abstract problems, so they are resourceful, and so stable in their area of interest, capable, emotionally mature, stable, moderate, which correlates with the fact that they are responsible, conscientious, persistence in the achieving goals and guided by a sense of duty and responsibility. Between self-esteem and emotional stability (r = 0.21, p <0.001) the correlation connection points to the fact that as much as teachers are emotionally mature, stable, moderate, therefore they tend to overestimate their capabilities. It is remarkable the correlative connections between courageousness and great flexibility (r = 0.21, p <0.001), between the anxiety and tension (r = 0.23, p <0.001), between flexibility and creativity (r = 0.14, p <0.01). All this shows that as much the teachers are initiative, active, inclined to accept non-standard solutions, demonstrates leadership qualities, therefore they are open-minded, easily accept new ideas, changes, perform experiments, and also offer variety ways for solving problems. The correlation connection between anxiety and tension (r = 0.23, p <0.001) indicates that, as much as teachers are concerned, anxious, and sensitive to get encouraged by other's, that much they are energetic, intense and highly motivated.

There is a negative correlative connection between communicative skills and scepticism (r =-0.23, p <0,001), between dreaminess (r = -0.16, P <0.01) and independence (r = -0.32, P <0.001). All of this testifies the fact that many teachers as much as they easily set up interpersonal relationships, that much they are concessive, patient, naive, straightforward, realistic, tend to solve practical problems, as well as depend on the group's opinion, follow

the rules, seeking solutions together with others and aimed for social promotion. Also, there is a negative correlative connection between intelligence and creativity ($r = -0.19$, $p < 0.001$), which shows that as much as teachers solve abstract problems quick and easily, so they have difficulties to offer different solutions and unusual ways. Creativity is weak and vice versa. There is also a negative correlative connection between conformism and continence ($r = -0.20$, $p < 0.001$), showing that as much as teachers are constrained in interpersonal relationships, careful, thoughtful so they are so independent and tend to form an independent opinion. Correlative connection between emotional stability and anxiety ($r = -0.29$, $p < 0.001$), the tension ($r = -0,30$, $P < 0,001$) indicates that many teachers as much as they are emotionally stable, mature, restrained, capable, so that much they are calm, cheerful, self-confident, determined, self-sufficient. The negative correlative connection between sensitivity and scepticism ($r = -0.17$, $P < 0,01$) indicates that as much as teachers tend to empathize, support people, so they are naïve in the interpersonal relationships, compliant, patient and frank. Thus, chess teachers' psychological portrait includes the following interconnected qualities: communicative skills ⇒ emotional stability ⇒ conscientiousness, communicative skills ⇒ credulity ⇒ realism, courageousness ⇒ flexibility, ⇒ creativity, continence ⇒ independence. Although these qualities are typical of the other subjects' teachers too, but based on the fact that teaching chess is a new concept and most of the teachers are beginners, we find that in the process of increasing their professional qualification it should be taken into consideration the interconnections of the personal qualities and particularly focus on their development.

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Chess, as a school subject, has been introduced to improve schoolchildren's academic skills, in particular, within the context of the development of psychic processes (memory, attention, thinking, perception, self-evaluation) and personal characteristics (volitional, self-esteem and self-evaluation, etc.). Taking into consideration the disturbances in the spheres of psychological process, speech and communication, emotions and volition, and low self-esteem among the Children with special educational needs, the aim of our study is to investigate the possibilities of developing the above-mentioned qualities with the help of chess which could enable some efficient regulatory mechanisms for child's behaviour.

A. Subida claims that chess develops not only the cognitive abilities of a child but also stimulates the social adaptation of children with special educational needs, adding that that the role of chess is of particular significance in the process of regulating the emotional state. There are numerous studies on the positive impact of chess on children's psychological processes (J. Fadul, P. Rudik, etc.). However, there are almost no studies on the influence of chess on regulation of the behaviour of children with special educational need. Meanwhile, as it is known, chess has obvious influence on the development of both intellectual and some personality characteristics.

Our research was conducted among 15 2nd and 3rd-grade children with special educational needs schools 122, 153 and 197 in Yerevan. The schoolchildren involved in the research had

mainly speech, mental, locomotor system, behaviour and other types of disturbances. The research work was scheduled in three phases.

The first stage of the research was to study the behaviour of the children with special educational needs both at chess lessons and other school subject lessons. The study consisted in psychological observation and analysis of video materials. The results of the study evidenced difficulties in focus of attention, distraction, motor restless behaviour among 9 (60%) of children, alienation or self-segregation or isolation because of difficulties in contact and communication among 4 (26,6 %) of children, indifference, lack of interest and, as a result, absence of aspiration, motivation to reach a target among 2 (13,4%) of children.
The results of the first phase of the research inspired the logic of the second one: the group of the children with special educational needs and the rest of the school children were asked to write an essay upon the topic "What has chess given to me?". The aim of the essay was to find out the precise position that children had towards chess as a school subject, the possible influence of the latter on their conduct and, finally, in order to fuel their reflection. The further analysis of the essays uncovered a series of personality characteristics that children had mentioned with particular frequency (the children's comments on different personality qualities were also provided).

·**Patience** - when someone is waiting with patience for the opponent's next move;
·**Aspiration, motivation to reach the target defined, skills to act upon the ideas and to find solutions** - when someone is looking for ways how two gain victory over the opponent;
·**Ability to follow the rules of game honestly.**
·**Trust upon one's own power** - because each victory is achieved thanks to intellectual capacity.
·**Ability to assume responsibilities, to learn from one's own mistakes** - when someone teaches how to set a control over one's own feelings even if they have failures of losses.
·**Time and action planning ability** - this capacity is important as while playing chess one needs proper time management in order to finish the party completely.

·**Ability to make decisions and to assume the responsibility for one's own deeds** - this is important as every single move in chess entails some consequence, subsequently, one makes decisions and takes on the responsibility for the consequences of these decisions.

·**Determination** - this occurs when even in case of a loss, the player keeps trying to play till (s)he reaches the aim.
·**Modesty** - is formed when one realizes that the decisions that one makes are not necessarily always right so you must be aware of the fact that there is no chess player who could have had victories only.
·**Formation of cooperation skills** - while playing chess, even if the player is not sociable, (s)he begins cooperating with the opponent as they are aware of the fact that they are playing together.

Taking into consideration the sheer fact that chess itself influences on the formation and development of children's personality qualities mentioned above, this game is definitely decisive in the regulation of children's conduct. The third stage of the research conducted by us was an attempt to stimulate the self-control, patience (the ability to wait patiently), increase of self-esteem and cooperation skills and capacities among the children with special educational needs via special methods of teaching chess. The potential of teaching/learning chess through cooperative learning, scenario-role-game teaching, therapeutic and stimulating methods among the children with educational needs was meant in this stage of the survey. As chess itself comprises elements of cooperation, while the children were playing chess during the lesson, they were asked to swap with partners on regular basis. The chess problems and assignments were completed in groups with at least one child with special educational needs who must autonomously offer the first step towards solution and discuss it with the rest of the group. The research comprised also scenario-based games when the children with special educational needs were given the main or the most important parts, for instance, the role of the chess queen that was recognizable with the help of the respective crown. Thus, when these children approached the board, they were entitled to offer a move to their group of children. Such games would make evident the process of self-evaluation, self-esteem increase, as well as the development of self-regulation, self-control, conduct shifts among the children with educational needs in line with the child's awareness of the characteristics of the part that (s)he was playing. During the lesson, in order to guarantee the complete

engagement and for behaviour regulation purposes among the children with special educational needs therapeutic games were applied as well – the children would get some string puppet chess pieces or, in accordance with the art (clay) therapy, the children were asked to use dough or clay make chess pieces like the ones they had seen and to play with these pieces. The work with the children with special educational needs proceeded quite effectively through both oral and written appraisals (stimulation): for every single, even small victory the children would receive special medals and appraisals were expressed aloud.

Thus, the application of the aforementioned methods demonstrated that, as a result of using chess and special teaching methods of chess, there is a considerable conduct (behaviour) shift in children with special educational needs (see Table 1). Consequently, the child's behaviour marks positive changes not only at the lessons of chess but also at other school disciplines. If the children used to have problems in communication, would somehow be self-segregated, isolated or alienated from the group, now, for instance, at the lessons of math she begins to cooperate, interact with the classmates with whom (s)he has played chess. We also detected shifts in the capacities connected with self-regulation, patience, the feeling of security and self-esteem and trust on his/her own power as well as in focus of attention.

Table 1.

	Number of children under study n = 28			
	Before the research		After the research	
	Number	%	Number	%
1. Absence of the ability to focus attention	20	71,2	9	32
2. Alienation: self-segregation, isolation, absence of cooperation	12	42,4	4	14
3. Indifference, lack of interest	15	53,2	6	21,3
4. Insecurity for their own power and capacity	7	25	4	14
5. Problems of self-control	18	64,5	8	28,5
6. Absence of patience	24	85	12	42

Conclusion: summarizing the results of the research

Thus, the results of the research conducted allow claiming that using chess and special methods of teaching chess enable to contribute to the development of conduct-regulation among the children with special educational needs and to the formation of cooperation abilities among them, stimulating such personal qualities as self-control, patience, self-confidence, etc.

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R.Cattell's personality factors test's
average indicators

OVERCOMING DIFFICULTIES IN TEACHING CHESS AS A SCHOOL DISCIPLINE FROM TEACHER'S PERSPECTIVE: METHODOLOGICAL ASPECT

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In teaching chess we come across a variety of problems based on objective and subjective factors. The current circumstances that we face in the education system attribute a particular sharpness to the aforementioned difficulties which find their expression in the paradigms of subject, pedagogical-methodological philosophy, psychological and other realms [Malyshko C. V. (2008) Herald]. All these components even increase the complexity level of the pedagogical component in teaching chess as a school subject. We must add that the difficulties emerge from the very moment when, while developing their academic activities, teachers come across some unexpected hurdles and contradictions [Borovskikh A. V. Rozov N.Kh. (2008)]. And the process keeps unfolding when the obstacles and contradictions on its way persist unsolved in due time.

So, how is it possible to overcome or assuage the aforementioned hurdles that all the pupils and teachers encounter within the school course of chess? Which are the guidelines or the roadmap that the teacher of chess makes use in the respective pedagogical mission?

The sociological research the results of which we would like to share is particularly designed to address these questions. The reliability and trustworthiness of the results of the study have been verified and increased through the triangulation method, i.e. combining different methods and sources of data collections.

The *survey (quiz) method* have been used as the survey (quiz) still remains as an indispensable way of gaining information within the subjective world of individuals, their ambitions, activity motives, opinions and standpoints. Due to the research aims we have opted for deep survey method or free quiz method. The method off *content-based analysis* of the video recording of the lessons has also been utilized in order to uncover the information, the hidden aspects in the document that might be invisible from the first sight [Hsieh Hsiu-Fang, Shannon Sarah E. 2005].

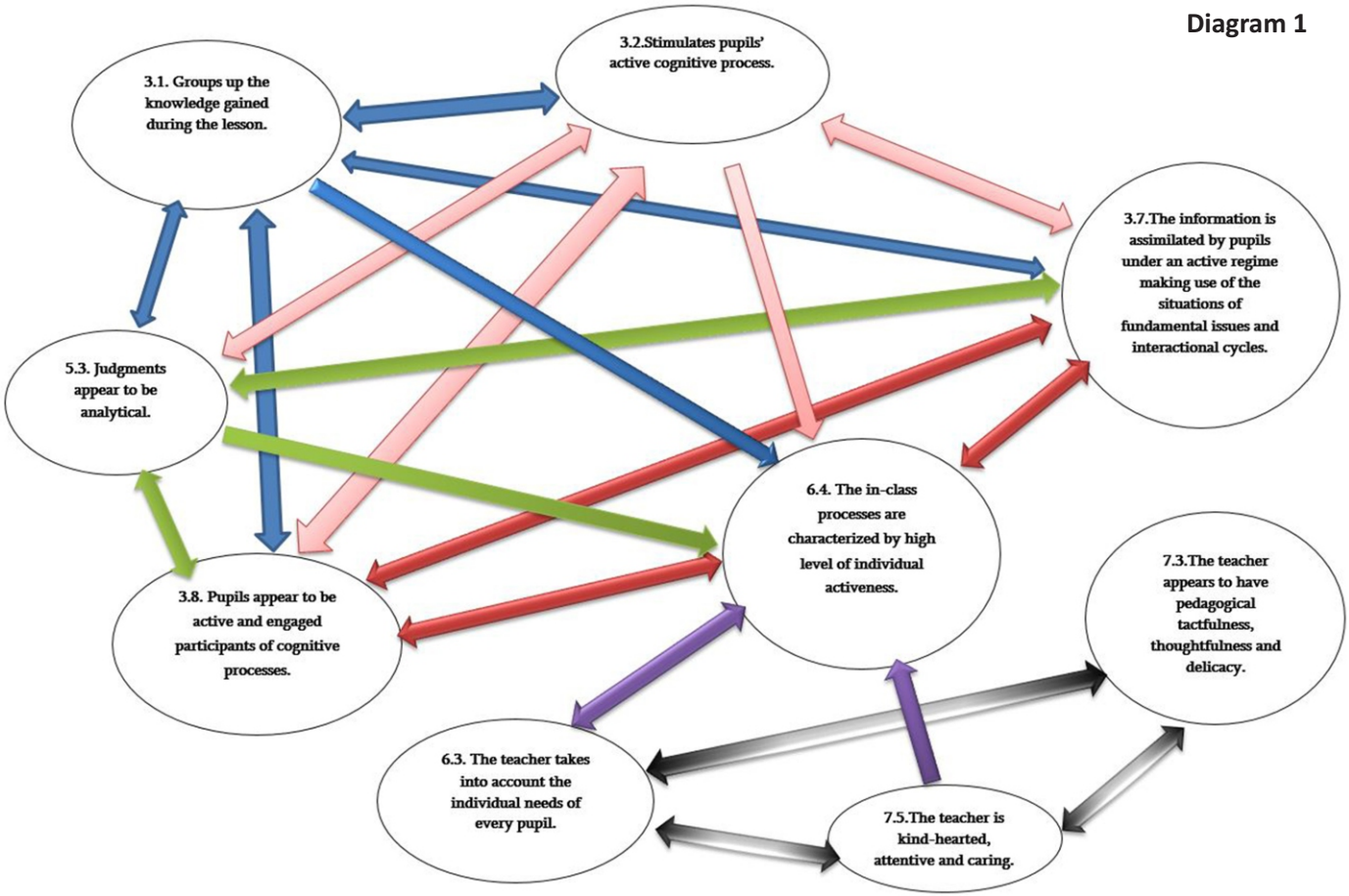
The *theoretical aim* of our sociological research is to contribute to the enhancement of the efficiency of teacher-pupil interaction developing new approaches as incentives for their development. The practical aims of the research have been formulated as it follows:

- To submit the teacher-pupil interaction problems and the ways of overcoming them – within the framework of teaching chess as a school subject and from teacher's perspective – to the respective research.
- To unearth the factors and the cause-reason connections between the factors that motivate the strengths and weaknesses of teacher's behaviour through analysing the video recordings of the lessons of chess.

Introducing and analysing the process of emerging difficulties and the ways they are expressed, let's make a special reference to some problematic, tough situations that are likely to occur during the in-class activities. We must note that according to the investigation of teaching/learning process at chess classes evidences that the subjects of that process – the pupils and educators – while developing together the respective educational interaction, face some difficulties related to the school subject peculiarities, pedagogical-methodological settings and psychological peculiarities which make up an intricate set of inseparably interconnected and mutually motivated constituents. The diagramme below illustrates the mutually completing factors uncovered by the analysis of the video recordings of the subject matter classes. According to Spearman's formula the interconnection among the sensible

units of the analysis proves that the quality factors of the lesson 3.1, 3.2, 3.7, 3.8, 5.3, 6.3, and 7.5 guarantee a high level of individual in-class activeness among the school pupils.

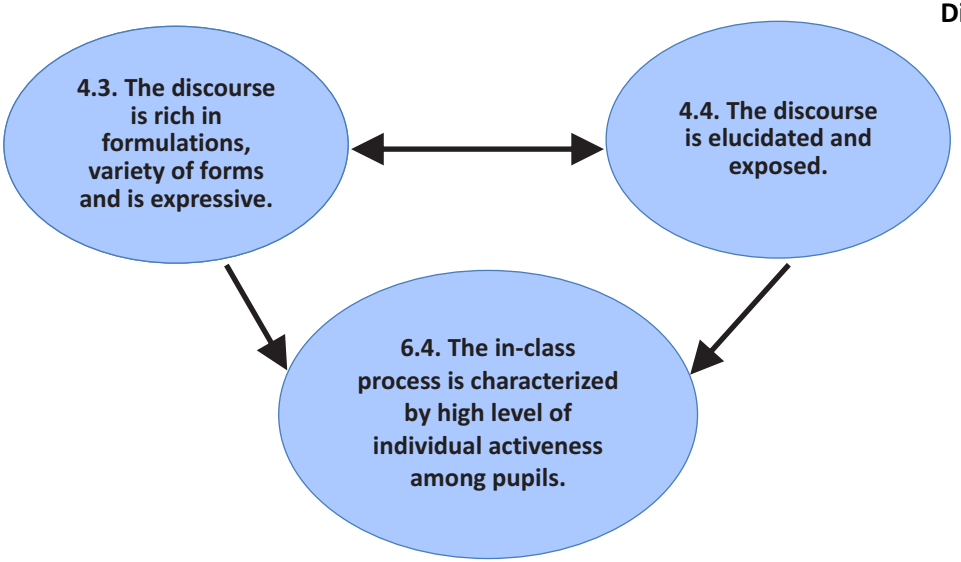
Diagram 1

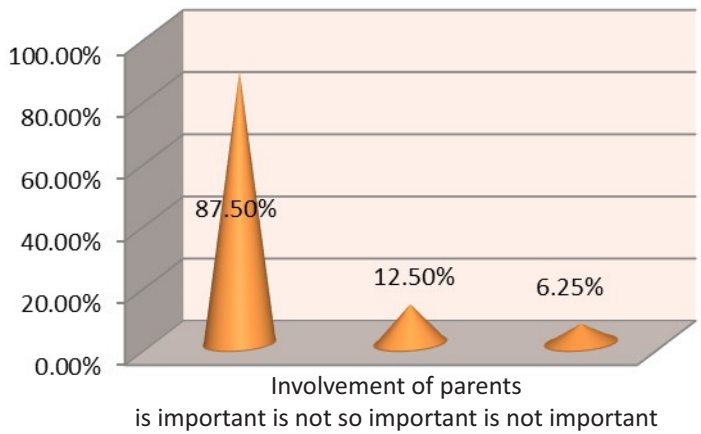


In order to enrich the lesson with all the aforementioned factors that add up efficiency, the majority of teachers involved in the survey (87.5%) highlighted the significance of pair work among pupils, namely the precondition of cooperation-based communication among the pupils.

The other group of teachers - 68,8% of the respondents – emphasize that they combine also other ways of activity, situational modelling techniques, as, for example, “embodying or personifying the chess pieces”, “finding the lost chess piece”, “Dead end for the king” , etc. which are designed to boost the mechanic memory. On the other hand, some of the chess-player educationists have underlined the importance of the enhanced emotional charge for the assimilation of the educational material by primary school children. The teachers claim that the emotionally coloured speech has impressive intonation and is enriched with such paralinguistic features as gestures attracting thus the pupils’ attention. It must be mentioned that the content-based analysis of the video recordings of the lessons studied the links among the data collected turned out to be self-evident. (see Diagram 2).

Diagram 2





Graph 2.1

Almost all the participants, at least the vast majority (81.25%) of them unanimously emphasized the significance of parents in the formation of positive attitude to chess as a school subject among the primary schoolchildren. This kind of attitude is definitely among the priority factors for the successful organization and management of teaching process.

As the teachers who participated in the survey claim, all the pupils, whose parents showed active involvement in the academic process cooperating with educators, demonstrated positive behaviour patterns, positive predisposition towards chess as a school subject.

On the other hand, as noted by 43.7% of the respondents, the parents' engagement has its positive influence on parent-teacher communication which results in rapport helpful for deeper understanding of the pupils, their abilities, interests and motivations by the teacher.

One of the chess-player educationists over the course of professional activities made use of a possible model of cooperation with parents: organizing "a cheerful chess contest" with immediate participation of parents. "The pupils' parents themselves show a live chess game – embodying different chess pieces. This fact itself is likely to motivate the pupils, stimulating their enthusiasm and positive approach to the game of chess and pupils' visual memory".

We must evidence that sensible unit 6.4 distinguished during the content-based analysis of the video recordings of lessons and important as a significant element for effective lesson preparation, according to 63% of respondent teachers, is likely to be provided necessarily through group games, team work. The teachers highlighted the importance of unit, in

particular, for pupils with low academic achievements, as even in case of an insignificant progress, such pupils are able to contribute to the whole teams or groups success. However, while applying this method there are some discipline-based difficulties that teachers tend to overcome making use of the intonation change. Nevertheless, many of the teachers (75%) emphasized that the intonation patterns are not effective in their work with the second-grade pupils; on the contrary, the change of intonation might cause some disaffection from chess.

Continuing the topic of how and through what methods teachers try to shape a relevant inner approach to learning, more precisely, sense of responsibility, enhanced autonomy, encouraging pupils further continuous engagement in education processes, we must underline that certain part (62.5%) of teachers suggests pupils being granted with the maximum level of autonomy in education processes. However, 37.5% of educationists claim that the pupils of that very age are still inexperienced which assumes that they need certain guidance, orientation.

Many of the chess-playing educationists noted that, like in the case of any other school subject, during the chess lessons the teachers' efforts aimed at engaging their pupils must be based on non-critical, non-reproaching love that is likely to boost love towards chess among the primary-school pupils. This becomes well elucidated through the content-based analysis of the video recordings of lessons (see Diagram 1).

The teacher respondents claim that in order to foment pupils' activeness teachers should make use of encouraging techniques which are viable through love, attention and care. These contextual requirements or pre-settings might help to exclude the unawareness of pupils' individual needs.

Summarizing the research results, generalizing the pedagogical experience of teachers of chess, we must state that the reconsideration of many factors that secure the pedagogical, psychological and social aspects of education process - that appear to be quite typical of traditional teaching/learning standpoint – is more than urgent. We think that the organization and management of teaching/learning within the school course of chess require:

- Primary-school pupils' active engagement from the very first lesson. They act with real chess, they decode and project the pieces on the demonstrational board onto the real board or their copy book. This might contribute to an automatic or involuntary memorization of the educational material delivered.

• Use of activating, motivating and encouraging methods in the work with primary-school pupils. This might cause some discrepancies, especially, from the followers (henchmen) of traditional education patterns who see similarities and direct correlations between pupils' free self-expression and disorganization and disorder problems.

• The study of the pedagogical experience conducted during chess lessons allows inferring that the implementation of situational modelling component might be of considerable significance for educational process efficiency increase.

• Establishment and safeguarding of trilateral cooperation Parent-Child-Educator through the interaction among the above-mentioned parties («parents' engagement»).

• Clear lesson planning. The teacher must visualize the lesson beforehand, schedule the time to be spent on different lesson sections on theoretical and practical issues to be discussed, anticipating different situations to face through premeditated approaches as guidelines.

• A teacher of chess must preferably be a ranked (rated) chess player with pedagogical qualification An educationist, no matter how skilful s(h)e might be or how much s(h)e might have mastered the respective techniques, without profound knowledge in chess, wouldn't be able to introduce the whole complex world of chess in an expressive way.

Abstract

Nowadays, the problems of educational system have hard characteristics, which are displayed as pedagogical, methodological and psychological issues. As a result, teachers' professional functions are becoming more complicated. In this article are composed the results of sociological research, which is aimed to reveal aspects of methods and techniques required to be successful as a chess teacher.
Keywords: chess, difficulties, material, pedagogical-methodical, psychological issues.

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With the appearance of large scholastic chess systems, managing the learning process, measuring efficiency and tracking the progress of teachers and students has become an increasingly difficult task. Based on blended learning methods, Learning Chess has developed a solution that strives to answer these challenges. A centrally managed system was implemented in 600 schools and chess clubs in the Czech Republic. The teachers' administrative burden has been reduced, since constant reporting towards the CiS Organization is no longer necessary. Using the built in teacher training module, they can also improve their knowledge in a controlled way. Combining the traditional methods with the online curriculum has made it possible for the Czech Chess Federation to receive real time data about the students' education. Based on the information extracted from this data, processes can be quickly evaluated, challenges can be detected, and talent spotting can be easily managed, greatly improving the effectiveness of education.

Information Flow in the Scholastic Chess Systems

Using chess as a learning tool in primary schools is becoming increasingly popular in the world, with the main focus shifting from individual school projects to extensive programs including up to tens of thousands of students. [1] Scaling a chess program up to a school district or state is a more complicated and challenging endeavor that requires project management skills as well as a sound multi-site CIS program design. [2]

Let's go through the evolution of scholastic chess education solutions, with a focus on the flow of information between the parties. Information in its classic sense is usually exchanged between the CiS Organization and the teachers, and the teachers and the students, but as I will also explain later on the flow of information can be set up in a way that CiS Organizations are able to collect group or student related data directly.

Traditional Projects

When chess was introduced as a compulsory part of the curriculum in the previous years, school district, state-wide and country-wide projects have been launched. However due to the lack of adequate technical background these projects usually consisted of the following:

- quick teacher crash course (for non-professional players)
- distributing books & educational material on chess to the schools
- distributing chess boards and demonstration boards to the schools
- introducing chess to students on physical demonstration boards
- reports from the teacher to CiS Organization
- yearly evaluation of the students' development
- talent spotting by the teachers, annual scholastic chess competitions

The problem with this system is that it relies too much on how prepared and motivated the teachers are without providing the appropriate tools for their advancement and development. It also comes with a lot of administration and without physically visiting the hours the quality of education is very hard to measure. It is also difficult to effectively follow each individual student's progress and very limited data is available to create statistics and verify the effectiveness of the courses.

However projects like the Dansk Skoleskak [3], or the new Polish country wide project [4] and other important initiatives had and continue to have a great impact on scholastic chess education.

Learning Management

Introducing computer based systems to chess education was a big milestone. Some of them even had rudimentary Learning Management features. These systems enabled teachers to follow their students' progress and it also improved the quality of education. The most important advantages of these systems are:

- controlled materials and examples
- improved overall motivation
- chess can be practiced on a personal computers and tablets
- more efficient classes
- homework assignments (in case of on-line tools)

This solution works very well within a school or a smaller network, but it still lacks the features that enable the traceability in case we would like to apply it to a larger system with 10.000 students or more. The same problems arise that we have experienced when dealing with Traditional Projects, such as difficult communication and as mentioned before the lack of traceability. With a system like the above the CiS Organization is still unable to extract information quickly, to intervene if needed and to improve the efficiency of the classes.
However we have to mention that these systems such as the project initiated by the Alabama Chess Federation with 2500 students [5] are a lot more effective than the traditional method described earlier and add great value to the world of scholastic chess education and on-line learning.

Central Management

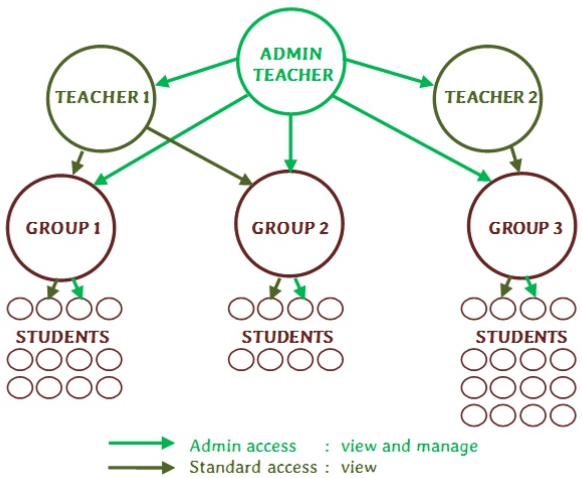
Fortunately online solutions become more and more popular in all segments of education. These solutions enable us to develop centrally managed systems where the CiS Organization can add teachers to the platform, provide on-line teacher training, and grant them the appropriate number of student licenses. Teachers can then add students to the Learning Management system and students can start the courses. The biggest advantage is that both the teachers' and the students' progress can be monitored in real-time.
Following 2 years of intensive development the Central Management system was first launched in the Czech Republic.

Central Management with progress tracking in the Czech Republic

The Czech Chess Federation (CCF) and Learning Chess entered into a cooperation in the summer of 2016 to introduce a comprehensive learning and educational system serving more than 600 schools and chess clubs. The aim of the cooperation was to ensure a centrally managed countrywide access to online chess education material and tools for Czech primary school teachers and students. The Learning Chess method will also be used in the training of chess circles for children registered under the CCF. The system was launched on September 2016 following a 3 months preparatory phase.
After this brief summary, let's see the ideas behind our method, and how it works. The Central Management has two successive progress tracking levels. The Learning Management System is on the lower level, which already works successfully in 230 schools worldwide. The

upper level is the newly built Central Module.
To understand the Central Management we should first get to know the operation of the Learning Management. The current version was launched on 1 August 2015.
In Learning Management, students can be divided into groups, even if they do not share the same school. The teacher can not only view the progresses but can manage the system with adding own groups and students by using the available licenses. An additional advantage of the system is that students do not have to use emails or other personal information when logging in to LearningChess.

Image 1



By using Learning Management teachers can access detailed information about the student's development:

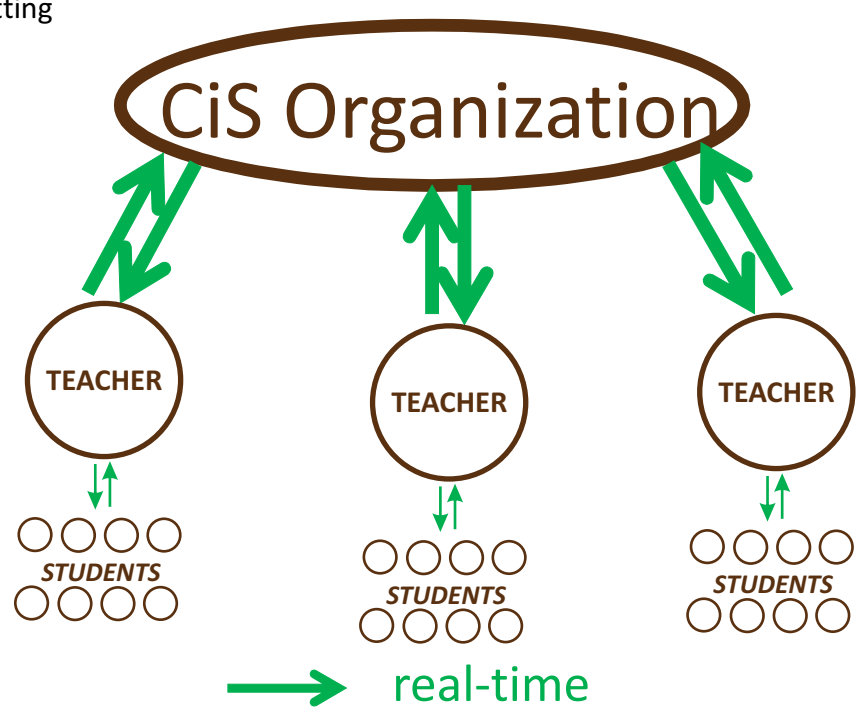
- Progress
- Strengths and weaknesses
- Time spent on the exercises,
- Date when they last logged in,
- Learning habit (learning speed, asking for hints and solutions)
- Games played

While Learning Management enables teachers to access the information above, the Central Management system collects all data from each school and provides access to it for the CiS Organization, in our case the Czech Chess Federation.
Central Management has also includes new features, such as the ones listed below:

- Teacher management
- Teacher access management
- Teacher Training module
- Quick search on the clear-cut overview screen
- Up-to-date statistics:

a) Teacher performance
b) Teacher effectiveness
c) Detailed student progresses (the same info is available as in the LMS)
d) Talent spotting

Image 2



The Teacher Training module is a separate part of the Central Management. The CiS Organization can follow the progress of the teachers similarly to the Learning Management, and there is an additional possibility to give the teachers additional practice tests and a final test as exam. Combining the online teacher training with educational videos and a few days of traditional face-to-face group training ensures a widely accessible, time and cost effective training for school teachers, who are not professional chess players.

Online Usage Statistics

To show the extent of what you can monitor with a centrally managed online system we have collected the usage data of our Learning Management system in the 2015/2016 school year. (The data below does not contain the progress of Learning Chess home users.)

Learning Chess Scholastic Chess Projects

Table 1

Country, City	**Students**	**Partner**
Maldives, Male	600+	Ghiyasuddin International School, Maldivian Chess Federation
USA, Miami, Florida	300+	Dade Schools school district
UK, Cambridge	200+	Zeno School umbrella schools
Other countries	3.000+	2-200 students in different schools worldwide
Czech Republic (new)	**10.000+**	**Czech Chess Federation (* expected)**

General Progress in scholastic chess

Table 2

Students	4 328	
Lessons Solved	147 873	34 / student
Tasks Solved in Lessons	3 121 892	721 / student
Test questions solved	1 137 451	263 / student
Time learnt (hours)	75 863	17.5 / student
Puzzles in Tactics Trainer	53 671	12 / student

These numbers were achieved by using an active (or more precisely: interactive) learning progress.

Progress in the lessons

Table 3

Course completed	Student %	Avg. Lessons
Level 1 (1-12) - Basics	78 %	11.3 (/12)
Level 1 (13-36)	35 %	16.9 (/24)
Level 2 (37-72)	12 %	14.0 (/36)
Level 3 (73-108)	2 %	12.5 (/36)

One lesson takes 25-40 minutes, depending on the learning speed. Most of the students completed Lessons 1-12, which cover the basics of chess. A large percentage continued with the strategy and tactics lessons, and got acquainted with the important basic level endgames as well. The percentage of students moving forward with more difficult courses matches the average percentage of students achieving extraordinary results in any other sport.

Learning Habit Statistics

Table 4

Good answer w/o Hint	31.4 %
Good answer after Hint	9.2 %
Wrong answer w/o Hint	43.1 %
Wrong answer after Hint	16.3 %
Asking for the Solution (only after Hint, qualified as wrong)	6.5 %

Regarding the system's usability and efficiency the statistics speak for themselves, but more interesting data can be accessed regarding the students' progress. By accessing student data one can create a complete learning profile enabling the teacher to assess the students' learning abilities and learning habits. Not only can they create a complete learning profile, but they can do this very quickly and easily, allowing them to intervene at just the right time, if needed.

Teachers can also check answers given by the students, which enables the constant improvement of the curriculum.

Merging Traditional and Online Systems

The evolution of chess education shows that teaching methods are shifting from the more conventional methods to the implementation of modern tools & technologies. However the transition is a long and time consuming process, such as the training of teachers and setting up the needed IT infrastructure. The question is what is the next step for chess education and where is scholastic chess heading? Do we have to replace the well-established curriculums? Based on our feedback, scholastic chess education in elementary schools is shifting towards 'blended learning', which combines Internet and digital media with traditional classroom education that require the physical co-presence of the teacher and students. The role of the teachers however is changing, their main goal is not only to convey knowledge to the students, but to motivate, attract and keep their interest, while monitoring their progress.[6]

The next step in this transition can be to combine traditional and online materials such as LogiqChess & LearningChess, or to integrate the well-established traditional materials as part of the online curriculum (Madrid Chess Academy ADHD project with LearningChess), both of these can be done in system, such as ours. The online curriculum can also be used as part of the teacher training, to lay the foundation of the blended learning model.

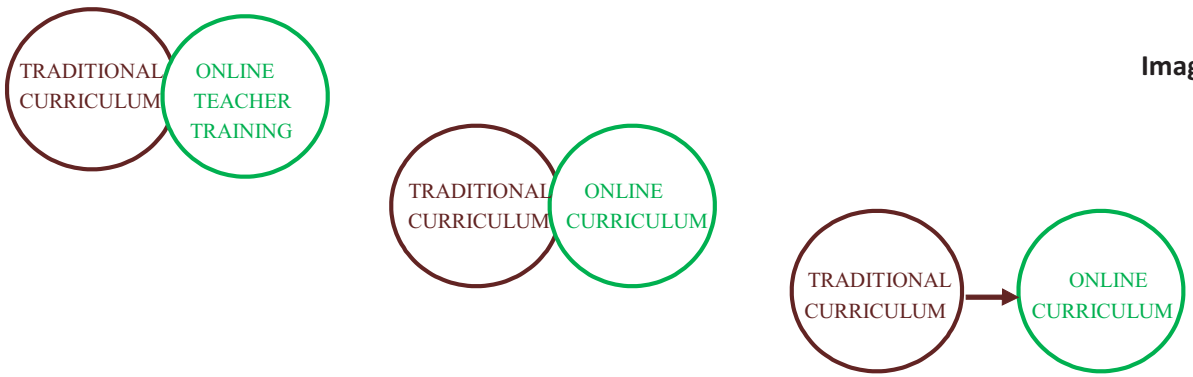


Image 3

Of course we know that a short presentation cannot cover all aspects of this very important field and important questions must be answered during the transition, such as how can we introduce and localize a large system and ensure that it functions properly. I hope that I can

answer all these questions at the next conference with many successful projects – similar to the Czech implementation - behind our back.

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PLAYING CHESS AS AN INSTRUCTIONAL AND MOTIVATING FACTOR FOR ORGANIZING SCHOOL CHILDREN'S RESEARCH ACTIVITIES

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The subject matter and issue under discussion: In the Republic of Armenia teaching chess at elementary school level has been practiced since 2011. At the chess Academy of Armenia, together with the development of respective methodological guidelines and books on teaching/learning chess, the psychological and sociological research work among pupils, chess trainers, and parents have been initiated.

The major domain of discussion in this report is the potential cognitive impact of chess on the perception of the relevance of chess – with pertinent analysis of the situation and exploration into the motivation incentives.

As an issue of particular significance, we have highlighted the fact that while playing chess, as the primary school students' self-determination research (defence organization, response measures and other situation research) evidences, the process observed induces the cognitive function, especially, in appropriate tactical situational steps to be opted for by players'.

The motivation resource is revealed while providing methodological saturation as emerging independent surveys within a "chess game" (as a joint operation) ambit.

Study tools (reflexive methods, techniques, laboratory experiments, "Egoscope", process of playing chess, audio-visual reproduction, interview, etc.

Discoveries and results: It appears that in the initial stage of organizing the process of playing chess it might be considered as expedient to involve a rated chess player.

Chess player – with his/her unprejudiced behaviour and psychological advice – constantly accompanies the process, activates the battle, intensifies the attention of the player's choice at this or that step, intervenes so that pupils can find themselves in 3 positions: as an attacker, a defender and casual chess player, although the latter carries out a child-targeted research as he/she encourages school student to retaliate during situational research.

Organizing survey and monitoring the progress, as well as evaluating the success achieved by becoming dominant for the children, evaluation of the success achieved have become the foremost motive for child's cognitive activity dynamics.

The research of the potential motivational charge of the process of playing chess is perhaps convenient to be carried out concurrently considering and combining both the structural and functional components of the process so that they foster child interests and motivate the children to win the game.

The question is whether the pupils playing chess do experience the intention rise to succeed on their own.

The preliminary experiment assured that in case of two players the inner motivation for reaching success occurs in intermediate sections and it depends on concrete situation when pupils witnesses and understand its obvious advantages.

However, even in this case, the player loses his/her potential and appears merely defendant. Under the pressure of regret and/or disappointment, the child loses his/her faith not towards the game but towards the co-player, partner, competitor, consequently, a negative attitude towards it emerges which is furtherly reflected in the fact that the pupil is striving to avoid the co-player which had previously been defeated.

Such situational analysis leads to play game with the motivation to focus on getting experience instead of negative attitudes to those who won.

The promotion of positive learning motivation in chess game comprises not only players but also teachers of chess with high pedagogical skills who should not that much focus on the result of game if not on the respective effort by pupils.

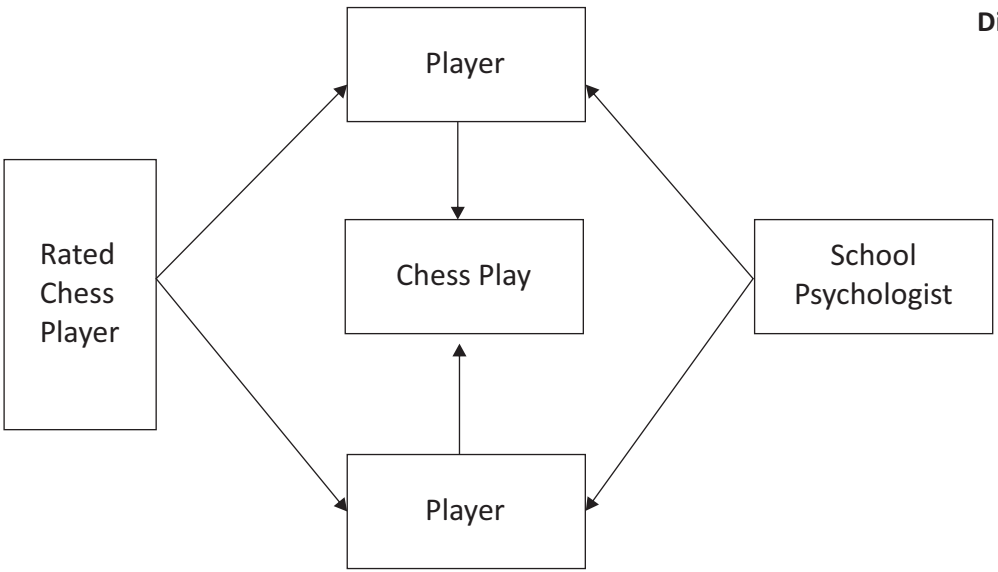
Teachers should not focus on winning the game or on the way of gaining. They should consider making use of their professional intervention in order to help pupils to acquire chess-wise thinking. They intervene in children's effective cognitive-efficient process, real game process during the development of equivalent strategy. Though getting chess experience is not long, however, it assumes considerable transition period. Consequently, a rated chess player with two pupils asks pertinent questions in certain order and does not encourage unreasonable or illogical patterns. With its original questions, the rated player guides the school students at each necessary step that might contain unexpected and/or threatening action of adversary.

The following questions might emerge – regardless of actual wording:

What are we going to do…?
How are we going to defend…?
Why do we make this move…?
How much or what is the move expedient for…?
When can we make that move and in which sequence?

"Rated chess teacher or Educator at School" scheme collaborative learning enables to develop pupils' chess thinking gradually, especially, when game process is followed and studied by a school psychologist. Find below a simple scheme of developing chess thinking model which might illustrate more structural elements of the in-class connection.

Diagram 1



Conclusion: During the game of chess, organizing pupils for purposeful searching activity, also understanding and analytical processes provides opportunities for encouraging mechanisms that allow us to conclude that these actually are to be introduced as primary educational motives. Chess play is delivered as cognitive studying with vivid focus on the respective motives.

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Since 2011, in cooperation with Chess Academy of Armenia, we have conducted seminars, trainings and discussions with the teachers of chess in all the regions of Armenia as well as in Nagorno-Karabakh Republic. The trainings have been organized by the Chess Academy of Armenia and they are conducted through joint efforts of the respective methodologist and psychologist.

The teacher training is scheduled in two stages. The first stage involves seminars and trainings organized with all the teachers from regions. They are introduced to the following themes and they have joint discussions on them:

1. Individual psychological characteristics of elementary school pupils;
2. Requirements for teacher;
3. New methods of teaching.

An exchange of experience is organized: the respective experience and good practices are shared by teachers and partners to enhance the teaching chess as a school subject, with special reference to the respective in-class methods and techniques developed and used.

The second stage was celebrated with the respective certificate issued at the end of the course, and, as a result, teachers obtained the right to teach chess as a curriculum subject in elementary schools.

Seminar discussions and trainings are carried out through group work and practical drills, as

well as the analysis of educational situations.

Let's introduce a sample of group formation.

We choose 5 chess rules in advance that are shown on the board. Moreover, each rule is divided into two different parts that make a unity which, all together, shapes each of cooperating pairs. For the group work, we provide 5 rules. The number of cards is determined by the total number of participants. Each of the participants gets a card and the participant is informed that (s)he has to approach the table where s/he sees the rule provided in advance. The participant joins the one who holds the card that states the other part of his own rule. In this way, 3-5 pairs sit around each table. Now we will introduce the content in separate sections discussed with teachers.

Pupils' motivation depends on teacher's personality, ways and methods of delivering the learning material. In teacher's work the analysis of pupils' perspectives and opportunities is particularly important. While teaching, it is important to consider children's age and individual peculiarities. One of the main characteristics of the junior pupils is mechanical memory. Pupils memorize the learning materials the way they are perceived. Therefore, it is necessary to apply new teaching methods.

Let's present an example of such a game: "Keep the word in secret" (Educational Research in Chess 2015, pp. 31-72) *For instance, while teaching chess, we offer the specialists to implement such kind of techniques and games that could serve as incentives for pupils as well as could contribute to memorizing and reproducing the relevant concepts. The teacher makes use of different words – including the names of chess pieces. The pupil is supposed to repeat clearly all the words except the piece names. In this case instead of repeating the piece names, they are asked to clap once.*

Here are the words where the names of the pieces are written in italics. ***window****,* ***chair****,* ***knight****,* ***blackboard, book, rook, shoulder, box, bishop, book, pen, notebook, soldier, computer, paper, pencil, queen, desk, sky, king, glass****. There can be also other options for this game.*

The assessment also forms an integral part of each class. During the discussions, the teachers get a deeper image of the purpose of assessment:

1. Not to criticize, but to improve the educational process;

2. Assess what has already been taught;
3. Teach pupils to assess themselves.

In case of negative assessment the teacher:

- assesses the child's progress in comparison with other children;
- plans and conducts studies without taking into account the interest and the involvement of children in the learning process;
- continues the task, even if the children do not participate;
- children are not presented the clear criteria for the evaluation of the academic performance and behaviour.

In case of positive assessment the teacher:

- assesses children's efforts, taking into account their potential;
- Plans a whole or small group and individual tasks in order to involve schoolchildren with different abilities and interests;
- can flexibly change the task enabling children to perceive the learning material;
- involves children in the planning and implementation of educational and disciplinary activities.

Because of negative assessment, pupils sometimes demonstrate unacceptable behaviour at school. Pupils' unacceptable behaviour motives might derive from:

- Demand of attention: Pupils need to be in the centre of attention of the teacher;
- Sense of revenge: Sometimes they want to take revenge for real or imagined insult/offenses;
- Failure avoidance: Some pupils are so afraid of failures and hardships that they prefer to do nothing. According to them, they do not meet the needs of adults, so they become isolated and avoid interactions.

To avoid such situations, the teacher must find appropriate forms of cooperation with learners. How is it possible?

Let's note a few basic strategies to communicate with younger pupils.

It is needed:

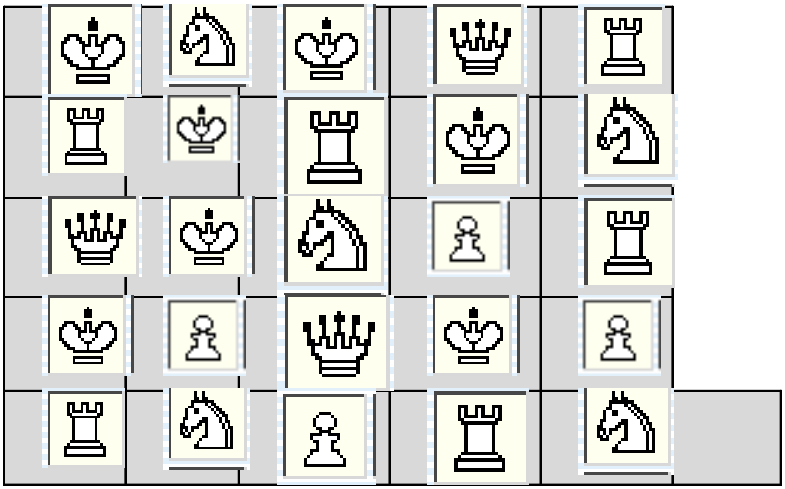
- to focus on not children's person, but their actions,
- to manage their own emotions, teachers need to create a favourable environment for

fruitful cooperation. Students often do not do what adults are *saying*, but they directly *imitate* their actions. Therefore, we always need to have a positive role model. (Patrick S. McDonald):
We will present games that are aimed at generating elementary school pupils' attention.

Find the missing piece:
Task*:* Below is introduced chess board with pieces. Look carefully at it and within 35 seconds find the missing piece, depicting it in the empty box.

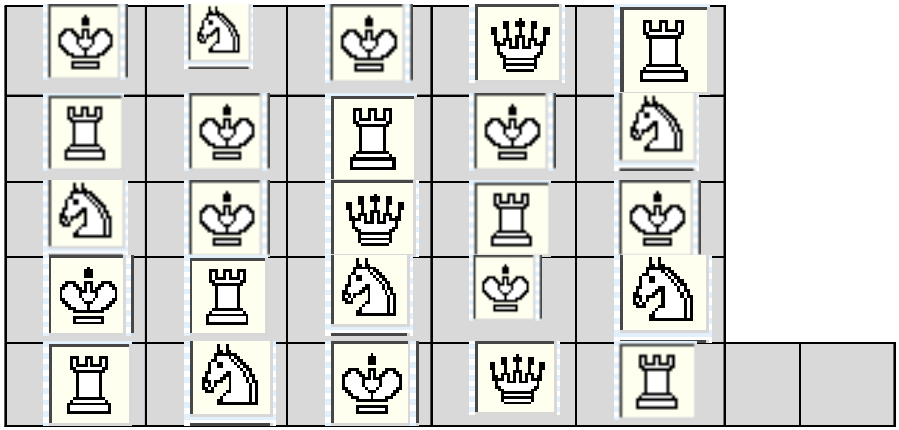
Image 1

The 2nd grade



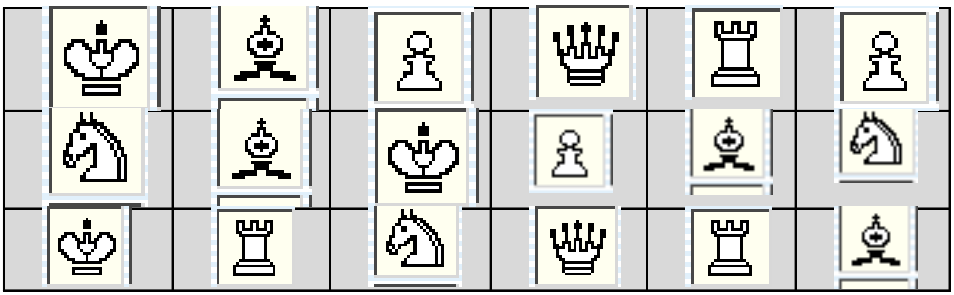
The 3rd grade

Image 2



Memorization task. Below is a chart of chess pieces. Watch it for 20 seconds, then, try to copy them identically in the empty cells below.

Image 3



While discussing teacher's personal and professional characteristics it is of primary importance:

- to talk quietly and gently;
- to give the child only one task for certain period of time;
- to encourage the child for even small achievement;
- to make the learning process creative;
- to have the skill to connect the educational material with real life;
- to apply appropriate ways of punishment and encouragement .The teachers involved have noticed that the pupils enjoy this kind of games during the chess lessons; therefore, we are sure that the in-class activities developed with pleasure have relevant level of productivity.

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http://www.psmcd.net/otherfiles/BenefitsOfChessInEdScreen2.pdf

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AGBU Armenian Virtual College is the latest innovative educational institution of the Armenian General Benevolent Union. The mission of the Armenian Virtual College (AVC) is to provide learners around the world with the opportunity to receive a full-fledged education in Armenian Studies, regardless of their age, country of residence, or knowledge level. With the latest advances in the world of virtual education, AVC strives to create a virtual learning community that fosters both the cultural education and social communication otherwise out of the reach of students who wish to pursue education in the field of Armenian Studies and chess.

Education offered by AVC is mainly designed for a new digital generation for whom technology is the means of acquisition of information. Integration of technology has become crucial in the daily learning process. Education needs to change as fast as technology. Keeping up with these changes means offering Armenians exciting and innovative new experiences.

AVC aspires to be the leading online higher education institution in Armenian Studies with an educative outreach worldwide available in seven languages. It offers online courses to those students who have no access to face-to-face Armenian education, as well as supplements curriculum of traditional education. Today AVC has approximately 5,500 students from over 85 countries around the world.

The online chess program was added to the general curriculum of AVC in 2013. The first course was launched on October 2013, in two languages (English and Eastern Armenian). The AVC online chess classes have been developed in collaboration with the Armenian Chess Academy. The multimedia interactive courses have attracted fans of chess not only from Armenia, where chess is very popular, but also worldwide.

There are two types of chess programs offered by AVC: chess for learners and teacher training program which is still underway. Chess for learners program has two types of classrooms: independent learners' classroom and hybrid (blended) learners' classroom. Independent learners sign up for the level they want to master by submitting an online enrollment application according to the publically announced AVC calendar. Based on these applications virtual classrooms are being formed. The courses are facilitated by the Online Instructor who is a professional chess player.

In addition to independent learners, AVC offers hybrid (blended) learning of chess. The hybrid program blends traditional and online education and targets schools/communities that wish to introduce innovative and attractive learning methods into their curricula.

With the growing popularity of chess in education and schools worldwide, there is a high demand in chess teachers. One way of meeting this demand in efficient, fast and modern way is offer through an online training of teachers. AVC, along with the Chess Academy and Yerevan State Pedagogical University, is designing an online program for teacher training. The aim of the program is to train teachers that will be qualified to teach chess, online or face-to-face. Anyone above 18 that has at least high school diploma can participate in the program. The duration of the program is two academic terms, i.e. 16 weeks. The students will take four courses altogether, two courses per academic term. Upon completion of the course participants get a Diploma endorsed by AVC and Armenian Chess Federation which qualifies the graduate as a chess teacher for face-to-face and online teaching.

Courses in the training program are of two types: chess related and pedagogical. In the chess related course participants will get to know the methods of training chess and practical guide for teachers. In the pedagogical course participants learn pedagogical and psychological courses essential in their further teaching process.

Methods of teaching chess course will help teachers understand and better address pedagogical and psychological issues related to peculiarities of teaching chess, and provide guidance to teachers to reinforce knowledge in creative and interactive ways. The topics covered include peculiarities of training chess teachers; chess curricula in elementary schools; psychological and age-related peculiarities of chess classroom; organizing the class; methods of teaching chess; practical assignments in class (group work, interactive work, etc.) thematic writing assignments; developing exams; grading.

The aim of the practical guide for teachers is to help teachers better organize the class productively, assist students to effectively arrive at solutions, and develop tasks (written assignments, group works, etc.) around a particular rule and/or theme. Teaching methods include deduction, changing the turn of move, selecting move, simplifying position, removing a piece off the board, sacrificing a piece, determining the compulsory move (check), disintegrating the position, and achieving checkmate position.

Pedagogy related courses consist of an amalgam of pedagogical, methodological and psychological topics and provide essentials for a teacher in interaction and effective work with students with the following topics: contemporary methods in education and teaching; contemporary learning technologies; collaborative learning; teaching strategy and lesson planning; management and assessment of teaching process; methods of ensuring and measuring learning outcomes; inclusive education and classification of special learning needs; psychological peculiarities of learners; methods of psychological assessment and testing; psychological mechanisms of interaction, motivation and learning.

Both programs, online chess learning program and the teacher training program, are to contribute toward inclusion of chess in schools and education in general, and do so through the most technologically informed ways.


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Nowadays, the scope of opportunities to gain a new qualification through distant learning keep widening due to the development of advanced IT and CAL in particular. Distant learning has already grown into an effective alternative for traditional in-class or contact-hour learning.

And what is the attractiveness of this way of organizing and managing education? First of all, the appeal is to be revealed in the flexibility, accessibility, the module-based and individualized outline provided via the respective technologies that enables the learners to set the time setting in accordance with the pace that they prefer. Distance learning increases the individual's responsibility for education and development together with their obvious progress as IT users. Moreover, distance learning is the platform relevant for realizing the universal motto declared "Life-long learning", thus, enabling the person to gain a new profession or redirect the domain of professional activities and interest unplugged from his/her current job.

Distance learning is organized on certain scientific principles, however, there some specific principles typical of this kind of education that we would like to introduce below [1, 40]:

- The principle of dynamic development that supposes a persistent change and addition in the content of teaching/learning;
- The principle of increased awareness of perspectives that requires a pertinent level of

awareness of the respective system of perspectives both by learners and educators;

- The principle of the comprehensiveness and multidimensionality of methodological consultancy provided;
- The principle of Subject-Subject cooperation.

The material aimed at distant delivery should be designed in a way that would enable the learner to get autonomously the holistic picture of the academic theme. The content of the course must comply with the following requirement:

- It should be complete and comprehensive based on materials provided with all the setting for autonomous learning: objectives, issues, general ideas, assessment, etc.;
- It should contain information that will enable the learner to gain the necessary level of competences, knowledge, abilities and skills with minimal interference from educator's side;
- It should comprise bases that would within certain time limit enable assimilating the topic in general, getting oriented, acquiring the necessary information, etc.

The combination of multimedia means, the means that activate different sense canals and stimuli (speech, voice, colour, movement, etc.), relevantly inbuilt in instructive materials and assignments, together with the use of graphic images facilitate a higher level of perception and assimilation of the academic materials and assignments.

Guided by the principles of distance learning and taking into account the peculiarities of this type of learning, we have designed a sample of an on-line lesson on Pedagogy, in particular, on "Interactive Teaching Technologies". The lesson plan outline consists of the following structural constituents:

- Aims and outcomes (in terms of the competences targeted);
- Theoretical material, narrative exposed;
- Tasks and assignments aimed at the development of learner's both cognitive and practical skills;
- Assessment/Scoring scheme;
- Feedback expected;
- Literature required and additional reading.

The on-line lesson is outlined below in steps.

Aims and outcomes

Aims of the lesson

Cooperative learning techniques applied at chess lessons.

Outcomes of the lesson

After the lesson the learner **will be able** to:

- Define and comment on cooperative learning techniques;
- Innumerate, illustrate and demonstrate the components of cooperative teaching/learning within the context of chess lessons;
- Set forth some suggestions and recommendation on the improvement of a lesson of chess based on cooperative learning technique;
- Design a lesson plan in line with the cooperative learning techniques.

1. Study the right-side and left-side photos attentively!

2. Read the sentences below!

1. The pupil is looking at the teaching.
2. The lesson has the teacher in the centre.
3. The pupils are listening in silence.
4. The teacher has assumed an active role.
5. The pupils appear to be active.
6. The pupils are passive.
7. The pupils are working in a group.
8. The pupils are cooperating.
9. The teacher is a member of the group, a participant in the group.
10. Everyone is active.
11. Every pupil is doing is doing his/her assignment/task.

3. List up all the sentences that describe (refer to) the right-side photo in the right-side column and those that refer to the left-side photo in the left column.

Left-side photo	*Right-side photo*

4.Read the passage below and underline the two most important (core) ideas.

Cooperative Teaching/Learning Techniques

In the 70s of the 20th century, the American psychologists, educationalists David and Roger Johnsons developed and completed the cooperative teaching/learning technique that is widely used is used in different countries around the world.

The name of the technique itself infers that learners gain knowledge through cooperation, social interaction, namely, explanations, communication, speaking, discussions, argumentation, doubting, wondering, asking questions and trying to gain mutual understanding.

Cooperative learning assumes a group work in small groups: the class is split into group consisting of two, three, four members that are meant to complete the common assignment given. However, this strategy is more than a common group work. Such strategies require from learners:

- Responsibility for the group: "All in the same boat" principle;
- Face-to-face work and mutual support;
- Individual responsibility for the academic progress;
- Group work abilities mastered and applied;
- Awareness of the necessity to think and be able to improve the efficiency of the group work.

Johnsons claim these requirements as underlying principles for the efficiency of the cooperative teaching/learning due to the following constituents:

- *Positive interconnection,*
- *Face-to-face interaction,*
- *Personal accountability and responsibility,*
- *Social skills,*
- *Group work analysis (to be developed by the group).*

The follower and outstanding representative of cooperative learning, Professor PasiSahlberg, Helsinki University (the end of the 20th century), restating the significance of the above mentioned constituents, adds one more constituent – an assignment of interactive makeup.

The interactive assignments are designed to require a team work (the split-up of the material, role-division within the group, group presentation of the results of group work and group

evaluation/assessment, etc.).
For further details consult the following sources:

- *Johnson D. W., Johnson R. T., Smith K. A. Active learning: Cooperation in the college classroom. Edina, MN: Interaction Book Company, 1998.*
- *PasiSahlberg. ''Elements of Cooperative Learning'', University of Helsinki, Finland, 2002. P14-16.*

5. Choose the right variant and complete the statements/sentences.

Sentence / Statement.
1. Cooperative learning/teaching supposes ----------:

Variants:

A. Individual work,
B. Group work

Sentence / Statement.
2. Cooperative learning/teaching provided knowledge and skills ----------:

Variants.

A. through listening to and later reproduction of what teacher has delivered.
B. through discussing and communicating with friends. Statement/Sentence

Sentence / Statement.
3. At cooperative lesson the teacher carries out----------:

Variants.

A. a leading role.
B. different roles.

6. Outline the system of values that is formed among learners due to the cooperative academic involvement.

Complete the list of items.

1. ability to listen,
2. free expression of your own opinion,
3. ----------
4. ----------

7. Watch the video at the link introduced below and separate the constituents of cooperative teaching/learning.
The video available at:
https://www.youtube.com/watch?v=qrP_xWephqg&feature=youtu.be

8. Introduce your own suggestions, recommendations on how the interactive lesson of chess taped could be improved. Choose a recommendation from the list and add your own one.

- *The Teacher could take a more active part in group discussion – as an immediate participant.*
- *The group work assessment by the Teacher.*
- *The Teacher could be walking around approaching every group.*

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FACTORS CONTRIBUTING TO CHESS AS A COMPULSORY PUBLIC SCHOOL SUBJECT IN ARMENIA

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The goal of educational system is to contribute to the development of well informed, educated and intelligent society, and, for this purpose, educational systems assume changes and reforms. In the recent 25 years, in the education system of Armenia a lot of changes have been made to contribute to young generation's intellectual development through gaining knowledge by means of modern tools. Chess as a school curriculum item was introduced in order to help younger schoolchildren to shape and develop thinking, logic, imaginary thinking, analytical skills, autonomous activities, sense of responsibility as well as to boost the personal characteristics that help to socialize easily. While implementing "Chess in schools" program in the secondary schools of Armenia, the following factors were prioritized:

- The learning materials to be designed;
- The awareness and respective training of teachers to be provided;
- The chess stationary and furniture to be distributed.
- Awareness of families about the goals of the "Chess in schools" program to be provided. I cannot but highly appreciate the pilot project launched before factual involvement of chess within the school curriculum. It was carried out in several secondary schools and many teachers and psychologists took part in it. At the same time, all these professionals were given a chance to discuss the main problems the learning process. Being a psychologist and working in the educational system for years, I must confess, I had never witness such kind of serious approach to the subject inclusion process.

Naturally, to achieve the goal a series of issues regarding the learning materials, teachers' training and awareness process were to be tackled. Teacher trainings and re-trainings were conducted repeatedly during the consultancy, and this is still an on-going process. For this purpose every year educational materials are being renewed and, in the light of all the

revised and updated materials, new teacher training courses are organized. The teachers' opinion is also taken into consideration while revising and updated the learning materials.
Awareness of families – especially among parents - is also reckoned among priorities.
The recognition of any subject proceeds in three cycles depending on:

- The Teacher who carries out the role of educator;
- The Pupil who is the learner;
- The Parent who also contributes to the learning process.

In the frameworks of teachers' researches, were carried out survey to find out the approaches of all the above mentioned partakers.
The in-class observations have had their positive impact on implementing the program. After the series of observations, the psychologists held discussions with teachers. This method helps to overcome the obstacles that can face every chess teacher during the teaching process.
A series of discussions with the pupils were conducted as well. The discussions embraced issues regarding teachers, difficulties that pupils face while learning chess. Immediate communication with pupils help to find out whether the pupils are interested in chess, what are the difficulties they try to overcome during the learning process, whether they love their teacher or not, whether they appear satisfied with their grades or not, whether they wish to continue learning chess or not , etc.
The role of family and parents must be highlighted as well. If the parent realizes the importance of the subject and the goals it pursues, she/he grows much more aware to help both the teacher and the pupil to overcome the difficulties but with the lack of pertinent degree of awareness his/ her negative attitude towards it is extrapolates over child's attitude towards the subject. Since 2011 the psychologists and sociologists have carried out researches and a survey based on special questionnaire has been carried out. The survey revealed parent's opinion on chess as a school subject. In the academic year 2015/2016, in 5 schools of Yerevan in-class observations among 2nd, 3rd and 4th graders, interviews with pupils and meetings with parents were held. The research and survey series uncovered problems related to chess education that were submitted to further discussions. The meeting-discussions were attended by teachers, a representative from school authorities and psychologists. The parents were asked to do a quiz including 16 questions before the

respective discussions. The questionnaire was designed to cover the following areas:

1. Child's gender,
2. Child's age,
3. Child's grade,
4. Besides your child, does anyone else play chess in your family?
5. Does the child take any private lessons of chess in addition to the school course?
6. Which are the skills that chess develops?
7. Please give your opinion about the teacher of chess.
8. How many times, since the beginning of the year, have you had a meeting with the teacher of chess?
9. What would you change in the school curriculum of chess?
10. How many children do you have?
11. What impact can knowledge of chess have on a child's behaviour?
12. What other school subjects can be affected while learning chess?
13. Is it right teaching chess at school?
14. In your opinion, what is chess: game, sports or science?
15. Is your child pleased with its grades?
16. Does the child love the teacher?

The above mentioned-questionnaire was filled by the parents twice: before and after the discussion. When the results were summed up, we witnessed a considerable difference between the answers before and after discussions. This fact restates the importance of parent's and family's awareness about the goals of chess. The meeting between the teacher and the parent whose child begins learning chess for the very first time is rather important.

Chess has its positive effect on child's brain. Chess, first of all, contributes to memory, logic, visual thinking, and imagination. The researches come to prove that, regardless of age, sex or social status, learning chess helps to concentrate and make better decisions. Chess also develops such kind of personal qualities that are important in the life of every human being. It helps the child to make right decisions, to increase self-knowledge, feel the importance of time management and to reasonable stepwise planning.

Chess makes a person self-confident, but not arrogant. Quite often when children just start playing chess they get stressed because of losses. However, later they start accepting it as an

experience that makes them stronger. Chess has its positive impact on child's perception of mathematics. Let's see how it works. In order to progress at mathematics we need good concentration, memory, logic, ability to analyse and compare. All the above-mentioned skills are necessary for chess as well. Both for chess and mathematics one should be very patient. During the class of mathematics the teacher is not likely to have enough time to train every single child individually but in case of chess there are more chances to try different moves in a small period of time. Child needs to concentrate and to calculate the moves, to be patient and imagine the result of the move. In case of mathematics, we also need concentration and patience. Chess trains the memory as well. Logic is also crucial for both chess and mathematics. Therefore, it's obvious that chess develops logic. Chess, as a game, trains mind, memory, logic and patience. This suffices to see the positive connection between chess and mathematics. Soon we plan to launch a thorough research on this connection with more concrete data to be provided. The interviews conducted with children and parents allow us to conclude that including chess in the school curriculum as a compulsory subject has been a progressive decision for the general academic realm in schools. Children appear to be sure that chess contributes to their thinking and they can solve problems of mathematics very easily after they have learnt to play chess. Parents emphasize that children are more concentrated and patient after having studied chess. As mentioned before, the role of chess is very important for child's education and it contributes not only to their personal qualities but also to the process of mastering other skills such as reading, foreign languages, creativity, and imagination. A series of researches are scheduled to provide the above mentioned correlations with the necessary statistical bases.

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The implementation of chess in the education system is destined at the improvement of academic skills of schoolchildren, in particular, from the perspectives of developing their psychological (memory, attention, mental activity, perception, imagination, etc.), emotional-volitional characteristics and regulating the conduct. We must take into consideration the fact that children with special educational needs are distinguishable through their psychological, speech and communication and emotional-volitional disturbances, as well as through some psychological complexes that derive from their low self-esteem (Дворникова Т.А., 1980). Our research is aimed at uncovering the possibilities of development and improvement that could be accomplished by chess.

The main aim of our study is to explore into the influence of chess on the development of psychological, emotional-volitional processes among the children with special educational needs.

The major research problems set forth through this study are as follows:

1. To investigate and analyse the peculiarities of the psychological processes among the children with special educational needs (2^{nd} – 4^{th} grades) at the lessons of chess;
2. To study and develop the respective psychological and pedagogical methods, system of means and techniques for the positive impact of chess on the psychological processes among the children with special educational needs ranging from the 2^{nd} to the 4^{th} grades;

3. To evaluate the influence of chess on the development of psychological process among the children with special educational needs.

The **first stage** of the research was meant to reveal the peculiarities of psychological processes among the children with special educational needs at chess lessons.

The **second stage** was designed to reveal the potential influence of chess on the development of psychological processes among the children with special educational needs with the help of a variety of tasks, assignments and drills.

The **third stage** was to evaluate the outcomes (effect) of the positive influence of chess on the psychological processes among the children with special educational needs.

In the course of our research, with the help of chess games and drills we tried to contribute to the enhancement of attention, memory, perception (vision, speech, senses) among the children with special educational needs. For these purposes, the following game-drills were employed.

1. ***For developing attention*** in accordance with the **Schulte table** method, the child was asked to find visually and with the help of finger (pen, pencil) and mark successively the numbers from 1 to 25 (see Image 1). Thus, in our case we asked the children with special educational needs to complete the following tasks:

To look at the board during 35-40 seconds (on average 20 seconds) and to remove from the board, for instance, only the black pawns or the rooks (see Image 2):

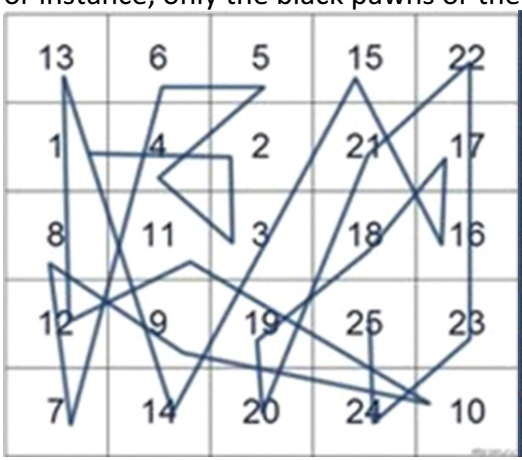


Image 1.

Image 2.

Then, in order to make the task more complicated we suggest the children that they should:

• Find and mark on the Schulte table – in colours and chess colours as well – the number that we mention (see Image 3): After some attempts, we asked the children, after having looked at the board for 25-30 second, to take one black knight and two white pawns, and then, to take from the board only the queen on the black square and the king on the white square, etc.

2	22	23	12	18
25	20	1	15	10
11	19	5	14	16
8	7	3	4	24
17	9	13	21	6

Image 3.

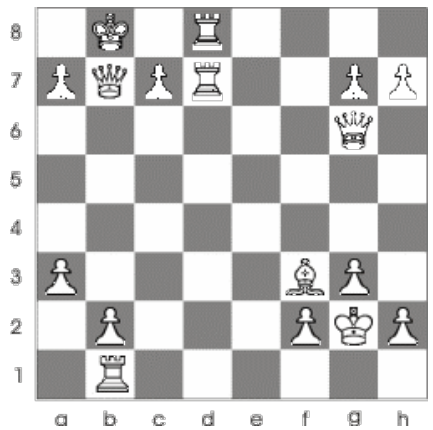


Image 4.

2. *For developing memory in children with special educational needs*, we asked them to watch and memorize the locations of dots and their arrangement. Later on, they were asked about the number of the dots in the first square and their arrangement within the square and then to reproduce the arrangement of the dots (see Image 5). The main method was applied suggesting schoolchildren looking attentively at certain arrangement of the pieces on board for 30-35 seconds and then reproducing the same arrangement on the empty board making use of the information memorized. The aim is to make them reproduce the same arrangement (see Image 6).

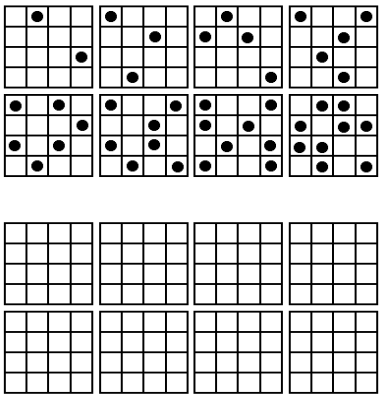


Image 5.

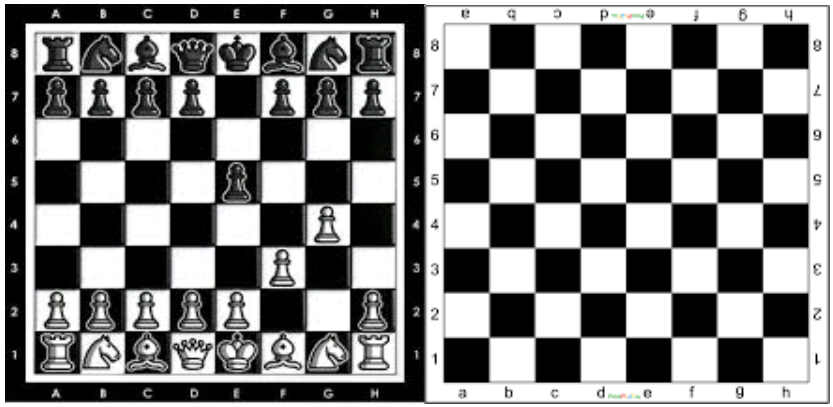
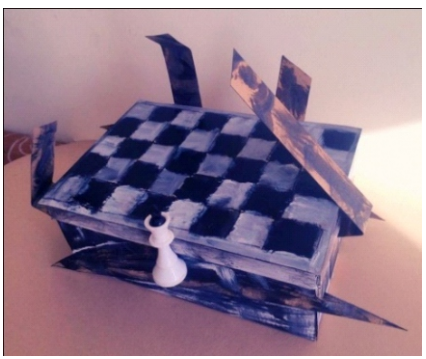


Image 6.

3. For developing the sensory perception among the students with special educational needs, we asked them to touch different objects with different shapes (a ball, dominos, dices, etc.) grouped in a sack trying to guess and then taking them out of the sack one by one (Paul Henry Mussen et.al 1974) (see Image 7). In order to boost the sensory perception we tried to make use of a game with a magic box with chess pieces of different size – big and small. We suggested the participants, without looking into the box, touching the pieces inside it, try to guess the piece that they are touching (see Image 8). In order to make the assignment more complicated we asked the children to look for and find the precise piece that we mention – the rook, the knight, the king, etc.

Image 7.

Image 8.



4. For the sake of deep perception and development of logic we made use of some examples from fairy tales. The children involved are asked to take their time (for about 1 or 2 minutes) and continue the idea (Task 1) and to correct the wrong formulation of the idea (Task 2). Thus, this encourages and inspires the creative imagination within the boundaries of logic. This principles was the bases for another drill experimented: the children engaged were asked to take their time for 2-3 minutes and complete the ideas on chess (Task 3) an, later, they were asked to correct the mistakes of formulations and word-order problems (Task 4).

Task 1. Continue and complete the idea…
Once upon a time …….Once in the forest …… Suddenly he met …….

Task 2. Correct the wrong formulation of idea…
During the heavy rainfall the ground was still dry. Their younger son was left alone at home with his parents. The fox ate all the hens in the village and left the village – absolutely hungry.

Task 3. Finish or complete the following idea on chess.
Every piece in chess… The colours of chess pieces… On the chess board, together with numbers, there are also… There are two sets of every piece, however,…

Task 4. Correct the wrong formulations and word order mistakes in the following ideas…
The biggest number in chess is 6. The chess board is colourless. Players can only win in chess. Players play two chess. A king is piece important.

5. For boosting imagination among the target group children, we suggested them taking their time – for about 15-20 seconds – watching series of incomplete images of the objects familiar to them, then, to make use of a pencil to complete and finish the images (Туник Е.Е., 1998) (see Image 9). A similar task was assigned to complete by children – first watching the complete images of chess pieces and then during 30-40 seconds try to guess the pieces shown and name them (see Image 10).

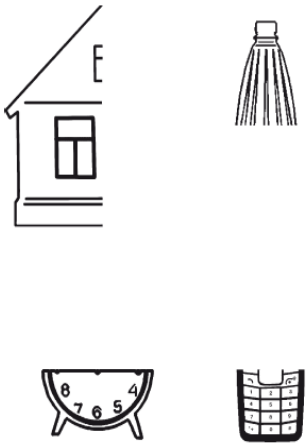


Image 9

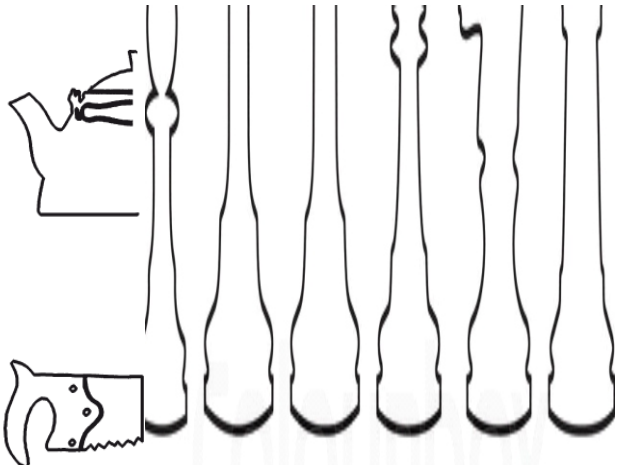


Image 10.

6. In order to develop the space conceptions and perceptions the children with special educational needs were asked to show during 25-35 seconds, following our instruction, where the ball is located, behind what, next to which object, on which, in front of which, etc. it is located (see Image 11). This method was utilized also in order to develop the correct orientation within the space of chess and for the development of relevant perception skills related to self-orientation and space orientation. For instance, the children were asked to place themselves on a chess-patterned surface – on the square they prefer.1 Then they are asked to answer which chess piece the square they stand on corresponds to, which piece he/she imagines himself/herself to be at that moment and on which field, grid or area he/she thinks that he is located at the moment. Then, the children get the instruction to make two moves ahead and to identify the grid again. After that, we ask the children to choose the piece that he/she would like to be standing in front and which piece he/she would like to see two moves backwords, which piece he/she would like to see standing on the right, etc. Likewise, we ask the children to make the respective moves on the chessboard, for example, to move the bishop to the right of the pawn or to locate the king between the pawn and the rook or to locate the queen in front of the white pawn or locate the black knight on the left of the bishop, etc. (see Image 12).

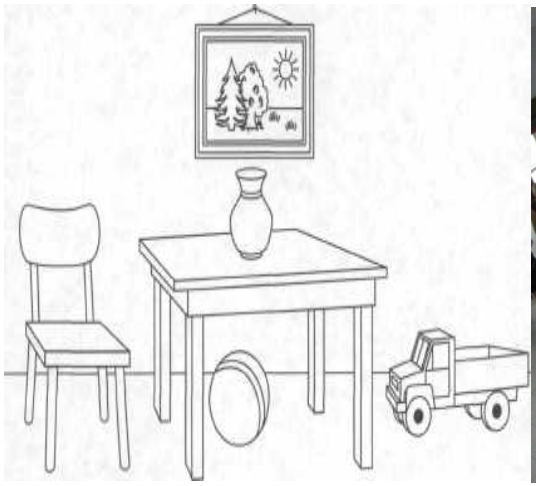


Image 11.

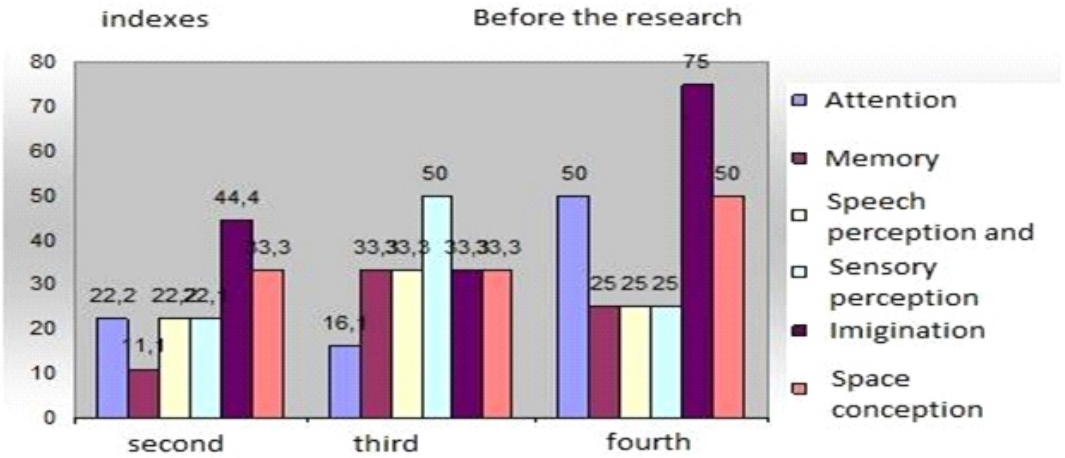
Image 12.

The aim of the above-mentioned assignments and the game drills is promote the speech, colour, number, sensory and space perception (under instruction), in particular, perceiving the normative aspect of the speech, expanding the children's vocabulary and the semantic field of perception, developing their mental abilities and the cause-reason-based logic of their speech, the analytic and synthetic processes, right time and space self-orientation skills, improving thus the self-esteem and contributing to the formation of balanced conduct and improved emotional-volitional realm (Визель Т.Г, 1995).

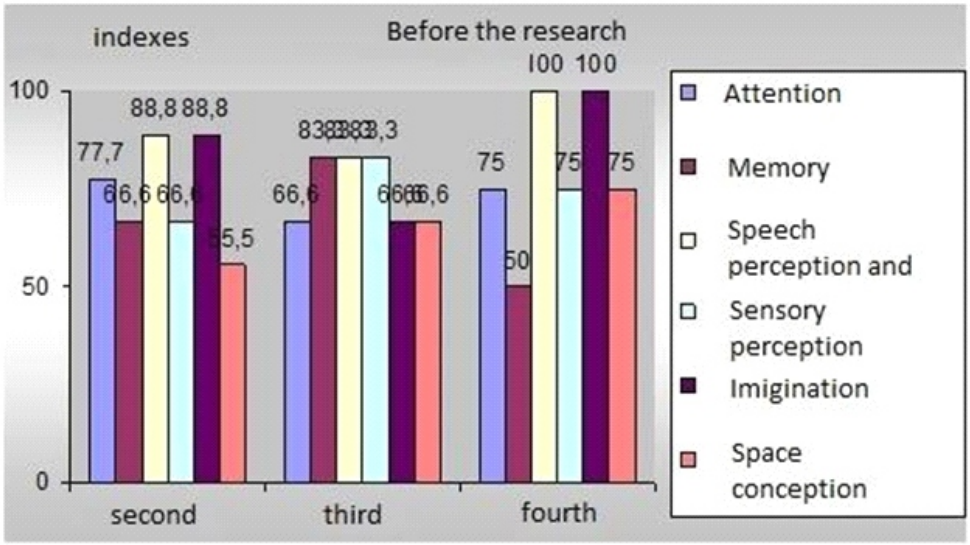
Thus, the positive influence of chess on the development of the psychological processes among the schoolchildren involved in the research is introduced below.

Table 1. Analysis of the results of the development of psychological processes among Children with Special Educational Needs with the help of Chess

Indices of psychological processes under study	Number of Children with special educational needs engaged n=19											
	Before the research						After the research					
	2nd grade		3rd grade		4th grade		2nd grade		3rd grade		4th grade	
	Number of Children 9	On average %	Number of Children 6	On average %	Number of Children 4	On average %	Number of Children 9	On average %	Number of Children 6	On average %	Number of Children 4	On average %
1. Attention	2	22,2	1	16,6	2	50	7	77,7	4	66,6	3	75
2. Memory	1	11,1	2	33,3	1	25	6	66,6	5	83,3	2	50
3. Sensory perception	2	22,2	2	33,3	1	25	6	88,8	5	83,3	4	100
4. Speech perception and logic	2	22,1	3	50	1	25	8	66,6	5	83,3	3	75
5. Imagination	4	44,4	2	33,3	3	75	8	88,8	4	66,6	4	100
6. Space conception	3	33,3	2	33,3	2	50	5	55,5	4	66,6	3	75



Graph 1. Introduces (in percentages) the situation of psychological processes among the target-group children before the research



Graph 2. Introduces (in percentages) the situation of psychological processes among the target-group children after the research

On graph 2 we can see (in percentages) the state of psychological processes among the 2nd -4th-grade children with special educational needs after the research.

As it becomes obvious from the graphs, the level of sensory perception among the participants of the second, third and fourth grades increased correspondingly in 66.6%, 83.3% and in 100%, the level of imagination surged in 66.6% among the second-grade children, in 83.3% among the third-grade students and in 100% among the fourth-grade students. These skills contributed also to the speech perception and logical skills to the following extent – among the second-grade children – in 88,8%, third-grade children – in 83,3% and fourth-grade students – in 100%, focus of attention: second-grade participants – 77,7%, third-grade participants – 66,6%, and fourth-grade participants – 75%, space perception-orientation enhanced – among the second-grade students in 55,5%, third-grade students – 66,6%, and fourth-grade students –75%.

Thus, the analysis of the results of the research carried out by us evidence the positive influence of chess on the development of psychological processes among the Children with Special Educational Needs contributing to the maximum level of abilities, in particular, in connection with attention, memory, sensory perception, speech perception, logic, imagination and space perception and orientation.

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1. What is ADHD

ADHD or Attention Deficit Disorder and Hyperactivity Disorder is a chronic neurobiological disorder, symptomatically evolving nature and probable genetic transmission that affects between 5 and 10% of children, even into adulthood in 60% of cases. It is characterized by a difficulty in maintaining attention versus voluntary activities, both academic and daily tasks, coupled with the lack of impulse control.

The symptoms can manifest differently depending on the age of the child and should be developed in two or more settings at home and at school. It occurs more frequently among boys than girls in a 4: 1, and both children and teenagers and adults of all social, cultural and racial conditions suffer.
The disorder is currently divided into three subtypes according to the main characteristics associated with the disorder: Inattentive; hyperactive-impulsive and combined.

2. Why use Chess

- Easy Rules
- Improves complex cognitive strategies.
- Evidence of recovery in patients with schizophrenia and dementia.
- Improves behaviour and impulsivity in ADHD patients with a specific work.
- Force the children to think

3. Chess workshop directed to work with ADHD: Our Objective

- We don’t want to create champions
- Looking for improve specific aspects of children

- Specific training for teachers to know better what is ADHD and how to work with it
- Personal attention to every child, little workgroups
- Direct connection, continuous and specific with parents
- Attention
- Fun, Entertainment, Utility
- Chess Course Content : Moving pieces, basics rules, the Castle, the Little House

Specific Problems with ADHD

- Inattention
- Mobility of students
- Class length
- Agenda to raise
- Training
- Issues specific to each student
- Type of education
- Things to do

How To Success

- Practice
- Work
- Effort
- Concentration
- Illusion
- Motivation
- Parent Support

4. Chess Benefits

- Increased intellectual activity
- Improves focus and concentration
- Introduction of social values
- Improving the structure of thought and planning

- Help in solving problems
- Encourages imagination and creativity
- It forces you to make a forecasting and planning
- Increases memory
- It develops, promotes and increases the capacity calculation
- Will, responsibility and decision making. Self-confidence / self-esteem.
- Improves intelligence
- Introduction to respect rules and regulations.
- Improved evident in math and English notes
- Development and improvement of communication and social relations
- Teamwork and individual work.

5. The Project

We started to work in 2012, more than 200 children has passed our curses, some of them goes on now yet, 4 years later, with considerable improvements. The attendants are between 4 and 16 years old, each one with their specific problem and comorbidities so is not an equal group.

We don't teach normal chess. We work with a specific objective, with a special methodology and with specialists in each field. The main idea is to work with them in our ADHD boot camp 1 hour per week, with the idea to complete the process playing or making some exercises with parents at home. Here appears the second part of our work, one time per month the parents come with their children to class, to learn with them, to share with them and from now on, no excuses to work with them at home, in Spain the most usual excuse is "sorry at home, nobody knows to play", with our training 1 parent will come with the children each month so in 3 months father, mother and one more, will know to play, enough to help the kid at home.

Another part avoids competition unless necessary, the frustration is one of the hardest thing to work with ADHD, because the quickness always make them to do things badly. Only when the kids are strong in mental think, and control the emotions, they go to serious competitions, meanwhile their main objective is not to win games or tournaments, is to improve, to have better qualifications in school and be more organized.

Our Curses starts always in October and finish in may so, they cover full school season, more or less missing only the first and the last month. Some people thinks that is too much, other that is few time to evaluate and work. We want to train them how to think, how to calculate, how to put the brain in action, and educate them in a good mood of work, organization and sociability.

We use some technological paths to work with them too, since 2015 we use ***"El Gato Victor"*** , is an application based in Castle Project, the exercises are very good because at the same time are simple but make the children to have attention in the screen. = ***"El Gato Victor"*** actually works in Spanish, English, German and Italian, you can see in (http://www.elajedrezdevictor.com). The program has the same idea than the project, the last thing is to play a game to try to win Victor. All previous exercises are against the machine or against himself, supperation effort each day.

From Chess4ADHD never spoke about medicaments, because we don't believe in the idea spread in internet, that Chess make miracles.

64 Villalba Chess Club, started a project in 2012, working with Children and adults with ADHD (*attention deficit/hyperactivity disorder)*using Chess like a tool *influenced by Social Services and some Medical Services in Madrid.*

The project focus is based in the kids/adults and the specific work with them, using chess like a tool; no competition, no tournaments, only teach them basic rules and train them to use the brain, to be the owners of their brain. Specific exercises and works to improve and feel better about themselves, the objective is not play well chess.

Kind of Work Groups

- *6-8 maximum per group.*
- *Parents must come 1 time per month to learn how to work at home with kids*
- *We use some internet platforms to work sometimes with them.*

Now the project has grown a lot and we hope to find in Armenia, some partners, to make a Erasmus + project based in our experience (We have one called "Castle Project" prized with 243,000 €). We work now with hospitals, ADHD associations, trained teachers, schools, private

organizations, and all together with some objective, improve the ADHD problem and train the child/adults in use better their brain, and take the benefits of chess to be better and reduce ADHD problem.

6. Our brief study over the kids

- Their results in maths are better
- The way to threat family, schoolmates, is better
- More sociability
- They moved from quickness, to thinking and taking time
- Responsibility in taking decisions
- Better way to distribute time in tasks

All of this depends directly of

- Motivation
- Real intention of the parents to help their children
- Believe in Miracles too much
- Patient and believe in the project and work in progress
- The time spent at home working, classroom work is not enough.
- The results are not in 5 minutes ¿? Will you wait more ¿?

7. The Future

Now we want to start new work in three levels

I. Work with Parents

In this part the ADHD associations will train parents in how to work with kids, how to treat them, how to understand his feelings and how to help them in hard moments.

II. Work with teachers in school

The teachers now has a difficult experience in classrooms with people with different problems and circumstances. The professionals of ADHD of Hospital, Foundations, and associations, will train teachers in how to work with them in class, how to integrate them, how to avoid delay in any kid and his public exposure. ADHD kids are not daily spectacle.
kids are not daily spectacle.

III. Work with the children with ADHD

The direct work with kids perhaps is the most important but not the only because without the two others, the result of the work will not be complete.

Emotions, comorbidity, social problems, family disorders, bad results in school, difficult relationships.

For this we will collaborate with ADHD associations, Hospitals, Universities and Schools, the chess work will be developed by Club Ajedrez 64 Villalba (4 years with this work and the First Prize of London Chess Conference 2015 are enough aval) and the development of the project will be made by Madrid Chess Academy, of course all with the supervision of Chess Federations, in this case Madrid Federation and Spanish Federation.
Mr. Agustin Garcia Horcajo will be the reference in Madrid Federation (FMA), Mr. Jose Francisco Suarez Roa will be in Spanish Federation (FEDA).

References

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http://londonchessconference.com/chess-meets-special-needs/
http://londonchessconference.com/conference-videos/

3.Some Links in Spanish

http://www.abc.es/sociedad/abci-boom-ajedrez-como-herramienta-educativa-201604241107_noticia.html
http://abcblogs.abc.es/poker-ajedrez/public/post/premio-internacional-londres-proyecto-espanol-ajedrez-tdah-18730.asp/
http://www.marca.com/blogs/espanasemueve/2016/05/19/ajedrez-contra-la-hiperactividad-y-para.html

4.Spanish Web site of the project

www.ajedrezytdah.com (now only in Spanish in some days will be in English too)

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In order to decrease possible teacher-pupil conflict, as well as for creating harmonious realm of pedagogical activities teachers' empathic capacities play a decisive role which gets through pupils' internal life creating pertinent bases for understanding the inner domain of motivations.

For the sake of overcoming the aforementioned pedagogical issues, providing the teaching staff with the respective support aimed at enhancing the empathic capacities among the teachers of chess through socio-psychological diagnosis and evaluation, there have been specific questions addressed: How much does the teacher know the pupils? What kind of emotional responses does the teacher demonstrate in different situations and does the teacher appear to be aware of the problem of knowledge of pupils' emotional world?

Teachers' pedagogical mastery, tactfulness and authority, as well as, her/his personality play a considerable part in pupils' moral education and efficient teaching/learning process. For a child, there is no piece of knowledge without teacher. It is only through the love

towards the teacher that the pupil makes his way into the world of knowledge assimilating society's moral values. For organizing and managing the teaching/learning process it is indispensable that the teacher in charge would be able to understand the children, respect their position, their standpoint. Grasping children's emotions, spiritual dynamics, aspirations and feelings, the educator is able to assume the mission of deep education when the child himself/herself becomes teacher's ally in his/her own education and learning/teaching. The qualities mentioned above are the necessary preconditions for the teacher in order to show his/her empathic capacities. As Boyko defines [Bojko V.V. 1996] "empathy is a valuable means of getting acquainted with human personality for educational and teaching/learning purposes".

Sinyagin [Sinjagina N. Ju. 1998] defines the pedagogical empathy as a capacity that together with reflexion, flexibility, sociability and cooperation capacities as a part of the mechanism of emotional comfort intellectual activeness, creative exploration and contributes to mutual understanding in the relationship with pupils.

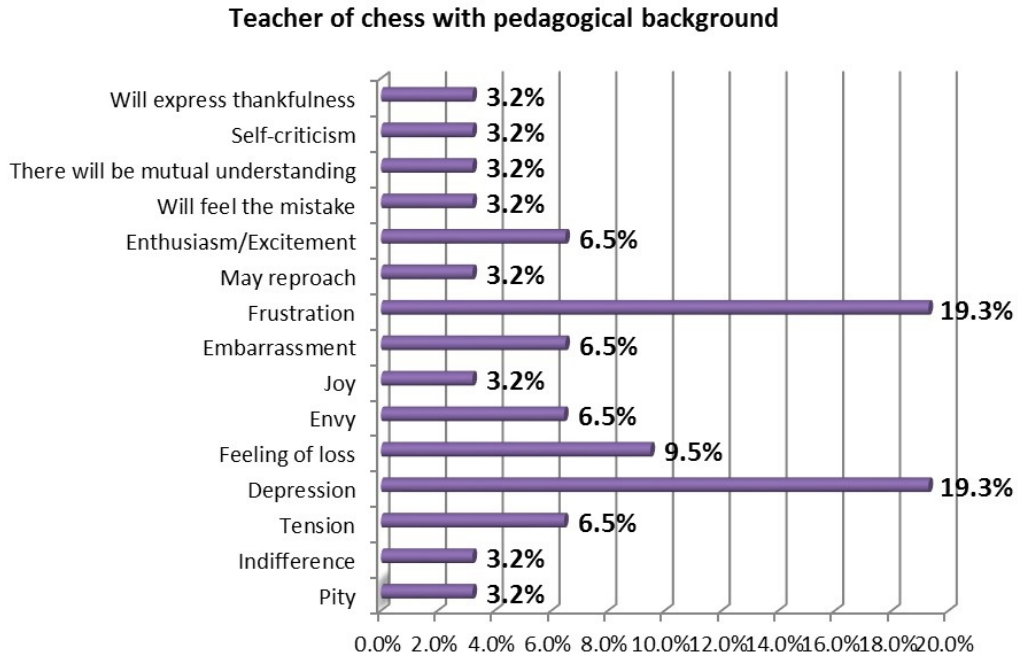
A quiz for detecting and evaluating teachers' empathic capacities has been designed on the basis of "scenario-analysis" method.

The teachers participating in the research were offered pedagogical situations which emerge within the framework of the course of chess as a school discipline. They were required to characterise and evaluate the pupils' emotions and the response to concrete situations.

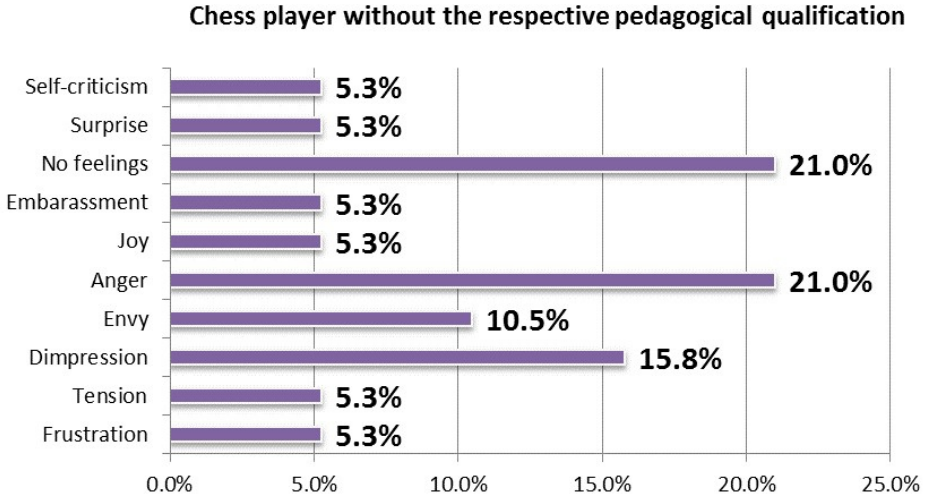
Guided by the holistic approach, the same pedagogical issues and situations were set forth to the pupils working with teacher clusters in order to familiarize with the emotional response and the ways of their expression.

The situations are introduced below.

Situation 1: You ask a question to the class, one of the pupils raises his/her hand and tries to answer the questions. However, he finds it difficult and the pace of his/her speech slows down, he stammers, and is not able to answer. Another students answers the question: "Today, when Mr./Mrs. [teacher's name] asked me how many points the queen has, I couldn't answer but Ashot [the other pupil's name] answered."



Graph. 1.1

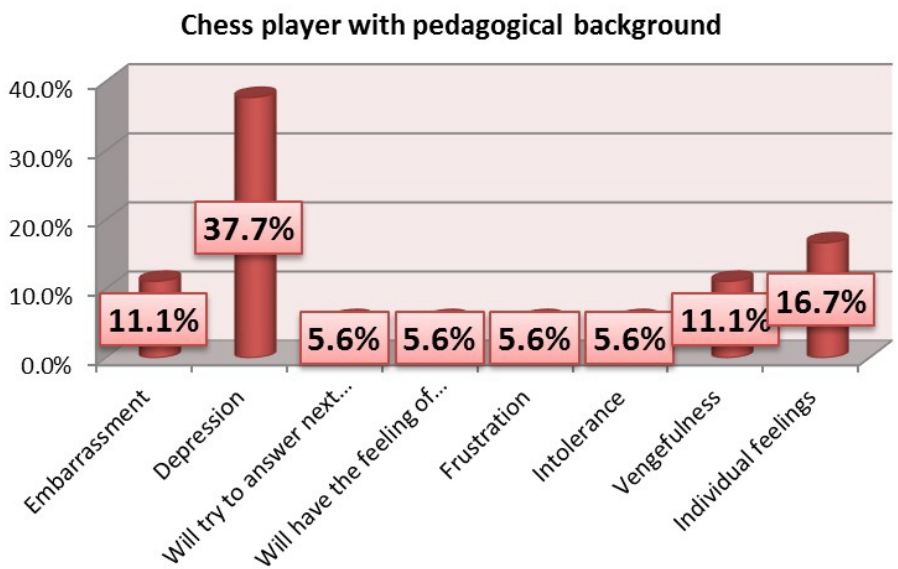


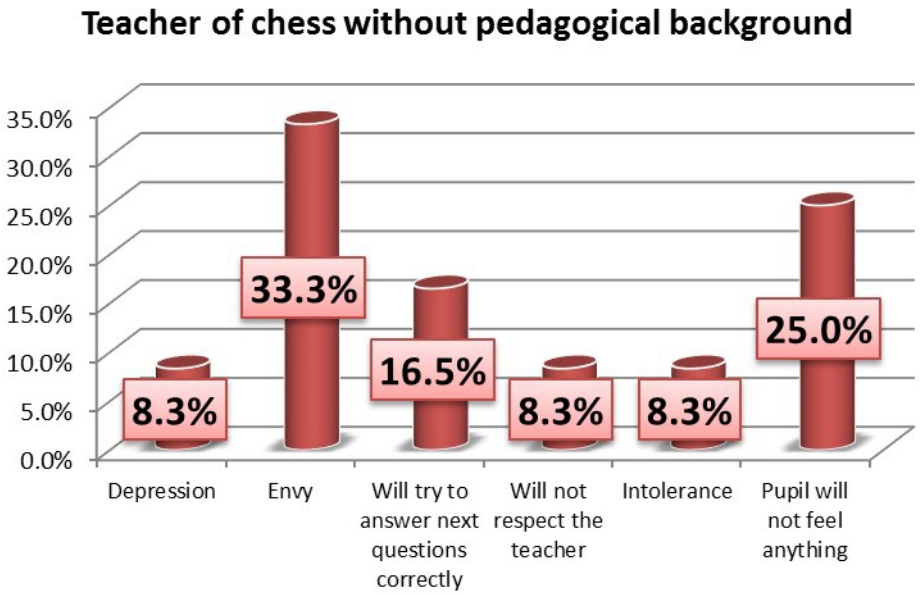
Graph. 1.2

In the graphs above (Charts: 1.1; 1.2) we see reflected the answers in comparison which evidences that the majority of chess player-educationists mention as a primary response implicitly typical of the situation frustration and depressed responses. The chess players who teach the subject without any pedagogical background indicate as predominant expressions of responses the anger, absence of emotions in certain situations, and depression. Notwithstanding, in the situation mentioned above the child's reaction – from his/her own standpoint – is an expression of sadness.

Situation 2: You ask the class a question, and one of the pupils raises his/her hand and answers the questions. However, as the answer is wrong, you accept the right answer given by another pupil appraising the latter. "Today Mr./Mrs. Asked me a question on how to get out of check. I answered but my friend [the other pupil's name] corrected me and Mr./Mrs. [teacher's name] praised him/her, saying, "Good for you!"".

Graph. 2.1

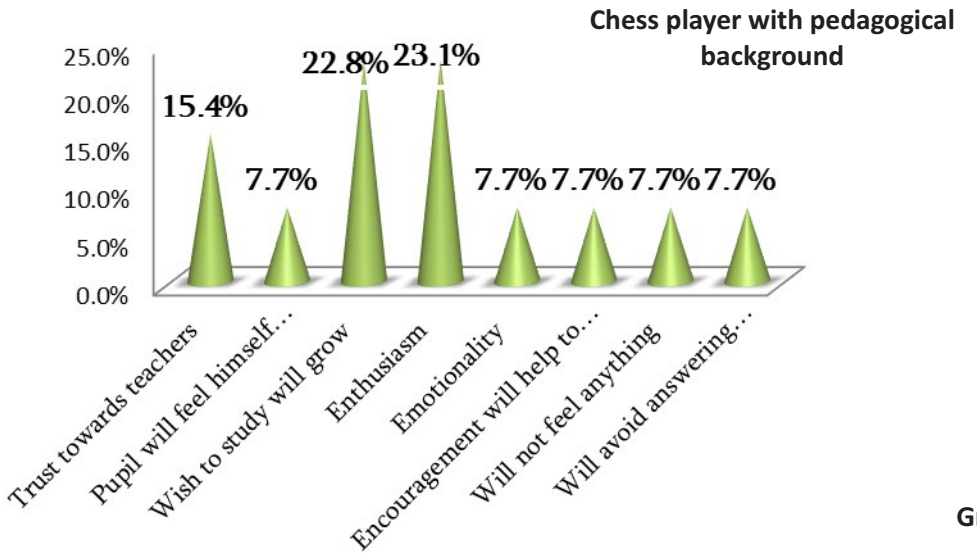




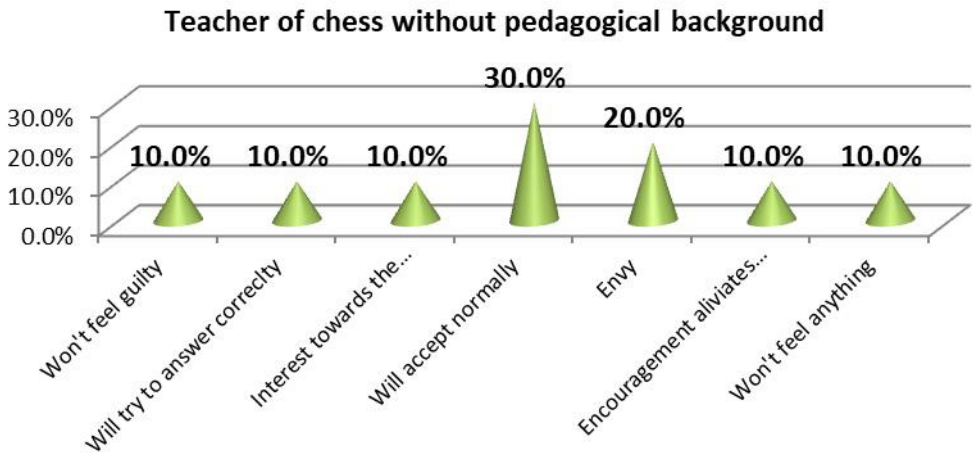
Graph. 2.2

In the graphs (Charts 2.1; 2.2) introduced above we can see depicted the obvious picture of the comparison of the answers that makes clear that the majority of chess players with pedagogical background mark as prevailing emotional responses to the situation given the depression, embarrassment, vengefulness. Meanwhile, the chess player-teachers without pedagogical background would rather mention the envy, absence of emotions in precise situations. In the aforementioned situations among the answers given by pupils the ones that prevailed were connected with anger, feelings of rage and resentment.

Situation 3: While answering the lesson or your question the child encounters some difficulties and keeps silent for a while, while you, encouraging him, ask another pupil. "Today, when I tried to answer the question on how to trap the queen, I couldn't answer but Mrs./Mr. [teacher's name]… caressed my head, smiled and asked [the other pupil's name].



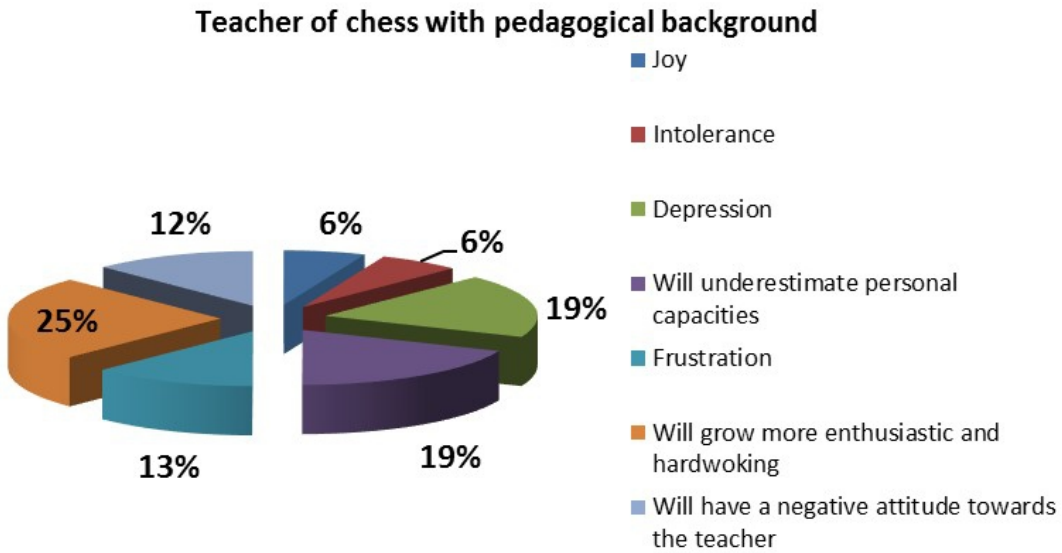
Graph. 3.1



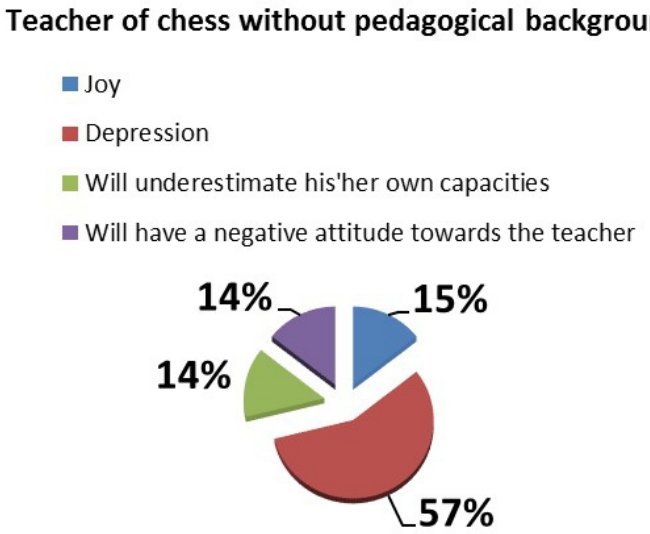
Graph. 3.2

Charts 3.1 and 3.2 evidence that the prevailing part of the teachers of chess with pedagogical background in the given situation distinguish enthusiasm, excitement, and the increase of academic interest. In the same situation those of the teachers who lack the pedagogical preparation prioritize the feelings of envy and absence of emotions. On the other hand, the children who participated in the survey would mark as prevailing response: "I was not upset…"

***Situation*4:** While answering the lesson or the question addressed by you, the pupil makes a mistake and you make him keep silent and accept the right answer from another pupil in the group. "Today, while trying to answer the teachers question about how to trap the queen, I made a mistake and Mrs./Mr. [teacher's name] told me that I was wrong and accepted [the classmate's name]'s answer".



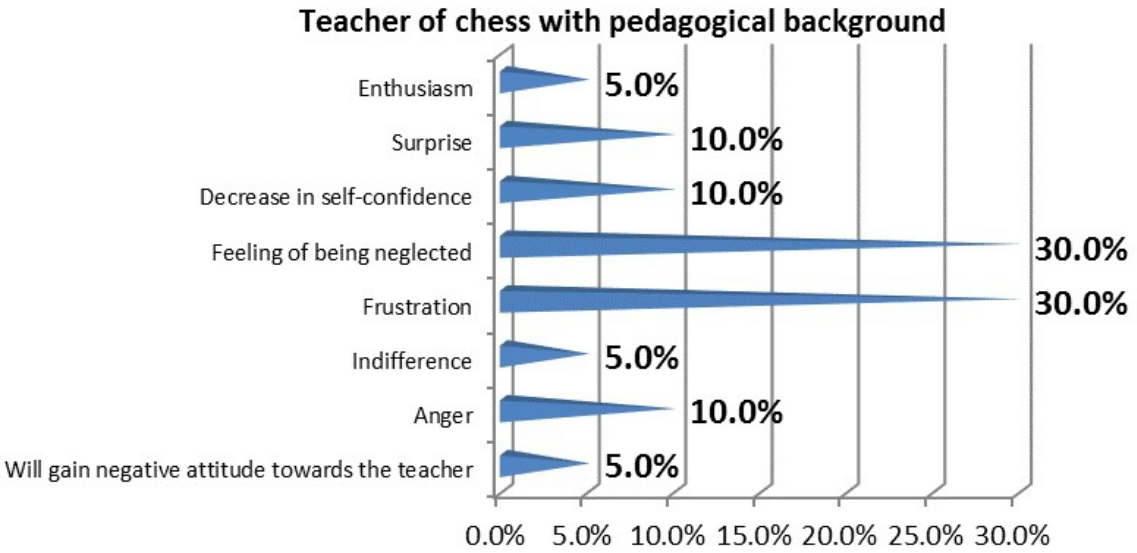
Graph. 4.1



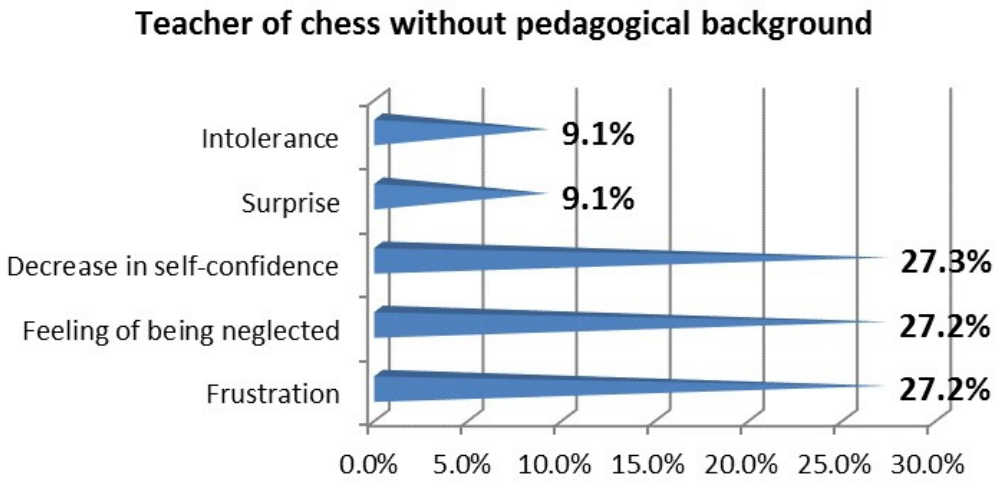
Graph. 4.2

Charts 4.1 and 4.2, comprising the comparative image of the answers given, show that a considerable part of the chess teachers of pedagogical background distinguished as a typical response to such situations the enthusiasm and diligence increase, depression and frustration. Meanwhile, the teachers of chess without pedagogical background would highlight the depression. The children's reaction to the situation was sadness and depression. We must note that in the given situation the teachers without pedagogical background would evaluate children's reaction as quite adequate, relevant to the situation, their emotional world which might be a necessarily preconditioned by a number of different factors and the psychological-pedagogical enhancement courses organized for them on regular basis.

Situation 5: You ask the class a question, and many of them raise their hands to respond. However, you make a choice among the most and traditionally diligent students. What would happen to the pupil who knew the right answer and was the first one who raised his/her hand to answer and was not asked? "Today I again raised my hand in order to answer to Mrs./Mr. [teacher's name] question but, all again, I didn't manage to answer".



Graph. 5.1



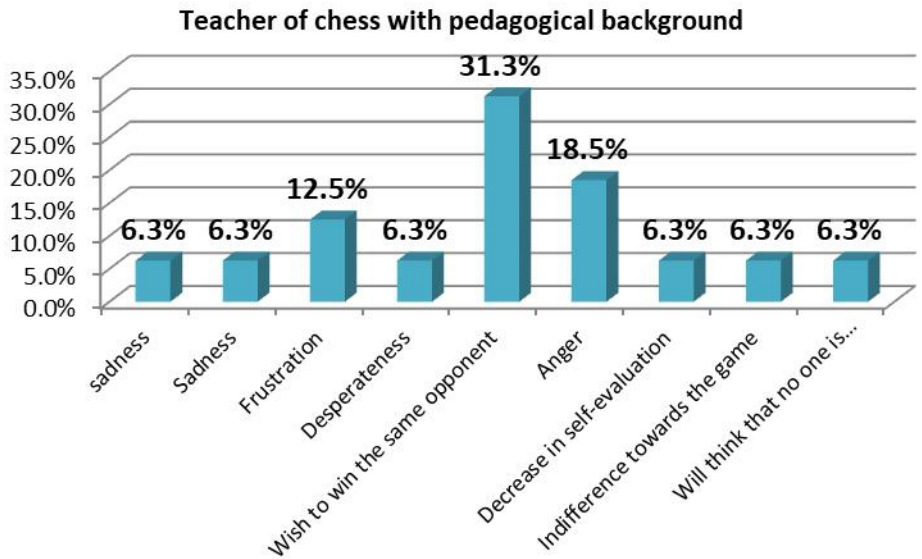
Graph. 5.2

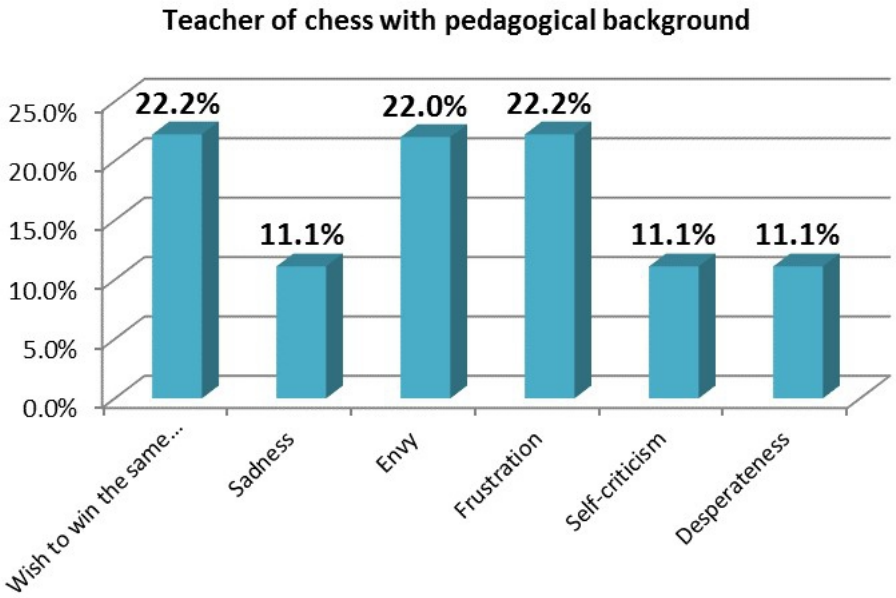
In the graphs introduced above (Charts 5.1 and 5.2) the comparative analysis of the responses clearly assume that the majority of teachers of chess with pedagogical background, in the given situation, see as prevailing the emotions related to the feeling of being neglected and frustration. Among those without pedagogical qualification the most frequently highlighted emotions are those connected with the feeling of being neglected and decrease in self-confidence.

At the same time, the children's response to the situations would mark the feeling for being neglected often formulated by the child as "The teacher doesn't like me."

Situation 6: You have organized a chess game-tournament in your class. The pupils involved are engaged enthusiastically in the game, with noisy reactions, and, naturally, there are those who win and those who lose the game. The child get back home and says, "Today Mrs./Mr. [teacher's name]" organized a contest during the lesson. We all played. Everything was great! But I lost my game to [the other classmate's name]".

Graph. 6.1





Graph. 6.2

Charts 6.1 and 6.2 reflect the comparison of the answers that evidence that the teachers of chess with pedagogical background, in the majority of cases, mention as a typical response to such a situation the emotions related to the wish to win over the same opponent and anger. The teachers without pedagogical background would mention the following emotional responses as the most recurrent ones: the wish to win over the same opponent, envy and frustration. The children's vision could be formulated as follows: "I don't want to play with him/her, as s(h)e always wins.", i.e. depression, and envy.

Summarizing the research results, we must emphasize that, though in the answers of both categories of teachers (with and without pedagogical background) there are obvious regularities and coincidences, anyway, there were pedagogical situations detected in which both target groups showed obvious need in much deeper, profound knowledge of age-based psychological peculiarities and regularities in order to gain deeper knowledge of pupils, their emotional world, emotional states, etc. The limited range of knowledge was particularly

obvious when the teacher was trying to describe his/her pupil's behaviour patterns without analysing the pattern and motivating it in connection with the family/parent-based emotional background. We must emphasize this issue is deeply typical of traditional education system in general.

Abstract

In the article it is revealed the significant role of chess teachers' empathic capacities in organizing successful learning process. In the context of understanding children's feelings and emotions chess teacher can deal with mentioned factors giving students a chance to be advanced. Here are brief results of social-psychological assessments of chess teachers empathic capacities: how they understand student's emotional reactions in different pedagogical situations.

Keywords: chess, empathic capacity, pedagogical situations.

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Both imaginative and logical ways of thinking are indispensable for solving chess problems. If such ways of thinking are not formed yet, the chess assignments help to develop the necessary bases for imaginative and logical thinking which, certainly, in the course of time progress reaching the level necessary for studying such school subjects as Geometry.

Diagram 1.

1depicts a combination that requires to move the white queen to a field so that it could checkmate the black king. Of course, the white queen should be placed on a field that it could attack at the same time the “d2”,”d4”,”e3”,”e4”,”f2” and “f3” fields that are under the disposition of the bacl king. It is apparent that the above-mentioned fields can be defended from the “f4” square, therefore, the white queen must be moved to “f4” in order to checkmate the black king.

Diagram 2.

In the position depicted above (see Diagram 2), it is whites' turn to make a move – one-step checkmate. In order to solve the task, the pupil is reuired to imagine the checkmate position. For boosting his/her imagination, we may remove the white queen from the board, later, placing it back to the respective square so that he/she visualises the checkmate position. Thus, the task might be facilitated through the method of previous assignment (see Diagram 3).

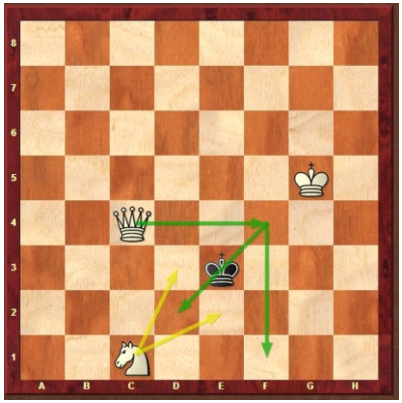

Diagram 3.

The solution is possible in line with the same logic of previous position providing instead of the white knight, for instance, on the square "a6" we place the white bishop (see Diagram 4)

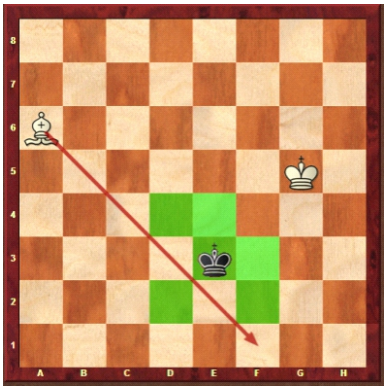

Diagram 4.

The same logic might lead to the checkmate with both the queen and the bishop (see Diagram 5).

Diagram 5.

In the following position (see Diagram 6), it is whites' turn to move: checkmate in two steps.

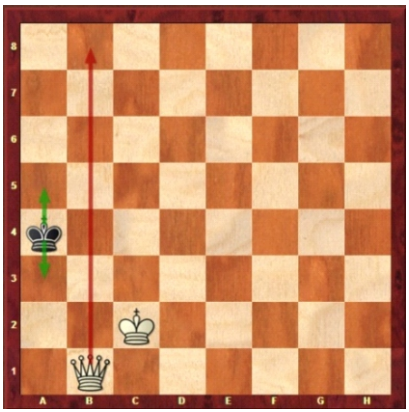

Diagram 6.

In order to solve the problem, the pupil must imagine the necessary checkmate position. For this the turn to make a move might be altered: for instance, imagine that it is blacks' turn to move and that they have the possibility to make two moves:Ka3 andKa5. Only one of the above-mentoned moves appears to be faviourable for whites – Ka3, as the black king is placed near the white king, meanwhile, the Ka5 move will move the king of balcks away from the king of whites making the one-step checkmate impossible. Consequently, we must make use of the white queen in order to make impossible for the king to move to square "a5" for whichthe queen must move to "b6" in oder to make the black king move tosquare "a3" (see Diagram 7).

Diagram 7 .

This will be followed by a one-step checkmate 2.Qb6-b3#.

Diagram 8.

In this position (see Diagram 8), the whites announce checkmate to the black king n two moves. In order to solve the problem we must recall the typical two-rook checkmate position (see Diagram 9, 10).

Diagram 9.

Diagram 10.

Then, we may make the following judgement: vertical “g” or the 7th horizontal line must be blocked with the rook the movement of which cannot be blocked by the black kinght. It is obivous that that rook is the one on square “c2”. However, there is another problem to solve here. As the black knight can block the movement of the rook on square “b3” along the

horizontal line, the rook on “c2” must be moved to “c7” so that the black knight is not able to block the rook on “b3”. After that, we will get the checkmate position (see Diagram 11):

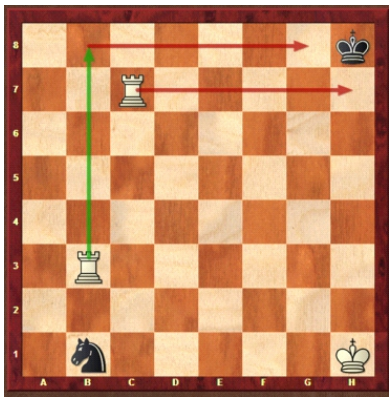

Diagram 11.

In the position given (see Diagram 12), the whites begin and declare checkmate in two steps.

Diagram 12.

In order to find the relevant solution to the problem, we must recall and imagine the two-rook checkmate position. Then, we need to infer that we must delimit the moves of the black king with the respective rook so that the king cannot move away from the marginal file (line).

Thus, the first move must be taken making use of the rook the movements of which – both horizontally and vertically – could be blocked by the black knight. The only thing left to decide is whether to move the rook on “b3” to “b7” or to “g3”. And this is not difficult to decide as it would be wrong to move it to square “b7” as the black knight would block the rooks move through square “c3”. Therefore, the correct move would be 1.Rb3-g3 which will be followed by 2.Rc2-h2# in response to any of the moves of blacks (see Diagram 13).

Diagram 13.

Conclusion

In order to find the appropriate solutions to the problems introduced above, the pupil must necessarily imagine the line crossed and checkmate positions, which will definitely contribute to the bases of imaginative and logical ways of thinking among children. Subsequently, the imaginative and logical thinking bases will eventually result in pupils’ education increase, in particular, in studying Geometry. Thus, we may conclude that teachers of chess must guide the pupils so that they could imagine clearly all the fields and lines. In order to enable the pupils to do the tasks, the pupil must imagine the checkmate positions, the crossed lines which might result in advanced bases of formation of imaginative and logical thinking.

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Organization of language education in Belgium

Belgium is a small, trilingual country consisting of three unilingual areas and one bilingual one. A territorial principle determines that the language of education is Dutch in the Dutch-speaking area, French in the French-speaking area and German in the German-speaking area (law of July 30th, 1963).

In the Dutch-speaking area, the second language (L2) education is quite traditional. From the 5th year in primary school (pupils age 10) on, the Dutch-speaking pupils are taught French in a formal, grammar and vocabulary oriented way. The German-speaking pupils from that age have to learn French. The French-speaking pupils can choose between Dutch, English or German as L2.

In the French Community, some successful local initiatives with bilingual education in Liège led to a Decree in July 13th, 1998, which formalized immersion education: a pedagogical procedure aiming at the acquisition of a modern language by providing part of the curriculum in that language. This means that the French Community opted for a CLIL education (Content and Language Integrated Learning or, in French: EMILE (*Enseignement de matièresparl'Intégrationd'une langue étrangère*)).

Characteristics of CLIL education in the French Community

The language teaching system adopted in the French Community is characterized by

1) an early partial immersion: in the CLIL-system, schools offering immersion start the L2-activities in the 3rd year of kindergarten, i.e. 5 years earlier than in the traditional system. The partial element consists in teaching up to 50% of the curriculum in L2 (i.e. 13 out of the 26 hours), especially at the beginning. This percentage will decrease, but it will still be at least 25% of the curriculum in the last year of primary school (6th year – age pupils 11 years);

2) one teacher, one language: pupils have to associate each of their teachers with one language only. Schools offering Dutch and German as L2 normally find the ideal teachers respectively in the north and the east of the country. For English immersion, it is much more difficult to find native English teachers in Belgium;

3) a separate L2 course: the target language is also formally taught (grammar, vocabulary), but only later in the curriculum. Indeed, pupils will have L2 as a school subject as well, from the 5th year in primary school on (just as in the traditional system);

4) a parallel L1 class: in every immersion school, pupils must have the possibility to choose between immersion education and an exclusively L1 education. When an immersion child seems to have difficulties in assimilating both content and language, he or she can go to the parallel L1 class;

5) an exclusive target language use in the immersion class: the immersion teacher doesn't use L1 during his/her lessons, nor is he/she assisted by a mother tongue speaker who could possibly translate the content into the mother tongue of the children. It is the L2 teacher versus the L1 pupils and this stimulates of course co-operation between the pupils: pupils who do understand the tasks, instructions, etc. can explain it to their friends.

Language project in the kindergarten / primary school of Mettet

One of the immersion schools with Dutch as L2 is *l'Ecole de la communautéfrançaise* in Mettet (rue Croix de Bourgogne 12 - 5640 Mettet – BELGIUM - website: www.ecoledemettet.be - E-mail: info@ecoledemettet.be), a small town with a population of 12,000, situated 100 km south of Brussels. The school welcomes about 150 pupils in kindergarten and primary school and the majority of them have class in the immersion section. That is certainly the case in kindergarten, where almost all the children have immersion education (2015-2016: 26 out of the 28 children of the 3rd class in kindergarten). Next to the French mother tongue teachers, the school employs 4 Dutch (or Flemish as is called the Dutch language spoken in Belgium) mother tongue teachers.

In 2013, the head of the school, Mrs Tondu, contacted the Belgian chess federation who had started a CIS-campaign: she was convinced of all the known benefits chess could have and she wanted to implement the game as a part of the curriculum for all her pupils. Therefore, she intended to have chess only taught in French. As we had done scientific work on language

acquisition (in the *Centrum Taal en Onderwijs*) and as Dutch is our mother tongue, we proposed to consider chess as an immersion activity as well. That is the reason why an experiment was started: offering chess as a second language tool to the immersion children. In order not to make the non-immersion children jealous, the head of the school also asked us to teach chess in French to those pupils. The weekly planning is the following
3rd kindergarten – L2 Dutch immersion: 1 hour from January – May
1st primary school – L1 French mother tongue: 1 hour from September - May
1st primary school – L2 Dutch immersion: 1 hour from September – May
2nd primary school – L1 French mother tongue: 1 hour from September – May
2nd primary school – L2 Dutch immersion: 1 hour from September – May
All the other classes in primary school (3rd / 4th L1, 3rd L2, 4th L2, 5th/6th L1, 5th/6th L2) have chess class alternately.

Method – Task-Based Language Teaching

Having worked at the *CentrumTaal en Onderwijs* (CTO) University of Leuven, our approach of language acquisition is Task-Based Language Teaching (TBLT).
Contrary on what one might think, TBLT is neither brand-new, nor a Belgian didactic principle. The concept of TBLT appeared in Anglo-Saxon literature in the 80's. Breen, Chandlin, Prabhu and Long developed the concept of Task-Based Language Teaching.
In its goal (language proficiency) and in the didactic to achieve this goal, TBLT is very similar to the natural way a human being learns his mother tongue. It is not only important to learn a language, it is also important to use the language when learning it. Thanks to this functional use of the language, the learner will unconsciously deduce the systematic and the structure of that language.
Therefore, TBLT has not the intention to split language up in its different components (vocabulary, grammar, pronunciation, etc.), it wants to achieve a natural language acquisition and is therefore a more heuristic approach of language learning. Every language communication will enable a learner to make assumptions and hypotheses about the links between linguistic functions and forms. When trying to understand and produce language, this learner will use those assumptions and hypotheses and he will verify and – if necessary – modify them. That is exactly what children do when acquiring their mother tongue: they will

use language as a tool to have some things done (get a cookie, get an answer on philosophical questions, etc.) and their successful attempts to use this tool will enable them to build up the linguistic system.

As language proficiency is (should be) the main goal of language education, it can be largely stimulating to give tasks to the learner. Although this concept seems to be quite clear, it is important to define what a 'task' is. Long (1985) describes tasks as everything people could do in everyday life: give a book to someone, read an e-mail, bake some cookies, etc. If you never make cookies, it could be useful to read a cooking recipe. Language will be important to understand the recipe, and for Long, it is not important that the task in itself does not require any linguistic activity (you can make cookies in silence).

In our opinion, this definition is too general, as traditional language courses fit perfectly well in this idea: don't the teachers give tasks in the form of grammar and vocabulary exercises?

Characteristics of a TBLT-task

Therefore, to be much more efficient, a task should be characterized by a combination of four aspects.

1) The pedagogical aspect

This means that the task should enable the learner to develop his language proficiency. In the execution of the task, there has to be a difference between the language proficiency already acquired and the language proficiency required to do the task correctly.

2) The motivational aspect

It is important that the learner is intrinsically motivated by the task.

3) The interactional aspect

The task should generate a natural communication between the users of the language. This is important, because it is just within this interaction that the language differences between the concerned language users can be narrowed. Sometimes, learners can deduce the meaning of a word on their own, thanks to their knowledge of the world or the context within the word is used. But in most of the cases, the individual efforts of the learner won't be enough to understand the meaning of some words / sentences. The help of the interlocutor will be needed and fortunately, just now, this help will be very effective, as it will come at the right moment: the moment where the need of the learner will be at its highest level.

4) The integrative aspect

This aspect means that the four skills (oral comprehension, oral expression, written comprehension, written expression) should appear in an integrated way, i.e. that speaking and listening go hand in hand and that you do not simply give instruction (where only listening is required from the pupil). The same is true for vocabulary and grammar, which are of course naturally integrated in the task.

So, the main distinction between the TBLT and other didactic language approaches lies in the tasks. In TBLT, the teacher will think about his tasks so that they meet the four abovementioned aspects. As we said, it is a more heuristic approach than e.g. the communicative approach. In fact, the communicative approach is based on formal language aspects and the tasks the teacher prepares, are in the first place inspired by those structural or grammatical elements the teachers wants the pupils to acquire. In the TBLT approach, the focus lies on the task.

Some thoughts about TBLT

Does this mean that formal information about the language system should be banned in TBLT? Not necessarily. Normally, TBLT doesn't need formal language activities: in the L1 acquisition (the mother tongue), children will not have any explicit language course, be it a grammar course, or a course aiming to develop learning or reading strategies. They will still manage to acquire their mother tongue.

Does this mean that the teacher who wants to implement TBLT must dispose of a phenomenal physical condition, an inexhaustible source of creativity, enthusiasm and optimism, sixteen listening ears, sixteen speaking mouths and four pairs of arms and legs to help individual pupils, a little bit of clairvoyance to anticipate problems and of course, all the time in the world to prepare the tasks and to estimate the progress of each of the pupils…? There is not enough space here to bring this caricature to human dimensions, but what the teacher is concerned; the most important aspect is a pupil oriented approach. He should always bear in mind that he can help to develop second language proficiency while discovering the wonderful game that is chess.

And why couldn't we gather all good practices to make is easier for the teacher?

TBLT-based chess education

How to translate these theoretical elements into a more concrete TBLT chess education, without forgetting to achieve the other chess goals (motricity skills, abstraction skills, etc.)? A little bit of "linguistic consciousness" of the teacher when preparing his tasks, can make a big difference.

In general, chess is very suited for TBLT.

1) Pedagogical

When using the Steps Method (Cor van Wijgerden, Rob Brunia – see www.stappenmethode.nl), the structuring of the chess lessons make it very easy to respect the pedagogical aspect of the tasks. For the first lessons, language can be quite simple, but the level of language proficiency will of course be much higher when explaining how to castle or when to take 'en passant'.

Of course, there will be moments where the increasing difficulty will not be as straight-lined as one would like.

As we said before, it can be useful to organize a formal language course on a certain subject (grammar, vocabulary). How to explain that there are white and black squares on a chess board and that it is black to move, when you use a yellow and black demonstration board with white and red pieces). Here, it can be interesting to introduce an explicit course on the colours and the notions 'light' and 'dark'.

2) Motivational

No doubt that chess as a game is very motivational, at all ages.

3) Interactional

Maybe this is the most difficult element in the chess TBLT: encourage children to go in interaction with the teacher and with each other.

Teacher tend to explain a lot of things, without giving the occasion to the pupils to go in interaction, although there is plenty occasion to do so.

In kindergarten, the teacher can make some steps forward on a giant board, saying: "*Ikdoedriestappenvooruit*" ("I make three steps forward)". Simple interaction can be created to ask the children to determine how many steps forward or backward you (or other pupils) may make.

4) Integrative

By increasing the interaction, the teacher will simultaneously increase the integration: pupils will hear and speak (and maybe even read and write

In a later stage, when the children can play chess and when they have acquired a certain language proficiency, the teacher can turn to more difficult language activities such as arguing ("I would play move x because then… and I would reject move y, or else…").

Advantages of TBLT

If the 'native speaker' teacher is conscious of how language acquisition works and if he wants to make some effort to ensure that his tasks meet the four abovementioned skills, he can make it possible to develop (second) language skills 'for free' and reaching all the other skills a chess teacher wants to develop.

This is the case both for L1 as L2 acquisition and this approach turned out to be very effective when integrating refugees in the school system in Belgium: many refugees know how to play the game, so their knowledge of the content helped them to make correct hypothesis on the language and therefore, learn the language more rapidly. Moreover, even if the refugees were elder, the motivational aspect of the game (and the tasks) was still big enough to be relevant.

Evaluation

The TBLT approach has already been tested (i.e. De Ridder, e.a. (2005) found out that TBLT enhances automatization of language skills), but it is rather difficult to have a correct evaluation of the impact of chess TBLT on language proficiency.

The chess project in Mettet started in 2013 and unfortunately, no evaluation on the linguistic skill of the children has been done yet. The main evaluation will take place after 7 years, when children will have had an entire Dutch/French curriculum in primary school. Of course, it is already clear that the children in immersion education master Dutch much better than the children in the classical education. Unfortunately, as chess is only 1 of the 13 teaching hours in Dutch, it will be impossible to have an exact image of the impact of chess in the developing of the linguistic skill.

Anyway, we can already observe a reinforcement of the content in the chess class and the one in the other lessons in Dutch (the word '*paard*' ('horse' or 'knight' in chess) was a word

the children mastered already before my colleague introduced it in a lesson about the animals of the farm.

Abstract

This paper presents an experiment where chess is used as a (second) language tool in a Belgian immersion school. After a brief introduction on the immersion system, focus of this paper will be the Tasked-Based Language Teaching-method (TBLT) and the characteristics of a good language oriented task. Finally, this paper encourages chess teachers to a bigger awareness of how small linguistic changes in the tasks can offer a big advantage in (second) language acquisition.

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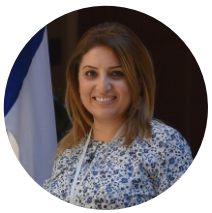

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In the academic year 2015/2016, the team of psychologists of Chess Educational Centre at ASPU carried out an experiment that proceeded in 2 phases. The first phase consisted in a diagnostic experiment and the second stage was aimed at practical developmental issues.

The researches were conducted making use of the methodological scope for objective psychological analysis and testing Egoscope («Egoscope», 2013, 56-62, 70-74).

The diagnostic stage was conducted among the 4^{th}, 5^{th} and 6^{th} grade pupils at Yerevan John Kirakosian Secondary school № 20, Yerevan Vahan Terian Secondary School № 60 and Khachatur Abovyan Secondary School №4 in Vagharshapat – the total number of participants: 135.

The aim of the diagnostic experiment was to reveal the current level of psychological components within teaching/learning the school subject of Chess among the primary school pupils.

The research set forth two major issues:

1. To detect the movement coordination and its volitional arrangement within limited time framework among the 4th and 5th grade pupils who had already covered the course of Chess with the same indicators among the 6th grade pupils who had not completed the same course.

In the course of experiment the first observations were focused on the 5th-grade students' movement coordination and their skills of volitional self-regulation under the circumstances of time deficiency. Subsequently, the data collected was compared with the similar indices detected among the 6th-grade participants.

For the aims mentioned above, the methodology "Trajectory 3" – selected from Egoscope complex of methods, was used. It is designed to rate the movement coordination and the volitional arrangement of the arrangement within strict and limited time framework («Egoscope», 2013, pp. 56-62).

In the course of experiment there is a requirement to follow up the red light moving along the trajectory through the e-pen moving at certain distance on the dynamic touchscreen. The methodology is designed to evaluate the movement coordination and volitional self-regulation skills in time-deficit conditions.

Average data collected via "Trajectory – 3" methodology							
Criteria defined		4th grade 2-year-long course of Chess completed		5th grade Courses of chess completed		6th grade No courses of Chess completed	
		Right hand	Left hand	Right hand	Left hand	Right hand	Left hand
1	General number of mistakes, times	64	60	66	69	78	74
2	Experiment timing, seconds	30	30	29	30	30	30

Table 1. Average data collected via "Trajectory-3" method

1. The movement coordination and the ability of its volitional arrangement suppose that during the experiment the total number of errors or mistakes must be decline. The analysis of the experiment through Trajectory-3 method evidences that that indicator (criterion) is particularly obviously manifested among the fifth graders who have already covered the three-year-long course of chess. The learners make all the moves on the board with some hand moves. This might be reckoned as a result of inner planning of mental activities the development of which is boosted by chess (Sukhin, 2013, 63-84).

2. The second research problem of the diagnostic experiment is to reveal the decision making speed and the level of fatigue among the 4th and 5th graders – primary school pupils who have covered the course of chess – in comparison with the same indicators among the 6th-year pupils without any chess preparation.

For that purpose, we made use of was we chose the methods of “Simple and Complex visual and somatic responses” from “Egoscope” set of methods («Egoscope», 2013, 70-74). The research was carried out with the visual and dynamic tube “Tubus”. The tube is attached to the computer that provides the functioning of “Egoscope” complex. In the case of simple visual-somatic responses, the respondent was asked to press the black button installed above the Tubus right after noticing the green light inside. In cases of complex visual-dynamic responses, the participant receives the same instruction with one difference – together with the already mentioned green light there is also a red one inside. Once the respondent sees the red light, (s)he must simply wait till the green light appears.

	Average data of "Simple and Complex Visual-somatic responses"						
	Criteria defined	**4th grade 2-year-long course of Chess completed**		***5th-grade participants With previous chess courses completed at school***		***6th-grade participants Without any previous chess courses at school***	
		Right Eye	***Left* eye**	***Right Eye***	***Left* eye**	***Right Eye***	***Left***
1.	***Number of delays (times)***	**2**	**2**	**1**	**1**	**3**	**3**
2.	***Number of quick responses (times)***	**6**	**6**	**3**	**3**	**5**	**5**
3.	***Number of accurate, precise responses (times)***	**22**	**22**	**26**	**26**	**22**	**22**
4.	***Agility level***	**Middle (Average)**		***High***		***Below average***	

Table 2. Data collected on the basis of simple and complex visual-dynamic response method

It is assumed that the number of accurate responses and quick motions are considered to be as indices of quick decision making. The analysis of the results evidence that the number of accurate responses and quick motions among the 5th-grade schoolchildren surpasses the same indicators detected among the 6th-grade students who have never had chess courses at school. As we know, one of the requirements for inner scheduling of mental activities is the decision making process and the least possible probability of mistakes. So, the 5th-grade student, who has covered the chess, is able to make optimal decision within quite limited time period which is the result of assimilating chess (Karapetyan, Gevorgyan, Petrosyan 2014, 41-51).

The second phase of the research we set forth the aim to develop the ways of activating the psychological components within the school subject of Chess. The developmental experiment was meant to tackle the respective scope of issues through a variety of psychological tasks, games, and techniques, more precisely:

a) to increase the level of perception relevant to the changes between space and time;

b) to contribute to the development of coordination and volitional regulation of movements within limited time boundaries;

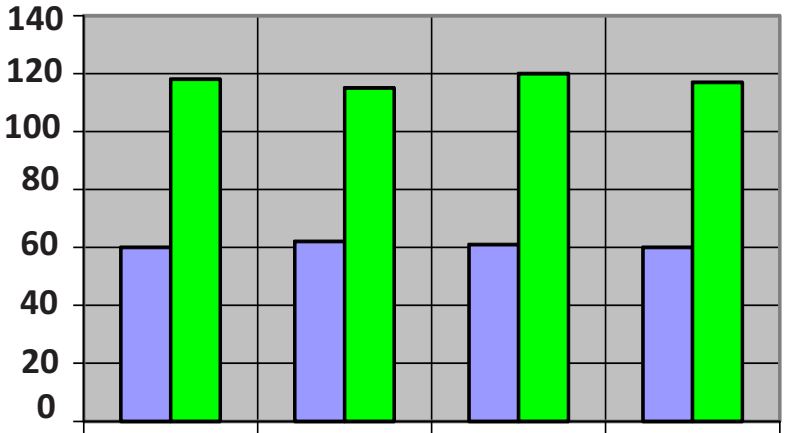
c) to increase the level of self-organization and independent activity ability and skills;

d) to enhance the level of focus and stability of attention.

The instructional (educational) experiment was carried out among the 3rd graders at Yerevan Derenik Demirchyan School № 27. The group selected had shown quite "low" level of academic performance in the first semester of academic year 2015/2016. The group was chosen due to the fact that they had already covered a year-long course of chess.

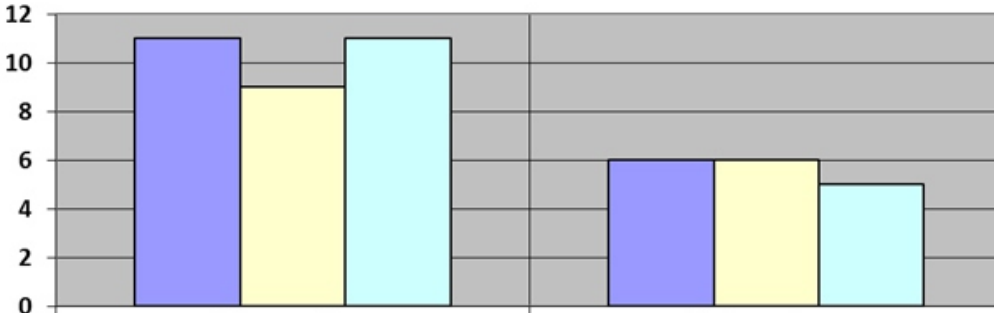
For detecting the current level of the psychological components within the course of chess the following methods have been applied: "Evaluation of Attention and Stability of Obstacle Resistance", "Response / Reaction to the moving object", and "Trajectory-3" ("Egoscope", 2013, 70-73, 75-76).

We introduce below the results of the analysis through diagnostic methods.



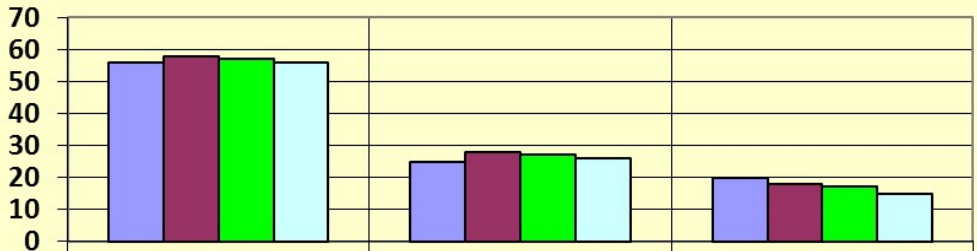
	A	B	C	D
Duration, second	60	62	61	60
Mistakes	118	115	120	117

Diagram 1. Analysis by "Trajectory-3" method



	Late reactions	Fast reactions
A	11	6
C	9	6
D	11	5

Diagram 2. Analysis by "Response/reaction to the moving object" method



	Mistakes	Unmistaken	Speed action
A	56	25	20
B	58	28	18
C	57	27	17
D	56	26	15

Diagram 3. Analysis by "Evaluation of Attention and Stability of Obstacle Resistance" method

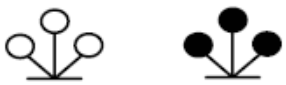
Below we introduce the game/task aimed at increasing the level of perception relevant to the changes between space and time and the development of coordination and volitional regulation of movements within limited time boundaries called **Help the bee to harvest**. The children are given the following information: the Bee that is rather hard-working, it works all day long and flies over the field to gather letters. Let's follow the way it covers the field. The bee can fly only onto the next square. Now, the bee is sitting on letter P. Find that letter. Then it moves below, to the upwards, upwards, left and stops. As a result, we get the name of the chess piece: Pawn.

و J	2 N	3 W	4 A	5 P	6 O
7 K	8 N	9 I	10 K	11 A	12 H
13 O	14 G	15 O	16 N	17 W	18 S
19 O	20 G	21 I	22 L	23 N	24 I
25 R	26 Q	27 E	28 E	29 N	30 B

In fact, during this game the children learns how to concentrate their attention towards the verbal instructions, how to follow them, how to regulate their movements volitionally complying with the example introduced.

For the development of the level of self-organization, autonomy capacities and skills we have used the game **"Draw the chess pieces as they are depicted"**. During the game the children are asked to look carefully at the table and do the following assignments in accordance with the model provided.

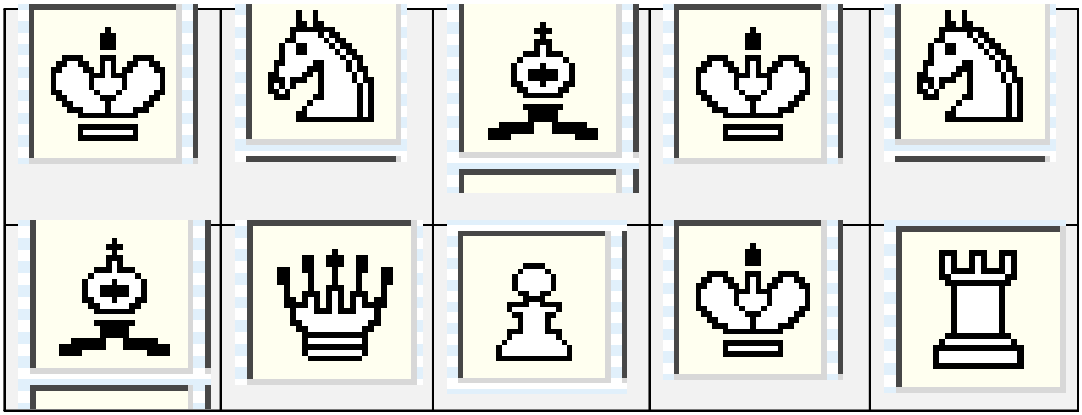
- Write in the 1st cell pieces of what colour are depicted!
- Write in the 2nd cell the names of the pieces depicted.
- Write in the 3rd cell pieces of what colour are depicted.
- Remember and write in the 4th cell the short names of the pieces depicted.
- Draw in the 6th cell the pieces depicted.

White pieces	Names of pieces	Black pieces	Abbreviations accepted	Example	Draw like in the example
	King		K		
	Queen		D		
	Rook		T		
	Bishop		L		
	Knight		R		
	Pawn		P		

(**Note:** Please, in Armenian the pieces are officially termed as follows: Ա Արքա (A Arkʿa, king); Թ Թագուհի (T Tʿagouhi, (lit.) queen); Ն Նավակ (N Navak, (lit.) ship); Փ Փիղ (P Pʿił, (lit.) elephant); Ձ Ձի (DzJi, (lit.) horse); Զ Զինվոր (Z Zinvor, (lit.) soldier))

1.Pieces	2.Names of pieces	3. Pieces	4. Abbreviations accepted	5. Draw like in the images
				
				
				
				
				
				

The following game-assignment is used in order to increase the level of focus and stability of attention among schoolchildren. After looking attentively at the table with chess pieces for about 20 seconds, the schoolchild is asked to depict it as similarly as it is possible in the empty cells.



Our research group has developed, designed and introduced a variety of psychological game-assignment, tasks and drills that have already been published in methodological manuals, guidebooks for teachers of chess (Chess, 2015, 31-72). Besides, all the games/tasks are introduced to the teaching staff during the teacher training, professional enhancement course and seminars that are organized on regular basis all over Armenian and Nagorno-Karabakh (Petrosyan, Khachatryan, Sargsyan, 2014).

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International Conference
Theoretical and Practica
Issues of Chess
Education in Schools

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The continuous development of the quality of teaching /learning chess in schools requires assessment of the contextual factors which have meaningful impact on the quality of chess education at school. Therefore, one of research areas of Chess Educational Research Center, established at ASPU in 2015, was the investigation of the educational progress of learning chess at school. The authors believe that the respective data collected would be important for research-based decision making related to in-school chess educational policy.

The former studies reveal the impact of chess on the development of meta-cognitive ability and math problem-solving ability among students at different levels of education (Kazemia, Yektayarb, Abada. 2012). On the other hand, there was no evidence that might point to the impact of contextual factors of education on the level of chess abilities gained within learning chess in schools nationwide.

Aim of the research is to reveal the context-driven and context-based factors influencing school teaching of chess.

Methodology of the research

There are two major dimensions underlying this research (Mirzakhanyan et al, 2017):

- The first one derives from the very **context of chess education**. The context-based and context-driven factors covered in the research are identical to the factors defined in TIMSS 2011. The set of dimensions of contextual factors are:

- Socio-cultural context;
- School context;
- In-class/Contact hour context
- Context of pupils' characteristics and attitudes.

The second dimension that the research comprises is the level of knowledge of chess. In the course of research a test was designed on the basis of the chess education school programme (targeting from the 2nd to the 4th-grade students). The test evaluates the level of knowledge of chess together with the respective cognitive skills. Thus, the test is based on the 3 domains as it follows:

- The domain of **knowledge** that comprises the notions and processes that must be mastered by schoolchildren;
- The domain of application that is aimed at evaluating the **skills** of applying knowledge or ideas for answering questions or solving problems;
- The domain of **reasoning** that stems from simple problem solving spheres involving unfamiliar situations, complete contexts and problems.

- Every single task refers to every single content-based component and cognitive competences necessary for completing the assignment given.
- Every section of the test involves certain content-based item on chess that appears on teaching/learning schedule among the 2nd-4th-grade pupils.

Participants of the research were 5th-grade students (N=500), their parents (N=500) and schoolteachers of chess (n=38).

Convenience sampling approach has been carried out based on TIMSS-2011 sampling (TIMSS, 2011). The sampling covers all the regions of the Republic of Armenia. The representativeness of respondent group is validated through preliminary pilot research. The percentage of participants involved is illustrated bellow**.**

The chess achievement evaluation test consists of the pieces introduced in the Teacher's manual (H. Toomanian, 2011-2013):

Chess board

The types of figures, names and actions,

Checkmate and stalemate,

Strategy, end of the game

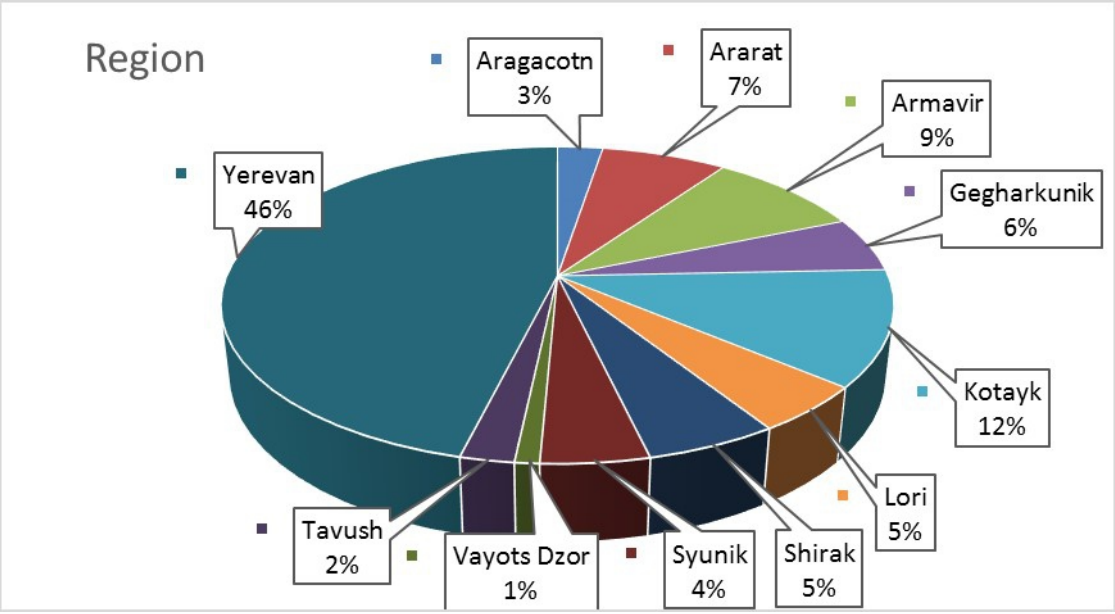


Diagram 1

Sampling of participants (Mirzakhanyan et al, 2017)

In order to give correct answers students must be acquainted with the content of chess course and must be able to implement cognitive skills as well.

RESEARCH RESULTS

The 2nd diagram explains the complexity of items used in the test. As we can see from the results, some of the items are too difficult for students. That is why the line on the diagram is falling down.

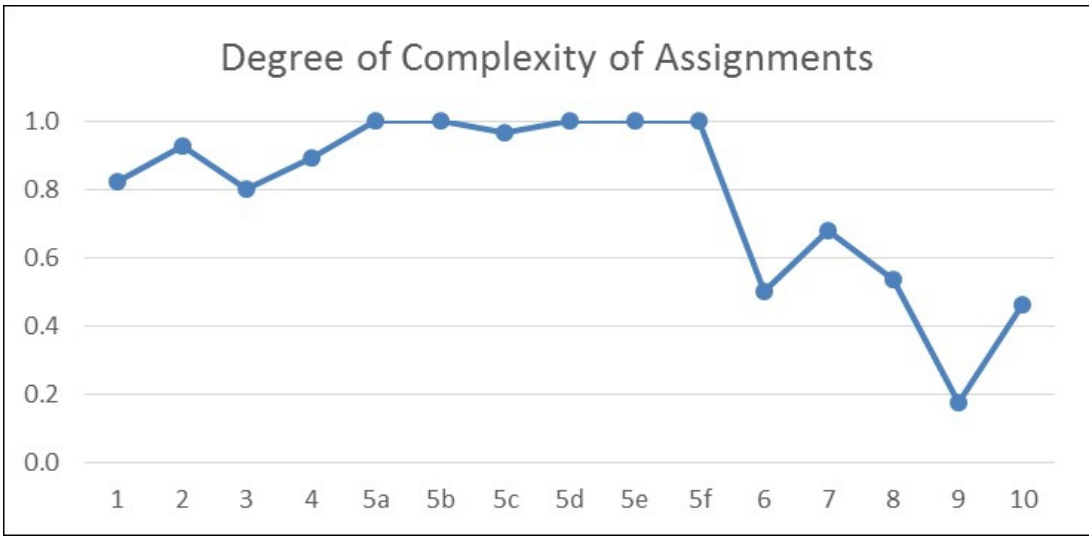


Diagram 2

The survey revealed that some tasks in chess achievement evaluation test and school handbook are too difficult and not quite obtainable for most of schoolchildren who learn chess on regular basis (Mirzakhanyan et al, 2017).

The results of correlational research allow to state that there are many meaningful correlations between chess achievement level and contextual factors, e.g. Lesson preparation conditions, Pupils' integration level during chess lessons, Students' school motivation, etc. On the other hand, the skill to achieve checkmate in two moves is correlated with Teachers' pedagogical impact during chess lessons.

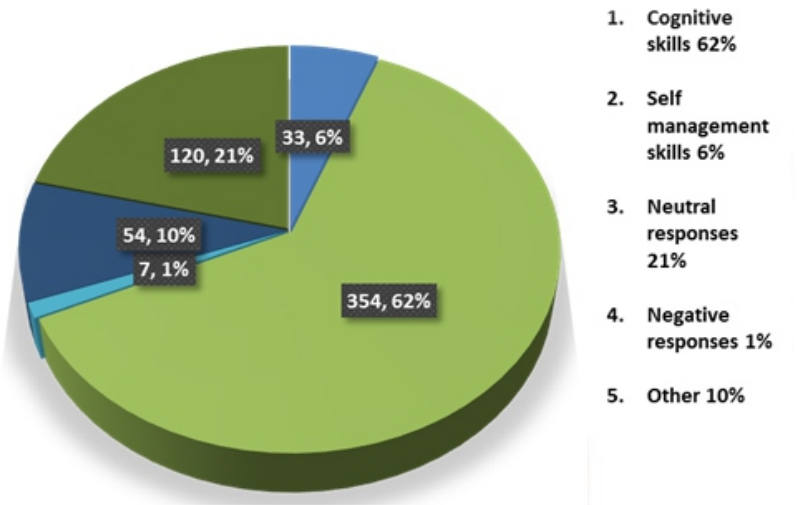
Table 1.

Inter-correlational matrix of contextual factors and chess achievement evaluation test scores ($p \leq 0.05$)

Correlational factors		Achievements in chess in general	the skill to achieve checkmate in two moves	Lesson preparation conditions	Teachers' pedagogical impact	Pupils' integration level during chess lessons	Positive approach towards chess as an academic discipline	family support on academic issues	Parents' education LEVEL	Parents' satisfaction with chess lessons	Significance attributed to Scores	Students' school motivation
1	Achievements in chess in general	1		0,545, 0,632 0,646		0,728						0,635
2	skill to achieve checkmate in two moves		1		0,654							
3	Lesson preparation conditions	0,545, 0,632 0,646		1					0,709, 0,449			
4	Teachers' pedagogical impact	0.923	0,654		1							
5	Pupils' integration level during chess lessons	0,728				1						
6	Positive approach towards chess as an academic discipline						1	0,577				
7	family support on academic issues						0,577	1		0,417		
8	Parents' education level								1		-0.372	
9	Parents' satisfaction with chess lessons							0,417		1		
10	Significance attributed to Scores for parents								-0.372		1	
11	Students' school motivation	0,635										1

One of the research questions was formulated as it follows: Which are the positive aspects of teaching chess at school from stakeholders' perspectives? The answers are introduced in the respective proportions in the pie-chart below.

Diagram 3



Parents' and Teachers' attributions of impact of chess on pupils development

DISCUSSION OF THE RESULTS

Analyzing the results, we uncovered some key lawful relationships that will furtherly be discussed within the context of possible solutions ĂMirzakhanyan et al, 2017).

Chess is mostly referred to as a positive factor for pupils' personal development. Our findings help us to state that logical thinking, memory, attention, and self- control characteristics are mostly developed during chess lessons. Nevertheless, these characteristics still need deeper testing in order to understand the interactions between them within different subjects. Therefore, specific key factors must be implemented in school program of chess. Assignments and tasks should be in line with the expected outcomes – such as cognitive development, personal, and moral characteristics, etc.

Teachers' pedagogical impact and attitudes towards education for all are also considerably

required for effective chess education in primary schools. Pedagogy, inclusive practices, educational psychology and chess teaching methodology must be embraced to cover the necessary competence matrix for future chess teachers. Accordingly, the curriculum mapping for chess teachers' education academic program has been designed by the methodological group of the Center of Chess Educational Research of Armenian State Pedagogical University.

As evidenced above, parents' appropriate support, family conditions and parents' educational level are most frequently expressed contextual factors for adequate implementation of chess in schools. Thus, the quality of school and parents cooperation should be improved which is already planned in on-line course for chess teachers. It has become transparent that school chess programme and its implementation do depend on parents' background level and their support which allows concluding that school programme must focus on tasks which will mostly provide learning at school with less after-class assignments and homework.

Chess achievement evaluation test developed on the basis of primary school chess curricula should be improved by taking into considerations the following aspects:

- The results must be compared with other tools which are developed worldwide which, consequently, assumes an international adaptation of test;
- As far as pupils cognitive and other psychological skills are among expected outcomes of primary chess curricula, some tasks related to cognitive skills are to be tested as well;
- The results of Chess achievement evaluation test's validation must be compared with children's school performance accordingly;
- In primary school chess teaching/learning curricula the respective educational materials must be submitted to further improvement and enhancement through several ways:
- The pertinent educational triangle should be designed in accordance with the relevant concord between Learning outcomes and teaching / learning methods, as well as, assessment tasks and techniques. These three components must response to each other.
- The materials of teaching / learning chess have to be introduced in a more facilitated way. As stated above, it should be kept and delivered in smart and stupid-simple way.
- Teaching and learning materials for primary school chess curricula must be improved in accordance with instructional principles such as: providing models, presenting materials in small steps, checking students' understanding, covering large number of students and

involving all students, providing equality of teaching materials in terms of students' knowledge and skills, connecting new material with prior learning etc.

Summarizing the results of this research, we may conclude that:

1. Chess as an academic discipline is mostly referred to as a positive factor for pupils' personal development.
2. Parents' educational level is one of the frequently expressed contextual factors for sufficient implementation of chess in schools.
3. Chess achievement evaluation test should be improved based on the results of current research: some curricular changes in chess in school programme might necessarily be introduced.
4. The decent support by parents and family conditions for students' lesson preparation are also among the priorities and key factors for successful implementation of chess in school curricula. This area should be analyzed deeper to understand the ways and possibilities of schools for enhancing the quality of learning.
5. Teachers' pedagogical impact and attitudes towards education for all are also considerably demanded for effective chess education in primary schools.

Research findings will allow to disseminate good practices and the weak points on different level of education planning from national to student's (individual) level.

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The current relevance of teaching chess to children derives from the search for efficient methods for intellectual development of primary school children. The idea of using chess for the formation and development of children's intellectual capacity has for a long time been submitted to experiment-based testing and is currently utilized in numerous countries. The primary school age is one of the periods of utmost responsibility as for minors' psychological development through the stirring formation of individual psychological qualities, cognitive processes and the bases of a variety of activities to develop [Vygotsky L. S. 1987].The intellectual development of primary school children is the most significant component of general development; therefore, we must first of all observe and clarify the concept of child's intellectual development.

The notion comprises a multi-layered perceptions, analytic thinking (abilities to grasp the main qualities and links between phenomena, to reproduce a sample), grounded and reasonable approach to the reality (that must take over the imaginary perceptions), the interest towards knowledge and for gaining knowledge through some additional efforts, the ability assimilating the conventional world of symbols and the skills of making use of them, development of visual-dynamic coordination [Vishnyakova, S. M.,1999].

The intellectual development is motivated not only by the level of age-based development of brain structure but also by the cognitive activities through teaching and upbringing. Within this context we should find the relevant didactic means for developing intellectual capacities. One of the possible means to use is chess. Teaching chess does not exist for its own sake. A deeper perspective might open up a much more comprehensive use of the developing potential that this game comprises.

Scholars – both in Armenia and abroad – have repeatedly highlighted the advantages of chess as a school subject. The utter significance of chess has been emphasized in shaping creative qualities among schoolchildren (B.G. Gershunsky), for developing the planning function in thinking and for training the flexibility of thinking (D.B. Bogoyavlenskaya), for the increase of children's logical thinking and, subsequently, for further academic progress marked as for other academic disciplines (N.F. Talizina), for intellectual capacity enhancement (N.G. Alekseyev), for the complete training of memory and mental capacities (V.A. Sukhomlinsky), for the formation of visual thinking (L. A. Wenger) [Gabbazova A.J., 2008]. A. Sh.Amonashvili – the initiator of the concept of "Humanistic Pedagogy" [Amonashvili, 1998], claimed that chess is a unique sample of human consciousness and thinking, so it must be involved in schooling as a compulsory school discipline. It is for couple of year that chess has become the indivisible constituent of Armenian public education realm. And as any other social reform, this new component, as well, infers risk factors and the imperative of revealing the respective possibilities. So, among such imperatives, we would highlight the perspective of the primary-education-level course of chess as a mechanism in favour of accumulating pertinent intellectual resource.

In order to open up the applied expression of this theoretical claim a social experiment was carried out. V.A. Shtoffs ideas on modelling the research work and the role of research in cognition served as guidelines for grounding the experiment.

According to the definition by Shtoff, “The scientific experiment is a type of activities aimed at scientific cognition that reveals the objective regularities and their influence on the object (process) under study that is carried out with the help of special toolkit” [Shtoff V. A. 1996].

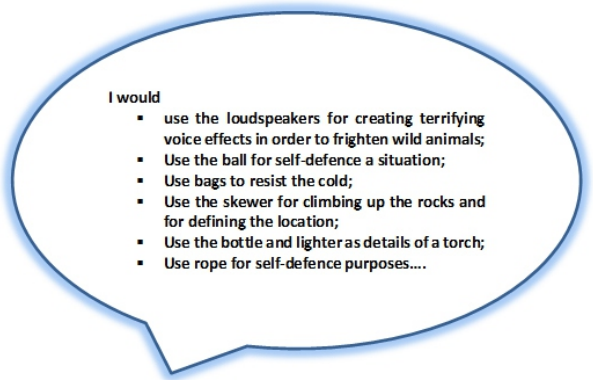
The selection of the target group of the social experiment was determined under the following standards –homogeneity, operational validity, equivalence (inner validity), and by its extension and coverage the target group is middle-sized (n?30).The selection of the schools where the survey was carried out was done in line with the standards set forth by the authorized representative of teachers of chess. The selected group consisted of 4 basic target groups formed by the criterion of academic achievements. In the first two groups involved 9 pupils from the 2^{nd} to the 4^{th} grades (3 pupils from each grade) who had high academic progress at the Armenian Language and Mathematics but low achievements at chess. In the other two groups there were 9 pupils from the 2^{nd} to the 4^{th} grades (3 pupils from each grade) who had low scores from the Armenian Language and Mathematics but prominent progress at chess.

The experiment proceeded in two phases:

1) The first part was designed to reveal the decisive factors and the linkage of the factors motivating alternative way of thinking, visual way of thinking, creativity, skills to respond to problematic situations. The pupils were suggested concrete situations. For instance, “Imagine that together with your group you appear in a forest. You have lost your way. It is going to darken soon. You have got objects of primary and secondary need. Describe your further steps taking into account the fact that you have the possibility to choose and apply the objects at your disposal in order to respond relevantly to situations that might occur.” For the groups of students with distinguished academic progress at the Armenian Language and Maths and low grades from chess it was typical to make use of the objects of primary and secondary necessity, as a matter of habit, in a standard, ordinary, quite traditional way. While the other groups – with prominent progress in chess over the scores from Armenian and maths – the situations appears to be quite different: the pupils made use of both primary and secondary ways of usage guided by alternative methods of using the objects.

We would like to bring some examples: if the pupils with high academic achievement from math and Armenian and low scores from chess would opt for traditional, even stereotypical use of such objects as a ball, a pot, a loudspeaker, a skewer, a rope, a bag, a bottle, and a

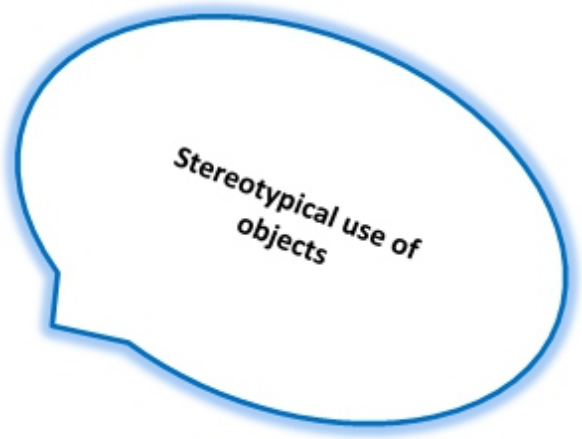
lighter, the other groups – with distinguished progress at chess – were distinguishable by their creativity, visual thinking. For instance, the chess-oriented group would use the loudspeakers for creating terrifying voice effects in order to frighten wild animals. They would also use the ball for self-defence a situation and not for playing which evidences that they feel, sense and evaluate the situation adequately. They would also use the bags not for gathering mushrooms but as a means to resist the cold. The skewer, according to them, would be used for climbing up the rocks and for defining the location. If the first group would use the bottle for drinking water, the second group would use the bottle and the lighter as details of a torch that wouldn't be extinguished by rain. If many of the first group (category) would observe the rope as an entertainment means and the possibility to fix the imaginary tent, the pupils of the second group would rather use the rope for self-defence purposes – making a self-defence arm out of the rope and the bottle in order to protect themselves from animals.



Good at Chess, poor at Armenian and Mathematics

After summarizing the results of this phase, it becomes clear that chess contributes to the development of intellectual capacities, establishment of the ability typical of divergent way of thinking, as well as to the development of the ability to separate discretely the foremost characteristics of a phenomenon through mental associations in a child.

Good at Armenian and Mathematics, poor at Chess



2) The second stage of the study was destined at revealing the ability to grasp the other people's emotions, feelings, mood changes and to respond to them. The stage targeted at the analysis of social perceptive capacities within the categories chosen by the pupils. Social perception is the perception of a Human Being by another Human Being. This kind of perception is used by people to make an idea about others, to draw conclusions on their character, feelings, positions, emotions and peculiarities [Andreeva G.M. 2001].

The pupils were suggested a psychological-pedagogical exercise the theoretical bases of which was E. Torrens' "Complete Figures" concept. The procedure of the exercise based on pair work in the respective groups (categories) of pupils. In the pairs one of the pupils draws a part of the image memorized, while the other member tries to guess, predict, anticipate and complete the image in a meaningful way.

Analyzing and comparing the results gained the following reality emerges: in all the 4 groups the capacity gap in the realm of social perception appears to be feeble. Almost all the pairs, with the help of cooperative interaction, manage to grasp their peer's thought, change in mood which enables us to deduce that both the subject group of the Armenian Language and Math and chess contribute to the enhancement of perceptive capacities.

The research carried out allows to state that the school education of chess may serve for the development of logical thinking among the elementary schoolchildren an may serve as one of the best means for increasing intellectual capacity due to the fowling functions:

1. *Socialization function*–it contributes to the development of target-oriented approach, appropriate adjustability, will, diligence, attention;
2. *Cognitive function*–it broadens the outlook, teaches ways of thinking, memorizing, comparing, generalizing, as well as predicting the possible results of their own activities and boosts the logical way of thinking and creativity;
3. *Aesthetic function*–it enriches the inner world, enhances the fantasy and teaches to enjoy nice combinations of the items under disposal;
4. *Orienting function*–it teaches to focus on one single kind of activity for a long time.

Abstract

The study is to discuss questions that are connected to the positive impact of chess on accumulation of intellectual resources of the primary school students. Here are shown the results of social experiment. The experiment is aimed to reveal the influence of chess on learners' social and emotional intellect at primary school age.

Keywords: chess, intellectual development, alternative thinking.

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Chess as a tool to create problems has the capacity to develop creative thinking and, as a subject being taught in schools, it has its unique role. Due to it, chess gives the chance to propose the child questions that need indirect answers, thus, developing unique and multidimensional thinking. While learning to play chess, the child has the opportunity to handle unlimited number of options to solve the chess problems. Through chess students' working memory is being trained, which in turn contributes to the development of their active memory.

In this context it is important to emphasize the fact that chess has its beneficial effect on the development of children who are hyperactive or, on the contrary, are passive or have problems with concentration. It is also proven that chess has a positive impact on a child's brain development enhancing collaborative activities of the right and left hemispheres. In addition to the above mentioned, during chess learning process the child also develops certain features of character. For example, it is typical to solve the problems during certain difficult situations by skipping them, whilst chess thinking, on the contrary, boosts the will to delve into the situation and overcome the problems – not skipping but solving them. From this perspective it is important also to pay attention to the fact that chess teaches to think about the opponent's position calculating his/her possible moves. It is vivid in such chess positions as escape from the saultmate, zugzwang or the mate position in two moves. In these cases the chess player is also obliged to think about the possible future moves of his/her opponent.

Several years ago, the professor of Columbia University Matthew Lipman – who was teaching philosophy at the University – noticed that the students did not seem to have a philosophical way of thinking, their attitudes are restrained and they do not possess critical and absolute thinking. He came to the conclusion that it is too late to teach philosophy at the university

and it is necessary to start doing it from childhood through philosophical stories and fairy tales. As a result of his research, a new subject was developed defined as “Philosophy for Children”. Later the English scientist, psychologist Robert Fisher wrote a book named “Stories to think about” inspired by professor Lipman’s ideas. In this case, it is important to choose appropriate stories that would improve their way of thinking and, afterwards, using IQ test it would be easy to distinguish their level of intelligence. The very same principle can be applicable in case of chess. The main factor of positive influence on children is the textbook that includes issues that develop the pupils’ creative thinking and has a unique overall influence on them.

In order to examine the positive impact of chess on the development of child’s thinking while working in Tehran chess school a scientific, an experiment was launched and the psychologists, using specially designed IQ tests, tried to assess the level of intelligence of the children who studied chess. The same tests were conducted with the same children a year later to compare the results. The results of the research evidenced the fact that chess had its huge positive impact on the child’s intelligence. Later, cooperating with the students who studied psychology at Tehran university and taking into consideration the results of their studies, we came to the conclusion that chess has its positive impact not only on the collaborative functioning of the right and left hemispheres of the brain, but also chess education helps hyperactive children to overcome problems facilitating the pupil’s working memory through chess.

Chess is a form of a specific kind of fight. The philosopher James Morris argued that fighting itself is a negative phenomenon, but it manifests and evolves such positive qualities as courage, loyalty and solidarity. It develops also such kind of qualities as sensitivity, rational understanding and attention. Chess is a form of a struggle which contributes to personal development and improvement. From this perspective the analysis of move-position comparison is of special interest. While studying these positions the child’s working memory and concentration are being trained.

The textbook is designed in such a way that allows the enhancement of all the above mentioned qualities as well as inspires creative solutions for chess problems. The researches carried out jointly with the psychologists come to prove that the textbook and the unique principles that the latter is based on result in a positive impact on children. In the textbooks

there are presented classic examples of games that encourages the pupils to develop a unique chess “taste”. Special attention is given to the move registration skill and in this case the creative approach is very important as well.

Very often in the textbook designed the answer to a chess problem is given next to the problem and then a specific detail of the task is changed so that the pupil is obliged to find the solution to a new task. This method boosts to find solutions by analyzing the already given answers combining logical and analytical thinking. There is a capitalistic approach of teaching chess to the beginners when, for instance, pupils are taught to think of obtaining material advantage (Cf.: “Soldier must constantly strive to go forward and become a queen.”). I consider this training model out dated therefore it’s excluded from the book. Leaving aside the world famous chess teaching models when the teaching starts with the rook or with the pawns, in the Armenian textbook, we start teaching chess with the king that symbolizes the idea of God that is present during the whole game and is the symbol of eternal life. In the textbook, firstly, the piece of king is taught in order to create sympathy towards the king. Then the moves of the queen, as the most powerful piece, are being taught and it is followed by the check and mate position.

Thus, the textbooks are designed synthesizing all the above mentioned methods which are meant to generate among children love and interest towards chess.