

**OVERVIEW AND ANALYSIS OF THE INCLUSIVE WORKING GROUP ACTIVITY
AT THE CHESS RESEARCH INSTITUTE
(Case from Armenian State Pedagogical University (2015-2021))**

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ABSTRACT

This article aims to summarize and present the analysis of the results of the studies conducted by the inclusive working group of the Chess Research Institute in 2015-2021. Critical discourse analysis was used as a methodology for this study. The inclusive workgroup that functions in the Chess research institute at the Armenian State Pedagogical University has done a range of studies aimed at exploration of the issue of involvement and participation students with special educational needs (SEN) at chess lessons in 2-4 grades, finding out the attitude of chess teachers to learning chess by these students in conditions of total inclusion, and the effect of chess on the mental development of children with SEN. Analysis of the obtained data unveils the fact that there are still lots of effort to pay to provide equal involvement and participation of students with SEN alongside their peers and other studies are needed.

Key words: studies, research, analysis of results, children with special educational needs (SEN), inclusion, involvement and participation at lessons, difficulties of chess teachers.

INTRODUCTION

The aim of the study is critically analyzing of the work that has been done by the inclusive working group at the Chess research institute, ASPU, since its foundation, and present

a summarized overview that will let to outline the future perspectives. To target the defined aim, the objective to summarize the conducted work and exploration of problems that still need to be addressed is determined.

The chess research institute was founded in 2014 having the purpose to comprehensively study the positive and negative impacts of the “Chess” subject implemented in the 2-4 grades in schools in Armenia, in 2011, the effects of interdisciplinary relatedness, the attitude of teachers, students and their parents and a range of other issues. Here we’d like to note that the chess subject in schools is taught both by professional chess players (trained teachers) and by elementary school teachers (teachers who have been trained in chess subjects). The activity of each working group at the Chess research institute is fulfilled on a complementarity, continuity basis.

The experience of many years demonstrates that there is a constant need to conduct studies and research at schools, as since the implementation of the “Chess” subject the chess teachers, because of not having pedagogical education, face lots of problems such as organizational issues related to the big number of students in their classes, provision of teaching materials in accessible and available manner, issues related to interpretation and provision of feedback, application of appropriate methods, means and technics, and so on. However, in the range of these problems the difficulties of chess teachers related to teaching chess to students with SEN should be outlined. They are not trained enough to work in their classes with students who have intellectual disabilities, motor impairments, visual, hearing impairments, who have emotional and behavioral issues, or autistic spectrum disorders, or other developmental issues; and these teachers do not even know how to deal with these children, what kind of psychological and pedagogical methods, approaches and technics can be used in this or that situation. This is the issue that has been studied by the inclusive working group at the Chess research institute- studies and research in the 2-4 grades in schools, analysis and take out of the possibilities and abilities of involvement and participation of students with SEN in the chess lessons. The analysis of data and results of the conducted studies have been summarized in scientific articles, presented at conferences, published both in local and international periodicals.

With deep confidence, we can state that studies in Armenia in the field of teaching chess to children with SEN in school have not been done, as Chess Research Institute was founded in 2014 and the same year research working groups were formed, including the inclusive working group. The same can be stated about the studies all over the world, as chess as a compulsory

subject is not implemented in any country in the world, but Armenia. This determines the difficulties of studies that this working group faces.

METHODOLOGY

Critical discourse analysis of the work of the inclusive working group reflected in 9 articles and 2 manuals allowed us to bring together the results obtained during studies done in 6 years to target the achievements and gaps in chess education in schools for children with SEN. Students of 2-4 graded with special educational needs and their chess teachers have participated in these studies.

Since 2015, different studies and research have been conducted, on the bases of the analysis of their results the inclusive working group has elaborated a set of psychological-pedagogical methods for chess teachers of students with SEN, that provides the opportunity to these teachers to maintain the involvement of these students in chess lessons. These are chess games with therapeutic meaning, tasks and exercises that can be used both by parents and teachers in the work with children with SEN. The mentioned materials are summarized in the following manual (Charchyan & Khudoyan, 2015).

As a direction in 2016, finding out the effect of chess in the process of regulation of the behaviour of children with SEN, studying the behavioural specifications of these children in the chess lessons, exploring the possibilities of regulation of students' behaviour through chess was targeted. For this purpose, methods of observation, analysis of video materials, content analysis were used, and the influence of special methods used in teaching chess subject to children with SEN: collaborative (method of projects, mental map), game method (plot-role games), therapeutic (with thread and dough) and incentive methods. It was found out that during teaching chess lessons, the use of psychological-pedagogical methods provides an opportunity to influence the regulation of children's behaviour. The analysis of the results of the given study is published (Charchyan & Khudoyan, 2016).

Another research aimed to find out the effect of chess on the development of cognitive functions, emotional-volitional qualities of children with SEN, to study and analyze characteristics of the cognitive functions of children of 2-4 grades with SEN at chess lessons, elaborate psychological-pedagogical methods, means and technics for development of cognitive functions of children of 2-4 grades with SEN, assess the influence of chess on the cognitive functions of children with SEN.

For assessment purposes the methods of Shulte tables, memory assessment, sensory perception, speech perception, Ye. Torens' "Finish the image" test was used. At the end of the study, it was recorded that chess had a positive effect on the development of cognitive functions of children with SEN when relevant chess assignments had been periodically used. These children are interested in steps of chess pieces on the chessboard; in the beginning, they had difficulties in concentrating attention, memorizing, perception of the assignments, but after having used a range of technics and special methods they demonstrated abilities to fulfil assignments in the certain interim of time. According to the research results, the level of the cognitive functions of sensory perception (for 66.6% in the 2nd grade, 83.3% in the 3rd grade and 100% in the 4th grade) and the imagination (for 66.6% in the 2nd grade, 83.3% in the 3rd grade and 100% in the 4th grade) among students with SEN significantly increased at the end of the research. The development of the mentioned cognitive functions promoted the development of speech perception and logic (for 88.8% in the 2nd grade, 83,3% in the 3rd grade, and 100% in the 4th grade, attention concentration (for 77.7% in the 2nd grade, 66,6% in the 3rd grade and 75% in the 4th grade), development of spatial representations (for 55.5% in the 2nd grade, 66,6% in the 3rd grade and 75% in the 4th grade) among these students. According to the research data, the perception of speech (instructions), colour, numbers, sensory and space, the traditional, that's the nominative aspect of speech in students with SEN developed, the vocabulary and the semantic field of perception enlarged, the use of abilities of cause-and-effect relationships in thought and speech, functions of analyzes and synthesis, appropriate orientation in time and space developed. The research results are summarized and published (Charchyan & Khudoyan, 2016). Shortly, the results of the study are presented in the table below.

In 2016, the influence of chess on the development of cognitive functions of voluntary attention and memory among children with SEN was studied, either. As a result, we recorded that chess promotes the development of children's attention concentration. This is a function when a child makes a transition from representations to thinking in concrete actions. Chess learning and its positive impact are significant in the development of attention, memory, perception, thinking, imagination, speech and communication, it promotes the development of personal qualities of these children, too. We can state that chess as a pedagogical instrument serves to the cognitive development, demonstration of creative abilities of a child. The results of the studies are summarized in an article (Charchyan, 2016).

Table 1.***Analysis of the results of the development of mental processes among children with Special Educational Needs with the help of chess***

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

Another direction chosen for the studies was an exploration of the role and effect of chess on the learning functions of students with SEN, the importance of chess and their attitude to chess, and the influence of chess on emotional intelligence. For this purpose, children with SEN were offered to write an essay on the following topic: "What did chess give to me?", where a few types of emotional intelligence of 2-4th grades students were reflected, content analysis of the essays was conducted. As a result of the contextual analysis of the essays the concrete attitude of students to the chess subject, the possible effect of chess on children's behavior were revealed; this is how it was formulated by children: chess develops patience, ability to wait, striving to achieve the goal, self-confidence, ability to collaborate. As chess includes collaborative elements, children were offered to periodically change their partners, to solve the chess tasks and assignments in groups, moreover, in each group a student with SEN should be involved who had to offer the first step to solve the problem independently and discuss it with the other members of the group. We also recorded significant changes in the behavior of children with SEN, in the behavior not only during the chess but during other lessons. If before a student with SEN used to demonstrate communication problems and was, somewhat, alien in the group, after the experience, during the Math lesson, e.g., they tried to

cooperate with other children whom they had played a chess game with, some changes were noticed in the self-management, patience, self-confidence, attention concentration and other functions and abilities among these children (Charchyan & Artenyan, 2016).

In 2017, the inclusive working group chose, as a study direction, the development of the ability of advanced reflectivity through chess. Advanced reflectivity in chess is important concerning drawing the sequence of expected steps and actions. During a chess game, the students continually seek to intuitively predict and anticipate the partner's actions. As a result of the analysis of our research data, it was evident that children often apply advanced reflectivity while playing chess. When making decisions, the students rely not only on the current situation but also on what is going to happen. That means, the students use the ability of advanced reflectivity as a means to predict actions. And chess can be used as a tool to develop the ability of advanced reflectivity (Khudoyan & Charchyan, 2017).

According to the research direction chosen by the inclusive working group in 2018-2019, studies were conducted in the 2-4 grades of the special school 14 for children with visual impairments in Yerevan, where children with visual impairments and other developmental issues (intellectual, physical, hearing, speech disorders) combined with visual impairments get an education. The study goal was to explore the involvement and participation of children with visual impairments in chess lessons and to find out the peculiarities of learning chess by students and the difficulties that chess teachers face.

As a result of our studies, we revealed and registered a few difficulties that children with visual impairments experience during chess lessons:

- due to the disorders of spatial representations, students with visual impairments have difficulties in perception and understanding, to be oriented on the chessboard;
- they have difficulties in comprehending the differences between their own and partner's chess pieces;
- they do not feel when the partner makes a step with the chess piece and finishes, the teacher says who's turn is to take a step;
- they are not able to see their partner's look, facial expressions and emotions.

The analysis of the results of this study is published in another scientific research paper (Charchyan & Kostanyan, 2019). In 2019, the inclusive working group initiated studies in the 2-4th grades of schools N 192, 125, 135, 6, 60 that provide inclusive education. The goal of the study was to explore the difficulties of chess teachers in teaching chess subjects to students

with SEN and of students with SEN acquiring chess knowledge, the participation and involvement in chess lessons of these students, and to find out how chess as a means and tool affects the intellectual development of these students.

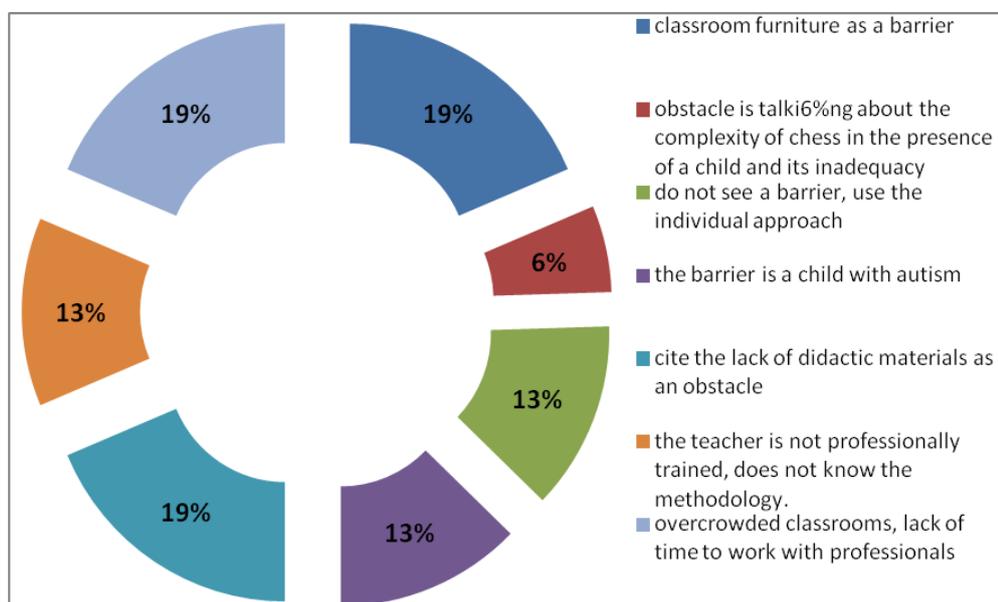
To reach these goals, the methods of conversation, interview, observation, questionnaire analysis, content analysis were applied, in addition to the mentioned methods other special methods to impact the behaviour of students with SEN for teaching chess were used, too: collaborative, playing (cards, puzzles), PCS (picture communication symbols) communication methods, therapeutic (activities with dough) and incentive methods. At the end of the study, we have recorded that during teaching chess the use of special psychological-pedagogical methods provides an opportunity to involve students in the chess lessons, to make these lessons more interesting and to promote the acquisition of chess knowledge: the steps the chess pieces, spatial aspects, etc. (Charchyan, 2019).

In 2020-2021, the teaching manual, "Waiting for step", was elaborated and designed, that is adapted to the educational needs of students with SEN and serves as a guide to chess teachers. In the manual, tasks of different complexity, a range of methods to teach chess to children with different developmental issues are suggested. The manual is in the publishing process.

In 2021, another study by the inclusive working group at the Chess research institute was conducted in Yerevan with chess teachers who teach chess to students with autism to reveal their difficulties, of methods to involve these students in chess lessons and to record the successful and unsuccessful attempts the teachers had in the work with students with autism. As a result of the data analysis, it was found out that the chess teachers mainly need psychological-pedagogical methods that will assist them in the work with children with autism, specifically in the process of involvement of these students. Chess teachers outlined the importance of training on work with students with autistic spectrum disorder, they envision the efficiency of their work in their collaboration with the multidisciplinary team. The results of the study are comprised in the mentioned article (Karapetyan & Charchyan, 2021). Results of the study are presented in bellow mentioned chart.

Picture 1.

Main Barriers to Inclusion of Students with Autism in Chess Lessons and Opportunities According to Teachers.



Around 19% of teachers cite classroom furniture as a barrier; they do not always succeed in communicating in distance learning. 6% of teacher thinks that the obstacle is talking about the complexity of chess in the presence of a child and its inadequacy. Around 13% of them does not see a barrier, use the individual approach, and around 13% of teachers think that the barrier is a child with autism, and the possibility is that other students help these children, communicate in class. during: around 19% of the respondents cites the lack of didactic materials as an obstacle (they have one board for the whole class). Around 13% of the teachers state that the teacher is not professionally trained, does not know the methodology. Around 19% mentions overcrowded classrooms, lack of time to work with professionals and identify opportunities to identify children's strengths.

Most of the teachers mentioned that the students are mainly involved in chess lessons, they are involved due to group work, although they note that they do not know the techniques and methods of working with children with autism, they find it difficult. It would be good for specialists to teach. Some teachers say that 50% are involved in 2nd grade, but in 3rd grade, as the program becomes more complicated, the teacher spends more on presenting the lesson, leaving no time for these children. Children with autism are more involved in the practical lessons than the assignments, for example, learning the board, arranging the pieces, knowing the names of the fields, and so on. There were teachers who, objectively assessing the situation, said that if they evaluate on a 10-point scale, it can be said that they are included with 3-5

points because not everyone has access to chess, they do not speak, but write the task like other children, children with autism cannot be 100% included. There have been teachers who have said that these children are not included, they are just present.

In the given study, the chess teachers' successful and unsuccessful cases were explored; teachers participated in the study equally (6 %) mentioned about them:

- Apply to assistance,
- Use group games, assign points for discipline, encourage with grades, have a positive attitude towards the child, individual approach, encourage and praise,
- Pay importance to homework, teacher-parent-classmate relationship,
- Think that the student's more active participation, mastering the chess material, answering questions is considered a successful experience by the teacher.
- Mention a case when a child with autism, who did not come out from under the table at the beginning of the year, where he spat, hit those who approached him, months later, thanks to the teacher's efforts, sat at the table to do some tasks, such as painting,
- Report overcoming the anxiety caused by a failed experience with a child with autism as a result of working with a specialist.
- Use the teamwork to socialize when classmates help a classmate with autism,
- Say if a child does what he says (the name of the piece, show the piece), he lets him draw,
- Consider the increase in the child's interest in chess as their success,
- State the child's ability to play independently as a success,
- Emphasize giving a few simple, non-tiring and non-boring tasks to children,
- State that they involve the child in chess lessons using assignments,
- Consider not separating children when a student voluntarily joins the role of a teacher and attaches a child with autism. The other students in the class also want to help their classmates with autism.

In this context, the inclusive working group has collaborated with the social project on the chess for children with autistic spectrum disorders, "Infinite Chess", organized by FIDE, as a team member, along with specialists from Belarus, Canada, has contributed to the development and adaptation of chess tasks for teaching chess to children with autistic spectrum disorders. The goal of the elaboration of the material was to make interesting and easy to organize chess lessons for children with autism, motivate them with the tasks provided. A two-

day international online workshop in frames of these projects was conducted in October 2021. The link to this workshop and chess lessons can be found on the FIDE website.

DISCUSSIONS

The studies conducted by the inclusive working group of the Chess research institute are valuable regarding the exploration of the chess teachers difficulties while working with students with SEN, the difficulties of these students at chess lessons and the effect of chess lessons on these students cognitive, social-emotional development and behaviour. However, these studies are not enough and should be continuous to fill in the gaps in the teaching chess to these children, such as approval of the efficacy of chess as a therapeutic method in the work with them, elaboration of methods, means and technics of sufficient teaching and involvement of these children in chess lessons, to change teachers' attitude towards the importance of chess for the mental development of students with SEN. The studies are mainly conducted in Yerevan, so to obtain a full picture of issues that arise in teaching in schools in Armenia to children with SEN, broader studies are required that can, we assume, show that in regional schools the problems that should be addressed are wider, deeper due to lack of trained teachers, lack of materials, school conditions, etc.

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