Chess lessons with students with autistic spectrum disorder: Armenian experience

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Background

- Chess was implemented as a school subject in 2011 in 2-4 graded.
- The inclusive education team in Chess research institute has started working since 2015.
- Inclusive education in most of all mainstream schools in Armenia.

The chess is effective in:

- The development of intellectual abilities, cognitive processes: abstract, analytical, logical, critical and creative thinking, prediction.
- Training of memory, thinking, perception (if it doesn't have developing effect).
- Self-analysis.
- Development of communication.
- Behavior regulation.

1st studies (1)

2015-2016- imlementation of an assesment and developing experiment with the following research objective:

1. In the 1st stage the aim was to find out the role of chess in regulation of behavior, development of cognitive processes of students with SEN, study the behavioral specification of children with SEN during the chess lessons, discover the possibilities to regulate the behavior of the children through chess.

For that aim the following methods have been used:
-observation, video analysis, content analysis, and special methods to teach chess for the purpose of behavior regulation of children with SEN: cooperative (methods of projects, mental mapping, playing (plot games), therapeutic (thread therapy, dough therapy) and rewarding methods.

-it was found out that the use of special psychological-pedagogical methods allow the regulation of behavior and develop the cognitive processes of children with SEN, including students with ASD.

1st studies (2)

2. In the secong stage of the studies to implement the developing experiment, developing games and tasks in the frames of chess lessons were elaborated to develop the speech and other cognitive processes and regulate the behavior of these students.

1st studies (3)

- The studies showed the effectiveness of special psychological-pedagogical methods (cooperation, cards with pictures of chess pieces, puzzles, AAC (PCS (picture communication symbols), work with dough, rewarding system) in participation and involvement.
- These methods can also help in development of spatial orientation and acquisition with the chess pieces and steps.

Suggested methods and exercises (1)

- Time and distance line
- Instrumental intervention
- Small scenarios

Suggested methods and exercises (2)

- AAC methods
- Pedagogy of a game
- Sound-letter
- Randomly correct

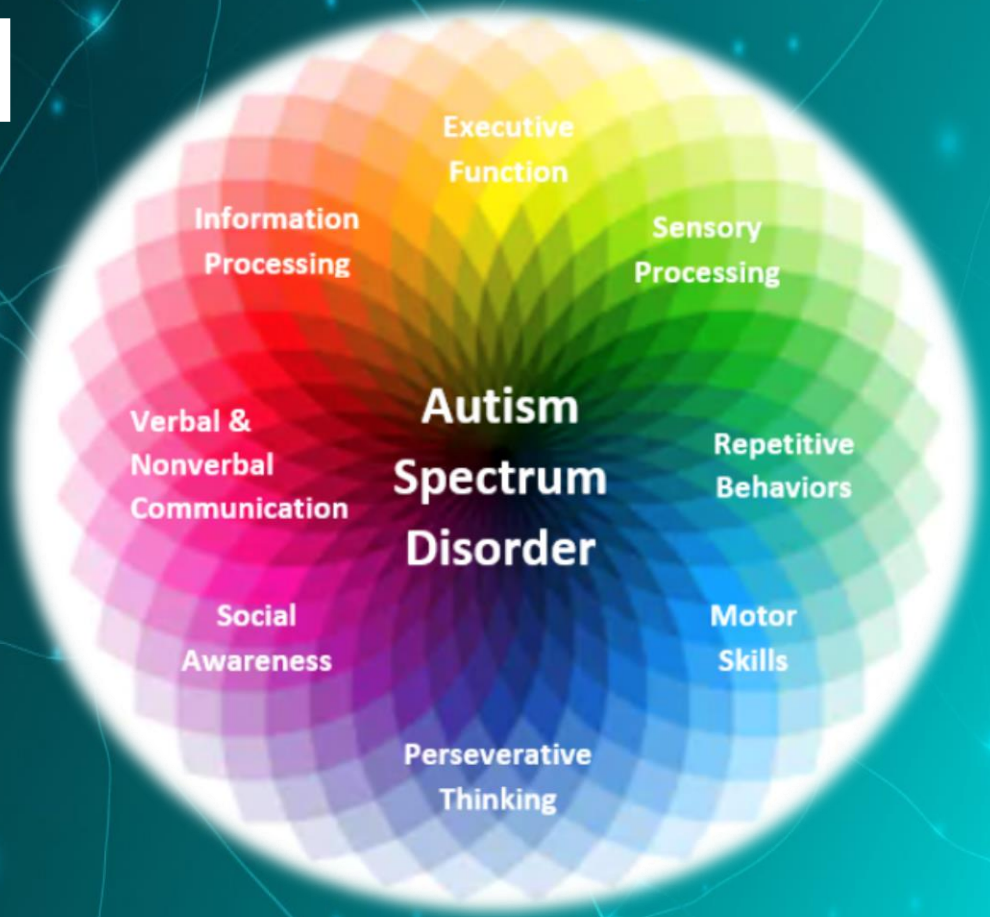
Children with autistic spectrum disorder have:

- Difficulties in communication (verbal and non-verbal) with other children and adults, in all spheres of life based on social interests.
- Lack of interests and/or special interests.
- Insistence of sameness.
- Sensory issues, sensory processing issues.

ASDs begin in childhood and tend to persist into adolescence and adulthood.

IF YOU HAVE SEEN A CHILD WITH AUTISM…

YOU HAVE SEEN A CHILD WITH AUTISM



Influence of Chess on Cognitive Processes of Children with Autism (2019)

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

Major research issues:

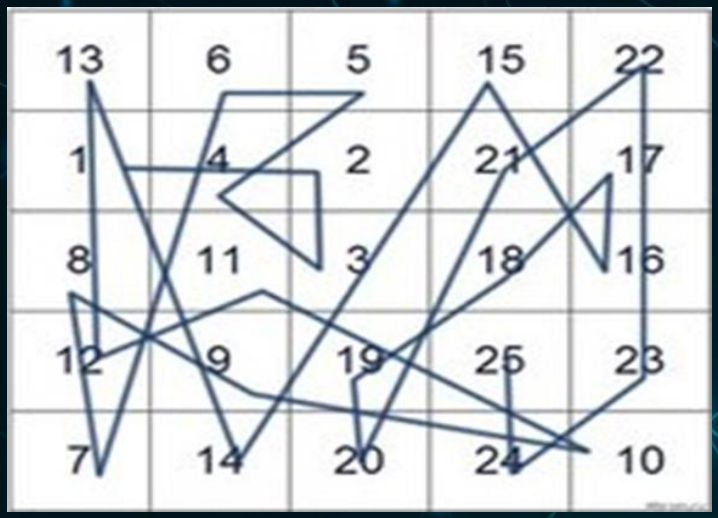
1. To investigate and analyze the peculiarities of cognitive processes of children with SEN at the lessons of chess;
2. To study and develop the respective system of psychological and pedagogical methods, means and techniques for positive impact of chess on cognitive processes of children with SEN;
3. To evaluate the influence of chess on the development of cognitive processes of children with SEN.

Table 1

Analysis of the results of the development of cognitive processes of children with the help of Chess

Indices of cognitive processes under study		Number of Children with SEN, inc.ASD engaged n=19											
		Before the research						After the research					
		2nd grade		3rd grade		4th grade		2nd grade		3rd grade		4th grade	
		Num. of Children 9	On average %	Num. of Children 6	On average %	Num. of Children 4	On average %	Num. of Children 9	On average %	Num. of Children 6	On average %	Num. 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 & 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

For developing attention of children with ASD it was used 1.



Pic. 1.

Task 1.

Look at the board during 35-40 seconds (20 second on average) and remove from the board only the black pawns or the rooks.

Pic. 2.

For developing attention of children with ASD it was used. 2.

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

4BRAIN.RU

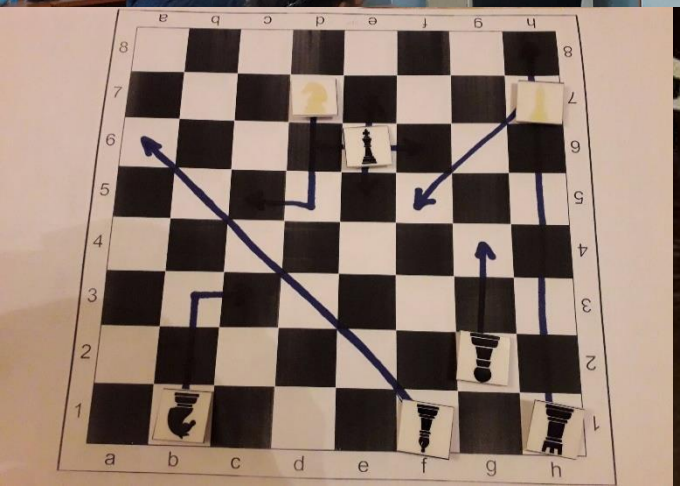
Pic. 3.

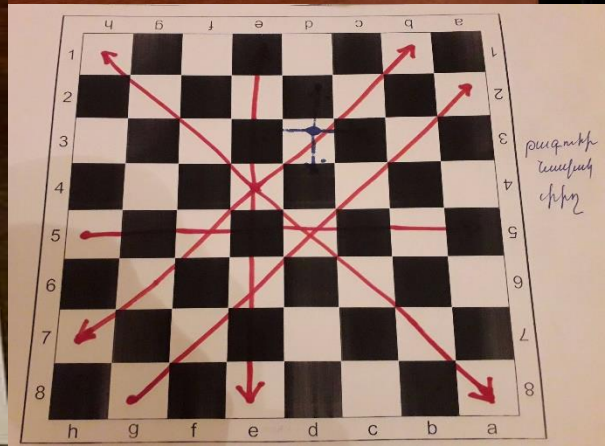
Task 2.

After looking at the board for 25-30 second, we ask the children to take one black knight and two white pawns and then to remove only the queen on the black square, etc.

Pic. 4.

We have proposed application of our proposed methods to SEN students to attract chess class alternative in the form of games, preparation and implementation, associations of different chess positions with different situations in life. Then we have implemented data collection, quantitative and qualitative analysis of the results.

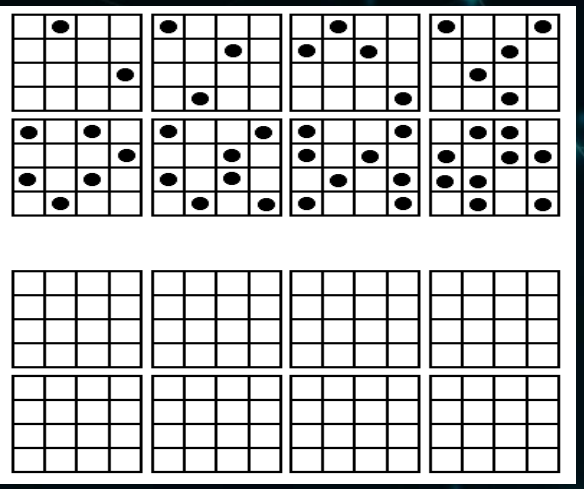




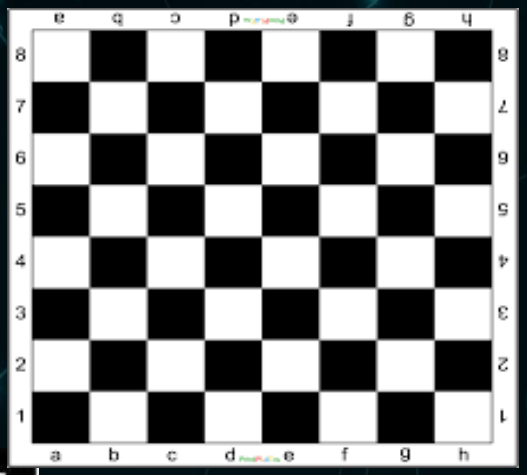
For developing the memory of children with ASD.1.

Task 3.

We ask them to watch and memorize the locations of dots and their arrangement for 30-35 seconds, then reproduce the same arrangement on empty board.



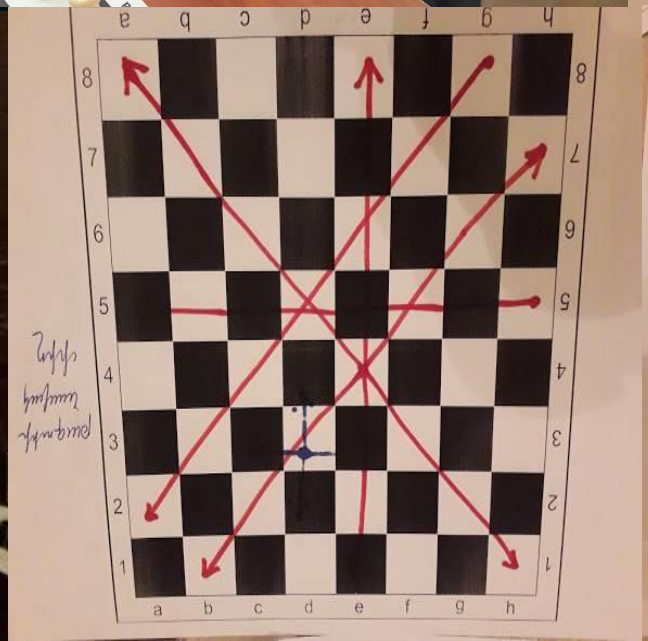
Pic. 5

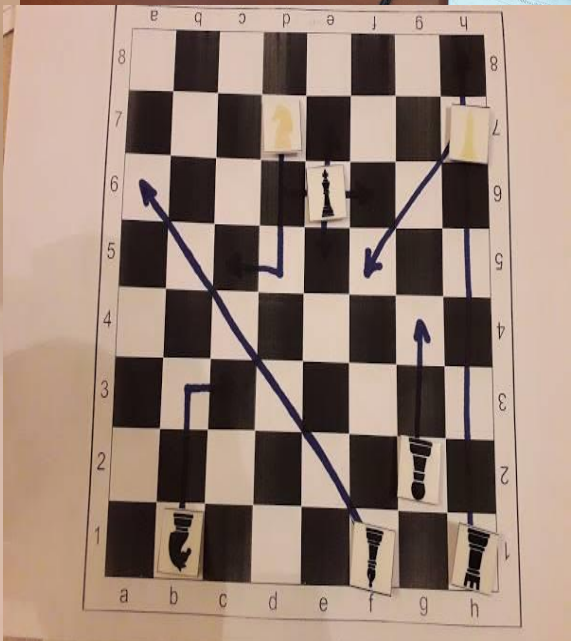


Pic. 6

Application of a chess puzzle and PSC cards with students with ASD

Students completing the puzzles





For developing sensory perception of children with ASD .1.

PIC 7.

PIC 8.

Task 4.

We ask children to touch the pieces inside a box and try to guess the piece that they are touching without looking into the box.

Tasks to recognize the chess pieces, arrange them on the board, arrange in the same way, recognize by touching

A student with ASD and intellectual disability to complete tasks on naming the chess pieces, arranging them, arranging the steps where shown

A collaborative work between an ASD student and a neurotypical student

For deep perception and development of logical thinking we have made some examples from fairy tales .1.

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. King is an important piece.

For developing imagination and creative thinking of children with ASD it was used.

Pic. 9.

Task 5

Within 30-40 seconds complete the images of chess pieces.

Pic. 10.

For developing spatial perception of children with special educational needs

Pic.11.

Task 6

We ask children to stand on a chessboard floor and tell : Which piece do you imagine yourself? The king? The pawn? etc.

Pic. 12.

Table 1

Analysis of the results of the development of psychic processes among Children with Special Educational Needs

Indices of cognitive 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	
		Num. of Children 9	On average %	Num. of Children 6	On average %	Num. of Children 4	On average %	Num. of Children 9	On average %	Num. of Children 6	On average %	Num. of Children 4	On average %
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Through a questionnaire we have determined their course of action on their own initiative and the implementation of the proposal / alternative risk responses / given to the type of problem severity.

Discussing this problem among the teachers of SEN students

Inclusive classes

CONCLUSIONS

- The work with a student with ASD will be successful.

- The presented examples of methods and exercises will promote the development of:

✓ cognitive processes of students with ASD (perception, memory, attention, thinking, imagination;
✓volitional quality,
✓verbal and non-verbal communication skill,
✓fine motor skills,
✓curiosity towards the activity that is done (game)
✓ability to observe,
✓orientation and spatial concepts
✓Behavior regulation
✓Increase of self-esteem

Resources

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THANK YOU

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SPECIAL THANKS to

- Special thanks to FIDE
- The organizers
- Judit Sztaray for her technical support