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**DEVELOPING PSYCHOMOTOR SKILLS IN THE CASE OF
AUTISTIC STUDENTS**

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Abstract

Physical effort gears the subject's organism as a dynamic system, in all its development stages, as a certain profile corresponds to each ontogenic period, which leads to the processes of growing, development, optimisation, maximisation of capabilities, regeneration, etc. Various authors define effort from the perspective of physiology, psychology, or training theory, either as a process of strength mobilisation in view of overcoming an obstacle, or as a factor in antithesis with the recess state (Demeter,1974), or as predominantly biological stimulus which forces the organism to respond with electric, biochemical, mechanical or thermic manifestations (Bota, 2000), or as a process of conscious defeat of the requests in view of attaining a good level of training (Dragnea, 1996).

The psycho-motor dimension is an optimal way of non-verbal communication in the social environment for the child with autism. It is recognised that any child coordinates his motor activity in accordance with the mental image of the perceived act. Psycho-motor therapy facilitates, through its integrated programmes, the education of the individual, aiming at knowing one's own body and at the identification of the self.

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1. Introduction

Motor development particularities for autistic children. Psychomotor disorders are common to autistic children. They are primarily manifested through general motor insufficiency, inability and imbalanced voluntary motion clumsy gait, lack of coordination, but also through the early occurrence of athetoid syndrome specific stereotypes (bending fingers backwards and forward, shaking and rolling palms, jumps, revolving, walking and running on one's fingertips, etc.) Usually, in the case of autistic

children, the screening reveals the absence of some elementary self-serving skills (lacking autonomy in activities such as: washing or dressing oneself, inability to use some objects for personal use, etc.)

2. The Main Objective of the Research

The purpose of research is that of organizing various individual and collective activities meant to stimulate the volunteering, willing behaviour of autistic children. The autistic child's appropriation of the ludic clichés contributes in the formation of memory, attentiveness and perception. In the process of guided activities, the autistic children gradually acquire the possibility to transfer what they learn into real activities, which remarkably changes the child's behaviour. In other words, this creatively regulates the autistic child's behaviour and increases their level of practical orientation in the surrounding environment. The aim of the research is that of studying the psychomotor development particularities in the case of autistic children. In our case, the observing research has targeted the study of deficient functions specific to autistic children. The selection process for the present psycho-pedagogical study started from their physical development (Radu & Ulici, 2003).

The examination programme includes a set of physical exercises meant to highlight the autistic children's psycho-physical, functional, cognitive and behavioural particularities.

2.1. Children's Functional Development

Exercise 1. Imitation of hand moves

Aim: to imitate common hand moves

Task: to imitate common hand moves by repeated actions

Exercise 2. Imitative gestures using household objects

Aim: to imitate objects' handling

Task: to imitate household objects' handling

Exercise 3. Imitative exercises involving the tongue and the under-jaw

Aim: to improve the mouth motor skills as a prerequisite for speaking improvements

Task: to imitate a series of movements of the tongue and of the under-jaw

2.2. Perception Particularities

Exercise 1. Hiding objects

Aim: to correct visual attentiveness and observation skills

Task: to find an object hidden between other objects

Exercise 2. Image/figure correlation

Aim: to learn to visually distinguish objects and study their combinations

Task: to find the equivalent of a simple pair of figures

Exercise 3. Noise sources distinction

Aim: to distinguish and combine noises

Task: to recognise various sounds and identify their source

2.3. Motor Skills Particularities

Exercise 1. Gymnastics: touching one's toes

Aim: to stimulate flexibility

Task: to touch the toes with the fingers (ten times)

Exercise 2. Opening the doors and drawers of the cupboard

Aim: to increase the level of autonomy in day-by-day activities; to train the hands muscles

Task: to open the doors and the drawers of a cupboard without any help

Exercise 3. Standing on tiptoes

Aim: to better control balance; to strengthen the legs muscles

Task: to stand on tiptoes (ten times)

2.4. Fine Motor Skills Particularities

Exercise 1. Blowing soap bubbles

Aim: to improve motor control and gripping actions

Task: to open the liquid soap recipient and blow soap bubbles

Exercise 2. Writing

Aim: to improve motor control and gripping actions

Task: to hold the pencil (the paint brush) and draw a few lines on a paper

Exercise 3. Hand motion

Aim: to strengthen the hands muscles

Task: to perform hand and arm moves imitating the trainer

2.5. Eye-Hand Coordination

Exercise 1. Stringing beads – 2.

Aim: to develop a better eye-hand coordination; to use both hands

Task: to string two beads without any help from the adult

Exercise 2. Parts of the whole

Aim: to acknowledge the relation between part and whole; to correctly correlate the parts of a whole

Task: to join the two parts of a drawing (elementary jigsaw puzzle)

Exercise 3. Drawing. Circles

Aim: to improve the drawing skills

Task: to combine a number of dots arranged in a circle shape in order to obtain a simple drawing

3. Analysis of the Results

3.1. Children's Functionality Development

The ability to imitate is the prerequisite for all instructive-educational processes. Without imitation, the child is unable to acquire language or other behavioural patterns necessary for being included in their

respective culture. This is the reason why the research of imitative skills is an essential element for the development of a child.

We carried out exercises meant to determine the imitative skills for each autistic child involved in the project (the disorder had been previously confirmed by medical diagnostic).

Table1. Results of bimitating hands movement

Child's name	Imitation of simple moves	Task accomplishment
A.	He strings the beads in a short time. He imitates simple moves	The repetition of the moves is slow; he doesn't string the beads, only holds them in his hand.
B.	He manipulates the beads but has a hard time repeating the moves. He can hardly imitate one or two moves.	The repetition of the moves is slow; he starts but not completes the task.
S.	He repeats the moves of the hands. The first two times, with the help of the adult, then by himself.	He repeats the moves, with the help of the specialist at first; he doesn't pay attention to instructions.
E.	He manipulates the beads but has a hard time repeating the moves.	It is very difficult for him to repeat the moves.
T.	He strings the beads in a short time. He has difficulties in performing the following moves because of diffuse attention and insufficient memory.	The repetition of the moves is very slow; he cannot, nor does he want to focus.
I.	He manipulates the beads, but he is hastened, he loses them and has difficulty in imitating the moves. He can hardly imitate one or two moves.	The repetition of the moves is slow; he does not fulfil the task.
P.	She repeats the moves with great difficulty, only with the trainer's help; she cannot handle the task by herself.	The repetition of the moves is very slow; she doesn't listen to instruction and shows no interest in making progress.

The results indicate that the majority of children (57%) display an average level of movement imitation.

Table 2. Results of imitation exercises involving the tongue and the under-jaw

Child's name	Specificities of task fulfilment
A.	<ol style="list-style-type: none"> 1. He opened and shut his mouth - by himself 2. He moved the under-jaw from left to right – with the help of the specialist 3. He refused to chew 4. He accepted to move his tongue only after being offered a candy
B.	<ol style="list-style-type: none"> 1. He easily opened and shut his mouth 2. With the specialist's help 3. He refused to perform the task 4. He refused to perform the task even when he was given a candy

S.	<ol style="list-style-type: none"> 1. He opened and shut his mouth - by himself 2. With the specialist's help and then repeated by himself 3. He performed the task but showed great surprise 4. He moved the tongue backwards and forwards, then, after repetitions, to the left and to the right
E.	<ol style="list-style-type: none"> 1. He easily opened and shut his mouth 2. With the specialist's help 3. He refused to perform the task 4. He tried, but took an action for another
T.	<ol style="list-style-type: none"> 1. He showed great difficulty in fulfilling the task 2. With the specialist's help, but very slowly 3. He refused to perform the task 4. He gave up after a failed attempt
I.	<ol style="list-style-type: none"> 1. He performed the task with the help of the trainer. 2. With the specialist's help and then repeated by himself 3. He performed the task but showed great surprise 4. He moved the tongue only backwards and forwards
P.	<ol style="list-style-type: none"> 1. She easily opened and shut his mouth 2. With the specialist's help 3. She refused to perform the task 4. She refused to perform the task even when she was given a candy

3.2. Perception Particularities

Many behavioural disorders of autistic children are the result of perception disorder and of the incorrect processing of sensorial information. The perception disorder in autism-diagnosed children are varied and irregular.

The first exercise aimed at determining the visual attentiveness and the degree to which they note the differences in the objects they are shown.

Table 3. Results of studying visual perception

Child's name	3 different cups	3 identical cups	2 cups
A.	He could not fulfil the task; did not memorize the cup's size or colour.	He could not fulfil the task, he attempted to memorize the cup many times, but failed.	He fulfilled the task with the adult's help.
B.	He could fulfil the tasks after many repetitions, with the specialist's help.	He could not fulfil the task; could not remember the cup.	
S.	He fulfilled the task quickly and correctly.	He could fulfil the tasks after many repetitions	He fulfilled the task
E.	He could not fulfil the task; did not memorize the cup's size or colour.	He could not fulfil the task	He fulfilled the task after numerous attempts

T.	He easily fulfilled the task, but only memorized the size.	He could not fulfil the task	He fulfilled the task with difficulty, after numerous attempts
I.	He paid great attention to the trainer, but didn't fulfil the task right away.	He fulfilled the task with difficulty	He fulfilled the task after numerous attempts
P.	She could not fulfil the task	She fulfilled the task unenthusiastically, after many repetitions.	He fulfilled the task with difficulty

It can be inferred that autistic children have visual perception issues. They better perceive shape and colour, but not the object as a whole and the size differences.

3.3. Motor Skills Development

Exercise 1 aimed at determining the degree of flexibility, and also the ability of imitating the trainer's moves. The results are presented in the table below.

Table 4. Results of determining the degree of flexibility, the imitation skills

Child's name	Imitation skills, flexibility
A.	He easily imitates the first moves. He performs the exercise seven times.
B.	He imitates with difficulty, a third person is needed to make him understand how to stand. He performs the exercise four times.
S.	After much persuasion, he started to perform all moves. He easily performs the exercise 5 times, but shows tiredness and indifference the last two times.
E.	He imitates with great difficulty due to hyperactivity; he doesn't pay attention to instructions; he misunderstands and does not stand as he should. He performs three times with great difficulty.
T.	He imitates the first moves with difficulty and becomes interested after three repetitions. He performs the exercise seven times.
I.	He easily imitates the first moves. He performs the exercise seven times.
P.	She consecutively imitates all moves. She easily performs the exercise four times and shows tiredness and indifference in the last three attempts.

Based on the results above, we could determine the development level of general motor skills. A high motor skills level means imitation skills and flexibility; an average motor skills level has been determined for children who partially fulfilled their task with the help of the adult, whereas a low level was recorded for the children who partially fulfilled the task, refused to try or were unable to follow the indications.

The analysis of the results has proven that the autistic children involved in the experiment do not display high abilities of imitation actions which involve motor skills. Most of them (57%) partially fulfilled their task, being able to imitate the first moves, but they had difficulties in accomplishing the

ulterior actions. In other cases, interest is stirred after multiple repetitions. 43% of the children display low energy and muscular strength, low flexibility and low stamina. Exercise 2 aimed at determining the degree of formation of hands oriented moves.

Table 5. Results of determining the degree of hands oriented moves

Child's name	Performs the move with the trainer's help	Performs the move by himself/herself
A.	Two times, getting help	Three times, by himself
B.	He easily opens and shuts the doors of the cupboard, without taking out the toys.	He didn't perform any move by himself.
S.	Three times, getting help	The next four times – by himself.
E.	He gets help in performing the tasks	He performs the task all by himself, but soon he loses any interest.
T.	He gets help in performing the tasks, but finds the toys.	He performs the task all by himself; he is consequent in searching the toy.
I.	Two times, getting help	The next four times, all by himself: he finds the toy during the last two attempts.
P.	Two times, getting help. She found the toy.	Two times, all by herself.

To conclude, the autistic children who were part of this experiment display partial formation of the oriented moves of the hands. In some cases, this skill is extremely undeveloped. In other cases, after a few repetitions, the skill of performing the given exercise was acquired but the low stamina level soon led to failure.

3.4. Fine Motor Skills Development

The first exercise aims at determining the degree of formation of fine motor skills control and of gripping an object with the hand.

Table 6. Results of determining the degree of fine motor control and gripping an object

Child's name	The way of performing the task
A.	After having repeated two times, he fulfils the task by himself. Medium motor skills control; formed grasping skill.
B.	He rotates the lid but does not blow bubbles. Having been shown two times, he refuses to try. Low motor skills control; he possesses the grasping skill.
S.	After the first demonstration, he performs all actions. He completed the exercise three times. High motor skill control.
E.	He blows soap bubbles after being shown two times. Then he refuses to perform. Low motor skills control

T.	After having been shown two times, he performs slowly, but by himself. Medium motor skills control
I.	After having been shown two times, he performs slowly, but by himself. Medium motor skills control
P.	After having been shown once, she performs the exercise all by herself, three times. High motor skill control.

Based on the results, we have determined the degree of formation of motor skills control, the ability to grip, the ability of individually performing a task and repeating it.

- High level – 29%. In the case of these children, the ability to hold an object is fully formed; they have good motor skills control; after repetitions, they are able to fulfil all tasks by themselves;

- Medium level – 42%. The children possess the ability to grasp but they prove some difficulties in performing the task; low motor skills control.

- Low level – 29%. The ability to grasp and hold an object is insufficiently developed; the motor skills control is underdeveloped. Many repetitions were necessary for their fulfilling the required tasks on their own.

3.5. Eye-Hand Coordination

The first exercise aims at determining the ability to handle objects, and also the exercising and coordinating of motor actions in standard circumstances (visual- tactile coordination, eye-hand coordination). Table 9 presents the results of the experiment.

Table 7. Determination of the abilities of using objects

Child's name	Handling objects	Eye-hand coordination	Both hands coordination
A.	He handles objects after demonstration	Disordered eye-hand coordination	After a few repetitions, he starts using both hands.
B.	Voluntary moves with the objects	Slow eye-hand coordination	He has difficulties in performing moves with both hands; deranged coordination.
S.	He handles objects after demonstration; performs simple moves	Almost normal eye-hand coordination	After a few repetitions, he performs all by himself.
E.	He handles objects after demonstration	Disordered eye-hand coordination	He has difficulties in performing moves with both hands; deranged coordination.
T.	Simple moves with objects (changes their place)	Disordered eye-hand coordination	He has difficulties in performing moves with both hands; deranged coordination.
I.	He handles objects after demonstration; performs simple moves	Disordered eye-hand coordination	After a few repetitions, he performs all by himself. Good hands coordination
P.	She handles objects after demonstration; performs simple moves	Eye-hand coordination may be controlled.	After a few repetitions, she performs all by herself. Good hands coordination

The analysis of the psychomotor programme proposed above leads to the conclusion that autistic children face various difficulties in completing the tasks requiring the use of both hands. Also, eye-hand coordination proves problematic in many instances. The integration of various types of functions is a visible aspect of the vulnerability of autistic children. Thus, in performing actions which require eye-hand coordination, it is particularly important to have in view the period when the separate functional components develop. Although the autistic child may possess well-developed fine motor skills, the eye-hand coordination may be underdeveloped due to blockings in the perceptive area (Verza, 2011).

4. Conclusions and Recommendations

An essential element in the recovery of the early autism spectrum disorder cases is the stable environment, extremely important for the formation of personal and social autonomy skills. This entails the structuring of the autistic children's lives, the imposition of a strict schedule, with pre-established timetables for each activity. Drawings or photographic images which represent the child's activities throughout the day may be helpful. Each day should be planned so as to alternate instructive activities with physical and psychic recovery.

The special character of autistic child development also entails a whole spectrum of procedures specific to social adaptation. It is not enough to draw the child's attention to the reality surrounding him (her). It is compulsory that we make sustained efforts to understand their inner world and that we attempt at looking at the world with their eyes. The families should live with the children, not around them; they should cooperate with the children and not manipulate them pretexting to fight the undesirable behavioural elements. Last but not least, the children's potential should be capitalized on.

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