







walking back and forth, “freezing” in a certain position.

Dysfunctions in social interaction, communication, imaginative capacity (Preda, 2005; Secara, 2007; Stone, 2004; Fritt, 1989) and in the level of mimicry which is present in the case of autistic children require special and individualized approaches. The sooner the intervention and recovery are done the better the chances of a significant improvement.

Due to the particular development of children with disorders from the autistic spectrum, some educational intervention programs should be individualized, and the methodology should be adapted to each child. All the elements of the intervention plan, such as conducting activities/exercises, dividing them into simple sequences, the appropriate selection of reinforcements (rewards), the prompts, the teaching materials, they all need to be adapted to each individual child, based on both their level of development and the specific characteristics.

## **2. Example – Educational intervention plan**

### **I. Personal information**

*Name and surname:* P.A.

*Sex:* female

*Date of birth:* 06.10.2008

*Medical diagnosis:* infantile autism, mild mental retardation

### **II. The development of the intervention program**

#### **I. Initial assessment**

The following tools were used during the initial assessment: the Protage Early Intervention Program, the Rimland E2 Diagnostic Questionnaire, the Schopler Infantile Autism Rating Scale.

According to the Protage Program the results were the following :

1. Socializing: in 80% of the cases she looks at the person who calls her name, she enjoys the presence of family members, people she knows, the presence of other children, she easily accepts her parents leaving (sometimes she asks about them after their departure), she initiates interactions, takes other people by the hand; in most cases she greets people when asked to, displays affection towards people close to her and a great joy towards other children her age (she strokes their faces or kisses them).
2. Language: language is developed below her age (the receptive language being more developed than the expressive one), she associates words with gestures to express her wishes (asks for an object just by naming it and pointing to it), says 2-3 verbal directives which imply a single action, she calls the other family members by name, she forms 2 word sentences on demand (“climb the stairs”); she shows forms of echolalia and verbal stereotypes (repeats nonsense syllables “mai”, “tai”, “ui” etc.)
3. Personal autonomy: shows some self-helping skills such as: she drinks water from a cup with handles and soft drinking adaptor, she eats with her hands the food that has been cut into small pieces, after eating she cleans her mouth with a napkin if asked to; she has not acquired the skill

of washing her hands (she just holds her hands under the stream of water), she extends her arms and legs when she is being dressed, she uses diapers, she resists when she is being bathed or has her hair cut.

4. Cognitive: she imitates simple gestures when asked by an adult, she sorts 2 colors on request, she doodles, colors without taking into account the borders of the shape, inserts different shapes in their support, completes a plate with shapes containing 6 different pieces (fish, hen, dog, cat, cow, bird), finds a book that is described to her, upon request, points to different parts of the body, she recognizes herself in photos.
5. Motor development: she shows difficulties with balance, she walks in a particular way, she does not run, she has difficulties and displays anxiety when going over obstacles (no matter how small), goes up and down the stairs without alternating her legs, with someone's help (by taking the hand of an adult), she does not jump, she claps her hands, can use a pencil, inserts medium size objects in their support, underdeveloped digital grip, she lines up big beads (4-5cm in diameter), she plays with dough (can make small balls). A. also shows motor stereotypes like: spinning objects, the rocking of the body back and forth, when sitting, on a musical or rhythmic background, waving her fingers in front of her eyes, stomping her feet, opening and closing wardrobe doors or drawers, shaking showcases, moving curtains.
6. Interests: she shows a very strong interest in loud sounds (made by various electronic toys or by A. herself by banging on different objects), she listens to music (she hums some songs during daily activities) and she shows a great interest in the computer (PC) – she performs various tasks with its help, she plays on the PC assisted by an adult and uses the PC to listen to music.

In the initial assessment we also used behavioral questionnaire items from the Rimland E2 diagnosis questionnaire (including the additional questions) according to which the following was determined:

Item 19: The child imitates other persons (she waves “bye-bye”)

Item 20: She has a remarkable memory for some words from poems, TV advertisements, numbers

Item 23: She sometimes holds her hands in a strange position.

Item 24: She focuses for a long time on some rhythmic activities or on a rocking movement.

Item 25: She does not give the impression that she doesn't acknowledge the presence of other people.

Item 26: She does not manifest the craving for food or for sucking on objects.

Item 27: She does not have unusual eating habits: refusing to drink from transparent containers, eating only warm or cold dishes, or only one or two types of food.

Item 28: “Closed in a shell” or lost, meditative, difficult to approach do not describe the child.

Item 29: The child is affectionate, clinging to the adults she knows.

Item 30: She does not hit her head voluntarily.

Item 31: Physical coordination below average (when walking, running, rocking, climbing)

Item 32: She sometimes spins around the axis of her body.

Item 33: She is clumsy in executing delicate gestures with her fingers, when playing with small

objects.

Item 34: She likes to spin objects such as lids or coins (for a long time).

Item 35: She shows exceptional memory abilities

Item 36: She rarely/never jumps for joy.

Item 37: She does not line up objects in organized rows insisting that they are not to be disturbed.

Item 38: She constantly uses her hands.

Item 39: She does not show any interest in musical CDs.

Item 40: She is fascinated by some mechanisms and/or house appliances (the microwave oven).

Item 41: She is sometimes disturbed when interrupted from her activities,.

Item 42: She easily accepts to wear new clothes and shoes.

Item 43: The fact that some things are not “as usual” does not especially disturb her.

Item 44: She does not have complicated rituals.

Item 45: She is not disturbed when some things that she is used to are changed or moved.

Item 46: She does not have a tendency to voluntarily destroy objects.

Item 47: She is a compliant child.

Item 48: She is hyperactive, in continuous movement, she easily moves from one thing to the next.

Item 49: She expresses her need for affection normally.

Item 50: She is non-responsive to criticism and very affectionate.

Item 51: It is possible to draw her attention to an object located farther away or through a window.

Item 53: She changes the direction of her gaze when addressed.

Item 54: She sometimes uses the hand of an adult to do something

Item 56: She is scared of some animals, or sounds.

Item 57: She does not involve herself in situations which may lead to her falling or getting hurt (running, climbing).

Item 58: She does not create problems related to violence against herself or other people.

Item 63: Her communication skills (answering to questions, telling a story) are directly proportional to the number of words she knows.

Item 65: The child does not talk about herself.

Item 66: She repeats exactly the words or phrases she hears (without any connection to context).

Item 67: The child can answer a simple question: “What is your name?”

Item 68; She is capable of understanding (she can answer and do what is asked of her)

Item 69: She understands what she is saying.

Item 70: She does not use the word “yes”.

Item 71: In order to give a positive answer to a question she uses the word “hai” (come).

Item 72: In order to ask for something she sometimes uses the same sentence as the one used to suggest that.

Item 73: She does not use the word “I”.

Item 74: She shows her refuse by ignoring the request.

Item 75: She sometimes uses a word or an idea in order to express a different idea.

Item 99: She gets stuck on an idea or fixated on an object

Item 101: She adopts strange positions.

Item 104: She is extremely sensitive to smells.

Item 108: She memorizes words that are useless to her.

According to the Schopler Infantile Autism Rating Scale the following results were recorded:

1. Relationship with humans: she is willing to interact with others, especially children her age, she initiates interactions (taking the other person's hand), when called by name or called to attention she makes eye contact; she shows affection towards people close to her and children her age and she likes to receive affection; she is involved in activities with other children and sometimes it requires several attempts to get her engaged in a task; she manifests anxiety and ignorance when criticized or punished.
2. Imitation (verbal and motor): verbal imitation (simple words, sentences, poems) is well developed, it takes place immediately; motor imitation (playing with small objects, drawing graphic symbols) occurs after several demonstrations.
3. Appropriate or inappropriate emotional reaction: she shows emotion and affection towards her loved ones and sometimes towards strangers; when fatigued or in physical pain she manifests small anger fits (she clenches her teeth, is tense and sometimes cries hysterically).
4. Using her body: she shows a slight clumsiness in tasks, poor oculomotor and body coordination, she walks slightly on tip-toe and in a strange way, she sometimes adopts an odd body posture; she rocks her body when sitting down and shows stereotypical movement (waving her hands in front of her eyes).
5. Using objects: she shows a repetitive interest in round objects (spinning them), curtains, drawers, showcases, cabinet doors; she prefers noisy toys that have different mechanisms, she plays only in the presence of an adult or with an adult or with children the same age as her; when the adult does not intervene the child's play consists in stereotypical behavior (spinning objects, shaking showcases, moving the drapes, opening/closing drawers etc.).
6. Adaptation to change: she does not show abnormal reactions (increase irritability or severe resistance) when moving from one object to another, when changing tools during the same activity or when changing her routine.
7. Visual responses: she makes eye contact when her name is called or when she is addressed (in a structured environment), she sometimes stares at a certain point for a couple of seconds or blinks very often (for a short time).

8. Response to sound: she prefers high intensity sounds (stereotype – she turns on various toys) and she focuses her attention on sounds that can barely be heard, she prefers musical activities, she likes listening to music, she startles when she hears unexpected sounds such as: a car engine starts, the ambulance or police car siren.
9. Reaction to smell, taste, pain: she is hypersensitive to certain strong smells (perfume, food etc.) which make her nauseous; she sometimes sniffs different objects, persons she comes into contact with, she has a normal reaction to pain.
10. Fear, anxiousness: she shows anxiety when an adult stops her stereotypical behaviors and sometimes when the adult does not satisfy her wishes such as opening the cabinet doors or turning on noisy toys.
11. Verbal communication: she presents forms of echolalia (she repeats various phrases or sentences that she heard and that do not necessarily have a logical connection with the current context) and she shows verbal stereotypes (she says syllables without any logic or meaning) ; she responds with a single word or by pointing to the answer (in the case of objects around her); she repeats sounds and words when asked to; she uses a language more appropriate for younger children, with the use of some particular words (she calls an object by a different name than normal).
12. Non-verbal communication: she sometimes uses an adult's hand to carry out a certain behavior or just to point to an object or an activity; she points only to the object involved in a particular activity (for example she points to the potty when she wants to convey the fact that she needs to go to the toilet) or she goes and picks up a certain object and brings it to the adult, meaning that she wants to play with him or that she wants to eat a certain kind of food (for example she goes to the fridge, takes a yoghurt and brings it to the adult, wishing to convey that she wants to eat yoghurt).
13. Level of activity: she especially gets involved in activities that she prefers; sometimes, mostly when she is tired, she manifests passivity towards activities, whether they are some of her favorite ones or not.
14. Level and consistency of intellectual functions: there are cases when she can make small associations, based on her mechanical memory, which is very well developed.
15. Overall impression: she shows the characteristics of an autistic child.

### **1. General and specific objectives:**

Based on the results of the initial assessment and on the fact that A. attends kindergarten (being required to use the toilet at the same time with other children, dressing and undressing around them and sometimes eating together with her group mates) it has been considered necessary that the intervention program have the following objectives:

#### **➤ The development of psychomotor abilities**

1. development of digital grip
2. improving hand-eye coordination
3. improving hands coordination
4. developing hand grip strength
5. adjusting equilibrium and movement rhythm
6. developing the necessary skills for self-help

#### **➤ Development of personal autonomy**

1. developing skills for dressing and undressing
2. the recognition, name and use of cutlery
3. developing the necessary skills for washing her hands



4. recognition and use of the potty
5. improving the identification and correct naming of body parts
  - **Development of communication and language**
    1. expanding her vocabulary
    2. improving the initiation of communication/interaction
    3. to answer questions in sentences made up of two words
  - **Eliminating stereotypes**
    1. identification and elimination of the trigger
    2. reducing the manifestation of the stereotypes behavior
    3. decreasing the intensity of the stereotyped behavior
    4. replacing the stereotyped behavior with an appropriate behavior (focusing her attention and getting her involved in an enjoyable activity)

## **2. Performed activities**

The intervention program started in 2006 and it lasted for two years. During this program different daily individual activities were conducted (1-1 per day), with the exception of days in which health problems did not allow her to engage in activities.

### **a) The development of psychomotor abilities**

#### Coloring activities

Initially the coloring was done within the contours made of play dough in order to give the child a little help to be aware of the limits of the space that needed coloring. Then she started coloring large size shapes, their size being reduced gradually during the activities. As teaching methods we used explanation, practice, demonstration and especially modeling. Prompts were also used (verbal in most cases) and as a reward we used objects that the child favors, objects that she had no access to outside the activities (eg. a play phone with different tunes, different color beads). While an improvement in learning the behavior was noticed, the reward was given to her after an increased number of behaviors were performed correctly.

#### Pasting activities:

During these activities we used crepe paper of different colors. Before the pieces of paper were pasted to a white sheet of paper (with different shapes drawn on it) A. and the intervener crumpled them between their fingers. As methods we used demonstration, practice, explanation and verbal cues (“crumple”, “paste”, “press” – the crepe paper on the white sheet) and tactile cues. During this activity the social reward from the therapist was sufficient, because the activity in itself was a well appreciated reward for A.

#### Activities involving the sewing of different object shapes

With the help of a thick cord which was thinner at the ends, A. was supposed to “sew” different object shapes: a car, a ship, a bus, a plane. These shapes were made out of wood and fitted with holes along the edges. At first, A. with the help of the intervener (modeling) drove the cord through these holes. Then the intervener was only holding the shape and A. was doing the activity alone. During the activities we used verbal cues (“insert”, “pull out”), the social reward (“Bravo”, “Excellent” etc.) and the material reward (after she finished sewing the whole shape A. was allowed to play with it for one minute).

### Activities involving the handling/use of clamps

During these activities we used different color plastic clamps and a round plastic bowl. With the help of verbal cues (“hold”, “put down”), of modeling and spatial cues (the bowl was turned with the empty side towards A.) she learned how to handle the clamps and to place them on the edges of the bowl.

### Activities involving building a tower

Different color wooden cubes were used, with a diameter of 4 cm. Initially we used behavior modeling. The therapist was sitting behind the child, with her hands over the hands of the child and thus the action of putting one cube over another was carried out. When the progress of the child was noticed, the total prompt (modeling) was diminished. The activities had a gradually increased complexity level, evolving from easy to difficult: from 2 to 10 cubes. At the end of the activities the cubes were tumbled down (initially by the therapist, and then by the child). When the cubes fell on the surface of the table they made a loud noise, which was in itself a reward for A.

### Climbing up and down the stairs:

Before the activities that taught her how to climb up and down the stairs, A. performed exercises that involved a small stool, the height of a step. A., supported by the therapist’s hands, would climb on the stool (facing the therapist), turn around (the therapist turning also according to the child’s preferences, to the left or to the right), and then she would climb down from the stool. In accomplishing these tasks the verbal cues were of great help (“climb up”, “turn around”, “climb down”) as well as the social reward (eg. “bravo”, “very good”, “excellent”, “applause”)

### Jumping up and down

Both modeling and verbal rewards were used during the activities that tried to teach the child to jump up and down. The child was taken into her arms by the intervener and they would jump together.

## **b) Development of personal autonomy**

By acquiring certain behaviors, mainly: using a spoon in the context of eating, using a mug with one handle, taking off her jacket once it was unzipped, opening the velcro sneakers and using a potty, we aimed for the development of personal autonomy and self-help skills, which is an important part of the intervention.

### Using a spoon and mug

Because the child preferred yoghurt, teaching her how to use a teaspoon was done starting from there. The child was taught how to use a teaspoon when eating yoghurt. This was achieved with the use of tactile and verbal prompts (“grab the teaspoon”, “raise the teaspoon”, “put the teaspoon in your mouth” etc.). Verbal reward was also used, which was of real help in the case of this particular child. Once the individual use of the teaspoon by the child was introduced, the other members of the family did the same, they offered the child the teaspoon together with the yoghurt. This behavior spread to other dishes which needed the use of a teaspoon/spoon.

Once the mug with one handle was introduced, no other type of container was offered to the child both during the activities and outside them.

### Washing her hands

In order for her to acquire the habit of washing her hands we used the sequence analysis strategy, teaching this skill in steps: turning on the water, wetting her hands, soaping the hands, rinsing her hands, turning off the water and drying her hands. The social reward was the one most commonly used.

#### Taking off the jacket and opening velcro

Both taking off a jacket once it was unzipped and opening the velcro from the sneakers were taught in the context of undressing and changing shoes before entering the classroom in kindergarten. Initially we used behavior modeling, verbal prompts and the reward was meeting her group mates (she was not allowed in the classroom before performing the two behaviors). This behavior extended and when she got home from kindergarten she had to take off her jacket and shoes before sitting at the table and eating yoghurt (in this context the yoghurt was the reward).

#### Using the potty

In order to learn to use the potty the child was initially asked very frequently if she needs to go to the toilet and she was sat on the potty several times a day, even when she didn't really need to go. After several months, the child was only asked frequently if she needs to use the toilet. When she said she needed to go the child was sat on the potty, and while she was sitting there (only for urinating) she was offered some of her favorite objects so she could play with them for 30-60 seconds.

#### Mirror exercises

These exercises were conducted to identify the correct name of her own body parts. In the first part of the exercise the intervener would sit behind A., both facing the mirror. By behavior modeling the intervener would take A.'s hand and touch a part of the body, at the same time naming it. In the second part of the exercise the intervener would ask: "Where is the foot?" and A. had to point to it. Social reward and verbal prompts were used.

### **c) Development of communication and language**

#### Learning new words

Activities were conducted which focused on teaching her new words. The child was shown images of different objects (everyday objects: toothbrush, a glass, a bed, a chair, a jacket, gloves etc.) while the therapist would name them each. In the next phase of the activity the child was shown the images and she would be asked "What is this?" and we would wait for the child's answer. Verbal cues were used: the first syllable of the word she had to name, as well as material and social rewards.

#### Game activities

Ball games were carried out ("Turn ball turn"), simple musical activities and combined with motor activities ("The fingers song")

### **d) Reducing the stereotypes**

The strategy used in order to achieve this was based on adjusting the environment. When possible the triggers for motor stereotypes were eliminated from A.'s environment, for example round objects were taken away, the drapes were pulled to one side, the doors of the cabinets and cupboards were locked. When A. started rocking she was verbally warned to stop the behavior and her attention was drawn to another activity. In order to reduce verbal stereotypes we used the sign of locking the lips and the verbal warning "Shhhhhhhh".

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