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## Characteristics of Learning Process at Children with Down Syndrom

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### Abstract

Researchers have described the condition of Down syndrome, its prevalence, and its impact upon the client, his or her family, and the community. Statistical data describing this population are reported from international, national, and state levels, while assistance resources are indicated at both the national and state levels. Community health nurse roles are described in scenarios of primary, secondary, and tertiary prevention to illustrate methods of serving the needs of persons who have Down syndrome, as well as the needs of their families. Concluding statements lend insight with recommendations of change to better provide for this special group of persons with physical and intellectual challenges.

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### 1. Early intervention

Like every other children, the child with the Down syndrome develops a variety of skills. Because of the major differences among the individual possibilities of each child, it is important to take into account each child and not to stop to preconceived ideas. Early intervention offers activities designed to support the evolution of the child with development delays. It puts the child in the forefront, offers emotional support to the family and information about rights and services. Ideally, the itinerant teachers should have the adequate training and necessary experience, but the volunteers and other parents may offer those services. It is easy for the families to overestimate the special activities and underestimate the daily experiences and contribution of the parents to the children’s development. Family life should be in the foremost and we shouldn’t get involved in many additional activities for the children with Down syndrome.

Children learn in a variety of ways: through play and sustained play, daily experiences from the everyday life, modelling and building games while playing or carrying on the daily activities, planned and structured learning, when the tasks are modelled, practiced and fulfilled slowly. It is necessary to practice in order to be sure that an ability is acquired. On one hand, practicing leads to the consolidation of the abilities and their flexible use in new situations. On the other hand, it leads to the automatization of the skills so that they could become easy of access as part of some more complex tasks (Preda, 2000). Parents can help their children to learn by starting with spontaneous and planned games, and then with the structured learning.

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### 1.1. *Game*

All children learn through game and we play with babies from their first months of life. Sometimes, the children with difficulties in learning need some support to learn to find out what the role of the toys is and how to play with them. That's why it is important to play with the babies and children suffering from the Down syndrome. It is useful to show a baby what a toy does, how to make it move or utter sounds, to turn a toy, hide and find a toy – under a blanket or in a box. Changing the role with the baby is often a good way to show them how to do something. It is necessary to join them to show the children how to be part of the imaginary game. For instance, you can have two dolls, cups, dresses, etc., and you can give the doll to drink or you can wash it on the face together. The games based on imagination in the second year of life offer the chance of learning a new language – you can help the child to link two or three words when you say: “You can wash the doll on her face”, “Watch the way I put the doll in the bathroom”. Thus, the game is the first and maybe the most important way of helping children to learn while they are growing up. Games will be only a form of playing, used as an entertaining method of learning (Ungureanu, 1998).

### 1.2. *Structured learning*

Children can be helped to learn in many ways. The advantages and disadvantages offered by the different approaches are raised for discussion. Children with development delays and difficulties in learning don't often have the necessary skills for learning in the usual/ normal way – for example, the motor skills to catch or twist parts of a toy, or the oral language skills to enter into a play or a conversation. Hence, their skill to create their own learning experience is reduced. Moreover, he/she may need many more examples of association (for example, to hear a cat mew and see it) before learning or to practice a task (for instance, to drink from a cup) much more before mastering it. Those additional learning circumstances will exist if only they are planned. The ideal compromise is to try to offer the additional learning experiences within the daily activities or to play as much as possible. Those children with the Down syndrome need to benefit from good attendance and stimulation in their daily life. They need structured special learning sessions to make progresses as fast as possible.

### 1.3. *Teaching and learning methods*

The sessions of structured learning should try to combine the usual learning methods with more structured ones. In the usual learning cases, parents, nursery school teachers, brothers, sisters and grandparents use modeling, imitation and building/ construction to show children how to make some things. All these strategies will be helpful for the children with the Down syndrome. Furthermore, the structured learning will offer simplified and recurrent possibilities of learning some things which practiced and mastered when they occur in daily contexts. Reading books together offers an ideal opportunity to learn children new words and concepts. It can also be used with good intent to increase the learning possibilities by choosing some books for learning vocabulary, shapes, colors or numbers. When the learning task is divided into small stages and the child is helped no more than is necessary at each stage, he/she will fulfill the task successfully. This thing allows the child to learn how to succeed by imitating and practicing more than by trying and making errors. The nursery school teacher expects to allow the child to complete these stages or the child may do it without any help. He/ She will help him/ her before the child makes an error – it is rather about a deliberate way of realizing the child's learning naturally. The child can be successful and be praised for it. Thus, the child will practice every time the correct steps to success. If he/ she is left alone, the child may not understand how to fulfill the task and will fail each and every time.

### 1.4. *Practice*

Practice is a very important concept in the child's development. Learning involves being a novice and making mistakes, being able to fulfill the task successfully only by thinking and making efforts, and then mastering the task by practicing it until it becomes easy and quick to do it. At this stage, the task is automatized – it means that it can be realized without thinking and planning the action. Practice still continues to improve the skill and efficiency with which the task can be solved. It is applied for learning and improving the motric skills, such as: to drink from a cup, use the knife and fork, dress, write, dance, play an instrument, play tennis or drive. But it is applied to the mental

skills, such as: to think, talk and read. While the children are learning to speak, they approximate the sounds of words produced by adults. As they are practicing them, the words are uttered better and better, and more and more correctly. As the children are learning to read, they recognize the words easily and think to each word. As the children are practicing – they read the same words time and again – the recognition of words becomes quick and automatic. Thus, as the children are making progresses every year, their development is influenced by the extent to which they practice the skill (such as the speech) usually or when they are in the pre-school or school education. The quicker the children are learning to master a new skill at early ages, the much more they will practice in the next weeks and months. The children who start to learn easily at early ages, talk much since they are fourteen or fifteen months – they practice to improve the clarity of their speech, express their thoughts in words and be partners in communication.

### *1.5. Automatization*

The automatization of skills through practice makes the skills not only to be acquired mentally but also to be learnt and easy to access. Automatization is important because the automatized skills become quickly available in supporting more complex activities. For instance, if the child knows the words which designate the numbers by heart, it will be easier for him to count, or if he knows the words for reading, it will be easier for him to read and understand the text.

## **2. Case study**

### *2.1. Presentation of case*

Andrei is a little boy who is 7 years old and 3 months, diagnosed with the Down syndrome. The pregnancy was difficult. He was born premature (32 weeks). His mother was then 28 years old, and his father was 29 years old. Andrei comes from a disorganized family. His parents are divorced, with secondary education. At present, he lives with his mother and maternal grandmother. His father has the right to take him a week per month. That's why the family environment is not an adequate one for a harmonious development and this thing can be noticed easily as the child has behaviour problems. He has a 13 year old elder brother who is in good health. When he is 7 months, Andrei is diagnosed with interatrial septal defect, mild pulmonary hypertension with respiratory recurrences and Langdon-Down symptom. He is hospitalized when he is 1 year old and 5 months, manifesting dyspnoea, cyanosis of the extremities, perinasal cyanosis in crises. Andrei undergoes a surgical operation without problems and leaves the hospital after 2 weeks with the following recommendations: to avoid cold weather, humidity, strong emotional reactions, physical effort within the tolerance limit, by increasing the effort gradually. He is hospitalized again for re-evaluation when he is 2 years old and 2 months. The Down syndrome is confirmed (karyotype with trisomy 21). The subject presents generalized muscle hypotonia, small palmar fold, square fingers, mongoloid face, with a motor development level of 7-8 months and severe mentally retardation. He follows a recovery therapy through massage, kinetotherapy, occupational therapy with a favorable evolution. He stands up with support in orthostatism. After receiving recommendations following another specialty examination when he is 4 years old and 7 months, the subject starts the first activities of complex recovery at the "Community Services Center". He follows a treatment (massage, kinetotherapy) with a slow favorable evolution. His parents stated that the babbling appeared when he was 4 months and the smile when he was 2-3 months. They also stated that Andrei took the first steps when he was 2 years old, but he couldn't sit down, that after the kinetic therapy he could sit down, but he couldn't stand up any more. After he was 1 year old he liked to play the "cuckoo" game. This type of game was giving him great satisfactions. He eats heartily. Because of the health problems and surgical operations suffered, he wasn't put to do anything in the house. His family was misinformed believing that he didn't understand anything if he couldn't talk, and that it was very hard for him to carry on certain activities. Later on, after the arrival of Andrei in the center, his family was also counseled. Now they are concerned with the child's education and recovery at home too. Andrei cannot manage to communicate verbally, he only syllabifies (the word banana is uttered na-na-na), he is hyperkinetic and cannot focus his attention; in fact, his attention is easily diverted by any noise or activity that is done around him. At present, Andrei is integrated in the mass education in kindergarten, belonging to a special group. He undergoes a logopedical therapy in private, while at the Community Services Center he undergoes an

educational therapy (ludotherapy and psycho-pedagogical activities) and kinetotherapy.

## 2.2. Intervention program

In the case of Andrei, it was taken into account what he had acquired until the intervention program started and what had to be formed. It is aimed to cover the following development areas: language and communication, fine motric development, oculomotor coordination, sensorial and cognitive area, ludic-cognitive, ludic-cognitive area, socialization and organization of knowledge through games of pre-learning, attention, motivation.

The personalized intervention plan is made up of 4 sections: general objectives, specific objectives, developed concrete activities, strategies and the time allotted to each objective. The subject comes to the center three times a week, the therapy session lasts 40 minutes, and it will be worked individually and in small groups (3-4 children) in order to be able to intervene on child's socialization.

For *forming and developing the language*, it is intended to allot the longest amount of time and there were suggested the following activities:

- to practice some movements specific to the phono-articulatory gymnastics: to make imitative movements of wiping the lips with the tongue, putting out his tongue, putting his tongue in the mouth, puffing out his cheeks with the tongue, blowing out strongly;
- to develop the phono articulatory apparatus and exercise the respiration: to open/ close his mouth, to blow out the candles, to blow out a flake until it flies;
- to utter some sounds: to utter sound through imitation – reproduce vowels (“a”, “e”, “o”, “u”, “ă”, “î”), to repeat different sound after being uttered by the adult;
- to develop the non-verbal communication skills: to imitate and decipher the significance of different pantomime gestures: imitation games, combination of mimicry with pantomime-gesture;
- to develop the oral language (lexis and semantics) by using the simple words correctly with the adequate sense, by using the vocabulary proper to certain communication needs: reproduction after an adult of their name, of the name of his brothers, mates, nursery school teachers, objects from the environment, food, vegetables, fruits, items of clothing, seasons;

On the *cognitive level*, there were suggested the following activities:

- to develop the thinking and attention efficiency on a given task: to identify objects, images from a given multitude, to group the objects by some criteria: size, shape, color, to reconstitute the whole, to observe the main characteristics from certain pictures, to identify images according to the group to which they belong;
- to develop the knowledge and the sensorial stimulation: to know and identify the objects for personal use, the geometric shapes, to note the difference of temperature (warm/ cold);
- to develop the cognitive-ludic behavior and organize the knowledge through pre-learning games: manipulation games, games of movement, learning of some primary concepts concerning the object properties, exercises – play for learning the learning structures
- to organize the knowledge through learning and post-learning games: entertaining games.

For *stimulating the fine and global motricity* the following activities were suggested:

- to tear the leaves, pick the grapes from a bunch one by one, grasp with his finger small objects, string pearls, thrust pins
- to initiate complex ludic behaviours which should lead to the valorization of the motric-perceptive operational structures: the movement of the hands, feet, “dance with me”, the “alphabet”;
- the Marianne Frostig's motric-perceptive compensation program: coordination of the fine movements by realizing the thematic cutt or by carrying on he usual activities (catch the ball, run with the balloon, avoid obstacles).

To *practice the movements specific to the phonoarticulatory gymnastics, develop the honoarticulatory apparatus and practice breathing*, the activity is carried on in the cabinet by using the imitation and demonstration method until the subject is able to fulfill the tasks. The subject is asked to realize through imitation the movements of wiping the lips with the tongue, putting out/ in the tongue, puffing out the cheeks with the tongue and air, closing/ opening the mouth, blowing out the candles strongly. He is asked to imitate/ repeat sounds after the adult (vowel, imitation of

the sounds made by animals). The subject is not receptive to this type of activity. The voluntary effort has to be sustained by repeating the instruction, using a firmly tone and the reward (he has a favorite plush bear with which he is allowed to play and keep by his side). The utterance of sounds is realized in front of a mirror, and after 4 sessions, the subject manages to utter correctly only the vowels “a”, “e”, “i”, “o”, “u”. In case of the objectives which aim at developing the non-verbal communication, the skills of imitating and decoding the significance of different gestures, there are used games which combine the mimicry and gesture: “How do I greet?”, “How do I feel if ...?”, “The sad boy”. Almost all the time, the subject took part in the activity actively. It seems he likes the non-verbal communication. There are cases when, being tired from kindergarten, he cannot be receptive any more and the session is interrupted. He can now understand and reproduce the face of a happy/ sad person when asked. The gestural expression is outlined very well.

*To develop the oral language (lexis and semantics)* by using some simple words correctly, with their proper sense, by using a vocabulary proper to some communication needs, there is needed much more time: reproducing after an adult their name, the name of his brothers, sisters, mates, nursery school teachers, objects from the environment, food, vegetables, fruits, items of clothing and for personal use, season. The subject doesn't show much interest in taking part in this activity, insistence and repetition is needed. He becomes agitated and tends to stand up. After much more sessions aiming at developing the language, Bogdan knows his name, how old he is. However, when asked, he shows his age by using his fingers. If he is asked what the name of a person from the room is (for instance, the name of the observer), he doesn't answer, but he makes the connection between the name and the person (when asked to show him, he indicates the correct person).

*On the cognitive level*, there are used activities of playing, building, cutting, drawing, matching, grouping. The knowledge development and sensorial stimulation helped the subject to know and identify the characteristics of certain objects for personal use, toys, geometrical shapes, to recognise the difference of temperature (warm/ cold), weigh through games like “How does it look ...?”, “What is this used for?”, “Search the image of this object!”, “Pick the ... cup”, “Where is much more ...?”, “Make the difference ...”, “Measure ...”, etc. The subject learns to make the difference between warm and cold, notices the weigh differences at the end of the session, but he forgets them until the next session. He recognises the circle, square, makes the difference between the trousers and blouse and knows how to use them, makes the difference between the left and right foot only after the drawings made on the shoes, he learns that the cup is used for drinking, that the spoon and bowl are used for eating, he finishes eating and drink alone from the cup. He knows which is the fork but there are chances to get hurt and it is taken from his visual area. In order to develop the efficiency of thinking and attention, there are used pre-learning games – manipulation games: “Put them in the correct order!”, “Groups of ...”, “The game with the balls”, grouping the objects according to a certain criteria: “Match identical objects and images”, “Group/ Match by size, colour, shape!”, “Rebuild the whole!”. In the beginning, when the subject was being asked to find an object by the colour criteria, he couldn't do it unless you made him the connection with another object. For instance, when he was being asked: “Find the yellow balloon”, he was indicating the green one; “Find the yellow balloon like the banana”, he was indicating correctly. After a few sessions he makes the difference by colour, shape and size, he match the images correctly (not a very big number of elements), he reconstructs an image made up of 3-4 pieces.

*The fine motric development* was realized by tearing/ picking up activities (tearing of leaves, picking up the grapes from a bunch and putting them into a box) and catching activities, by linking some points, stringing pearls, thrusting pins.

*The oculomotor coordination* was stimulated by the introduction of some geometrical shapes. He had to follow a given route (labyrinth), colour an outline, stick, build (cubes and Lego pieces), draw through imitation a horizontal/ vertical line, or in the shape of V, model a plasticine. In the beginning of the programme, it was almost impossible to work with him as he couldn't maintain and fix his attention for a long-time and he was agitated. With patience and rewards (he likes chocolate very much), he was settled down. After a while, the subject can follow a given route or keep the outline approximately, and realizes graphical signs of reduced complexity. He started to write the letters by using dotted limits. He needs physical support, rewards and encouragement to carry on the practical activities.

There are initiated complex ludic behaviours leading to the valorisation of the motric - perceptive operational structures: the movement of hands, feet – “Dance with me”, “Move your hands/ feet”, “The umbrella”, “The

blouse”, “The scarf”. The Marianne Frostig motric – perceptive compensation programme is applied through the following activities: coordination of fine movements of thematic cuttings, usual activities – *catch the ball, run with the balloon, let’s group by size, search the route*. The subject answers properly to the verbal instructions, keeps the visual contact, doesn’t ask for help, cooperates with the examiner. After a month, the subject realizes almost all the repeated actions when asked.

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