

STAGES OF DEVELOPING COGNITIVE BEHAVIORAL STRATEGIES FOR CHILDREN WITH AUTISM (programming, control, information processing)

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Pedagogic work with autistic children should not only take into consideration, but also (within certain approaches) **use some peculiarities of their cognitive activity**. There is a wide-spread notion that, generally, autistic children are extremely aloof from outer world. In our opinion, it is more correct to say that they are hypersensitive to sensory emotional, visual, and auditory stimuli of the surrounding world. Such children **perceive all events with their sensory content, but they are not quick enough to proceed and structure the information**. As a result, the environment turns into chaotic superstimulation, and the child spends a lot of energy on keeping a high level of protection, which really gives an impression of an unsociable person. In addition, it quickly leads to energetic exhaustion. Second, because of **sensory vulnerability**, such children experience difficulties accommodating to changes in the environment. On the one hand, the difficulty to adapt is their disadvantage. On the other hand, once having adapted, children with autism feel protected in stable and predictable environment, trying to preserve its stability. And this advantage can be used in pedagogic work with such children. Besides, as a result of behavioral conservatism, the problems that such children experience are steady and systematical. The latter allows for better predicting their behavior and early detecting the problems that need to be solved.

These basic **peculiarities of an autistic child** (sensory vulnerability and behavioral super-conservatism) can be effectively and adequately **used (corrected) within neuropsychological rehabilitation, since it is neuropsychology that serves a mediator between the brain and the behavior**.

Accordingly, it is neuropsychological analysis that can provide a comprehensive explanation to a broad spectrum of behavioral reactions and symptoms of an autistic child, which, otherwise, seem to be quite independent and not interrelated.

Autistic children especially need neuropsychological assistance. Instead of just noting some mental impairments, it allows an educator to analyze and diagnose symptoms in order to find out what particular structural and functional component suffers primarily and causes insufficient development of a certain higher mental function. Then, (based on a deeper factor analysis) the individually-oriented strategy and tactics of developing education should be planned taking into consideration the diffuseness and plasticity of a child's functional systems, as well as the opportunities to organize the mental process at different levels of brain hierarchy (T.Akhutina, L.Yablokova, L.Sohnson).

Today, **neuropsychologists are developing several directions in the developing education:**

1) **"The replacing ontogenesis"**. Here, intensive impact on sensomotor level is made in compliance with the general rules of ontogenesis. It activates the development of all higher psychic functions of a child (A.Semenovych et al.). In methodological terms, this approach is an adapted version of the basic body-oriented mental techniques (optimizing the general body tonus; broadening the sensomotor scope; developing attention skills and overcoming the stereotypes, etc.). The application of these techniques requires simultaneous working with affects, perception, and activity. This approach is considered as the basis for developing social communication and all mental functions.

2) **"The process of interiorization"**. Within this approach, an impaired function is objected, taken outwards, turned first into an external and then into an internal activity. In this case, the educational process should either increase the load on a weak function, or adjust a child to the defect (Kirk, Reitan, Y.Symernytska, Y.Matiuhin).

3) *Complex approach towards developing education.* This direction combines “*the replacing ontogenesis*” and “*the process of interiorization*”. It provides for developing an impaired element of cognitive activity, relying onto the strong elements during specially organized work. Such interaction takes into account the general rules of the interiorization process, as well as the weak and strong elements in functional systems of a child when emotionally involving him/her into the interaction process.

Although acknowledging the positive results of each of the above-mentioned approaches, we think that several other neuropsychological theories of autism should be the center of attention in the context of our task to settle the issues of education and development of children with autism. Each of these theories recognizes some neuropsychological disorder as the crucial one, which partly explains different combinations of symptoms and behavioral peculiarities of autism. For instance, the theory of regulatory dysfunction considers autism as a manifestation of the primary impairment of the ability to program and control one’s behavior. The theory of the weakened central cohesion argues that an autistic person processes cognitive (as well as perceptive) information in portions, not integrally. The latter causes quite a lot of peculiarities of both behavior, and cognitive strategies, typical of autism.

The scientists admit that a common explanation of various manifestations is possible (if possible at all) exclusively if based on an analysis of biological and neurobiological processes (Minshen, 1997; Pennington, 1997). However, today it has been proved that the impaired functions of programming and controlling, the social aloofness and motor stereotypes of autistic people can also be efficiently explored, explained, and corrected ***within neuropsychological approach*** (Pennington, 1997). Here we consider those neuropsychological findings which do not claim that all forms of autism are caused by one disorder only. In other words, it is suggested that brain affections of autistic people most probably have a diffusive, non-local nature (Minshen, 1997). ***This suggestion***, set as a basis of developing education of autistic children, ***will require both functional and topical diagnosis of a disorder***. However, it is known that topical diagnosis of children is a complicated task (N.Korsakova). Therefore, a psychologist or teacher can ***determine the strong and weak partial mental disorders of an autistic child using neuropsychological methods, and thus organize further task-oriented work***.

Proceeding from the stated above, we consider that a program of developing education for autistic children can be based upon the following explanatory ***neuropsychological models of autism***:

- theory of the regulatory dysfunction;
- theory of the weakened central-force interaction;
- limbic theory.

The above mentioned disorders obviously have a primary role according to these theories.

I. ***The key thesis of the theory of a regulatory dysfunction is the impaired ability of autistic children to program and control their behavior*** (Damasio and Maurer, 1978; Rumsey, 1985; Baron-Cohen, 1985; Russell, 1991; Ozonoff, 1997 et al.). Although it is traditionally regarded that the ability to program and control appears at a rather late children age, today there is increasing evidence that this ability forms and develops during early children age and pre-school period (Gerstadt, 1994; Hughes, 1998 et al.). This enables a child to overstep the limits of an actual situation so that he/she could direct his/her behavior, guided by a future goal. ***The ability to program and control includes*** closely-related, but ***different mental operations***: planning; processing the information that is kept in short-term memory; supporting one set of notions and switching from one set to another; inhibition of certain reactions. Together, these operations form a unified system which is universal (without its own product) and which differs from such basic functions as perception, memory, speaking, and sensation.

Taking into consideration such a complicated situation, we particularly focused our attention on neuropsychological approach towards cognitive and behavioral autistic disorders, when developing *the Concept of development, education, and socialization of autistic children*.

For instance, in order to plan the directions for pedagogic work, it is important to proceed from the evidence that the detected ***disorders of programming and controlling within this type of developmental disorder can be caused by affections of the same cerebral systems***; i.e., they can

be caused by the same neuropsychological disorder (O. Luriya, 1947; T. Akhutina, 1979, Semenovich, 2002, Rumsey, 1985). Accordingly, it is the impaired functions of programming and control that lead to painful integration and taking into account the whole situation with its peculiarities. They also cause disorders of selective attention to essential aspects of the environment, as well as inductive logics disorders. Therefore, **forming and developing the functions of programming and control will help to enhance the ability of an autistic child to participate in social communication which requires prompt evaluating and selecting appropriate reactions to continually changing information.**

Significant is the conclusion of neuropsychological research (Wimmer and Perner, 1983, Baron-Gohen, 1985) that it is the disturbed function of programming and control that causes abnormal understanding of another person's feelings and behavior. From this point of view, serious deviations of an autistic child in social area are caused by a specific disorder, thus having a partial character as an impaired skill of social learning. In its turn, the **lowered ability of children with autism to interpret feelings of others also indicates a broader disorder of programming and controlling processes. This disorder penetrates into all spheres of a child's life and can determine evident social disadaptation**, typical of autism. The research underlines the lowered ability of autistic children to alter cognitive aims and oppress their reaction to bright, appealing stimuli (thus being flexible in cognitive terms).

When realizing the mentioned ideas in teaching, it is important to take into account that successful activities are not determined only by the level of the existing cognitive operations, directly connected with the programming function. It is also necessary to take into consideration: the level of an autistic child's notions about the differing qualities of objects and phenomena; the designation of the classifying principle on the basis of the received feedback; the level of selective attention to the qualities which are the basis for logical operations; the ability to oppress an urge towards activity according to the primarily proper principle and the ability to reorganize the cognitive system. This is the reason why more recent research of autism (Feinberg, Faran, 1997) **concludes on the necessity for teachers to apply the ways of forming the ability to process information using neuropsychological methods. These methods take into account the differentiation between impaired and preserved components which are part of the programming and controlling function.** Here, special significance is given to forming such components of programming and control, as: **the ability to switch from one cognitive aim to another; the inhibition of inadequate reactions and development of the working memory.**

For instance, there are important data (obtained by using various research methods) asserting that autistic children have **the biggest problems with their working memory and inhibition of side reactions** (Heqhes, 1996). In order to alleviate (eliminate) these disorders, it is necessary to develop and apply special knowledge aimed at developing the ability to keep in the working memory the reaction rules while simultaneously oppressing impulsive reactions.

Following the classic concept of O.Luriya (1971) on the role of verbal processes in the development of the programming and self-control function, the latest research (Russell, 1997) stated that autistic children may have **a considerably weaker ability to use endophasia for keeping a sequence of regulations, application of rules, etc. in their consciousness**, i.e., to regulate their own activity. Even having relatively sufficient knowledge of grammar and vocabulary, autistic children with abnormal endophasia experience difficulties adequately selecting and combining words and sentences in real communication. In other words, the knowledge of formal syntax and semantic speech constructions does not guarantee efficient and adequate communication for an autistic child. In order to increase the efficiency of communication, it is necessary **to apply special methods strengthening the link between what is being said and the social and linguistic context.**

Therefore, on the basis of contemporary neuropsychological research within the theory of regulatory dysfunction, we think that **the development of the programming and controlling function of autistic children should be conducted in the direction of stimulating communication and social behavior of such children. It means: forming the ability to integrate and take into consideration a big number of contextual peculiarities, to promptly evaluate and respond to the received information, to interpret the feelings of others.**

II. **The theory of weakened central-force interaction** is also important for designing a program of development, education, and socialization of autistic children. Basing upon the principles of Gestalt psychology, this theory suggests that **autistic people undergo a destruction of the “congenital disposition”, which means an impaired ability to produce long interrelated stimuli out of separate stimuli**. At the same time, the generalization of various contexts suffers (for example, according to Frith (1989), the ability to notice similarity between a new situation and the previous ones). It is regarded that **such disorders are a result of the dominant fragmental (successive) processing of information when complex stimuli are perceived as a collection of separate elements instead of a coherent whole tied with a common meaning**.

As a result, an autistic child reveals: a tendency to focus attention on separate qualities of an object instead of using this object adequately (for example, revolving wheels of a toy car or picking out the eyes of a doll); strange and unusual obsession by objects (for example, drawing-pins, nails) that usually do not draw much interest; hypersensitivity to insignificant changes in the environment; the interests which prove a sufficient level of the child development (for example, the interest in geographic facts), but which are formed in isolation from the rest of the child's experience. It has been found out that such behavioral peculiarities are manifestations of the weakened central interaction. The latter ranges from the impaired ability to link separate signals into a single image to the disability to integrate diverse information at semantic level.

This theory also **explains the following peculiarity** – the different intensity of disorders of different cognitive functions, especially **when autistic children have “islands of outstanding abilities” in the general background of lowered intellect**.

These research results allow us to consider **the possibility of using teaching methods aimed at involving the perceptual organization of autistic children and their ability to do mental operations with non-verbal information** (Lezak, 1995). In this situation, it is significant that an autistic child notices only some part of a given object (phenomenon, quality, etc.) instead of a whole unity. Accordingly, the fragmental strategy of autistic perception should be taken into consideration, as well as the lowered tendency to see an object as a whole thing which is typical for an ordinary person. In other words, when working with autistic children, it is necessary to remember that they have an abnormal synthesis even at the elementary level of perception.

Another research method exploring the central cohesion of autistic children has determined that **such children process information relatively independently from the context** (Friht, 1994, Baron-Gohen, 1997). This condition requires targeted work to form a mechanism of linked interpretation, which will help to unite diverse information into a single unity, meaningful for an autistic child. Accordingly, the development of the cerebral mechanism of central cohesion depends on the level of the ability to simultaneously process both verbal and imagery-visual information (Benovitz, 1990). At the same time, according to Happe (1990) and Riven (1995), a fragmental strategy of information processing and learning is used (i.e., successive processing of information), which impedes the development of a more economical and efficient simultaneous strategy. For example, this very strategy is necessary to accelerate picking out the main meaning in verbal information, instead of making a detailed analysis of some word from a verbal message or some letters constituting the words in that message.

In our view, the theory of weakened central cohesion is the most promising for explaining all unusual abilities, as well as heavy disorders of autistic children. Although this theory still has to prove that different mental disorders of autistic children are a sort of disorder at the common cerebral level, we are inclined to think that it is correct. Besides, the research by O.Luriya (1947, 1963), O.Luriya and L.Tsvetkova (1974), and others has found out that such mental functions, as counting, constructive praxis, visual-creative thinking, comprehending “inversed” logic-grammar constructions, etc. are based on simultaneous structures. Our research (1997, 1999) has also confirmed that insufficiently developed simultaneous synthesis impacts negatively on the formation of internal schematization (“internal geometry”) of autistic children. And this disables implementing logic-grammar relations. The development level of successive synthesis determines the development of dynamic patterns and denervation processes, without which “kinetic melodies”, providing smooth

speech and intellectual activities, cannot shape. These data provide a potential basis for **early predicting possible peculiarities of kinetic nature of various mental operations and actions** (emotional, speech, thinking, listening control and attention, auditory and speech memory), as well as **difficulties for autistic children to understand complex logical and grammar structures, to do constructive and creative activities, to count, or difficulties of visual-spatial memory development**. If the developing and preventive work takes into consideration the qualitative characteristics of the prominent deficiency of a simultaneous structure, it will require using relevant methods and technique to teach and socialize autistic children.

III. The limbic theory is a combination of several theories (biological, neuropsychological, and behavioral) that **emphasize the connection between the limbic system and autism**. The limbic part of the brain is of high interest for autism theory because it is closely connected with social and emotional functions of a person. Each of the five basic structures of the limbic system influences the quality of education and development, since it is this system that works out emotions (A.Syrotiuk). Thus, the thalamus works as the “distributive zone” for all sensations entering the brain; it transmits locomotive impulses and takes part in emotional and memory processes. The hypothalamus is responsible for behavior in extreme situations, manifestations of aggression, pain and pleasure. The amygdaloidal body coordinates reactions of fear and anxiety, caused by internal signals. The hippocampus uses sensory information to fill short-term and long-term memory. The basal ganglion helps to control fine motor coordination of the muscles of the face and eyes that represent emotional states; it coordinates the thinking processes which take part in planning the sequence and congruence of successive actions.

Therefore, **it is the limbic system that enables a child to establish social links, to form complex emotions with social components (anger, sadness, joy), and further to develop such subtle feelings, as love, altruism, empathy, happiness. The limbic system provides combination of sensory and motor patterns with emotions, and it creates memory.**

Scientists relate the nervous patterns, shaped during the first five years of a child's life, with the brain centers (temporal and cervical), which provide the material basis for individual thinking, memory, abilities, and behavior. **Each person has specific and unique nervous patterns, that's why it is necessary to plan individual programs of education and development for each child**. In addition, the limbic system, providing a synthesis of motor-sensory patterns of emotions and memory, promotes the development of imagination (K.Hannaford). The latter is regarded by A.Einstein to be more important than knowledge, since “knowledge tells us about everything that exists, and imagination – about everything that will be.”

The investigation into the limbic system of **autistic children has found out that the preserved ability to directly reproduce the material** (Bartak, 1975) **is accompanied with the lowered ability of deferred reproducing the perceived knowledge** (Boucher, Warrington, 1976). These results should be used as fully as possible when creating methods and teaching manuals for education and development of autistic children. Later research (Benneto, 1996; Mishew, 1997) has verified that autistic children have considerable difficulties organizing the material; they also have **peculiarities of the memorization strategy** (similar to the syndrome of regulatory dysfunction) that demand relevant correctional influence.

Bachevalier (1994) proves that **it is the limbic system disorders that play the key role in early autistic manifestations of social behavioral disorders** (passivity, the absence of initiative when interacting with other people, weakened eye-contact, the depletion of mimic and body expression, etc.). A series of the subsequent research by Dawson (1998) of the role the limbic system disorders have for autism helped to find out the role of this system for autism. The scientist found out that autism is characterized with both the disrupted programming function (delayed responding), and the disrupted function of the limbic system (sensory and motor reactions, social and emotional functions).

The analysis and generalization of the above-stated materials provide a basis for establishing several directions in the program of developing and preventive education of children with autism:

1st direction covers *the formation of all levels of information processing; i.e., it corrects the*

regulatory dysfunction of autistic children.

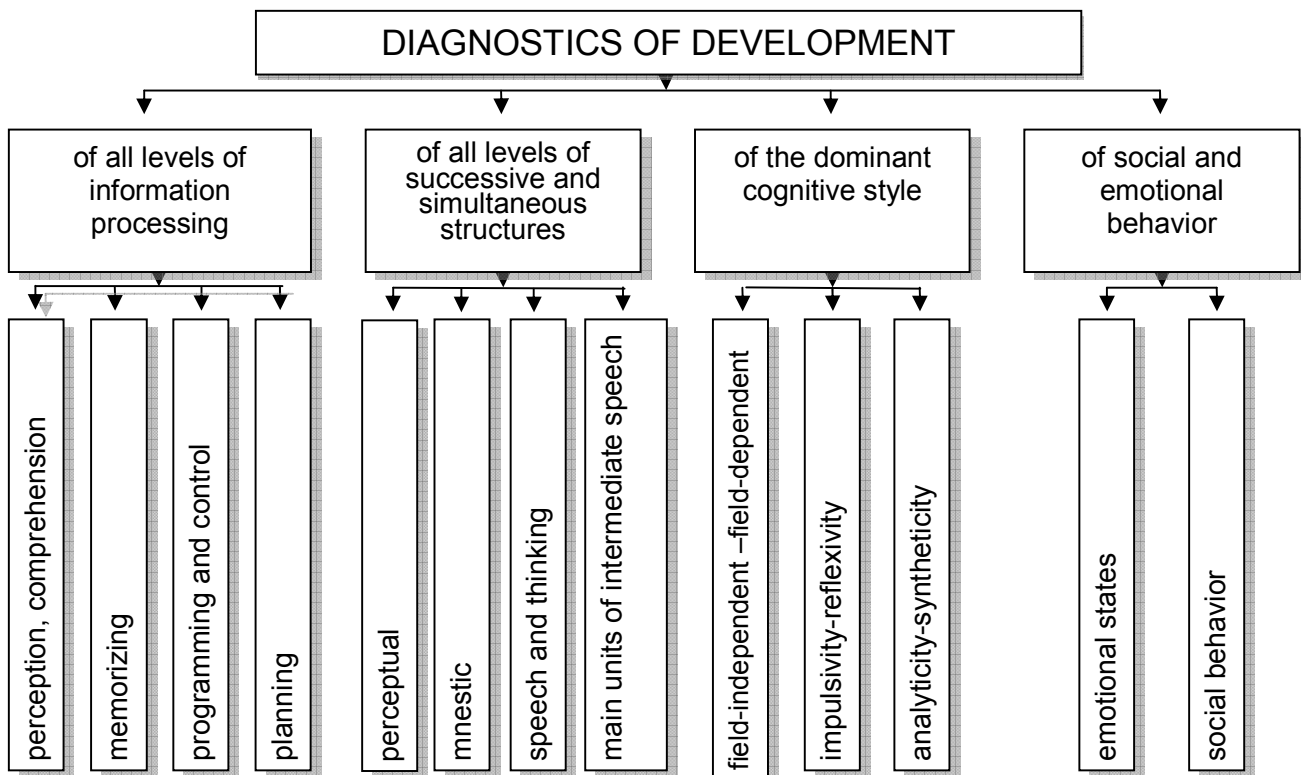
2nd direction aims at disorder ***propaedeutics of the controlling mechanism of information processing and action planning***; i.e., it aims at forming *the central cohesion*.

Thus, the 1st and the 2nd directions of the pedagogic work provide correction of *cognitive disorders* of autistic children.

3rd direction aims at ***overcoming social behavioral disorders*** of autistic children that are regarded to be connected with dysfunctions of the limbic patterns. *Upgrading the ability to interact socially* will strengthen programming and control functions.

4th direction – preventive, correctional and developing education – aims at facilitating the process of acquiring knowledge and skills that are offered by individual curricula for autistic children. Since we do not consider the theories of autism (regulatory dysfunction, the weakened central interaction, the limbic theory) as competitive, but as complementary, the content of preventive and developing education must include **a preparatory stage**. We especially emphasize the importance of the preparatory stage, because taking into account the fundamental principles of the above-mentioned theories will enable a teacher to promptly predict, prevent, and correct cognitive and social behavioral disorders of autistic children. Such work establishes a basis for successful pre-school and school education of children with autism. The stages of education of autistic children will constitute several major modules. Their content is briefly represented below in the *diagram* and *tables*.

Module 1. Diagnosing the cognitive field and social-emotional behavior patterns



So, the portion of work represented in this diagram includes:

- diagnosing autistic children concerning the development of the function of programming and control;
- evaluating the ability to plan;
- evaluating the maturity (or disorders) of basic types of synthetic structures;
- evaluating the development of the main units of intermediate speech (Gestalt and frame);
- defining the form of activity that is the most convenient for a child;
- defining the dominant emotional system.

Table 1.

Module 2. Formation of a single, universal, highly-organized system of information processing

| Directions of specially organized developing work | System of methods |
|---|--|
| <p>A. Formation of all levels of information processing and a mechanism to regulate this process.</p> <p>1. Forming the functions of perception, planning, and control (music, clay modeling, dancing):</p> <ul style="list-style-type: none"> ■ developing the skill to keep a program of activities in one's memory; ■ forming the idea of order, sequence of actions within some activity; ■ forming an integral notion of the interrelation between individual actions; ■ developing the basic concepts (a row, interchange, switching); ■ selective responding to one out of two and more stimuli. <p>2. Development of the ability to keep continually changing information in one's consciousness:</p> <ul style="list-style-type: none"> ■ activating the working memory as a component of the functions of programming and control; ■ forming the ability to inhibit inadequate reactions. <p>3. Self-control development. Formation of the ability to use endophasia for:</p> <ul style="list-style-type: none"> ■ keeping in one's consciousness the conventional rules and regulating one's behavior on their basis; ■ providing the transition from external regulation of behavior (instructions) to self-regulation (internal regulation), as well as to higher forms of verbal regulation (planning the next actions). | <p>When overcoming disorders of programming and control functions, use methods which expand the programming process to the maximum, providing a transition from activities within external material (external plan) to their internal forms. The work is done in interactive form: from joint activities of a teacher and a child to create and realize a program by external plans – to activities with initial assistance from a teacher (if a child faces difficulties) – and independent realization of the program. A system of methods should ensure a broad choice of the difficulty of the material.</p> |
| <p>4. Formation of cognitive flexibility. Transferring the developed program of actions to:</p> <ul style="list-style-type: none"> ■ new stimulating material (intra-parametric transfer); ■ changed stimulating material, while simultaneously redesigning the program of responding (extra-parametric responding). | |

| | |
|--|--|
| <p>B. Overcoming the impairments in the central cohesion function</p> <p>1. Reducing the fragmental strategy of information processing:</p> <ul style="list-style-type: none"> ■ forming the ability to coherently process information producing long series of interconnected stimuli; ■ alleviating the child's compulsion to be obsessed with a single quality of an object or phenomenon; ■ forming the ability to generalize various contexts into a single unity; a "holistic" approach; ■ improving the ability to see a figure as a whole thing; ■ improving the ability to semantically process information. <p>2. Correction of behavior peculiarities as manifestations of the weakened central cohesion:</p> <ul style="list-style-type: none"> ■ lowering the hypersensitivity to changes in the environment; ■ lowering the tendency to be obsessed with insignificant objects; ■ introducing selective dominant interests into the general experience of a child. <p>3. Development of general invariant acts and operations:</p> <ul style="list-style-type: none"> ■ forming the internal schematization; ■ improving the generalized dynamic schemes and denervation processes; ■ forming the basic elements of intermediate speech (Gestalt and frame structures). | <p>When overcoming disorders of the central cohesion function, use a system of methods aimed at developing: a reference basis for visual actions; a holistic and analytic strategy of perception; the link „a visual pattern – a word”; visual-gnostic and visual-mnemonic processes. Various strategies of visual gestalt perception should be applied.</p> |
| <p>C. Utilizing the dominant cognitive style of a child in processing various information</p> <ul style="list-style-type: none"> ■ taking into account the shaped cognitive style of a child (both habitual and domineering strategies) during various activities aimed at: problem solution; conceptualization of life experience; process organization; ■ ensuring that the domineering cognitive style of a child is correlated with educational peculiarities (e.g., remembering that the field-dependent are better at factual questions, and the field-independent – at logical questions, etc.). | <p>For various kinds of activity, the information about the domineering cognitive style should be considered, in particular: whether a child needs positive motivation or not; is he/she an active participant or observer in educational process; does a child use the essential qualities or not; are the decisions taken quickly, adequately, after some thinking or not; does a child pay direct attention to external or hidden, additional object qualities; does he/she absorb material through element-by-element or partly holistic approach.</p> |

Table 2.

Module 3. Formation of social and emotional behavior

| Directions of specially organized developing work | System of methods |
|---|---|
| <p>A. Formation of emotional states:</p> <ul style="list-style-type: none"> ■ developing the ability to quickly differentiate basal emotions; ■ developing eye motility in response to emotional stimuli; ■ correcting negative subsystems of a child's emotional and personal field; ■ developing the emotional status (a complaint, an attitude towards one's state). | <p>When forming emotional states, apply: primary analysis of the emotional state; direct and indirect evaluation methods; projective methods; verbal and non-verbal methods (judging by a facial expression, the method of semantic differentiation).</p> |
| <p>B. Development of social behavior:</p> <ul style="list-style-type: none"> ■ forming initiative when interacting with other people; ■ preventing the avoidance of social interaction; ■ improving eye contact; ■ enriching mimic and body expression; ■ forming the ability to adjust one's behavior to the social environment; ■ forming the potential for affective manifestations; ■ developing the ability to imitate behavior of other people in a direct or delayed way; ■ developing the skills for symbolic play. | <p>Developing the ability: recognize already seen objects (delayed reproduction); imitate behavior of other people in a delayed manner; carry out joint activity with one or more people (a child – the mother; a child – a teacher, etc.); to engage in symbolic play.</p> |
| <p>C. Formation of basic socialization phases:</p> <p>1. The phase of interiorization:</p> <ul style="list-style-type: none"> ■ acquiring information in the form of knowledge, skills, norms, behavioral patterns, or values; ■ acquiring the technique for overcoming difficulties in problem situations; ■ mastering the environment rules („adjusting to the environment”, „changing the environment”); ■ acquiring specific social knowledge on how to play certain social roles; ■ obtaining the knowledge on the ways of human interaction in different circumstances; ■ forming the knowledge and skills of selective memorizing information from another person; ■ forming the knowledge and skills to interpret behavioral rules; the skill to adjust one's behavior depending on the circumstances. | <p>Forming the knowledge on general and contextual ways to overcome difficulties in interaction; applying the methods which make it easier for the children to master knowledge, skills, and norms of social life.</p> |

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|---|---|
| <p>2. The phase of adaptation:</p> <ul style="list-style-type: none"> ■ forming the behavior adjusted to the requirements and expectations of society (from dependence to full independence and admitting one's certain responsibility for the well-being of others); ■ developing the ability to shape the events into one's desired direction; ■ developing the insight skills for determining the peculiarities of the group members; ■ preventing the difficulties of spontaneous adaptation; ■ acquiring the ability to reconstruct a proposed situation in order to use it for one's own purpose. | <p>Forming the flexibility necessary for accepting new conditions; the ability to use the circumstances to achieve one's goals and intentions; developing initiative, the ability to take decisions, set one's own future prospects; involving interaction forms that are the most convenient for a child socialization; planning a fully individualized way of socialization of each autistic child.</p> |
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Summing up the material stated above, we should note that introducing this broad program of developing cognitive behavioral strategies of children with autism certainly requires consolidated efforts of teachers and families.