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METHODOLOGICAL ASPECTS OF SUPPORT FOR NON-SPEAKING CHILDREN USING ALTERNATIVE COMMUNICATION SYSTEM

Abstract. The article deals with the issues of teaching children with disabilities, among whom ‘non-speaking’ children make up a considerable part, by means of supplementary and alternative communication. The authors provide a description of the system of pictographic code, the methods of teaching how to use the pictographic code, the sequence of formation of the need to independently initiate communicative contacts with the interlocutor via the means of alternative and (or) supplementary communication. The methods of rehabilitation-pedagogical work employing the system of alternative communication facilitate active interaction with non-speaking children and create conditions for their feasible socialization. In order to organize the methodologically accurate sequence of work with non-speaking children, the use of pictographic code in each concrete case allows solving the three problems highlighted in the article. First, while preparing children for socialization, it is necessary to teach them to decode numerous messages and communication signals coming in this form via various contacts with the environment. Second, it is important to promote children’s expressive speech. Third, it is necessary to involve children in alphabetical reading via replacing symbolic images by graphical images of letters.

The article describes the specific features of a code vocabulary. It is stressed that the words belonging to the same semantic group should express, as far as possible, one and the same idea. The symbols should reflect the broadest notions possible. The authors describe the background color for the pictograms worked out by them. Correlation of the word grammatical categories with the colored background is a special strategy aimed to teach functional ties between sentence elements through involving syntax. The

authors suggest a sequence of actions to teach the child to use pictographic code. The article singles out stages of work with pictograms, and describes exercises on the use of the system of pictographic symbols represented by two groups: exercises on acquisition of the system of pictographic symbols; exercises on application of the system of pictographic symbols.

Keywords: alternative communication; pictographic codes; pictographic symbols; children with speech disorders; speech disorders; logopedics; non-speaking children.

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Efficient use of supplementary and alternative communication systems allows providing children with linguistic knowledge, because while acquiring word usage skills represented by graphic symbols they learn to connect and organize these symbols, programming their utterances in this way.

The main tasks of teaching alternative and supplementary communication systems are the following:

- formation of the skills of visual and/or auditory concentration upon the speaking and/or gesticulating interlocutor, “speaking” and musical toys, realistic pictures, photos, and graphic symbols;
- formation of the skills to distribute attention between an object,

image, and symbol/symbols as means of communicative problem solving;

- formation of a wish or need to imitate emotional, gestural, pantomimic and verbal strategies of interaction with the interlocutor;
- formation of the skills to imitate everyday life, instrumental and game-based actions, ability to perform them in a certain order in various communicative situations (situation-personal, business-personal, object-oriented communication);
- formation of the skills to understand the essence and necessity of establishing communication and its consequences;
- formation of the skills to understand gestures, realistic images,

words, graphic symbols, their sequences, which are used to express direct address of one interlocutor to the other; activation of the child's non-verbal intellect;

- acquisition of the corresponding instruments of alternative or supplementary communication system;
- activation of the corresponding response strategies on the basis of the communication means already acquired;
- formation of the need to independently initiate communication with other people with the help of the alternative and/or supplementary communication means;
- automation of the elementary communicative skills acquired in various situations in accordance with the communicative aim (task) [1; 3; 5; 14; 16; 17; 19; 20].

The effectiveness of teaching application of alternative and supplementary communication may be ensured by provision of certain conditions:

- algorithm of acquisition and introduction of graphic symbols;
- formation of understanding of the meanings of the symbols introduced;
- realization of the opportunity to use the symbols learnt immediately to solve communicative problems;
- constant support and commentary of any communicative signal produced by the child;
- application of various forms of interaction;

- inclusion of teaching communication as an inseparable part of the child's life in the educational, rehabilitative and developing process and the process of family education;
- proper attention to the needs and interests of the child;
- combination of various tools of instruction;
- polysemantic nature of the symbols content;
- expansion of the range of communicative partners and communicative situations the level of variability of which is determined by their potential content actualized by the lexicon, arsenal and conscious acquisition of the communication means, the child's level of independence, object and nature of help, and the strategies of the communicative behavior stimulation [1; 3; 17; 19; 20].

Proceeding from the assumption that communication is a special kind of activity, all rehabilitation-pedagogical work should be organized in such a way that would combine the main components of activity in general: *motivational* (Why should the child get in communicative interaction?); *goal-setting* (What should they get in communicative interaction for?); and *executive* (How can they get in communicative interaction?) [15; 18].

The realization of the content of teaching communication is carried out in correspondence with the level

of formation and quality of the feasible communicative means, state of the sensory, motor and cognitive spheres, development of mimetic, object-practical, playing and signemic-symbolic activity and the personality traits of the child. Age-related criterion is not determinantal in the choice of the learning content.

The following communication means can be used: *motor feasible and motivated gestures; objects (their parts, miniature copies) possessing the features of tactile and/or olfactory similarity*, in the process of manipulating which children get information not only about the form, size and color, but also about the texture, smell, weight, temperature, etc.; *realistic images (pictures), photos and graphic symbols*.

The system of pictographic symbols (pictographic communication – PIC) is one of the effective means of teaching non-speaking children to communicate. It is based on the use of *pictograms* – special so-called nonverbal communication means, visual speech codes, which are regarded as primary communication means preceding the formation of linguistic communication means and constituting the necessary basis for their development, or as basic communication means.

The article highlights the issues of organization of communication via graphic symbols – pictograms. Pictographic communication (PIC,

pictograms) was worked out in Canada (Maharaj, 1980) [17; 20].

The term “pictogram” denotes representation of the written text by means of a picture. Pictograms can be classified according to many categories in correspondence with the object or idea they reflect. The advantage of using pictographic symbols – pictograms – consists in the fact that all participants of communication are well aware of such signs and can operate the same images.

The use of pictographic code in each concrete case allows solving three main problems. Let us dwell on them in more detail.

1. Preparation of children for socialization through teaching them to decode numerous messages and communication signals coming in this form via various contacts with the environment (in public places, everyday life, at a shop, etc.), which, undoubtedly, grants partial social independence.

2. Support (or, in severe conditions, substitution) of expressive speech.

3. Involvement of children in alphabetical reading via replacing symbolic images with graphic images of letters. And even if the pictographic code is not an obligatory stage of teaching reading, it might be considered a transition to it.

The structure of the code vocabulary reveals the *core vocabulary* (the major part of vocabulary, about

80% of all words, irrespective of the topic and the child's age), and the *peripheral vocabulary* (words supplementing the content of the lexical nucleus) ensuring possibility of differentiated communication on certain topics [2].

The volume of the code vocabulary represented by pictograms should be enough to allow the child not only to communicate in class, everyday life, at various offices, and at home but also to promote acquisition of building more complex grammatical constructions. This is closely associated with acquisition of alphabetical writing and reading.

Each pictogram should correspond to one or maximum two words, if in the latter case the notional word is used with a preposition and, together with it, denotes one idea. The code should be logical: the words belonging to the same semantic group should express, as far as possible, one and the same idea. The symbols should reflect the broadest notions possible (for example, the verb *est'* (to eat) should be applicable in relation to both animals and people, that is why we should avoid denoting it by the pictograms showing fork and knife).

The words of the code system are classified in accordance with the basic grammatical categories. Differentiation of the grammatical categories is based on the use of a colored background.

The background colors in the pictograms worked out by us are systematized in the following way: *nouns* – blue; *verbs* – red; *adjectives* – green; *adverbs, prepositions, conjunctions* – black [3; 4; 5; 6; 7; 8; 9; 10; 11; 12; 13]. Correlation of different parts of speech designated by one and the same symbol with the corresponding colored background is obligatory. Correlation of the word grammatical categories with the colored background is a special strategy aimed to teach functional ties between sentence elements through involving syntax.

Graphic symbols (pictograms) are to be accompanied by captions in the language of the user, in our case in Russian. This facilitates further teaching the child global reading. Graphic symbols providing information at public places make up a separate category of words.

Teaching on the basis of alternative system should be conducted in a way as if the child were taught to speak with the help of oral speech.

The first “step” in such teaching is affective communication emerging since the first months of the child's life. During interaction with the baby, it is necessary to watch if the child's posture is comfortable to see and hear the interlocutor. While communicating, the visual and tactile contact with the baby, constant support of interest, and commenting on their actions are especially important.

The sequence of activities during teaching the child to use pictographic code looks in the following way.

1. Acquaintance with the object (with the purpose of finding out if the child associates the name with the object correctly enough). Objects may have different textures. Models of objects can be used instead of real objects.

2. Correlation of the object with a realistic image – a picture (pictures should be clear-cut, bright, non-stylized).

3. Correlation of the object with a photo (these should be photos of real people and objects).

4. Identification of a symbol, i.e. correlation of a real object/realistic image/photo with a graphic symbol – pictogram.

5. Doing exercises on the use of pictographic code (exercises on involvement in code acquisition – exercises on the usage).

6. Use of the graphic symbols learnt in various communicative situations.

The first graphic symbols should reflect the objects or occupations preferred by the child and acting as stimuli motivating towards initiation of communication: for example, pictograms showing favorite toys, dishes, clothes, etc. Graphic symbols should be easy to perceive, recognize and “read”. As we have mentioned above, graphic symbols are to be accompanied by captions

facilitating teaching the child global reading and allowing the interlocutors to easily understand their meanings. The choice of the graphic symbols should be determined by the zone of proximal development and by the information obtained in the process of interview of the parents, specialists working with the child, and on the basis of own observation.

Further work on acquisition of new symbols is planned with regards to the zone of proximal development, which ensures the educative nature of the process of learning. The functionality of the pictographic code, i.e. the ability to turn to the symbols in case of need, is a most important element of teaching how to use it. The learnt symbols should be regularly reviewed lest they should be forgotten. New symbols are introduced incrementally. Not more than one new symbol is recommended to be presented at a lesson.

If necessary, the teacher-logopedist helps the child to operate the symbols in the technique chosen by them. Holding the child’s hand, they can help the child to take the necessary pictogram; point at the pictogram with the child’s finger; touch the pictogram with the child’s hand; point at the pictogram with their hand; name the pictogram; enumerate the pictograms emphasizing the right one with their voice; and urge the child to point at the pictogram.

Acquisition of graphic symbols and methods of transmitting graphic information is achieved via different ways: in the process of repeating after the teacher-logopedist; in the course of independent repetition of not only a familiar model but of the one not known so well; in the process of independent passing of graphic information.

The final goal of the work consists in the formation of the child's skills to use the alternative communication system as a learning and communication tool spontaneously and effectively.

A lesson is the organizational form of teaching alternative communication means. With reference to the stage and learning tasks, there may be diagnostic lessons; lessons at which children are acquainted with graphic communication means (pictograms); and lessons-trainings (learning how to use graphic means of communication).

The following sequence of work is recommended with the view of methodologically correct introduction of the child into the world of pictograms, and with the aim of teaching them to use this system of graphic symbols.

At *stage one*, the child gets to know the pictogram and establishes the relationship between the real object and its graphic image. Having shown the real object, the teacher-logopedist finds out if the child has formed a precise association

between the name and the object itself, whether they can choose and indicate the named object among a multitude of other objects. If the child performs the task correctly, the teacher-logopedist shows them colored pictures with the image of this object. In order to make the process of entering the world of pictographic images easier various posters with the images of different objects, kinds of activity, human emotions (faces), and the like are hung on the walls of the room the child lives in, and in the corridors and classrooms of the children's institution they attend. These images are accompanied by the corresponding pictograms, i.e. the symbolic images. Thus, aided by the teacher, the child learns to correlate the real object with its pictogram. This work should be started with the words and objects most familiar and significant for the child. And it should be remembered that the number of the pictograms introduced and the tempo of their acquisition by the child are determined by the level of their intellectual development (moderate or severe intellectual disability), and the individual ability to acquire new knowledge. Later on, it is recommended to pass on from the demonstration of images of separate objects and actions, from the establishment of relationship between the real image and the pictogram, to the creation of thematic pictographic

stands (about food, daily routine, spare time, etc.). This work is based on the idea of “The Scenery”.

While introducing the child to the world of pictograms, it is necessary to make sure that the child can correlate the real object with its graphic image. If the child is unable to produce the simplest vocal responses denoting affirmation or negation, it is necessary to find and reinforce the gestures feasible for them which would become the symbols of affirmation and negation.

The *first stage* of the work with pictograms is the time of expansion of the child’s vocabulary and accumulation of the maximum number of symbols for initiation of communication and learning, activation and development of the cognitive sphere of the child, and formation of preconditions for the development of verbal speech.

Stage two of the work with pictograms focuses on expansion of the child’s communication sphere with the help of communicative code. To solve this problem, we recommend keeping a diary of personal life of each child. The pages of this diary should contain a certain sequence of pictures, photos and pictograms supplemented with captions explaining the depicted situation. Such a diary helps the child to organize the process of interaction informing another person about an event important for them. Later on, the child can use the images from their diary

to send forth information about the events which are personally not significant but taking place in real life. Thus, the child develops a skill to transfer symbols upon other situations, i.e. the capability to pass on information and to widen the scope of communication is expanded. The work at this stage facilitates coherent nonverbal speech and improves and enriches communication.

At *stage three*, special attention is paid to grammatical structuring presupposing division of the sentence into words, answers to questions, teaching the child graphic symbols denoting the grammatical categories of gender, number, etc. The communicative code facilitates work both with the word and the sentence: its construction, grammatical formation, etc. At this stage, the child learns to select the right pictogram from the set independently. The child forms the ability to organize the pictograms into a logical sequence constituting grammatically connected sentences or short coherent texts. The use of nonverbal communication means under the conditions of purposive systematic pedagogical intervention stimulates the emergence and development of oral speech.

Thus, the system of work with nonverbal communication means targeted at the development of the child’s productive mechanisms of information procession as a basis for the formation of the skills of communicative behavior presup-

poses the initial formation of the concept of the sign (pictogram); formation of the generalized concept on the basis of the signs learnt; reinforcement of the skills of independent activity with the pictograms; and skills of independent orientation in the system of the suggested signs.

The exercises on the use of the system of pictographic symbols are subdivided into two groups: exercises on acquisition of the system of pictographic symbols; exercises on application of the system of pictographic symbols.

The system of exercises on acquisition of pictographic symbols includes nine categories.

1. *Recognition exercises.* Their aim is to teach the child to produce adequate response to the objects and abstract notions, perceived and named, independently or with the teacher's help using feasible means (verbal – to name, nonverbal – to take, point at, etc.).

2. *Reproduction exercises.* Their aim is to form the skills to denote several or all basic components of the named or perceived image verbally or nonverbally.

3. *Association exercises.* The skills of spontaneous or regulated expression of simple connection between two demonstrated objects or images are formed in the process of doing these exercises.

5. *Classification exercises,* presupposing the formation of the skills to

unite two (or more) objects and/or their images according to a suggested or independently chosen criterion.

6. *Correction exercises,* forming the skills to find and correct mistakes independently or with the help of an adult.

6. *Multiple choice exercises.* Their aim is to teach the child to choose the right pictographic symbols from a series which can extend the meaning of the sentence or text independently or with the help of an adult.

7. *Analysis and synthesis exercises,* aimed at teaching the child to unite various pictographic symbols into an "utterance". While doing such exercises, the child is to point at/name **what** they **particularly** include in the general meaning of this unity.

8. *Seriation exercises.* In the process of doing them, the child is taught to place series of pictographic symbols in a logically arranged sequence independently or with the help of an adult.

9. *Depiction exercises.* Their aim is to teach the child to express their thought using given pictographic symbols, and to depict the missing ones if necessary.

Exercises on application of the system of pictographic symbols are represented by two categories.

1. Exercises the execution of which needs simultaneous application of several operations previous-

ly formed while doing exercises on acquisition of the system of pictographic symbols.

2. Grammar exercises forming the child's notions about the morphological and syntactical structure of the language.

Acquaintance of the child with the sign-symbol and specification of its understanding goes along the following lines.

- Symbol identification. The teacher demonstrates the pictograms, for example, *eyes, nose, mouth, doll, cap* to the child one after another. The child is to recognize them and correlate them with real objects or their realistic images in the pictures.

- Choice of the right pictogram from a series. The teacher shows the child a number of pictograms (for example, *nose, mouth, ears, eyes*). The child is to recognize and point at the one the teacher has named (similar exercises can be done with other parts of speech).

- Choice of two identical pictograms from a series (for example, *doll – bear – car – doll; cap – cap – coat – dress; drink – eat – drink – play*).

- Choice of the identical pictogram from among a number of others. For example, the child holds the pictogram *cup* in their hand. The task is to place the pictogram beneath the identical one in the series (*plate – glass – cup – spoon – saucer*).

- Constructing sentences with the help of pictograms. The teacher places the pictograms denoting *a boy (girl), action (playing), toy (ball, doll, etc.)* in random sequence and pronounces the sentence: *I am playing ball (with a doll, etc.)*. The child is to place the pictograms in the sequence the words are pronounced in, in order to make up the needed sentence.

- Choice of the pictographic images of the sentence the teacher pronounces from a number of others. For example, the pictograms of the sentences *I am eating an apple* and *I am drinking tea* are set out in front of the child. The teacher pronounces one of the sentences, and the child is to point at the right pictographic image.

- Choice of the sentence the teacher pronounces from two sentences represented by pictograms. For example, the pictographic image of the sentence *I am dressing a doll* is placed in front of the child. The teacher pronounces two sentences: *I am dressing a doll* and *I am drawing a house* or *I am dressing a doll* and *I am feeding a doll*. The child is to point at the right pictographic image.

Special elementary communicative devices are created in the process of teaching: communicative diary of the child (thematic set of pictograms); communicative calendar; communicative board (including “choice board” and “wish

board”); visual routine and learning timetable which can be supplemented with a box of deeds done; communicative books; photo album in which photos are accompanied by the corresponding pictograms.

The content of special elementary communicative devices should ensure the child’s communication in various communicative situations and be determined by a joint effort of the parents and all specialists working with the child.

The use of visual material – pictograms – in learning allows pupils to master “reading” the information (with the help of the teacher) presented on thematic pictographic stands. Pictograms are also used at various game-based lessons, for example, in games and game-based exercises on recognition of the vehicles the pupils see in everyday life. Game-based and figurative verbal activities on acquisition of elementary rules of behavior in the street and on the road in the course of games using the elements of the game “Traffic Alphabet” (steering wheels, traffic light, traffic signs) are held using a pictographic scheme which includes various “Safety Signs”. While teaching children to cross the street on a pedestrian crossing when the lights are green, to recognize the traffic control signals and the pedestrians’ actions at the change of traffic lights, alternative and supplementary communication can also be

used: choice of pictograms reflecting the actions matching the traffic light signals. This activity, for example, can become a basis for a practical session “I am learning to be a pedestrian”.

A promising line of further work on the given method consists in creation of a “pictographic” reading book to the textbook “Alternative Reading for Children Using Alternative Communication Means”. Children’s works of literature or short stories specially made up by the teacher can be selected as a basis of pictographic texts.

Communicative books may be created for the children, and in partnership with them. A communicative book should contain a graphic instruction representing a certain situation: “Birthday”, “Visit to Grandmother”, “New Year Holiday”, etc. The child’s arsenal may include several topical communicative books with the help of which communication is promoted in various situations of communication (in public places, at educational institution, on a journey, etc.). It is recommended the communicative book should have “Contents” for better orientation.

A system of pictographic codes can become a basis for organization of not only communication but also education of children, their preparation for acquisition of reading and writing. If successful acquisition of writing presupposes a sufficient

level of development of morphological and syntactical generalizations, written grammar exercises facilitating the formation of children's ideas about the morphosyntactical structure of the language are offered to them after they have reached a certain level of cognitive and linguistic development. It is necessary to keep in mind the relationship between the core vocabulary and the peripheral vocabulary while designing communicative devices.

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