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A STUDY OF RESPONSE TO ONE'S NAME OF NEUROTYPICAL CHILDREN AND CHILDREN WITH AUTISM SPECTRUM DISORDERS

Abstract. The article describes the results of a pilot research of topographies of behavioral responses of 120 neurotypical children and 24 children with autism spectrum disorders (ASD) to their names. The paper provides the parameters of the study of the auditory stimulus (name). The article describes the topographies of behavioral responses to their names of neurotypical children and children with ASD. It summarizes the procedures of training conventional behavioral responses to their names of 24 children with ASD using DTT and shaping procedures of DRA. A neurotypical child may demonstrate diverse behavior depending on previous events, for example: looks at the speaker and joyfully runs to him; looks at the speaker and stops doing what he has been engaged in; looks at the speaker and hastily runs away. Children's responses to their names were studied in connection with the subject parameter: the child was called by name by close relatives (parents or foster parents) or siblings (78 children); the child was called by name by important grown up people who were not close relatives (teachers, other well familiar people); the child was addressed in a familiar environment by other children of their age; the child was called by name by strangers, whose role was played by volunteer assistants. As a rule, if there was no response the child was addressed several times with altered intonation.

Keywords: autism spectrum disorders (ASD), behavioral response, Discrete Trial Training (DTT), shaping, Differential Reinforcement of Alternative Behavior (DRA).

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The visually observed social response of children to their names refers to basic social habits which appear in ontogenesis at an early age. It serves as the beginning of many episodes of interaction with surrounding people. Children with autism spectrum disorders (ASD) often demonstrate both absence of a habitual response and a peculiar reaction to their names.

The following sequence of development of the child's response to their name as an auditory stimulus is formed in ontogenesis:

– as early as during the second half year of the first year of life the child expresses joy when they hear their name;

– by the end of the first year of life the child develops a conventional behavioral response to their name pronounced with different intonation;

– then there forms a differentiated response to one's name depend-

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ing on the consequences of pronunciation of the name by adults and the situation in which it took place.

A neurotypical child may demonstrate diverse behavior depending on previous events, for example:

– looks at the speaker and joyfully runs to him/her;

– looks at the speaker and stops doing what he has been engaged in;

– looks at the speaker and hastily runs away, etc.

In order to find out the visually observed components of a conventional response to one's name, we planned and carried out a pilot research of behavioral responses of 120 neurotypical children to their names at the ages from 1 year 6 months to 8 years 4 months. The basic method of research was direct nonparticipant observation with detailed description of topographies of behavioral responses of each child and the preceding or following stimuli (events). The study was conducted in the natural environment of the child's free activity.

We registered the topography of behavioral responses to one's name of each child by the subject parameter:

1) the child's was called by name by close relatives: parents (113 children) or foster parents (7 children), and siblings (78 children); if there was no response the child was addressed several times with altered intonation;

2) the child was called by name by important grown up people who were not close relatives (teachers, other well familiar adult people); if there was no response the child was addressed several times with altered intonation;

3) the child was addressed in a familiar environment by peers or other children;

4) the child was called by name by strangers, whose role was played by volunteer assistants; if there was no response the child was addressed several times with altered intonation.

In addition, the pilot research examined the spatial parameter of the response to one's name of each child. With this end in view, we organized communicative situations when the child's name was called by a person in the following positions:

1) in the near vicinity of the child (up to 1.5m);

2) in the same building;

3) in the street at the distance of 1.5 to 3 meters from the child;

4) in a different room;

5) in the street at the distance of more than 3 meters from the child (raising the voice in this case) – this parameter was excluded for 3 children under the age of 2.

The neurotypical children taking part in the pilot research and their siblings had not been informed about the purpose of observation and its procedure. The parents or foster parents of the children had been informed about the procedure and the purpose of research in detail and gave their consent to the child's participation in the project. The adults important for the children but not close relatives, peers and other children participating in the project had not been informed about the purpose and the procedure of research to prevent possible distortions of results.

While analyzing the topographies of conventional behavioral responses to one's name of all neurotypical children taking part in the pilot research, we discovered the following general visually observed parameters:

– the child turns his head in the direction of the person calling the name, or looks the person in the face without turning his head (visual contact), altering the verbal production or vocalizations;

– we registered lifting the head or turning the body towards the source of auditory stimulus (name) or the child's movement towards the person calling his/her name if he/she is out of the child's sight;

– all children demonstrated certain movements of the mimic muscles; 16 children had mild vegetative-vascular reactions (rapid breathingy and change of face skin color);

– the latent period of reaction to the name in neurotypical children occupied from 1 to 8 seconds and its length depended on the following parameters: a) on the importance of the performed activity for the child; b) on the inclusion of the communicative partner calling the child's name into their joint activity; c) on the distance to the person who called the child by name and the loudness of his/her voice;

– in case there was no response to the child's name, repetition of the name with altered intonation caused the usual for the child topography of the behavioral response under study.

Further actions of each neurotypical child taking part in the pilot research depended on a multitude of preceding factors including his social experience incorporating the practice of interaction with concrete grown up people and peers, i.e. on the experience of *consequence prediction.*

It is known that a child with ASD may produce a response to the name in a socially unconventional manner, i.e. react in such a way that the topography of the given behavioral response is not recognized by the surrounding people as a response of the child to the name.

In order to investigate the characteristics of behavioral responses to one's name with the purpose of further planning individual programs of training this habit, we studied the responses to the name of 24 children with ASD of preschool and junior school age. All children on the date of observation were included in programs of ABA therapy. The procedure of investigation of behavioral responses to one's name was carried out in a way similar to that of the pilot research and according to the same parameters. We organized observation of the behavior of each child in the natural environment of the child's free activity with the aim of defining characteristic motor components of response to his name and other auditory stimuli of non-verbal and verbal character. This was done to prevent inaccurate interpretation of manifestations in the analysis of topographic behavioral responses to the name and to exclude the stimuli bringing about children's negative reactions from the environment.

Eight children did not display a visual response to their name: they did not change the character of their activ-

ity, and the frequency of verbal production accompanying their activity remained to be the same. These children did not demonstrate any visual vegetative-vascular reaction to the given stimulus: there were no changes of the face skin color and the rhythm and frequency of breathing remained unchanged. Changes in the spatial and subject parameters of the auditory stimulus (name) did not have any visual impact on the behavioral responses of such children.

Fifteen children reacted to their names in an unconventional manner; their individual topographies of behavioral responses to their names were misinterpreted not only by who did not know them well, but also by close relatives. Eight out of these 15 children showed intensified motor activity and frequency of vocalizations as a response to their names; one child rolled on the flaw beating at it with his fists. Alteration of the subject parameter had a marked influence on the change of the topography of behavioral responses in all children: the children reacted in such a way only to the auditory stimulus given by close relatives and important grownups who are not close relatives. This fact proves that the topography of behavioral response to the name is a non-generalized habit in reference to the subject of the action. In addition, 5 children (out of these 15) produced an echo-response and stopped the activity they had been engaged in at the moment of pronunciation of their names. In one of them, the habit was generalized in reference to the place and the subject. Two children (out of 15) used verbal production which was not an echo-response (they called numbers and letters) as a response to their names. In both children the auditory stimulus (name) was generalized in reference to the subject, i.e. the topography of behavioral response remained the same with the change of the subject parameter. But the given behavioral response was registered only when the subject was in the same room at the distance of not more than 1.5 m. The above mentioned peculiarities of these children are connected with peculiar features of functioning of the sensor sphere.

One child reacted to the name by turning his head in the direction of the person calling his name, but there was no further visual contact and no change of the verbal production. In this case only the response in the form of turning one's head was interpreted by the adults correctly.

The procedures of Discrete Trial Training (DTT) were used in training 23 children with ASD (with the exception of the child reacting to his name by turning his head in the direction of the adult person calling his name). This method allowed forming the response to one's name as a separate habit by creation of the possibilities of its multiple repetitions. This method was also convenient for registering the frequency of responses and the changes in the frequency of manifestations of conventional responses to one's name. The degree of behavioral expression in response to one's name was observed in all children when the DTT method was accompanied by the shaping procedures of

DRA. The whole work was carried out in accordance with individual programs of formation of the habit and registration of the results.

In the child reacting to his name by turning his head in the direction of the adult person the conventional response was formed with the help of the method of "shaping". Enhancement of the following components of response to the name was chosen for this child: integration of looking and turning his head, as well as of a response smile.

Following from the fact that natural stimulation for the response to one's name has a social nature, individual material, sensor and food stimulations used at the start of the project were gradually transformed in accordance with individual programs into social natural stimulations – continuation of communication or playing. In the beginning of the work aimed at the formation of the conventional response to the name stimulation was provided according to a rigorous schedule of one to one; in accordance with individual programs we practiced the transition to stimulation by a random timetable. The procedure of Differential Reinforcement of Alternative Behavior (DRA) was also used for the formation of conventional responses to one's name.

As a knowledge slice we used postponed registration of response to one's name in all 23 children trained with the help of a combination of two methods – Discrete Trial Training (DTT) and shaping according to Differential Reinforcement of Alternative Behavior (DRA), and in one child who was trained with the help of the procedures of shaping (DRA). In 84% of cases the conventional response to one's name was registered in 10 children after a year, in 5 children – after 1 year and 2 months, and in 6 children – after 11-12 months. Two children passed the assessment after 6 montha of training (due to the time they started training), and the conventional response to the name was observed in 80% of cases.

We believe that further investigation of the process of formation of verbal behavioral responses of children with ASD, including the child's response to the auditory stimulus (his own name) may become a promising line of research.

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