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**ON THE FORMATION OF VALUES OF SOCIAL BEHAVIOR  
IN CHILDREN WITH AUTISM SPECTRUM DISORDER  
THROUGH TRANSLATION OF A FAIRY TALE  
IN THE TOMATIS METHOD**

**Abstract.** The paper notes that socialization of children with autism spectrum disorder (ASD) is made even more difficult by problems with interactive communication. The methods of bioacoustic feedback, and specifically the Tomatis method (the patient's brain is stimulated by translating through earphones and bone conduction headset classical music, fairy tales or stimuli pronounced by the mother) are used to reduce the degree of manifestation of undesirable, field, aggressive or autodestructive behavior. The empirical observation of children training by the Tomatis method for a period of two years revealed that patients with ASD who listened to the fairy tale "The Little Prince" demonstrated a more marked reduction of the level of aggression (autodestructiveness) and a higher level of kindness and readiness to get in contact in comparison to the children who listened to the sonatas by Mozart. The authors posed a hypothesis that the fairy tale "The Little Prince" possesses a psycho-semantic structure forming in the child with ASD the values of empathy and communicability, and reducing the aggressive (autoaggressive) behavior. The article analyzes the impact of the text of the fairy tale "The Little Prince" on accentuations of the psyche of the child with ASD. It is shown what psycho-semantic mechanisms of the text of the fairy tale form understanding and interiorization of the values by the child, in whom social and personal values have not been formed yet. The article proves the specific effectiveness of the bioacoustic method of Tomatis using the mother's voice to enhance the impact of the fairy tale discourse.

**Keywords:** children's autism; autism spectrum disorder; social behavior; social orientation; aggression; tales; fairy tale therapy; archetypes; art therapy; psychotherapy; psychotherapy methods.

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**Problem urgency.** The issue of socialization of children with autism spectrum disorder (ASD) is widely discussed by the professional community [15]. The essence of the problem consists in the fact that the child’s socialization needs communication. It is necessary in order to demonstrate the aims of socially acceptable models of behavior to the child. But it is interactive communication that is a deficient process and characteristic feature of children with ASD. Communication is hampered due to various causes: aggressive and auto-aggressive behavior, low affiliative needs, and poor mimetic skills [1].

Various methods are used to reduce the degree of manifestation of undesirable, field, aggressive or autodestructive behavior: ABA (Applied behavior analysis) therapy [9; 19; 13], sensory integration [14], the TEACCH method of environ-

ment creation [8], kinesiology [6] and many other methods [16].

The methods of bioacoustic feedback make up a special block: BAC (bioacoustic correction of the state of the brain via harmonizing procession of the brain waves of the patient and sending them back to the brain), TLP («The Listening Program» influences the brain via transmitting classical music modified in frequency through earphones and bone conduction headset), the Tomatis method (stimulates the patient’s brain via playing back classical music, fairy tales or stimuli pronounced by the mother through earphones and bone conduction headset).

The common feature of these methods is the fact that the acoustic channel is used to influence the brain and the central nervous system to harmonize the psychological state and behavioral manifestations in children

with ASD and ADHS. And numerous studies prove their effectiveness [12].

While analyzing the description of the methods and results of application of the abovementioned procedures, the stress is made on the differences in the influence of different forms of music impact upon various structures of the neural networks of the brain. Nevertheless, we have not found analysis of brain-active potential of the texts used in bioacoustic intervention. Still the urgency of this topic is evident, because verbal intervention issuing from the psychologically significant for the child figures of mother and father may be both rather strong and, at the same time, may possess a wider specter of orientations in comparison to the orientation of the bioacoustic stimulation proper of the topics of the brain. The fact that the mother's influence on the neurobiological functioning of the brain is great and saliently underestimated is corroborated by the studies of Vinod Menon, MD, Professor of Psychiatry and Behavioral Sciences at Stanford University, director of Stanford Cognitive and Systems Neuroscience Laboratory [9].

The given article focuses on the Tomatis method. The procedures involving this method are carried out both on the material of classical music (Mozart) and a text read by the mother (the fairy tale "The Little Prince").

The empirical observation (protocol VB-MAPP) of a sample of 80 children aged 3-7 with the officially stated diagnosis F 84.0-4 training via the Tomatis method over a period of two years revealed:

- a more marked reduction of the level of aggression (autodestructiveness) in the patients with ASD who listened to the fairy tale "The Little Prince" in comparison to the children who listened to the sonatas by Mozart;
- a higher level of kindness and readiness to get in contact in the patients with ASD who listened to the fairy tale "The Little Prince" in comparison to the children who listened to the sonatas by Mozart.

On the basis of the abovementioned observations we have posed a hypothesis that the fairy tale "The Little Prince" possesses a psychosemantic structure forming in the child with ASD the values of empathy and communicability, and reducing their aggressive (autoaggressive) behavior.

In order to test the hypothesis posed with the help of the expert program VAAL [10; 6], we have carried out content analysis of the fairy tale "The Little Prince". The content analysis included three subtypes: category load, category ties, and emotional-lexical evaluation. The scores were normalized for a text of 1,000 words.

Let us discuss the content analysis results.

Within the category of “Accentuations” actualized by the given text the accentuation “demonstrativity” (14.9 %) turned out to be more vividly expressed. Thus, the text urges the listener to show and demonstrate themselves.

Within the category of “Psychoanalytical symbols”, the archetypical symbols (17.72 %) appeared to be more vividly expressed. As long as the text is read by the mother, the archetypical symbols have a feminine orientation. And the impact of the mother’s voice is enhanced by the age-related regression of the child as a result of application of the effect of fetal hearing in the Tomatis method, which forms the association between the given procedure and the time of being in utero in the perinatal period.

Within the category “Motives”, no motives marked by the degree of manifestation were singled out. Therefore, the tale is not oriented towards the formation of motives as conscious needs but has direct influence on actualization of the unconscious ones.

Within the category “Needs”, the inner needs take the lead. Therefore, the text urges the child with ASD towards demonstrative (see the category “Accentuations”) manifestation of their needs, i.e. towards withdrawal from the autistic state.

Within the category “Valency” (emotional), both negative and positive valencies are expressed practi-

cally identically. Therefore, the text urges towards the demonstration of the whole range of feelings.

Within the category “Instrumental activity”, such kinds of activity take the lead as translation and movement. Therefore, the text urges towards the translation of needs and manifestation of activity, which again facilitates the withdrawal from the autistic preoccupation with oneself.

Within the category “Information”, “insincerity” is the most vividly expressed characteristics. This text message becomes evident with reference to the motif of the tale: “We are responsible for those we have tamed”. The text urges towards sincere manifestation of emotions with the close people and taking responsibility for their feelings.

Within the category “Perception channels”, the most vividly expressed are the visual, sensory and rational channels. Activization of a combination of these channels is extremely useful for children with ASD, because intellectual and rational procession of information presented in the link “see – feel” enhances the development of self-control, and this, in its turn, is crucial for the socialization of children with autism.

The category “Semantic differential” specially reveals *activity*. Therefore, the text urges the recipient towards activity and interaction

with the social world and the world of objects.

The category “Movement” initiates the method of movement of the type “across, through” and “to, towards”. Therefore, the text urges towards purposive movement to the goal (movement “to”) through obstacles (movement “through”). In other words, the child with ASD develops purposefulness of behavior and ability to overcome frustration moods for the sake of goal attainment.

The category “Space” stresses the fact of being at close range. Therefore, the text urges the child with ASD towards intimate, empathic contact with the surrounding people. This form of communication cannot but overcome the autistic withdrawal of the children with ASD.

The category “Organization of events” is oriented towards the subcategory “Search for reasons”. As far as the operation of synthesis in the process of thinking is a weak point in the children with ASD, this text orientation serves as a cognitive trainer of the given intellectual function.

The text category “Time” is determined by the types “time before” and “indefinite time”. Accordingly, the text orients the recipient towards the temporal continuum revealing causative-consecutive connections between events with reference to past events. This, in its turn, ensures

the connection between the recipient’s experience and the present, and facilitates the person’s stability in this way.

Within the category «Logical operations”, the logical operation “and” is more vividly expressed than others. The given logical operation in the language denotes associative connection of the semantic content of propositions into one whole. The synthetic nature of information perception is thus formed, which is utterly important for bridging gaps in the reasoning of children with ASD in the cognitive operation “synthesis”.

The category “Own – Alien” mainly orients towards interaction with the alien. Therefore, the text urges the recipient towards active interaction with “alien” people. In the case of children with ASD, “alien” people are those outside the closest family circle. Thus, the text urges to expand the social communication sphere with strangers.

The category “Comparison” demonstrates the prevalence of the category “Similarity”. Therefore, the comparative text orients the child with ASD towards choosing the method of assessment of the surrounding objects (or people) via finding a similar or a common feature between them.

The category “Focus of attention” demonstrates the prevalence of such variants of the category as “He – she – it” and “I”. It urges to

concentrate attention on the surrounding people.

The category “Values” distinguishes the following values in descending order:

- gnostic;
- ethical;
- practical;
- practicality;
- the good;
- high morals.

Therefore, the text urges the child with ASD to realize ethical and kind behavior in practice guided by thirst for knowledge. This cannot but elicit positive response of the surrounding people and improve the communication of the child with ASD.

As a result of analysis of the content of the categories we can see that the text of the fairy tale “The Little Prince” possesses marked value-bases semantic orientation, which influences the temporal-spatial perception of oneself in the socio-cultural reality, urges towards certain kinds of activity, and sets

value-based aims and behavioral stereotypes.

Still, the question of how great the suggestive potential of the given text is and what traits it forms in the listener still remains unanswered.

As we remember, the text is archetypical and, consequently, has certain urging potential. As long as the text is read by the mother (who is in dyadic relations with the child due to the specificity of the disease), this fact reinforces the impact of the tale [9].

In order to answer the questions formulated above, we have carried out a correlation analysis of the content-analysis factors for establishing correspondence of their changes with relation to the starting category “Archetypicality” (Table 1). The given starting category was chosen as the basic one, because it is the archetypical symbols that are the least censored by consciousness and the most powerful in their impact on the psyche.

**Table 1**

Correlation ties of the categories with the basic category “Archetypicality”

Categories	Correlations with the category “Archetypicality”, %
No	-37
Will to power	-29
I	-29
Power	-27
Negation	-25
Insincerity	-25
Information specification	-23
Non-concrete information	-23
And	-18

Categories	Correlations with the category “Archetypicality”, %
Concrete information	-17
Fear of rejection	-16
General valency	-16
Negative valency	-16
Time after	-16
Outer need	-15
Consequence	-14
Definite time	-13
Far distance	12
Retranslation	13
Distortion	14
Similarity	14
Diminishing	15
Aesthetic	16
Beauty	16
Affiliation	17
Auditory translation	17
Inside	17
Auditory perception	18
Physiology	19
Instrumental activity (all)	19
Passivity	19
Hope for support	20
Orientation backwards	20
Female symbols	21
Death	21
Sensory channel	21
Sensory procession	21
Visual perception	23
Auditory procession	25
Side	25
Visual channel	27
Auditory channel	27
Difference	27
The Positive	29
Activity	30
Visual procession	31
The SD Positive	31
Depressiveness	34
Excitability	39
The Good	40
High morals	40
Ethical	43

The table of correlations demonstrates that the archetypical feminine intervention symbols call for the reinforcement of the following elements in the personality of the listener:

- ethical aspect;
- morality;
- kindness;
- activity and excitability;
- positive aspect.

The association of the feminine archetypical symbols with the positive semantic differential should be specially noted, which testifies to the fact of reinforcement of positive evaluations and dispositions in the sphere of consciousness and self-regulation of the child with ASD. The increasing urge towards affiliative relations with the sur-

rounding people should be also noted.

The negative correlation is characterized by:

- the logical connections of the type of negation (“no”);
- the will to power instead of cooperation;
- focusing attention on the self (“I”);
- reduced fear of rejection.

Thus, we can state the presence of the suggestive effect urging the child with ASD towards withdrawal from autistic self-seclusion to empathic unity with the surrounding society in the text under study.

In order to validate the conclusion obtained the text was analyzed from the positions of emotional-lexical content (see Table 2).

**Table 2**

Indicators of manifestation of emotional-lexical evaluations of the text

Scales	Score points
Kindness	7.80
Honesty	6.50
Intellect	5.50
Self-control	5.00
Secretiveness	3.10
Independence	1.80
Activity	1.70
Delicateness	1.30
Originality	1.20
Dominance	0.50
Egoism	-0.20
Practicality	-0.70
Demonstrativity	-2.10
Extraversion	-4.20
Aggressiveness	-6.60



As we see, the results of correlation analysis have been validated. The presence of an urging to reduce aggression utterly important for socialization of children with ASD is the most valuable result of the data obtained.

Now we are going to make intermediary conclusions and discuss the results obtained.

We may state that fairy tale possesses a more powerful person modifying effect. Moreover, the tale sets certain values and patterns of behavior matching these values. To crown it all, the given intervention produces a socializing effect upon children with intellectual disabilities and communication disorders. It changes the perception of time and space, and controls the manifestations of feelings and emotions curbing some of them and nourishing others. We may say that the fairy tale forms understanding and interiorization of the values by the child, in whom social and personal values have not been formed yet.

These phenomena have been described before, but our research contains some principally new moments:

- the text is read by the archetypically significant figure of the mother;
- the text presentation is suggestive and reinforced by the method of intervention (neurosensory stimulation by the Tomatis method activating the motor regions of the brain);

- the text of the tale is presented bypassing consciousness, due to direct impact on the neural networks of Wernicke's and Broca's areas and the analytical areas of the neocortex;

- the method of presentation and the propositional content of the text are both oriented towards the compensation of information procession defects and its selectivity. As far as children with various developmental disorders, especially ASD, often demonstrate defects in the system processing information coming from the environment (sensory integration), they lack the mechanism of selective choice of sensory information, as a result of which the nervous system builds up a kind of protection against information overflow in the form of complete rejection of the environment;

- the combination of training of the auditory analyzer by different frequencies and transmission of the same sound signals via bone conduction system does not only develop the opportunities of sensory integration of children with ASD but also implements certain patterns of subjective information procession (value-based semantic patterns and aims and dominants of the text of the fairy tale).

We believe it possible to suppose that in the given study, we have found the mechanism of value formation in the cognitive sphere by linguistic means.

We believe the **mechanism** consists in the following.

Within the category “Perception channels”, the text sets the most vividly expressed channels of receipt, procession and expression of information. In this way, certain channels of objective reality perception and, consequently, the type of its perception required by the lecturer, are prescribed for the listener.

And the category “Information” prescribes the locus of its subjective assessment.

Authoritative outer reinforcement (for example, the significant figure of the mother) and inner subjective motivation (needs) are necessary to ensure the perception of such text prescription.

Describing a certain *type of needs*, similar to the needs of the reader, with the help of linguistic means, the text also sets the *accentuation* of expression of the psychological state via verbalized constructions. Such link forms the dyad: latent (needs) – manifest (accentuation), which allows expressing one’s needs via certain accentuation of self-expression. The text actually carries out psychological relaxation of affect, which is rather attractive for persons suffering from non-realization of their needs.

In order to imbue the inner psychological processes with energy and dynamics, text expansion is effected via certain *symbols* which predetermine the role of the text

characters as expressers of the symbol system. The characters (as symbols) should be associationally maximum attractive or repulsive for the percipient as subjects of self-identification, projection and alienation.

The category “Organization of events” between characters, for example “search for reasons”, sets a certain type of assessment of the sequence of events. And the category “Logical operations” prescribes a type of thinking.

The category “Own – Alien” sets group identification of the recipient (whom he believes to be own) and thus forms feasible behavioral strategies, meanings and values. In its turn, the “Semantic differential” gives a characterological description of the characters assessing them in accordance with several scales in the general semantic field. This allows the author (lecturer) to offer a value-based scale of attitude to the characters (or their behavioral patterns) for the reader.

Via the category “Comparison” in the identification of the recipient with a character, the text sets the method of comparison of oneself with other characters, and thus forms the criterion of assessment of the social environment and the value-based principle of organization of communication with other people. And the category “Focus of attention” shows the recipient what they should focus their attention on

when assessing a social situation: on oneself or on other people.

All this alignment of relationships between characters is unfolded within the categories “Space” and “Time”. Space organizes and prescribes to the character, with whom the recipient identifies themselves, the closeness of the ties with other characters. The recipient is thus prescribed a communicative model. And the text category “Time” defines the organization of the inner experience of the recipient when they find themselves in the real life situation of a similar type.

All these psycholinguistic interventions lead the recipient to:

- the formation of the recipient’s motives in the course of text comprehension and their comparison with the interpretation of the motives in the text itself (category “Motives”);

- a definite mode of action (prescribed by semantic means in the category “Instrumental activity”);

- a certain method of movement towards reaching the goal (category “Movement”);

- the psychological reinforcement of the value-based interpretations of the pattern of behavior of the characters prescribed by the text (the category of linguistic means expressing the category “Values”).

By way of conclusion we would like to add that if the recipient has no reasons for critical information perception and has an inner urge to

respond to the needs presented in the text, the formation of the value-based semantic pattern of interaction with reality becomes practically inevitable.

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