

## The Specifics of Anticipatory Consistency in Children with Speech Pathology

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**Abstract:** The article looks into the specifics of the interrelationship between the anticipatory specifics of mental activity and general speech underdevelopment, which reveal a major deviation of children's anticipatory consistency indicators from the age-related norm and are made evident in the fact that the adequate event forecasting ability in this category of children gets formed more slowly, with lots of "distraction errors" occurring and irrational strategies employed along the way. Research findings enrich our comprehension of psychological regularities of the mental development of speech with a notion of a necessary part played in this process by anticipatory abilities, thus contributing to the developmental psychology theory. A special study has revealed that the specifics of anticipatory activity reflected in the falling of indicators of the personal-situational and temporal components of anticipatory consistency can be behind pre-morbid neurotic alertness in children with general speech underdevelopment, which is deemed of significance to medical psychology.

**Key words:** Anticipation • Anticipatory consistency • Probabilistic prognostication • Speech pathology • General speech underdevelopment • Prognostic activity

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### INTRODUCTION

Since the subject of probabilistic prognostication is highly topical when it comes to analysis of psychological mechanisms of adaptation (in the broadest sense), the subject of foreseeing (anticipation) has been developed quite extensively, both in respect of individuals with normal development and those with mental development disorders of varied genesis [1-6]. However, anticipatory parameters of activity in children with general speech underdevelopment have not been a subject of special studies up until recently.

Investigating functional indicators of the psychological status of late-preschool-age children is of particular significance due to the fact that during the age-related development process it is by this time that quite distinct differences between statistical and normative development and deviation from it will have become apparent [7, 8].

At present, psychologists and instructors at general education and pre-school institutions are noting a considerable increase in the number of complaints of pupils making poor progress and desadaptation in early-preschool-age children, insufficient psychological preparedness for study at school. It should also be noted

that the overall estimate of a child's intellectual development in most cases might as well not go beyond the limits of average age-related indicators. However, special studies (defectological, neuropsychological) often reveal symptoms of some kind of general speech underdevelopment [9].

We find attempts to assess such psychological phenomena of children's psyche as temporal and spatial components of anticipatory consistency in children ages 6-7 with general speech underdevelopment to be topical and scientifically significant.

Despite the fact there are numerous studies in anticipation and probabilistic prognostication, we haven't been able to come across any literary sources that look into the issue of anticipation and probabilistic prognostication processes having been formed in children with general speech underdevelopment.

**Methods of Study:** The following methods were employed in dealing with the objectives set:

- The specifics of probabilistic prognostication in children with general speech underdevelopment (GSU) were studied using *The Methods of Investigating the Specifics of Prognostic Activity*

developed by L.I. Peresleni and V.L. Podobed (1982), in which trial subjects had to predict the occurrence of certain events.

- Children's anticipatory characteristics were studied using the anticipatory consistency test (by V.D. Mendeleovich) adapted to late-preschool-age children. The test makes it possible to identify and assess quantitative indicators of anticipatory abilities based on three components: personal-situational, spatial and temporal [10].
- The classic version of A. Kern's visual-motor integration test and A.L. Venger's handwriting readiness test made it possible to assess the levels of motor dexterity, which is considered as reflecting probabilistic forecasting at the movement anticipation level.
- To ascertain the specifics of children's social adaptation, the group conformity coefficient was studied, using S. Rosenzweig's *Investigation of Frustration Tolerance* method.
- Indicators of children's intellectual development were studied using J. Raven's *Standard Progressive Matrices* test [11].

The study procedure consisted of several stages. At the initial stage, documentation was examined, psychological anamnesis was collected and children's speech development level was analyzed. The generated data was then entered into a quantified card, which contained sections that stored anamnestic data on parents, close relatives, the mother's pregnancy and childbirth progress data and the specifics of the child's mental and physical development at various age-related stages. The study assessed the specifics of intra-family relations, presence of matrimonial conflict, types of child-rearing practices, the specifics of the child's behavior within the family and a group of children and presence of forms of deviant behavior.

**Main Part:** The analysis of *The Methods of Investigating the Specifics of Prognostic Activity* findings revealed the specifics of probabilistic prognostication characteristic of children with GSU. This was done inclusive of the number of errors in forecasts-this indicator reflected the adequate forecast formation process and demonstrated the child's ability to retain its own forecasts in memory and compare them with information it was presented with. It was revealed that 31% of children with GSU had a high prognostication level, 62%-medium level and 7%-low level.

It should be noted that in the group of children whose speech development was in harmony with the age-related norm, correct forecasts of letters were formed in 88%. Children whose speech development was in line with age-related norms were quick to figure out the letter alternation order making not more than 12 mistakes in the process-in other words, these children had a good prognostication level.

Thus, children with GSU demonstrated medium ( $t = -8,509$ ,  $p < 0,001$ ) and good levels ( $t = -4,180$ ,  $p < 0,001$ ) of adequate forecast formation more rarely than their counterparts in the control group.

Using these methods for psychodiagnostic purposes made it possible to identify and examine a number of additional indicators. One of such indicators is the sustainability of prognostic activity. It was possible to establish sustainable prognostic activity if the child kept making correct predictions after having figured out the letter alternation order.

The analysis conducted revealed that 85% of children in the experimental group had "distraction errors". Children in the control group had "distraction errors" only in 16% of cases. It was discovered that there is a verifiable difference between the experimental and control groups-children with GSU committed "distraction errors" a lot more frequently ( $t = 8,523$ ,  $p < 0, 01$ ) than children in the control group.

The second additional qualitative characteristic of prognostic activity was obtained as a result of questioning the participants after the study. Children in the control group had no hard time recalling the order of letters of any set. It was a different story with children with GSU. Only 15% of the children were able to reproduce the order of letters with no difficulty, despite the fact that the order of elements in the set had been predicted correctly many times earlier. It was also revealed that children in the control group reproduced the order of letters significantly more successfully ( $t = -13, 426$   $p < 0,001$ ) than children in the experimental group. Thus, despite the fact that correct predictions were formed, children with GSU were unable to recall them, which pointed to their anticipatory inconsistency.

It's known that the success of prognostication depends on those strategies which the child picks in the course of its cognitive activity. The analysis conducted revealed that children in the control group employed rational strategies verifiably much more rarely than their control group counterparts ( $t = -4180$ ,  $p < 0,001$ ). They used the strategy of casual predictions (random prediction of the order of elements in a sequence) verifiably more frequently ( $t = 3,811$ ,  $p < 0,001$ ).

The assessment of the characteristics of anticipatory activity revealed verifiable differences in mean-group indicators: the scores for the personal-situational and temporal components of anticipatory consistency in children in the control group were higher ( $p < 0,001$ ) than those in children in the experimental group. The variances in mean-group indicators pointed to the fact that children in the control group were able to anticipate the flow of events and predict life situations better ( $t = -19,228$ ,  $p < 0,001$ ) than children with GSU. Children in the control group also had the verifiably better ability to act and take decisions with a determinate temporal look-ahead at future events ( $t = -3,892$ ,  $p < 0,001$ ).

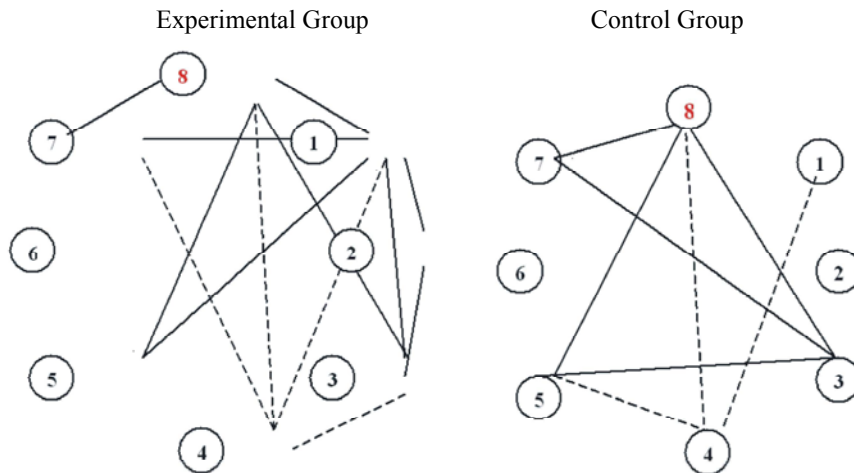
The assessment of the characteristics of motor dexterity and the level of the development of fine hand motor skill and eye-hand coordination revealed the following: children with GSU verifiably more frequently than children whose speech was in line with the age-related norm-demonstrated low scores ( $t = 3,563$ ,  $p < 0,001$ ) and scores lower than medium-level ( $t = 5,254$ ,  $p < 0,001$ ). Whereas children in the control group verifiably more frequently demonstrated high scores ( $t = -8,509$ ,  $p < 0,001$ ). The study revealed significant differences between the group of children with GSU and the control group-fine hand motor skill development indicators were verifiably lower in the experimental group ( $t = -9,578$ ,  $p < 0,001$ ). However, scores on informative questions, which assess the spatial component of anticipatory consistency, were verifiably higher in them than in children in the control group ( $t = 9,622$ ,  $p < 0,001$ ).

On the whole, a thorough analysis of the data obtained in the study substantiated the hypothesis whereby general speech underdevelopment-as one of the factors mediating mental and personal development and the child's adaptation at pre-school age-has something to do with impairment of anticipatory parameters of mental activity.

To identify the specifics of the structural correlations, a correlation analysis was conducted. The structural correlations between the parameters investigated in the groups of children with GSU and those with speech in line with the age-related norm are shown in the drawing below.

The experimental group's matrix turned out to be rich in intercorrelations-out of 28 possible values, 14 coefficients (10 positive and 4 negative) were found significant (at  $p < 0,001$ ). Correlation links in the control group substantially differed from those in the experimental group: out of 28 possible values, 8 (3 of them negative) were found significant (at  $p < 0,001$ ).

The study revealed in the structures of both groups positive statistical correlations of a high level of significance between general anticipatory consistency and the following parameters: the group adaptation coefficient (the experimental group:  $r = 0,66$ ; the control group:  $r = 0,71$ ), the personal-situational (the experimental group:  $r = 0,68$ ; the control group:  $r = 0,78$ ) and temporal (the experimental group:  $r = 0,76$ ; the control group:  $r = 0,62$ ) components of anticipatory consistency (AC).



Correlational links between parameters investigated in experimental and control groups

Note: 1-PMR; 2-motor dexterity; 3-group adaptation coefficient (GAC); 4-number of prediction errors; 5-temporal component of AC; 6-spatial component of AC; 7-personal-situational component of AC; 8-general AC.

\_\_\_\_\_ -positive interdependence at the significance level  $< 0,001$ ;  
 - - - - -negative interdependence at the significance level  $< 0,001$ .

The negative statistical correlation between the indicators of general AC and its personal-situational component, the GAC illustrated the fact that children in the experimental and control groups who did a good job predicting the flow of events demonstrated a high level of adaptability to social settings and an ability to take decisions with a temporal look-ahead.

In the structure of indicators for the experimental group, the study revealed correlations of all the above-mentioned coefficients with the child's intellectual development indicator (the personal-situational component of AC:  $r=0,57$ ; the temporal component of AC:  $r=0,50$ ; general AC:  $r=0,60$ ; GAC:  $r=0,66$ ). The correlation turned out to be apparent: anticipatory activity develops by virtue of an increase in the degree of the successfulness of solving complex perceptual-intellectual problems and expanding one's social experience, conserving and systemizing it. The higher the intellectual level of a child with GSU was, the better it forecasted the flow of events, took decisions with a temporal-spatial look-ahead and conducted itself adaptively in frustrating situations.

Children in the experimental group demonstrated a significant negative correlation between the indicator of the number of prediction errors in forming adequate forecasts and such parameters as: the indicator of the personal-situational component of AC ( $r=-0,65$ ), general AC ( $r=-0,78$ ), the child's intellectual development ( $r=-0,69$ ) and the GAK indicator ( $r=-0,72$ ).

This correlation can be interpreted in the following way: children with GSU who commit more errors in forming adequate forecasts not always were able to act and take decisions with a temporal-spatial look-ahead; it was harder for them to adapt to social settings. Children with high intellectual levels committed fewer errors in forming adequate forecasts and evinced high levels of adaptability to social settings and personal-situational anticipatory consistency.

**Inferences:** The findings of the investigation of anticipatory parameters of mental activity in late-preschool-age children with different levels of speech development let us draw the following inferences:

- It was found that in the majority of children with GSU, adequate forecasts of events are formed more slowly, with numerous "distraction errors", with the use of irrational strategies, which make it possible to consider the above-mentioned phenomena as differential-diagnostic criteria for assessing speech development levels.

- The diagnosis of personal-situational parameters of anticipatory consistency in children with GSU reveals an apparent deviation of these parameters from the norm, which is manifested in one's inability to communicatively forecast the flow of events, behavioral reactions of people around, or one's own actions.
- The findings of the study revealed a number of specifics for the temporal component of anticipatory consistency in children with speech development disorders. In contrast to children with normal speech development, who are capable of structurizing time, most children with GSU were found to be inclined to emotional-subjective assessment of time, which limited their potential for effective assessment and time planning.
- The study documented a low level of the development of motor dexterity in children with GSU, which is considered as reflecting probabilistic forecasting at the movement anticipation level. However, children with GSU scored verifiably higher than their control group counterparts on informative questions, which assess the spatial component of anticipatory consistency. This is due to the fact that children in the experimental group are known not to notice their own errors and blunders.
- The findings of the study and the analysis of social setting adaptation indicators in children with GSU point to insufficient development of anticipatory consistency in these children. The latter is evident in increased proneness to conflict, which reflects the child's inability to anticipate events and its own behavior in frustrating and subjectively significant situations.

## REFERENCES

1. Astapov, V.M., 1994. An Investigation of the Specifics of Prognostic Activity for Evaluating Children's Intellectual Development Levels/ An Introduction to Defectology with Basics in Neuro-and V.M. Patopsychology and M. Astapov: International Pedagogical Academy, pp: 152-163.
2. Akhmetzyanova, A.I., 2013. A Comparative Analysis of Anticipatory Consistency Indicators in Children with General Speech Underdevelopment and Normative Speech Development. V.M. Bekhterev Neurological Bulletin. T. XLV, 1<sup>st</sup> edition, pp: 49-53.
3. Caplan, H.Y., B.J. Sadock, Baltimore etc., 1989. Clinical psychiatry, pp: 1-2.

4. Sergienko, E.A., 1988. Anticipation in the Visual Behaviour of Infants. 11<sup>th</sup> European Conference on Visual Perception. Bristol, UK., 8: 1284.
5. Sergienko, E.A., 1989. Genesis of the Elementary Forms of Anticipation in Infants. 10<sup>th</sup> ISSBD Biennial meeting. Jyvaskyla, pp: 387.
6. Wallin, A., 1955. Clinical and Abnormal Psychology. Æaris, pp: 274.
7. Richard, L., 1997. Language and Mental Retardation: Empirical and Conceptual Considerations. Schiefelbusch New York, pp: 208.
8. Steinhausen, H.C., 1992. Chronically Ill and Handicapped Children and Adolescents: Personality Studies in Relation to Disease. Journal of Abnormal Child Psychology, 1: 45-60.
9. Peresleni, L.I. and T.A. Fotekova, 1993. The Specifics of Cognitive Activity in Early-School Children with Speech Underdevelopment and Delayed Mental Development Defectology, 5: 3-10.
10. Mendelevic, V.D., 2003. The Anticipatory Consistency (Prognostic Competence) Test: an Experimental-Psychological Method for Assessing Preparedness for Neurological Disorders. Social and Clinical Psychiatry, 3: 35-40.
11. Raven, J.C. and H.K. Lewis, 1965. Progressive Matrices. London, pp: 85.