

# Subjective Experience of Mental States in Forecasting of People with Disabilities

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**Abstract.** This article describes the specifics of correlation between characteristics of the subjective experience of mental states and forecasting in children and adolescents with developmental disorders. The study of the subjective experience of mental states involved the method of content analysis of subjects' self-reports while forecasting capabilities were examined using a number of methods that correspond to the age of the subjects. All data was statistically processed in the SPSS Statistik 17 program. The study involved children and adolescents with severe speech disorders and disorders of the musculoskeletal system. We studied the subjective experience of such mental states as *joy*, *anger*, and *calm*. These mental states have different levels of mental activity and different modality. The study has shown that the subjective experience of mental states and forecasting characteristics are interrelated. But we have also revealed a certain specificity determined by age and nosology. Correlational analysis of the research data showed that mental states of joy, anger, and calm determine prognostic capabilities to a greater extent in adolescents with movement disorders and in children with speech disorders. Forecasting processes in adolescents with severe speech disorders are most likely determined by other personality traits and are less associated with mental states.

## 1. Introduction

### 1.1. Mental states of children with deficit development

Mental states of a schoolchild represent a background for the formation of learning activities and they can be either adequate (which increases the efficiency of learning activities) or inadequate (which reduces its effectiveness). A child who enrolls in a school finds himself in a new social situation, he gets a number of new obligations associated with educational activities. People around him begin to communicate with this child not only as with a person, but also as with someone who has embedded in a new role and made commitments to learn [1].

If we consider the period lasting from early childhood to adolescence, it should be stated that the main stages of mental development coincide with the development of the emotional sphere [2]. The emotional sphere of a child influences his comprehension of the world and interaction with it [3]. Deviations in mental development also lead to disturbances in the development of the emotional-volitional sphere. In his studies, L.S.Vygotsky stated the importance of division of violations into groups – into primary and secondary defects [4]. Children with developmental disorders tend to have secondary and tertiary disorders. In this case, children with severe speech disorders and disorders of the musculoskeletal system also have disorders of a different level – lags in the development of the emotional sphere and distortion of child's personality.

The ability of a child to use emotional-evaluative vocabulary is directly associated with the level of emotional development. The scientific data on how the emotional-evaluative vocabulary develops in children is widely represented in pedagogical, psychological, and also neuropsychological studies [5].

Children with impaired development are characterized by distorted self-control in behavior and mental state, aggressiveness in behavior and in its nature. They face difficulties in relations with peers in gaming and training activities, which is manifested in excessive fussiness, frequent changes of mood, insecurity, fear, etc.

### *1.2. Forecasting skills of children with deficit development*

Prediction of the activity and its possible consequences is the basis of regulation and self-regulation (a person realizes that he is able to build his own behavior in accordance with the objectives set) [6]. Prognostic competence is being studied at different age stages: in preschool and younger school age, adolescence, in senior schoolchildren and students [7, 8].

The issue of prognostic competence of children with developmental disorders is associated with the process of socialization of a child in society. The leading activity of a primary school age child is educational one, and it has a significant impact on the development of a child's psyche (cognitive, regulatory and communicative aspects) [9]. The formation of a child as a subject of educational activity is mediated by the anticipating activity. The younger school age is associated with active involvement of a child in learning activities where he acquires new knowledge, skills and abilities. The ability to make forecasts also starts to manifest itself at this age. By adolescence, the ability to make forecasts settles down, improves and acquires specificity.

Socialization of children of a school age is not limited only by educational activities. Therefore, it makes sense to consider not only educational areas of relationships, but also extra-curricular ones, since they also have a beneficial effect on the development of socialization of children. Attitudes toward learning, teacher and peers represent important areas of relationships in terms of socialization. Family relationships remain significant for schoolchildren as well.

Prognostic competence and successful socialization are closely interrelated with each other [10]. Violations of prognostic processes can lead to various deviations. Children with impaired development are at risk of impaired socialization and development of deviations. However, developmental disorders or health limitations themselves cannot be considered the main cause of deviations – they are preceded by a group of various factors. These include regulatory skills of children as well.

The ability to regulate one's own behavior and state determines the readiness of an individual for upcoming events and the ability to plan actions. That is, on the one hand, self-regulation contributes to successful forecasting, and on the other hand, adequate forecasting regulates behavior and mental states. We should also mention that the level of the development of regulatory forecasting function depends on a comfortable mental state. Therefore, the issue of assessing prognostic competence and its development in combination with mental states of children of primary school age with impaired development remains open [11].

### *1.3. Subjective experience of mental states of children with deficit development*

Forecasting of mental states in various life situations allows children with deficit development to build relationships with peers, important adults and people around them. The ability to make forecasts can determine the course of activity, balance one's own current states and actions, as well as the states and actions of other people, build patterns of regulation of personal mental states. Any forecasting is based on awareness of emotions, mental states, experiences that were in the past, that is, on a subjective experience. Mental state experience determines identification of one's own states and the states of other people [12], which allows a person to build one's social interaction with others and establish personal contacts. In this regard, it makes sense to study the specifics of the subjective experience of mental states of children with developmental disorders.

Recent studies on the subjective experience of mental states of children with deficit development have shown that a significant role in forecasting is played not only by the emotional sphere, but also by the situations of children's life activity that seem significant for them [13, 14, 15].

Understanding the causes of the events and their reflection contribute to successful forecasting. The specificity of a disorder determines the attitude to different situations of children's life. For example, children with severe speech disorders most often see the reasons for quarrels with a brother / sister, punishment from parents in specifics of their activity and behavior. But at the same time they do not know the causes of conflicts between parents and do not remember anything about their stay in the hospital. Perhaps, this might be explained by the work of strong defense mechanisms. Children with a musculoskeletal system disorders mostly refrain from responding only in case of a situation of conflict between parents. They are the only ones who point to psychological aspects of a traumatic situation of being in a hospital, and they emphasize mood as the cause of a quarrel. That is, in their reflection, they are partly focused on the emotional sphere.

Significant life situations of children with impaired development, which determine prognostic skills, are stored in their experience causing certain emotions. Mental states determined by these situations are also stored in child's experience determining its structure and content. We should note that the age of children also makes its own adjustments to the subjective experience. Studies have shown that the subjective experience of joy is more substantive in children with severe speech disorders and disorders of the musculoskeletal system than in adolescents of the same nosological group. They more clearly describe their mental state of joy, revealing it through value judgments, relationships with beloved ones and actions that determine the specifics of experiences. The subjective experience of the mental state of anger is rich in terms of semantic units in children and adolescents with musculoskeletal system disorders. The content of the experience is filled mainly with evaluative judgments, expressions of emotions, feelings, mood, as well as with their actions and actions or significant people. The content of the subjective experience of the mental state of calm is most fully represented in adolescents with musculoskeletal system disorders. They reveal the state through value judgments, emotional-sensual sphere and reflexive processes which help to understand their experiences and their causes.

Thus, we can suggest that forecasting processes in meaningful situations of vital activity of children with deficit development, which are based on the specifics of their life experience, may be determined by mental states. The experience of mental states determines forecasting itself and the features of forecasting processes, since these mental phenomena (forecasting and mental states) are brought together by meaningful situations and subjective experience.

## **2. Methods and techniques of the research**

### *2.1. Sample description*

The study involved 7-10 year old children and 13-14 year old adolescents with disabilities: severe speech disorders (SSD) and cerebral palsy (CP).

### *2.2. Research techniques*

We used the method of self-reports to determine the specifics and the development of mental states of children and adolescents. We examined mental states of different modalities and levels of mental activity: joy (positive modality, high level of mental activity), anger (negative modality, high level of mental activity), calm (positive modality, average level of mental activity).

In order to study forecasting capabilities of adolescents with developmental disorders, we used the test called the "Forecasting capability" (developed by L.A. Regush). This questionnaire is designed to identify tendency to risk. It identifies the level (low, medium, high) of the ability to predict, as well as the level of the qualities of thinking that determine the forecasting: analyticity, awareness, flexibility, perspectivity, argumentativeness.

To study of forecasting capabilities of children with deficit development, we used the method called "The ability to predict in situations of potential or real violation of social norm" (developed by

staff of the Department of Defectology and Clinical Psychology of KFU). This method allows to assess the level of children's ability to make forecasts, the course of their socialization and detect early signs of deviant behavior. It gives an estimate of the overall forecasting capability; identifies the ability to make forecasts in each of the six areas of relationships, as well as in educational and extracurricular situations; reveals the risks of deviations; evaluates regulatory, cognitive and speech-communicative forecasting functions and individual indicators.

### *2.3. Organization of the study*

Subjects retrospectively (which means mental states were experienced in the past) described mental states in a free form. Next, their answers were processed using content analysis and after that the semantic units were singled out: evaluation / quantity / comparison; relatives / close relationships; unity / acceptance; feelings / emotions / experiences; causes / situations; regulation; actions / activities; mental, mnemonic and reflexive processes; conditions / location of events; wishes / dreams / expectations; reactions / behavior; physiological processes; communication; metaphors. The frequency of the occurrence of each semantic unit in the texts of respondents was calculated. We compared age groups within single nosology and nosological groups within single age period.

Prognostic capabilities were determined in each age group using separate methods.

All data were statistically processed in the SPSS Statistik 17 program.

## **3. Analysis of the research results**

### *3.1. Specificity of the subjective experience*

Children and adolescents revealed descriptions of their mental states experienced in the past through a number of semantic units, which were assigned to different semantic groups. Analysis of self-reports of children and adolescents with cerebral palsy is presented in table 1.

The experience of joy in children with cerebral palsy is mainly represented by a description of actions and activities that determined this condition or were determined by the state of joy themselves. Besides, the most significant semantic weight is associated with a characteristic that reflects evaluative-comparative and quantitative judgments. The regulatory aspect, metaphors and associations are completely absent in the subjective experience of joy, and there are no descriptions of the course of physiological reactions as well.

In addition to evaluative and comparative descriptions and descriptions of actions, the experience of adolescents with musculoskeletal system disorders includes the emotional-sensual aspect. They reveal the state of joy through their experiences as well. They also lack regulative components and metaphors in the experience of the state of joy.

The subjective experience of the state of anger in children and adolescents with cerebral palsy contains mainly evaluative and comparative characteristics as well as emotional-sensual aspect. But at the same time the subjective experience of anger in adolescents is more meaningful – it includes all the semantic units. The experience of anger of children with cerebral palsy lacks metaphors, regulatory aspects and characteristics that reflect feelings of unity and acceptance with close people.

The subjective experience of the state of calm in children with musculoskeletal system disorders is represented mainly by the descriptions of actions, activities, and emotional and sensual characteristics. Teenagers with cerebral palsy also reveal the state of calm through the evaluative and comparative characteristics as well. The subjective experience of the state of calm in adolescents with cerebral palsy contains all the selected semantic units, but the experience of children's state of calm does not include components reflecting mental and reflective processes.

**Table 1.** The frequency of occurrence of structural components of the subjective experience of mental states in children and adolescents with cerebral palsy.

Cerebral palsy						
13-14 years				7-10 years		
Joy	Anger	Calm		Joy	Anger	Calm
1,6	2,3	1,2	<b>1</b>	2,3	1,9	1,3
0,5	0,2	0,4	<b>2</b>	1,6	0,9	0,9
0,5	0,1	0,1	<b>3</b>	0,6	---	0,1
1,5	1,6	1,2	<b>4</b>	1,6	1,4	1,6
1	0,8	0,5	<b>5</b>	1,6	1,2	1,1
---	0,6	0,5	<b>6</b>	---	---	0,4
1,6	1,1	1,1	<b>7</b>	2,1	2	2,5
0,3	0,2	1	<b>8</b>	0,1	0,1	---
0,8	0,8	0,8	<b>9</b>	1,4	1,3	1
0,2	0,7	0,2	<b>10</b>	0,1	0,1	0,2
0,8	0,9	0,5	<b>11</b>	0,8	0,6	0,6
0,2	0,1	0,1	<b>12</b>	---	0,2	0,1
0,2	0,3	0,2	<b>13</b>	0,1	0,1	0,2
---	0,1	0,1	<b>14</b>	---	---	0,1

Note: 1. Evaluation / frequency / quantity / comparison; 2. Relatives, close ones; 3. Unity / acceptance; 4. Feelings / emotions / experiences; 5. Causes / situations; 6. Regulation / self-regulation; 7. Actions / activities; 8. Thinking / reflection / memory; 9. Conditions / location; 10. Desires / dreams / expectations; 11. Reactions / behavior; 12. Physiological processes; 13. Talk / communication; 14. Metaphors.

The analysis of self-reports of children and adolescents with severe speech disorders is presented in Table 2.

The subjective experience of the state of joy in children with severe speech disorders is mainly represented by a description of their actions, as well as by behavior and attitude towards relatives, close people. That is, being close to significant people brings them joy. Teenagers with SSD reveal the state of joy through a description of the causes and situations that determine this state. Unlike adolescents, the subjective experience of the state of joy in children with SSD is more substantial and rich. The experience of the state of joy of children represents no feelings of unity and acceptance, regulatory aspect and metaphors. The experience of the state of joy of adolescents with SSD has no regulatory and communicative aspects, feelings of unity and acceptance, characteristics representing reflective and mental processes or metaphors.

**Table 2.** The frequency of occurrence of structural components of the subjective experience of mental states in children and adolescents with SSD.

Severe speech disorders						
13-14 years			7-10 years			
Joy	Anger	Calm		Joy	Anger	Calm
1	1,4	1,3	<b>1</b>	1,8	1,9	1,1
0,9	1	0,5	<b>2</b>	2,3	0,8	0,5
---	---	0,5	<b>3</b>	---	---	0,1
0,9	1,5	0,6	<b>4</b>	1,8	0,8	1,6
1,6	1,5	0,8	<b>5</b>	1,9	1	0,6
---	0,1	0,1	<b>6</b>	---	0,2	0,8
1	1,3	0,6	<b>7</b>	3,5	2	1,9
---	0,3	---	<b>8</b>	0,3	0,4	0,2
1,2	0,6	0,3	<b>9</b>	1,8	0,7	1,1
0,1	0,1	0,1	<b>10</b>	0,2	0,7	---
0,3	0,4	0,2	<b>11</b>	0,5	0,5	0,2
0,1	---	0,1	<b>12</b>	0,1	0,3	0,2
---	0,2	0,2	<b>13</b>	0,2	0,3	---
---	---	---	<b>14</b>	---	---	---

Note: 1. Evaluation / frequency / quantity / comparison; 2. Relatives, close ones; 3. Unity / acceptance; 4. Feelings / emotions / experiences; 5. Causes / situations; 6. Regulation / self-regulation; 7. Actions / activities; 8. Thinking / reflection / memory; 9. Conditions / location; 10. Desires / dreams / expectations; 11. Reactions / behavior; 12. Physiological processes; 13. Talk / communication; 14. Metaphors.

The experience of the state of anger in children with SSD is filled mainly with descriptions of actions associated with this state, as well as with evaluative and comparative characteristics. There are no characteristics of unity, acceptance and metaphor in the structure of the experience of the state of anger. The experience of the state of anger in adolescents with SSD is represented mainly by emotional content and description of situations and causes of anger. Their subjective experience of the state of anger contains no characteristics that reflect unity and acceptance, the course of physiological processes, and metaphors.

The structure of the subjective experience of the state of calm in children with SSD is mainly represented by emotional and sensual characteristics and description of actions associated with this state. Their experiences do not reflect dreams and desires, metaphors, and communication aspect. The experience of adolescents' state of calm is represented by mainly evaluative and comparative aspect. Their experience contains no metaphors and descriptions of mnemonic processes.

Thus, the analysis of the structure of subjective experience of the states of children and adolescents with developmental disorders showed that each age and each nosological group has a specificity of content and structure of experience, which can determine forecasting capabilities as well. In this regard, we have conducted a correlation analysis of the characteristics of the subjective experience of mental states with characteristics of forecasting separately in each group of subjects. Correlations within the methods were excluded.

**Table 3.** Correlational structure of the subjective experience of mental states and forecasting capabilities.

	<b>Joy</b>	<b>Anger</b>	<b>Calm</b>
<b>Cerebral Palsy children</b>	14-20	- 5-15 - 7-15	1-17 - 2-17 - 7-15 - 7-19 - 9-19 12-20
<b>Cerebral palsy adolescents</b>	- 1-15 - 3-15 - 7-15 - 8-15 - 11-15 - 11-16	3-19 - 9-18 - 10-18 - 11-16 - 12-15 - 14-20	- 2-16 - 2-20 - 3-20 - 12-15 - 13-15 - 14-20
<b>SSD children</b>	- 2-15 2-17 5-17 - 5-18 - 7-15 7-20 8-17 - 8-19 - 9-15	1-17 - 2-16 2-19 - 5-21 7-17 8-17 8-20 9-17 9-20 - 10-16 - 12-16 12-19 - 13-15	- 2-18 - 2-21 5-17 12-18
<b>SSD adolescents</b>	- 10-18	2-20	9-19 - 11-20

Legend: CP - cerebral palsy; SSD - severe speech disorders.

1-14 - characteristics of the subjective experience of mental states (see tables above)

Forecasting characteristics of children: 15 - general forecasting level, 16 - attitude towards school, 17 - communication with peers, 18 - communication with adults, 19 - virtual communication, 20 - attitude towards the disease, 21 - relationships in the family;

Forecasting characteristics of adolescents: 15 - analytical thinking, 16 - mindfulness of thinking, 17 - flexibility of thinking, 18 - perspectivity in thinking, 19 - argumentativeness of thinking, 20 - total score.

Children with cerebral palsy predict the state of calm more successfully. In the state of calm, children with movement disorders better predict situations of communication with peers, virtual communication, attitude towards the disease.

Adolescents with cerebral palsy have an equal number of links between the prediction characteristics and the subjective experience of mental states. Being in the state of joy, adolescents with cerebral palsy construct forecasts through analyticity of thinking, that is, the characteristics of the experience of the state of joy contribute to a logical analysis of situations and decision-making. The subjective experience of the state of anger activates almost all of the studied qualities of thinking: analyticity, awareness, perspectivity, argumentativeness, overall forecasting score. In adolescents with cerebral palsy, indicators of anger experience determine the tracking of current experiences and circumstances, their analysis, and the logic of conclusions when building strategies and predictions for the future. Indicators of experience of the state of calm in adolescents with movement disorders contribute to logical analysis of current experiences and situations, formation of several solutions in forecasting.

In children with severe speech disorders, the subjective experience of the state of anger has the strongest connection with forecasting. In the state of joy, children with speech disorders better predict situations of communication with peers, adults and virtual communication, and attitude to their disorder. A wide range of indicators of the subjective experience of the state of anger determine the prediction in all significant areas of life. In a state of calm, children with severe speech disorders better predict situations of communication with adults and peers, as well as family relationships.

We found almost no correlations between mental states and forecasting in adolescents with severe speech disorders. That is, the forecasting processes in adolescents with SSD are determined by other personal characteristics and are not associated with mental states.

#### **4. Conclusions**

1. The subjective experience of mental states of *joy*, *anger*, and *calm* determine forecasting skills to a greater extent in adolescents with movement disorders and in children with speech disorders.
2. There are almost no correlations between the characteristics of the subjective experience of mental states and forecasting in adolescents with severe speech disorders. Their forecasting is most likely determined by other personality traits.

#### **5. Acknowledgments**

The study was carried out with the support of the Russian Foundation for Basic Research in the framework of the research project No. 18-013-01012 "Subjective experience of mental states in the situation of life prediction».

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