

## Preschoolers with Intellectual Disabilities: Research in Communicative Competence

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**Abstract:** *The formation of communicative competence as a leading component of speech activity of senior preschoolers with intellectual disabilities is a long-term, multi-stage process. In accordance with the objectives of the study, we have substantiated and identified the features of the criteria of communicative competence. Methods of comparison and systematization of research material are applied; deductive - for a systematic description of the phenomenon under study; systematization of the results of empirical research; empirical: diagnostic complex for the study of the formation of communicative competence; mathematical and statistical: Fisher's angular transformation criterion to establish the reliability of differences between the indicators of experimental groups.*

*It was found that children with intellectual disabilities of older preschool age have a complete lack of communicative competence in general. Insufficient level of cognitive-motivational criterion revealed the predominance of zero level of communication skills, situationality of statements, prevalence of situational-business communication, which is characteristic of younger children with normal development, as well as a tendency to avoid problematic situations. There is a significant predominance of zero level of formation of the behavioral criterion, which is manifested in the lack of adequate ways of communication, the lack of communicative techniques, both the use of verbal and nonverbal means of communication. Lack of mastery of non-situational forms of communication is manifested in the lack of stable motives for communication with adults, reduced need for communication, low development of speech communication, lack of interest in contact, inability to navigate communication, predominance of protective reactions of avoidance and aggression.*

**Keywords:** *speech activity; intellectual disabilities; communicative competence; verbal / non-verbal communication; speech disorder; senior preschooler.*

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## Introduction

Children with moderate intellectual disabilities are a diverse group in terms of the severity of various disorders and possible prospects for development. However, this category children are characterized by underdevelopment of all speech components: lexical-grammatical, phonetic-phonemic, morphological, syntactic; verbal and nonverbal communication. The speech disorders complexity in moderate intellectual development disorders is determined not only by external, complex morphological and functional disorders (Boryak et al., 2021; Konoplyasta, 2010; Sheremet, 2010; Tarasun, 2010), but also by communication difficulties, which lead to personal and social adaptation complications, especially when entering school (Chobanyan, 2015; Bgazhnokova, 2007; Muller, 2000).

Deficiencies in speech comprehension in children with intellectual disabilities (CID) are combined with an increased likelihood of social difficulties that do not level spontaneously, but require specially organized therapeutic intervention (Marrus & Hall, 2017). The inability to understand the spoken language of selected category children leads to such negative consequences as: parents' anger / rage against the child due to the inability to comply with requests, to respond to their comments; the risk of social isolation increases due to lack of interaction with peers (Loukusa et al., 2018). Lack of children with moderate intellectual disabilities (hereinafter – CMID) desire to interact with peers and adults, inability to use the communication means leads to the fact that when entering school such children are outside social contacts, which hinders participation in typical curricular measures (Kleinert et al., 2010). The lack of communicative flexibility in CID is a factor influencing their communicative competence assessment, and its absence enhances the speech impairment perception (Harasty et al., 2009).

Today, the problem of speech and speech disorders manifestations due to brain lesions, which lead to certain complications in their mastery, remains acute. Speech disorders with intellectual disabilities and developmental delays in the psycholinguistic direction, have been insufficiently studied. Single foreign experimental studies based on the psycholinguistic approach relate to the study of: lexicalization features of target words by younger schoolchildren with typical and delayed development (Barbosa & Nicoladis, 2016); the impact of attention deficit hyperactivity disorder on speech formation (Barkley, 2006); the verbal memory influence on speech comprehension in typical and retarded development (Boyle et al., 2013); intellectual abilities features, speech

development in Williams syndrome (Mervis & John, 2010); speech functions specifics in children with autism spectrum disorders (Foursha-Stevenson et al., 2017), etc.

The author's assumption regarding the study of the communicative competence of the CMID is based on the fact that the child may not have a common language, but he must understand the language addressed to him and use the communication means available to him.

On the theoretical analysis basis of the scientific achievements (Arushanova, 2005; Bgazhnokova, 2007; Lipakova, 2014; Lysina & Sheryazdanov, 1989; Petrovskaya, 1989) communicative competence of the selected children category of the senior preschoolers is interpreted as the ability to interact effectively with others through personal resources in the socio-cultural environment and beyond. Under personal resources the cognitive-motivational and behavioral criteria indicators are understood (Table 1).

**Table 1.** Cognitive-motivational and behavioral criteria indicators of personal resources

| <b>Communicative competence</b>  | <b>Indicators</b>  |
|----------------------------------|--|
| cognitive-motivational criterion | the child's readiness to communicate with adults and peers (understanding of the addressed speech); desire for interaction; ability to use interaction types; positive attitude and attitude towards the communication partner |
| behavioral criterion             | possession of adequate communication means, communication techniques possession (verbal and nonverbal communication means)   |

Source: Authors' own conception

*Cognitive-motivational criterion* – is an education, developed on the basis of knowledge, skills and abilities, the ability to implement the appropriate psychophysical level of the selected children category communicative activity, which is manifested in the interaction with adults and peers. This ability is related to the general side of the psyche's functioning, which is manifested not in specific activities, but in the general CMID activity forms. Among the communicative abilities the presence of attitude to communication – the individual's readiness to speech activity, which depends on the needs and objective situation, the level of need for communication: it is based on motive and purpose, motivating factors of

speech action, as well as speech utterances denotation (speech intentions determine the communicators' speech behavior) are included.

*Behavioral criterion* consists of choosing the appropriate communication way, the choice of ethical and value behavior patterns (O. Leontiev, 2001). However, studies of foreign psychologists and psycholinguists prove the fact that non-verbal means play a significant role not only in communication but also in speech-forming processes and in the speech perception process (Argyle, 1979; Birdwhistell, 1970; Ekman, 1972).

## Methodology

The sample of the study consisted of 94 preschoolers, including 53 PMID and 41 preschoolers with light intellectual disabilities (hereinafter – PLID). The communicative competence study was carried out taking into account the comparative principle by comparing the results with the indicators of PMID and PLID.

To ensure the reliability of the provisions, conclusions and solutions of the outlined research tasks, a set of complementary methods was used: theoretical: comparison and systematization of research material to determine communicative competence in the structure of this category children's social readiness; deductive – for a systematic phenomenon description; inductive – to establish patterns, systematize the empirical research results; empirical: diagnostic complex for studying the communicative competence formation (hereinafter – CC) by cognitive-motivational criterion and its indicators: child's practical readiness for a certain communication type with adults and peers (“Methods of studying the state of impressive, expressive speech and alternative communication”) (Lopatina & Pozdnyakova, 2006); desire for interaction, the ability to use interaction types (“Methods of studying the leading communication form with adults” A. Ruzskaya); by behavioral criteria and such indicators as: the choice of adequate communication means (verbal and nonverbal communication means), the choice of ethical and value behavior patterns (Methodology “Pictures” by E. Smirnova); mathematical and statistical: Fisher's angular transformation criterion to establish the differences reliability between the experimental groups' indicators.

Taking into account the speech underdevelopment specifics in the selected children category, the proposed tasks did not require a verbal answer from each child. If the child did not cope with the tasks (did not understand the question content, did not know the answer or for other reasons could not answer, etc.), alternative communication means (cards),

which allowed to reveal the child's existing social and communicative experience were used.

**The aim of the article** is studying the communicative competence formation as a social readiness structural component for schooling of senior preschoolers with intellectual disabilities of moderate degree.

**Results.**

The modified studying method of the cognitive-motivational criterion indicators (Lopatina & Pozdnyakova, 2006) allowed to determine whether the child understands the oral speech addressed to him, as well as whether the child expresses himself through speech or other means.

During the tasks, 47% of PMID, unlike PLID, could not establish long-term visual contact with an adult, did not respond to touch to the shoulder, did not show a reaction to speech and did not understand the task essence. The children were constantly distracted from the instructions and execution, did not understand its meaning; began to show / translate all the pictures in turn. The child's mild visual impairment, which caused impaired visual perception were an additional obstacle to the tasks' performance.

Based on the studying results of the impressive, expressive speech side state and the use of alternative communication tools, the research quantitative and qualitative analysis of the results was carried out.

Investigating impressive speech, there are four formation levels in the selected preschoolers' category (zero, low, medium, high) (Table 2).

**Table 2.** Formation levels of impressive speech (%)

| Levels       | PMID        |            | PLID        |            |
|--------------|-------------|------------|-------------|------------|
|              | abs.numbers | %          | abs.numbers | %          |
| High         | –           | –          | –           | –          |
| Medium       | 8           | 15         | 14          | 34,2       |
| Low          | 17          | 32,1       | 17          | 41,4       |
| Zero         | 28          | 52,9       | 10          | 24,4       |
| <b>Total</b> | <b>53</b>   | <b>100</b> | <b>41</b>   | <b>100</b> |

Source: Authors' own conception

The results show that the vast majority of PMID (75.6%) – demonstrated low and medium levels of impressive speech. In contrast, PLID showed mostly zero and low levels – 85%, the average level of impressive speech development is observed in 15%. However 85% was able to correctly show objects and pronounce the phonetic words depicted in the pictures. Understanding the features names, as well as grammatical categories (singular and plural nouns and verbs, word-forming models) in

this group children caused significant difficulties, most likely due to the concepts emergence of subject features at a later date in ontogenesis. This group children successfully coped with the tasks of understanding the meaning of objects, phonetic words, with mistakes showed parts of objects, generalizing words and simple actions. Tasks aimed at understanding the grammatical constructions of word change and word-forming patterns, children performed with numerous errors. An important condition for children’s understanding of the images was the simultaneous presentation of no more than two color realistic pictures. 52.9% of children were at zero level of impressive speech development. PLID, which showed zero level, had difficulty even in recognizing objects, phonetic words and simple actions, chaotically showing all the pictures in a row. Understanding of grammatical categories for this level children of impressive speech development was inaccessible. This subgroup children have significantly limited passive vocabulary, narrowed perceptions of the world around them, which is a cognitive impairment consequence. The obtained results indicate that the level of impressive speech formation in most of the studied children was at low and zero levels.

**Table 3.** Levels of expressive speech formation (%)

| Levels       | PMID         |            | PLID         |            |
|--------------|--------------|------------|--------------|------------|
|              | abs. numbers | %          | abs. numbers | %          |
| High         | –            | –          | –            | –          |
| Medium       | 6            | 11,4       | 11           | 26,8       |
| Low          | 19           | 35,8       | 18           | 43,9       |
| Zero         | 28           | 52,8       | 12           | 29,3       |
| <b>Total</b> | <b>53</b>    | <b>100</b> | <b>41</b>    | <b>100</b> |

Source: Authors' own conception

According to the results, the majority of PLID (52.8%) – demonstrated zero level of expressive speech formation; 35.8% of children showed a low level of expressive speech development. The average level was demonstrated by 11.4%, and none of the children in the experimental group showed a high level. These levels reflect children’s ability to pronounce individual words and name individual objects or phenomena. Full-fledged phrasal speech in all PLID of the experimental group was not formed. Children classified as low-level named some objects and simple actions, simplifying and distorting the constituent structure of words (“di” instead of “drink”). Often this group children replaced commonly used words with

phonetic words (“av” instead of “dog”, “drr” instead of “car”). Zero level of expressive speech development is represented by 52.8% children who randomly chose any words and combined sounds they know.

Thus, the study results of the expressive speech state on the second tasks block allow to state that CID is characterized by impoverished everyday vocabulary, common vocabulary, also characterized by simplification of word structure or their replacement by simpler mimic words, unformed full-fledged common phrases. Disorders of expressive speech cause difficulties for children in expressing their own thoughts and feelings in communication. Accordingly, PLID experience significant difficulties both in understanding the essence of other people’s speech and in formulating their own appeals to express their needs and feelings. The third methods block for the study of alternative communication means is also represented by four levels (Table 4).

**Table 4.** Levels of alternative communication means formation (%)

| Levels       | PMID        |            | PLID        |            |
|--------------|-------------|------------|-------------|------------|
|              | abs.numbers | %          | abs.numbers | %          |
| High         | –           | –          | –           | –          |
| Medium       | 7           | 13,2       | 12          | 29,3       |
| Low          | 16          | 30,1       | 18          | 43,9       |
| Zero         | 30          | 56,7       | 11          | 26,8       |
| <b>Total</b> | <b>53</b>   | <b>100</b> | <b>41</b>   | <b>100</b> |

Source: Authors' own conception

It can be stated that the vast majority of PMID (56.7%) – are at zero level of use of alternative communication means; 30.1% – low level. Preschoolers were partially given the task of understanding words using an icon: children correctly indicated several icons depicting objects and their parts, as well as depicting the features of objects (large–small). Tasks for understanding the icons denoting actions, generalizations and grammatical categories were not available for children, 56.7% of respondents showed a zero level of alternative communication. At the same time, the children tried to replace oral utterances with non-verbal communication means.

The obtained results correspond to the leading idea of psycholinguistic theory of speech utterance production, according to which speech is considered as a complex multilevel system, and the separate utterance producing process – as a complex psychological process, represented by the following stages: motive – “intention” – “internal programming” – vocabulary – grammatical development – program motor

implementation (O. Luria, 1998). Experimental data showed that in the PMID is a simultaneous immaturity of several stages, which, accordingly, significantly limits the possibilities for the use of verbal communication means. The general survey results of the children showed that all three studied impressive / expressive speech aspects and the use of alternative communication are at approximately the same development levels, but the most formed is the impressive speech side. The greatest difficulty in children is the use of verbal communication means.

The application of A. Ruzska's method allowed to determine the leading communication form of the child with others and provided consistent modeling of three communication situations, each of which corresponded to a certain studied process form. Children were asked to play with toys, read a book or talk to an adult. The experimenter recorded: the order of the situation choice, the attention object in the first minutes, the activity nature in relation to the attention object, the child's comfort level in communication (tense, constrained, embarrassed, calm, cheerful), nature, content, speech topic, the questions presence, requests for help, the desired duration of the child's interaction. Depending on the certain indicators severity in children, the leading communication form was determined: extra-situational-personal (ESP), extra-situational-cognitive (ESC), situational-business (SB).

The experiment results showed that the PLID in comparison with the PMID are better oriented in the communication norms and rules, they have a more developed practical readiness to interact with others (Table 5).

**Table 5.** Levels of formation of leading communication forms (%)

| Situations<br>Levels | PMID |      |     | PLID |      |      |
|----------------------|------|------|-----|------|------|------|
|                      | SB   | ESC  | ESP | SB   | ESC  | ESP  |
| High                 | -    | -    | -   | -    | -    | -    |
| Medium               | 3,9  | 1,9  | -   | 17,2 | 4,8  | -    |
| Low                  | 28,8 | 9,7  | -   | 24,3 | 17,2 | -    |
| Zero                 | 36,8 | 18,9 | -   | 12,2 | 9,7  | 14,6 |

Source: Authors' own conception

The obtained data allow us to state that in the vast majority of PMID the leading communication form is situational-business of medium and low

levels (63.5%) and in 22% there is extra-situational-cognitive of medium and low levels.

In PMID with the leading situational and business form of communication, first of all aroused toy interest. Discussions of the read book and questions about its plot caused them to lose interest or completely refuse to interact. The communication duration did not exceed 5 minutes, which is much shorter than the interaction time of PLID. Children with a leading non-situational-cognitive form were characterized by an interest in learning about phenomena and objects of the physical rather than the social world. This group children were more interested in animals, their lives, the proposed children’s literature content, reading aloud with further plot discussion in the pictures did not arouse interest. The special formation of extra-situational-personal communication in preschoolers is accompanied by an increase in their attention to the adult’s influences; organized and purposeful behavior; cognitive activity increase, and also information assimilation efficiency, general training level increase.

The majority of PMID respondents is dominated by situational-business communication form – 69.8%, and the age dynamics of PMID showed the presence of 30.2% of non-situational-cognitive communication form of medium and low levels (Table 6).

**Table 6.** The study results of the leading communication forms (%)

| The leading communication form | PMID        |            | PLID        |            |
|--------------------------------|-------------|------------|-------------|------------|
|                                | abs.numbers | %          | abs.numbers | %          |
| Situational and business       | 37          | 69,8       | 22          | 53,6       |
| Extra-situational-cognitive    | 16          | 30,2       | 13          | 31,7       |
| Extra-situational-personal     | –           | –          | 6           | 14,7       |
| <b>Total</b>                   | <b>53</b>   | <b>100</b> | <b>41</b>   | <b>100</b> |

Source: Authors' own conception

During the experiment, the vast majority of children in both groups chose toys. Four PLID showed interest in the adult in the first turn sample. The both groups children felt free and as comfortable as possible while manipulating toys / books, during the conversation some children felt tense, other children behaved passively. Reading children’s literature aroused the

interest of two children, during the discussion of the fairy tale the children were distracted, were not focused, could not answer direct questions.

In general, the PLID's interest is higher than that of PMID'. Since interest is one of the main motivation components, the results indicate the motivation dependence on the degree of the child's intellectual disability. Thus, low motivation to communicate, inactivity against the background of persistent cognitive impairment, lead to the presence of effective communicative reactions, thereby forming an inability to understand the nature of their own relationships with others.

During the study, the PMID did not seek to agree with the adult attitude to the subject, their statements are mostly situational in nature, did not ask cognitive questions, did not share opinions about their friends in the group. In general, they were dominated by statements about toys, animals, household items.

Diagnosis of behavioral criterion indicators of the CC by the "Pictures" method, which reflects the ability to cooperate, joint activities, adequacy in communication, showed that most PMID choose to avoid a problem situation (62.3%), aggressive solution in situations of interaction with peers 33.9%), verbal solution of the problem situation demonstrated (3.7%), productive solution indicators of the problem situation (Table 7).

**Table 7.** The study results of the behavioral strategies by the "Pictures" method (%)

| Answers criteria      | Total of answers |      |
|-----------------------|------------------|------|
|                       | PMID             | PLID |
| Avoidance             | 62,4             | 43,6 |
| Aggression            | 33,9             | 21,9 |
| Verbal decision       | 3,7              | 34,5 |
| A productive solution | –                | –    |

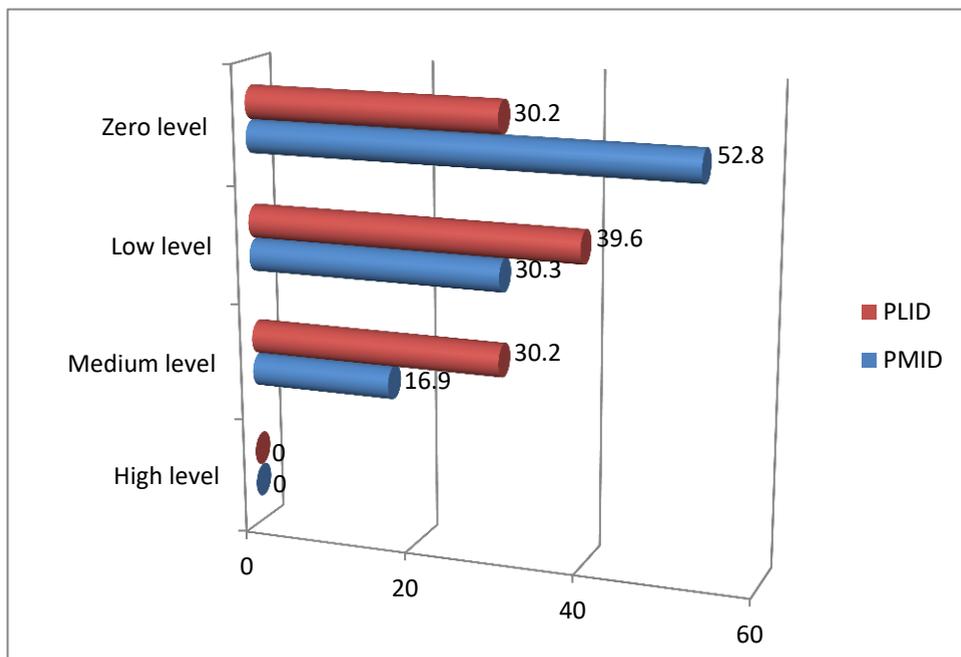
Source: Authors' own conception

## Discussion

The obtained results highlighted that 62.4% of PMID showed complete helplessness in communication with peers, as they were not able to find a solution to the problem situation on their own. Therefore, when asked by the experimenter to all four images, the children did not provide any independent solutions, which indicated not only zero level of

communication skills, but also the inability to navigate in the social space, they did not seek help from a tutor, did not complain. The following answers, which had independent decisions context, belonged to the aggressive resolution of conflict situations (“hit”, “bite”). Note that the aggressive situations solution with the use of physical actions and negative emotional reactions was demonstrated mainly by the same PMID (33.9%). Only 3.7% of PMID demonstrated a verbal solution to the problem situation. Then a 6-year-old and 8 months girl, in two of the four proposed situations, warned her peers with the gesture “This can not be done!”.

The empirical study results revealed the specifics of the communicative competence indicators formation of the PMID, which is specified in the levels (Fig. 1).



**Fig.1.** Data on the levels of communicative competence formation (%)  
Source: Authors' own conception

It can be stated the fact that in general, PMID did not ignore social contacts, but for the most part they were not able to initiate and offer communication on their own. Slow comprehension development and use of speech leads to the manifestation of undesirable behavior forms, while children were able to catch communicators' non-verbal manifestations.

Expressive speech was significantly limited by the use of individual words, vocabulary was depleted, mainly consists of words and expressions often used in everyday life.

It is specified in more detail the PMIDs' phenomenology of communicative competence (CC), in accordance with certain levels:

1) the average level of CC formation (16.9%) is represented by PMID, which demonstrate certain elements of initiation and inclusion in communication, namely: understand the spoken language, distinguish / listen to the communicator, maintain eye contact, navigate in a specific communication situation, adequately respond to the communication partner. There are signs of a motive for communication: they can make a request, try to express a need, ask for help, show consent / protest, can participate in simplified speech communication with an adult / peer, with the support / help of an adult, are able to read the emotional state of the communication partner in joint action, but can not subordinate their behavior to the partner's interests.

2) low level of CC formation (30.3%) is represented by PMID, in which the entry into the communication process is initiated by a partner, namely: addressed speech is not fully understood (as a consequence, inability to respond in response), isolate the communicator / establish eye contact, with a lack of focus on the message. Speech communication is extremely limited. Failure to understand the emotional state of the partner, the inability to take into account his needs, so communication is not productive, or leads to conflict situations.

3) zero level of CC formation (52.8%) is represented by PMID, in which there is no reaction to the initiative to establish contact, there is a manifestation of inadequate emotional reactions: not understanding of spoken speech, no ability to distinguish communicator / establish eye contact, focus on the message. Establishing emotional contact with this children category is possible with the adult's stimulating help, respectively, communication with peers is absent. Characteristic alienation from the team, inertia, passivity, autism, pronounced disorders of the emotional and volitional sphere, deepened by the extremely low level of speech as communication means.

## **Conclusions**

The study of PMIDs' communicative competence shows that children have a low level of communication skills, situational statements, the prevalence of situational-business communication and avoidance of

problematic situations, which, in turn, is an obstacle to full entry into the socio-cultural environment and effective interaction with the environment. Lack of mastery of non-situational communication forms is manifested in the lack of stable motives for communication with adults, reduced need for communication, unformed speech communication and behavioral features (lack of interest in contact, inability to navigate in communication, avoidance, aggression).

Absolute immaturity of communicative competence is observed in PMID (zero level of 52.8 %  $\varphi^*=1,92$  with  $q \leq 0.02$ ) both as a whole and separately by cognitive-motivational (zero level in ML=58,4 % against LL=39,1 %,  $p \leq 0,02$ ), and behavioral criteria (ML=50,9 % against LL= 39,6 %,  $q \leq 0,02$ ). Thus, with an insufficient level of formation on the cognitive-motivational criterion, the predominance of zero level of communication skills (in 53 % with  $p \leq 0,02$ ), situational statements (in 56,8 % with  $p \leq 0,02$ ), prevalence of situational-business communication (in 69,8 % with  $p \leq 0,01$ ), which is characteristic of children with typical development, and also tendency to avoid problem situations (in 62,4 % with  $p \leq 0,01$ ).

There is also a significant predominance of zero level (ML=50,9 % against LL=26,8 %  $\varphi^*=1,92$  with  $q \leq 0.02$ ) behavioral criterion formation, which is manifested in the immaturity of adequate communication ways (in 50,2 % with  $p \leq 0,02$ ), lack of communicative techniques, both the use of verbal and nonverbal communication means (in 52,8 % with  $p \leq 0,02$ ). Insufficient mastery of non-situational communication forms is manifested in the lack of stable motives for communication with adults, reduced need for communication, low development of speech communication, lack of interest in contact, inability to navigate the communication situation, the predominance of protective reactions of avoidance and aggression. This creates difficulties for the full entry of such children into the new social environment and effective interaction with the environment.

The study necessitates the introduction of targeted psycholinguistic and technological influence, which will increase the level of speech development of preschool children with intellectual disabilities, sufficient for the implementation of communicative and speech activities necessary for their successful communication. Promising further research leads to the development and experimental testing of psycholinguistic approach technology in correctional and developmental education of the selected children category.

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