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PSYCHOLOGICAL AND PEDAGOGICAL CONDITIONS OF LANGUAGE ACQUISITION IN DEAF CHILDREN

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Abstract

This article examines the psychological and pedagogical conditions of language acquisition in deaf children. The study analyzes the specific characteristics of language development under conditions of hearing impairment, as well as their impact on cognitive activity. Particular attention is paid to the differences between language acquisition in deaf and hearing children, the sensory foundations of speech development, and the compensatory potential of preserved sensory analyzers. The article highlights the role of language in cognitive development and emphasizes the importance of early intervention, a rich communicative environment, and systematic educational support. The findings suggest that successful language acquisition in deaf children depends not only on the degree of hearing loss but also on timely pedagogical assistance, communicative experience, and educational conditions.

Keywords: deaf children, language acquisition, speech development, cognitive activity, thinking, psychological and pedagogical conditions, compensation, special education, deaf education.

Introduction

Language is an important means in the formation of human cognitive activity, thinking, and social relations. From the first years of life, a child acquires language through communication with the people around him or her and, on this basis, masters social experience. Hearing ability is one of the main conditions for the natural perception and development of spoken speech. Therefore, hearing impairment has a specific influence on a child's speech development, communicative activity, and the formation of cognitive processes.

The process of language acquisition in deaf children differs significantly from that of hearing children. Due to the limited possibility of perceiving speech information through hearing, the natural formation of spoken language becomes difficult for them. However, this condition does not completely determine the development of a child's intellectual potential. Modern psychological and pedagogical studies show that the development of deaf children largely depends on the communicative environment created for them, early corrective-pedagogical support, and opportunities for language acquisition.

The study of the psychological and pedagogical conditions of language acquisition in deaf children is one of the urgent issues of deaf education. This is because the timely formation of language ensures not only the child's speech development but also the development of thinking, cognitive activity, and social adaptation. From this perspective, the present article analyzes, on the basis of scientific sources, the specific characteristics of the language acquisition process in deaf children, the psychological and pedagogical factors influencing it, and their significance for child development.

Psychological and Pedagogical Characteristics of Language Acquisition Conditions in Deaf and Hearing Children

The process of language acquisition in deaf children differs, to a certain extent, from that of hearing children in terms of its psychological and pedagogical characteristics. Due to hearing impairment, deaf children are unable to perceive surrounding speech naturally; therefore, spoken

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language does not develop independently. As a result, language acquisition requires specially organized educational and pedagogical conditions. However, the compensatory capacities of visual, motor, and kinesthetic analyzers serve as an important foundation for the development of communication, understanding of the surrounding environment, and cognitive activity in deaf children. Therefore, early corrective-pedagogical intervention and the creation of a rich language environment are of crucial importance for the language and speech development of deaf children.

In normally developing children, two fundamental conditions are necessary for the formation of the need for verbal communication and for the successful development of innate language abilities. First, the child's hearing ability must be preserved. Second, the child must live in an environment of hearing and speaking people and engage in regular communication with them. The disruption of either of these conditions creates serious difficulties in the natural development of speech.

The history of psychology and pedagogy contains accounts of children who, in early childhood, became isolated from human society and lived for a long time among wild animals before eventually being returned to human communities. Although such children possessed normal hearing, their deprivation of social and linguistic environments resulted in vocalizations that resembled the sounds of the animals among whom they lived rather than human speech. After being returned to normal social conditions, they experienced considerable difficulties in acquiring language and mastered it very slowly. This phenomenon clearly demonstrates the decisive role of the social environment and verbal communication in a child's language development.

The influence of the social environment is also manifested in the fact that a child is born with the biological capacity to acquire any natural language; however, he or she acquires the language of the society in which he or she lives, namely the native language. Thus, language development is closely connected not only with biological factors but also with social factors.

If a child is deprived of hearing, the speech communication that is natural for the development of a hearing child does not emerge in a timely manner and therefore cannot influence development in the same way as it does in hearing children. Because the child is unable to perceive spoken language through hearing, the need for verbal communication does not develop naturally, and opportunities to acquire the speech models necessary for the development of his or her own speech become limited.

The developmental conditions of a hearing child and a deaf child growing up in the same family and social environment differ precisely because of the presence or absence of hearing. For example, a gentle and affectionate verbal address from adults often has a calming effect on a crying hearing infant aged three to four months. A deaf child, however, cannot perceive speech sounds and therefore does not respond either to the meaning of words or to their intonation. His or her crying and shouting are poor in intonational variety, while vocalizations (cooing) tend to be uniform and monotonous in character.

In hearing children, the first manifestations of speech begin to develop from the age of seven to eight months. The child monitors his or her own vocalizations through hearing, repeats them, and gradually attempts to imitate the speech of adults. By the second year of life, these vocal reactions, reinforced through auditory perception, gradually develop into speech.

In children with hearing loss, however, the natural conditions necessary for the development of spoken language, which have evolved throughout the course of human history, become increasingly limited with each passing month of life. Due to the absence of auditory feedback, the development of babbling gradually declines, and without special corrective and pedagogical intervention, spoken language does not develop independently.

Hearing loss and the incomplete development or absence of speech do not affect all components of a child's sensory-cognitive development to the same extent. Cognitive processes rely on the

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functioning of various analyzers and on the compensatory relationships that exist among them. Although limitations in the functioning of the auditory analyzer negatively affect processes related to the perception and processing of sound information, certain cognitive functions may develop successfully through the preserved capacities of visual, tactile, motor, and kinesthetic analyzers.

The results of psychological and pedagogical research indicate that children with hearing impairments often demonstrate relatively well-developed visual perception of the external characteristics of objects, an understanding of spatial relationships, and forms of thinking based on practical and visual activity. At the same time, the limited access to speech information typically acquired through hearing may negatively influence the formation of abstract concepts, the ability to generalize, the understanding of logical relationships, and the development of verbal-logical thinking.

Insufficient speech development or the complete absence of speech complicates the process of organizing knowledge about the surrounding world and acquiring social experience. This is because language serves not only as a means of communication but also as a psychological mechanism that regulates cognitive activity, facilitates generalization, and organizes thought. Therefore, the characteristics of cognitive development observed in children with hearing impairments are often associated not so much with hearing loss itself as with limitations in language development.

Contemporary studies in deaf education and psychology (L.S. Vygotsky, R.M. Boskis, J.I. Shif, G.L. Zaitseva, and others) confirm that the negative effects of limitations in sensory-cognitive development can be significantly reduced through the purposeful development of preserved sensory analyzers, the integrated use of sign language and spoken/written language, and the provision of early corrective and pedagogical intervention. In particular, educational models based on bilingualism (sign language and spoken language) are considered an important factor in promoting children's cognitive development, thinking processes, and communicative competence.

Thus, hearing loss and underdeveloped speech affect different components of sensory-cognitive activity in different ways. The level of cognitive development depends not only on the nature and severity of the impairment but also on the child's individual abilities, the functioning of preserved analyzers, and the conditions of timely corrective-developmental education and upbringing.

Since deaf children grow up among hearing people and are raised under their guidance, most processes of practical and visual cognition develop under the indirect rather than the direct influence of language. Therefore, even when they have not received special language instruction during the preschool years, they are still able to acquire a certain amount of practical experience, learn to orient themselves within their environment, understand situations, and respond to them appropriately.

In deaf children with healthy intellectual functioning and strong compensatory capacities, such thinking operations as analysis, synthesis, practical abstraction, and visual generalization develop through purposeful practical activity. Their practical and visual thinking evolves in the course of cooperative interaction and shared activities with adults.

Adults transmit their knowledge, skills, and experience to deaf children not so much through verbal explanations as through the demonstration of activities, practical actions, and the use of gestures. In this process, the initial gestural means of communication are formed, enabling deaf children to interact with those around them. These early communicative tools subsequently serve as an important foundation for language acquisition.

By the time they reach school age, deaf children often achieve significant progress in cognitive development. This provides them with the opportunity to engage in language learning in a relatively conscious and purposeful manner. However, visual thinking that develops outside the framework of language is not fully sufficient for comprehensive cognitive development. Likewise, although limited

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gestural communication facilitates development, it cannot completely eliminate certain cognitive and communicative constraints. Spoken communication, in turn, is acquired through visual perception of speech, observation of articulation, and reliance on vibratory-kinesthetic sensations.

These factors create unique developmental conditions for deaf children who begin learning language at school age. Such conditions differ fundamentally from those under which hearing children acquire language naturally. Therefore, the formation of spoken language in deaf children from as early an age as possible—during early childhood or the preschool years—is of particular importance.

If language instruction for deaf children begins during the early developmental period that corresponds to the most intensive stage of speech development in hearing children, the developmental gap between deaf and hearing children can be significantly reduced. The expansion of communication opportunities and the earlier development of verbal thinking positively influence the cognitive, play, and social activities of deaf preschool children. Compared with peers who begin learning language only at school age, such children are less likely to become socially isolated from the hearing community and are more actively engaged in communicative interactions.

Thus, the necessity of introducing deaf children to spoken language from an early age is fully justified not only from a pedagogical but also from a psychological perspective, as it corresponds to their developmental needs and compensatory capacities. Early corrective and pedagogical intervention serves as an important condition for minimizing developmental differences between deaf and hearing children, facilitating successful socialization, and promoting the formation of a well-rounded personality.

Thus, the conditions for language acquisition and speech development in deaf children differ fundamentally from the conditions under which hearing children acquire language naturally. Because a child with hearing loss cannot directly perceive spoken language, the need for verbal communication does not emerge naturally unless special pedagogical intervention is provided.

Deaf children acquire language primarily through visual perception, and this process is reinforced by speech-kinesthetic sensations. They are unable to fully perceive the intonational and expressive features of speech and cannot directly benefit from the auditory feedback and speech models that play a crucial role in the language development of hearing children. Consequently, deaf children acquire spoken language only through indirect means, within specially organized educational settings, and by gradually overcoming a range of linguistic and communicative difficulties.

In deaf children, spoken language is perceived not through the auditory analyzer but through visual and visual-motor analyzers, which were not historically adapted for the perception of sound-based speech. As a result, the sensory foundations underlying the formation of initial word representations differ substantially from those of hearing children.

In hearing children, speech development is based on the perception of speech addressed to them through hearing. The child perceives spoken language, attempts to reproduce the words he or she hears, and the mental representations of words stored in memory gradually become more refined, stable, and integrated into active spoken communication. In this process, pronunciation is continuously adjusted to an auditory model or standard. As I.M. Sechenov noted, speech production is guided by a specific "measure," that is, by a previously formed auditory image of the word.

The sound structure of spoken words perceived through hearing creates the necessary conditions for dividing words into syllables. In hearing children, the syllabic structure of a word expressing a particular meaning emerges before the ability to distinguish subtle phonetic features of speech is fully developed. During the second and third years of life, even when pronunciation has not yet reached full accuracy, the syllabic structure of words already demonstrates a relatively stable character.

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At the same time, the dynamic nature characteristic of spoken words manifests itself from the earliest stages of childhood in the grammatical modification of words within sentences. When a word undergoes grammatical change, its core meaning is preserved, while at the same time it acquires additional grammatical meaning as part of the sentence structure. In this process, the integrity of the auditory and speech-motor representations of the word remains intact.

The understanding of the morphological structure of words, that is, the ability to recognize their constituent morphemes, develops later than the awareness of syllabic structure. In hearing children, this phenomenon is reflected initially in their ability to modify words grammatically during early childhood, later in their capacity to produce rhymes during the preschool years, and subsequently in their relatively smooth transition from syllable-by-syllable reading to reading based on meaning and contextual prediction.

In deaf children, however, the initial stages of language learning are characterized by the formation of visual representations of words reinforced by motor sensations. Depending on the instructional approach, deaf children become familiar with language through the perception of written words, spoken words, or words represented through fingerspelling (dactyl communication). Among these forms, the written word represents the most stable visual form of language because it contains relatively complete information about the phonetic structure of the word.

The visual perception of written words enables deaf children to develop initial concepts regarding the signaling function of words and their phonetic structure. Under conditions of special education, visual perception plays a crucial role in the formation of speech-motor representations. At first, when a deaf child perceives written words visually, the process differs little from the perception of unfamiliar shapes and symbols. During instruction, however, a specific “direction of eye movement” gradually develops: initially, the child identifies the first and last letters of a word, and as literacy skills improve, he or she gradually learns to distinguish all the letters within the word (M.E. Khvatsev).

However, during the initial stages of language acquisition, the visual perception of written words in deaf children differs from the early stages of reading acquisition in hearing children. For hearing children, reading is an activity that builds upon already developed spoken language and requires the reconstruction of the auditory image of a word. This process is accomplished by converting graphic symbols—that is, letters representing the phonetic structure of language—into speech sounds. In deaf children, by contrast, the visual perception of words, particularly written words, constitutes the initial stage of language acquisition.

In the process of language development, a hearing child first perceives the general phonetic image of a word and subsequently learns, through practical experience, to divide it into syllables and later into morphemes. A detailed phonetic analysis of word structure is achieved gradually during literacy instruction. In deaf children, this process follows a different course. The visual perception of written words provides information about their letter composition. This information is reinforced through fingerspelling (dactyl communication) and speech production training. The ability to retain graphic representations of words in memory facilitates their accurate reproduction and supports the development of correct writing skills.

Deaf children acquire an understanding of the syllabic structure of words during the process of mastering spoken language. Consequently, awareness of syllabic structure develops later than knowledge of the letter composition of words. The division of words into syllables is therefore built upon the previously established ability to analyze words letter by letter.

The limited nature of speech practice, together with the later acquisition of the syllabic structure of words compared to hearing children, also slows the development of the subsequent morphological

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stage of language acquisition in deaf children. The morphological stage plays an important role in expanding vocabulary, understanding the variability of words, and mastering the grammatical structure of language.

Therefore, teaching language to deaf children through indirect channels gives rise to distinctive characteristics in the word representations that they develop. For this reason, educators working with deaf children must possess a thorough understanding of these characteristics, be able to anticipate potential language difficulties, and apply methodological approaches specifically designed to overcome them.

As A. Wallon noted, hearing children “live within language.” In contrast, the conditions under which speech skills are formed in deaf children are unique and considerably more complex. Even when educational processes are organized in the most effective manner, opportunities for verbal communication among deaf children often remain limited. This situation may restrict certain aspects of cognitive activity; nevertheless, the psychological and compensatory capacities necessary for cognitive development remain preserved.

In deaf children, the development of practical and visual-figurative thinking often progresses considerably ahead of language development. This phenomenon is particularly evident in cases where language instruction begins at a relatively late age. In hearing children, such a pronounced discrepancy is generally not observed, since thinking and language typically develop in close interaction and mutual dependence.

At the same time, the relatively advanced development of practical and visual-figurative thinking provides important support in overcoming difficulties related to language acquisition. From the earliest stages of language learning, deaf children tend to approach language consciously and with a high degree of intellectual engagement. This highlights the importance of relying on their cognitive strengths and developmental potential within the framework of special education.

Particular attention should therefore be paid to the major challenges characteristic of the early stages of language development in deaf children. Although many of these challenges have been investigated from a psychological perspective, further understanding of their nature remains of considerable theoretical and practical significance for improving methods of language instruction and enhancing the effectiveness of educational interventions for deaf learners.

In addition, the role of sign language and fingerspelling (dactyl speech) in the speech development of deaf children is examined, and scientific information related to the initial stages of language acquisition is analyzed.

Furthermore, the problem of acquiring word meanings is also considered. Since the system of language contains an extremely diverse range of word meanings, mastering them represents a complex psychological and pedagogical process for deaf children. Particular attention is also given to certain regularities characteristic of deaf children's acquisition of the grammatical structure of language, including the understanding of word inflection, as well as the mastery of word combinations and sentence structure.

Contemporary scientific findings concerning the oral speech, written speech, and speech comprehension abilities of deaf children are presented. In addition, the issue of deaf children's attitudes toward the process of language acquisition—an extremely important yet simultaneously complex process for them—is analyzed.

Thus, the process of language acquisition and speech development in deaf children takes place under psychological and pedagogical conditions that differ fundamentally from those of hearing children. Although hearing impairment hinders the natural development of spoken language, the functioning of preserved sensory analyzers and compensatory capacities serves as an important

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foundation for the child's cognitive and communicative development. Therefore, early corrective-pedagogical intervention, a specially organized language environment, and systematic education constitute the most important conditions for successful language acquisition in deaf children.

Modern Scientific Interpretation of Language Acquisition in Deaf Children

Over the past decades, research in the fields of deaf education, psycholinguistics, and neuropsychology has led to significant changes in perspectives on language development in deaf children. Whereas earlier studies primarily focused on the negative consequences of hearing loss, contemporary researchers place greater emphasis on the child's need for language and on opportunities for timely language acquisition.

According to L. Humphries and colleagues, the primary risk factor in the development of a deaf child is not the absence of hearing itself, but rather delayed language access or language deprivation. The researchers argue that if a child is deprived of a fully accessible language environment during the early years of life, this may have a negative impact on subsequent cognitive, academic, and social development. Therefore, it is essential to provide deaf children with access to a complete and accessible language environment as early as possible.

L.Humphries and colleagues further emphasize that the use of sign language in the development of deaf children does not hinder the acquisition of spoken language; on the contrary, it facilitates overall language development. In their view, the most important factor is that the child acquires language itself, while the modality through which language is acquired—whether auditory or visual—is of secondary importance.

L. Humphries and colleagues emphasize that the use of sign language in the development of deaf children does not hinder the acquisition of spoken language; on the contrary, it contributes to overall language development. According to their view, the primary objective is for the child to acquire language itself, whereas the modality through which language is acquired—whether auditory or visual—is of secondary importance.

Similarly, N. Marschark**,** in his research on the development of deaf children, has demonstrated that early language acquisition plays a decisive role in cognitive development. According to the scholar, many of the academic difficulties experienced by deaf children stem not from hearing loss itself but from delays in language development. Insufficient language development negatively affects reading and writing skills, the ability to generalize concepts, and the performance of complex logical operations.

Marschark argues that all available means of communication should be effectively utilized in the education of deaf children. In this regard, spoken language, written language, fingerspelling (dactyl communication), and sign language should not be viewed as mutually exclusive approaches; rather, they should be regarded as complementary means that support and reinforce one another in the language-learning process.

The Bilingual Approach and Its Pedagogical Significance

One of the approaches receiving considerable attention in contemporary deaf education is the bilingual approach. Research conducted by M. Swanwick has demonstrated that the parallel use of two languages—the national spoken and written language and sign language—can produce positive outcomes in the development of deaf children.

According to Swanwick, sign language, as the natural visual language of deaf children, satisfies their communicative needs, while spoken and written language provides opportunities for broader integration into society. Therefore, the simultaneous development of these two languages contributes to the enhancement of children's communicative competence and academic achievement.

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Studies conducted by T. Mayer and M. Swanwick have also shown that sign language, when acquired as a first language, serves as an important foundation for the development of literacy in deaf children. From linguistic and psychological perspectives, the conceptual system established through the first language facilitates the acquisition of a second language. Consequently, proficiency in sign language does not hinder the acquisition of spoken and written language in deaf children; rather, it supports and enhances this process.

The Importance of Early Pedagogical Intervention

Contemporary studies conducted by **H. Knoors** and **N. Marschark** demonstrate the particular importance of **early diagnosis** and **early pedagogical intervention** in working with deaf children. According to these researchers, the first three years of life represent the most sensitive period for language acquisition and brain development. During this critical stage, it is essential to provide the child with a rich communicative environment, offer pedagogical support to parents, and make effective use of hearing technologies.

Knoors and Marschark emphasize that the successful development of deaf children depends not only on medical rehabilitation but also on pedagogical and social factors. Therefore, contemporary approaches take into account the child's individual abilities, family environment, communicative needs, and educational conditions in a comprehensive manner.

Thus, modern scientific research indicates that successful language acquisition in deaf children depends not only on the degree of hearing impairment but also on early access to language, the availability of an effective communicative environment, and the timely provision of pedagogical support. These findings once again confirm the necessity of ensuring the harmonious development of sign language, spoken language, and written language in the education and upbringing of deaf children.

Conclusion

The analysis of the problem of language acquisition in deaf children demonstrates that hearing impairment influences a child's psychological development not directly, but indirectly through limitations in opportunities for language acquisition. Therefore, the primary challenge in the development of a deaf child is associated not so much with the absence of hearing itself as with insufficient access to a fully accessible language environment. Language serves not only as a means of communication but also as the principal psychological mechanism underlying thinking, cognitive activity, and the acquisition of social experience.

The findings indicate that visual-practical and visual-figurative forms of thinking tend to develop relatively successfully in deaf children, whereas the formation of generalization, abstraction, and conceptual thinking closely related to linguistic means depends directly on the level of language development. Consequently, the cognitive development of a deaf child is determined not only by the nature and degree of hearing impairment but also by opportunities for language acquisition, communicative experience, the functioning of preserved sensory analyzers, and the conditions of timely educational and developmental support.

The theoretical and experimental studies discussed in this article confirm that successful language development in deaf children is closely associated with the creation of a communicative environment from an early age, continuous pedagogical support, and active communication practice. The timely development of language not only enables the child to exchange information but also provides the necessary conditions for understanding reality, systematizing concepts, and consciously acquiring social relationships and experiences.

Thus, ensuring the psychological and pedagogical conditions necessary for language acquisition in deaf children represents one of the central objectives of deaf education. It determines not only the child's speech and language development but also intellectual potential, personality formation, and

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active participation in social life. From this perspective, the primary goal of educating deaf children is not merely to compensate for the consequences of hearing impairment, but to provide the child with opportunities to understand the world and acquire social experience through language.

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