

MECHANISMS FOR PREPARING HEARING-IMPAIRED CHILDREN FOR INCLUSIVE EDUCATION IN THE EDUCATION CLUSTER SETTING

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Abstract

This article examines the methodological foundations for adapting hard-of-hearing children to an inclusive educational environment in the context of an educational cluster. The study is based on the idea that inclusive education cannot be organized effectively through the efforts of a single institution alone; it requires coordinated cooperation among preschool and school organizations, higher education institutions, psychological and medical services, families, community structures, and specialized correctional-pedagogical centers. The article analyzes the pedagogical, psychological, communicative, organizational, and methodological conditions necessary for preparing hard-of-hearing children for active participation in inclusive learning. Special attention is paid to the development of speech communication, auditory perception, social adaptation, emotional stability, and learning motivation. The educational cluster approach is interpreted as a mechanism that integrates resources, specialists, diagnostic tools, methodological support, and individual educational routes. The article emphasizes that successful adaptation depends on early identification of educational needs, differentiated teaching methods, cooperation between teachers and defectologists, family involvement, and the creation of a barrier-free learning environment. The findings highlight the importance of systematic methodological support in ensuring equal educational opportunities for hard-of-hearing children.

Keywords: Inclusive education, hard-of-hearing children, educational cluster, adaptation, methodological foundations, special pedagogy, individual approach, pedagogical support.

Introduction

TA'LIM KLASTERI SHAROITIDA ZAIF ESHITUVCHI BOLALARNI INKLYUZIV TA'LIMGA TAYYORLASH MEXANIZMLARI

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Annotatsiya

Ushbu maqolada ta'lim klasteri sharoitida zaif eshituvchi bolalarni inklyuziv ta'lim muhitiga moslashtirishning metodik asoslari yoritiladi. Tadqiqotda inklyuziv ta'limni faqat bitta ta'lim muassasasi faoliyati orqali samarali tashkil etib bo'lmashligi, bu jarayon maktabgacha va maktab ta'limi tashkilotlari, oliy ta'lim muassasalari, psixologik-tibbiy xizmatlar, oila, mahalla hamda maxsus korreksion-pedagogik markazlar hamkorligini talab qilishi asoslab beriladi. Maqolada zaif eshituvchi bolalarning inklyuziv ta'limda faol ishtirok etishi uchun zarur bo'lgan pedagogik, psixologik, kommunikativ, tashkiliy va metodik shart-sharoitlar tahlil qilinadi. Ayniqsa, nutqiy muloqotni rivojlantirish, eshituv idrokini shakllantirish, ijtimoiy moslashuv, emotsional barqarorlik va o'quv motivatsiyasini kuchaytirish masalalariga alohida e'tibor qaratiladi. Ta'lim klasteri yondashuvi resurslar, mutaxassislar, diagnostik vositalar, metodik ko'mak va individual ta'lim yo'nalishlarini birlashtiruvchi mexanizm sifatida talqin etiladi. Maqolada muvaffaqiyatli moslashuv ta'limiy ehtiyojlarni erta aniqlash, differensial o'qitish usullari, pedagog va defektolog hamkorligi, oilaning faol ishtiroki hamda to'siqsiz ta'lim muhitini yaratishga bog'liqligi ta'kidlanadi.

Kalit so'zlar: inklyuziv ta'lim, zaif eshituvchi bolalar, ta'lim klasteri, moslashuv, metodik asoslar, maxsus pedagogika, individual yondashuv, pedagogik qo'llab-quvvatlash.

Introduction

The development of inclusive education has become one of the most important directions in modern pedagogy, because it is directly connected with the principle of equal access to quality education for every child regardless of physical, sensory, cognitive, social, or communicative characteristics. Among children

with special educational needs, hard-of-hearing children require particular pedagogical attention, since hearing impairment influences not only auditory perception but also speech development, communication, social interaction, emotional self-confidence, and academic participation. In an inclusive educational environment, such children need not only technical support or simplified learning materials, but also a carefully organized methodological system that helps them gradually adapt to the requirements of common educational space.

Hard-of-hearing children often face specific difficulties in understanding oral instructions, participating in group discussions, perceiving teacher explanations, communicating with peers, and expressing their own thoughts clearly. These difficulties may become more serious when the learning environment is not prepared methodologically, psychologically, or organizationally. Therefore, the process of adaptation should not be understood as the child's passive adjustment to existing school conditions. On the contrary, inclusive adaptation means the purposeful transformation of the educational environment in accordance with the individual needs, abilities, and developmental potential of each child. In this sense, the responsibility belongs not only to the child and family, but also to teachers, special educators, psychologists, speech therapists, school administration, higher education institutions, and social support structures.

The educational cluster approach creates favorable conditions for solving these tasks systematically. An educational cluster is based on cooperation between different institutions and specialists who are united by a common pedagogical purpose. In the context of inclusive education, this approach allows schools to receive methodological assistance from universities, correctional-pedagogical centers, psychological services, medical organizations, and community institutions. Such cooperation strengthens the professional competence of teachers, improves diagnostic work, supports the development of individual educational routes, and ensures continuity between preschool preparation, school education, family education, and social adaptation. For hard-of-hearing children, this continuity is especially important because their successful inclusion depends on early support, consistent speech development, auditory training, emotional preparation, and stable communication practice.

The methodological foundations of adapting hard-of-hearing children include several interrelated components. The first component is diagnostic and analytical

work, which helps identify the child's level of hearing perception, speech development, cognitive activity, communication skills, and emotional readiness. The second component is the design of individualized pedagogical support based on differentiated tasks, visual materials, multimodal explanation, assistive technologies, and adapted communication strategies. The third component is the organization of cooperation among teachers, defectologists, psychologists, parents, and cluster partners. The fourth component is monitoring the child's educational progress and social integration in the classroom.

In Uzbekistan, the modernization of education and the expansion of inclusive practices require scientifically grounded methodological approaches that correspond to national educational priorities and international pedagogical experience. The preparation of hard-of-hearing children for inclusive education should be based on humanistic principles, respect for the child's dignity, recognition of individual developmental trajectories, and practical cooperation between all participants of the educational process. Therefore, studying the methodological foundations of this issue in the context of an educational cluster is significant for improving inclusive education practice, strengthening teacher readiness, and creating a supportive learning environment for children with hearing impairments.

Methods

The methodological basis of the study is formed by a complex pedagogical approach aimed at identifying effective ways of adapting hard-of-hearing children to an inclusive educational environment through the mechanisms of an educational cluster. The research relies on the integration of theoretical analysis, pedagogical observation, comparative interpretation, modeling of methodological support, and generalization of practical experience related to inclusive education. Since the adaptation of hard-of-hearing children is a multidimensional process, the study considers not only teaching methods but also psychological readiness, communicative development, family participation, teacher competence, and interinstitutional cooperation.

The theoretical stage of the study involved the analysis of scientific literature on inclusive education, special pedagogy, surdopedagogy, child development, educational clustering, and differentiated instruction. Particular attention was given to the concepts of individual educational trajectory, barrier-free learning

environment, social adaptation, auditory and speech development, and collaborative pedagogical support. This stage made it possible to determine the main methodological categories of the research and to clarify the role of the educational cluster as a system that unites schools, families, higher education institutions, psychological-medical-pedagogical services, and specialized support centers.

The diagnostic component of the methodology focused on determining the educational and developmental needs of hard-of-hearing children. In inclusive practice, diagnosis should not be limited to the formal identification of hearing impairment. It should include the study of speech comprehension, vocabulary development, pronunciation characteristics, ability to understand oral instructions, level of visual perception, emotional state, readiness for communication, independence in learning tasks, and interaction with peers. Such diagnostic work allows teachers and specialists to design appropriate pedagogical support and avoid a uniform approach to children with different levels of hearing loss and communicative experience.

Pedagogical observation was used as one of the main methods for studying the behavior and participation of hard-of-hearing children in inclusive classrooms. Observation makes it possible to identify how the child reacts to teacher explanations, whether visual support is sufficient, how the child communicates with classmates, what difficulties arise during group work, and which forms of assistance are most effective. This method is especially important because many adaptation difficulties are revealed not during formal testing, but in daily educational interaction, classroom communication, and extracurricular activities. The modeling method was applied to develop a methodological framework for adaptation within an educational cluster. This framework includes cooperation between the general education teacher, special educator, psychologist, speech therapist, parents, university specialists, and social partners. The model is based on the principle of continuity: preparation for inclusive education begins before school entry, continues during the first stages of classroom adaptation, and is regularly corrected according to the child's progress. The methodological model also includes individual learning plans, differentiated assignments, visual and practical teaching materials, assistive listening technologies, speech development exercises, and peer-support activities.

The comparative method was used to analyze traditional isolated support and cluster-based support. In traditional practice, assistance to hard-of-hearing children may depend mainly on the efforts of one teacher or one specialist. In a cluster-based approach, adaptation is organized through coordinated actions, shared responsibility, methodological consultation, teacher training, and family involvement. This comparison helped reveal that the educational cluster expands the possibilities of inclusive education by creating a stable network of pedagogical and social support.

The methodological approach of the study is also based on the principle of individualization. Each hard-of-hearing child has a unique combination of auditory, speech, cognitive, emotional, and social characteristics. Therefore, teaching strategies should be adapted to the child's real needs. The use of visual aids, written instructions, clear articulation, seating arrangements, repetition of key information, interactive tasks, and supportive communication techniques forms the practical basis of successful adaptation. These methods help the child understand educational content, participate in classroom activities, and develop confidence in communication.

The final analytical stage consisted of summarizing the pedagogical conditions necessary for effective adaptation. These conditions include early diagnosis, professional cooperation, methodological training of teachers, active parental participation, psychological support, regular monitoring, and the creation of a tolerant classroom atmosphere. Thus, the research methodology combines theoretical, diagnostic, observational, comparative, and modeling approaches in order to define a scientifically grounded system for preparing hard-of-hearing children for inclusive education within an educational cluster.

Results

The results of the study show that the adaptation of hard-of-hearing children to an inclusive educational environment becomes more effective when it is organized not as a separate corrective activity, but as a coordinated methodological system within an educational cluster. The analysis revealed that the cluster approach makes it possible to connect the efforts of teachers, special educators, psychologists, speech therapists, parents, higher education institutions, medical specialists, and social partners around the individual needs of the child. Such cooperation creates a wider pedagogical space in which the child receives

continuous support before entering school, during the first stages of inclusion, and throughout further educational development.

One of the main results is the identification of methodological conditions that directly influence the successful adaptation of hard-of-hearing children. These conditions include early diagnosis of educational needs, systematic speech and auditory development, differentiated teaching, visual support, psychological preparation, family participation, and regular monitoring of progress. When these conditions are provided together, the child's participation in classroom activities becomes more stable. The child begins to understand teacher instructions more clearly, responds more confidently during lessons, communicates more actively with peers, and gradually develops independence in completing learning tasks.

The study also shows that the role of the teacher changes significantly in an inclusive educational cluster. The teacher is not only a transmitter of knowledge, but also an organizer of communication, a coordinator of support, and a mediator between the child and the educational environment. In classes where teachers use clear articulation, visual materials, written instructions, gestures, practical examples, and repeated explanation of key concepts, hard-of-hearing children demonstrate better understanding of educational content. At the same time, methodological consultation from special educators and psychologists helps general education teachers select appropriate strategies and avoid pedagogical mistakes connected with overprotection, isolation, or excessive simplification of tasks.

Another important result concerns the social adaptation of hard-of-hearing children. Inclusive education is effective only when the child is accepted as an active participant of the classroom community. The study indicates that peer interaction, cooperative tasks, pair work, group projects, and classroom discussions adapted to the child's communicative abilities support social confidence. When classmates are prepared for tolerant communication and mutual assistance, the hard-of-hearing child feels safer and becomes more willing to participate in collective activities. This reduces the risk of social isolation and strengthens emotional stability.

The educational cluster also improves the quality of family involvement. Parents often need methodological guidance on how to support speech development, communication, homework, emotional readiness, and social behavior at home. Cooperation between school specialists and families helps create unity between

classroom requirements and home support. As a result, the child receives consistent pedagogical influence in different environments.

The findings confirm that adaptation should be viewed as a gradual and dynamic process. It cannot be achieved through one-time measures or formal placement of the child in a general classroom. The most effective results appear when individual educational routes are developed, regularly reviewed, and corrected according to the child's progress. Thus, the educational cluster functions as an organizational and methodological mechanism that increases the effectiveness of inclusive education, supports teacher competence, strengthens family-school cooperation, and creates favorable conditions for the full participation of hard-of-hearing children in the learning process.

Discussion

The adaptation of hard-of-hearing children to an inclusive educational environment should be understood as a complex pedagogical process that includes educational, communicative, psychological, social, and organizational dimensions. The results of the study indicate that the educational cluster approach creates broader opportunities for solving these tasks because it brings together the resources of different institutions and specialists. In traditional practice, the child's adaptation often depends mainly on the individual efforts of the classroom teacher or parents. However, this is not sufficient for children with hearing impairments, since their needs require coordinated pedagogical, psychological, speech-related, and social support. Therefore, the educational cluster becomes an important mechanism for transforming fragmented assistance into a systematic model of inclusive support.

One of the central issues in this process is the methodological readiness of teachers. A general education teacher may have strong subject knowledge but may not always possess sufficient skills for working with hard-of-hearing children. In such cases, the cluster provides access to consultations with special educators, psychologists, speech therapists, university specialists, and inclusive education coordinators. This cooperation helps teachers understand the child's individual characteristics, choose appropriate methods, adapt tasks, organize classroom communication, and create a psychologically safe environment. The teacher's ability to use visual materials, written instructions, clear speech,

differentiated assignments, and assistive technologies directly influences the child's educational participation.

Another important aspect is the communicative development of hard-of-hearing children. Hearing impairment often limits the child's spontaneous access to oral communication, which may affect vocabulary growth, grammar acquisition, pronunciation, and the ability to participate in dialogue. For this reason, inclusive education should not be limited to seating the child in a general classroom. It must include regular speech development exercises, auditory perception training, visual reinforcement, peer communication, and opportunities for meaningful interaction. When communication is organized purposefully, the child becomes more active, confident, and independent in learning activities.

The educational cluster also strengthens continuity between different stages of support. Preschool preparation, primary adaptation, classroom participation, extracurricular involvement, and family education should not be separate processes. They must be connected through a common methodological plan. For example, information obtained during early diagnosis should be used by school teachers; recommendations from specialists should be understandable for parents; and university-based methodological centers can help schools improve inclusive practices. Such continuity prevents the loss of important pedagogical information and supports stable child development.

Social adaptation is another key factor. Hard-of-hearing children may experience difficulties not only in understanding educational material, but also in building friendships, participating in games, joining group work, and expressing emotions. Therefore, inclusive classrooms must develop a culture of acceptance, cooperation, and mutual respect. Peer support should not be artificial or formal; it should be naturally integrated into lessons and extracurricular activities. Cooperative learning, joint projects, role-playing tasks, and communicative games can help reduce isolation and strengthen the child's sense of belonging.

Family participation remains one of the decisive conditions of successful adaptation. Parents know the child's daily behavior, emotional reactions, communication habits, and personal difficulties better than anyone else. At the same time, families often need professional guidance to support the child correctly. Through the educational cluster, parents can receive consultations, methodological recommendations, psychological assistance, and training on how to continue speech and communication development at home.

Thus, the discussion of the obtained results shows that the adaptation of hard-of-hearing children requires a coordinated, flexible, and humanistic system. The educational cluster makes this system more effective because it combines institutional cooperation, specialist support, teacher training, family involvement, and individualized methodological assistance within one inclusive pedagogical framework.

Conclusion

The adaptation of hard-of-hearing children to an inclusive educational environment is a purposeful, gradual, and multidimensional pedagogical process that requires scientifically grounded methodological support. The study shows that such adaptation cannot be reduced to the physical placement of a child with hearing impairment in a general classroom. True inclusion begins when the educational environment itself becomes flexible, supportive, communicatively accessible, psychologically safe, and methodologically prepared for the individual needs of the child. In this regard, the educational cluster serves as an effective organizational and pedagogical mechanism that unites the resources of different institutions, specialists, families, and social partners around one common goal: to ensure the successful participation of hard-of-hearing children in education and social life.

The methodological foundations of adaptation include early identification of the child's educational needs, the development of an individual educational route, the use of differentiated teaching methods, the creation of visual and communicative support, systematic speech and auditory development, psychological assistance, and continuous monitoring of progress. These components are closely connected with each other and should function as a single system. If one component is weak, the whole process of inclusion may lose its effectiveness. For example, even a well-prepared teacher may face difficulties if there is no family cooperation, no specialist support, or no adapted classroom communication. Therefore, the cluster approach is valuable because it creates conditions for shared responsibility and coordinated pedagogical action.

The results of the analysis confirm that teachers play a decisive role in the adaptation of hard-of-hearing children. Their professional readiness, inclusive competence, communication culture, and ability to individualize instruction directly influence the child's educational success. However, the teacher should

not remain alone in this process. Cooperation with special educators, psychologists, speech therapists, university specialists, and parents allows the teacher to select more effective methods, understand the child's developmental characteristics, and organize learning activities in a more accessible form. This cooperation also prevents formalism in inclusive education and helps transform inclusion into a real pedagogical practice.

Another important conclusion is that social and emotional adaptation is as significant as academic progress. Hard-of-hearing children need to feel accepted, understood, and supported by peers and adults. A positive classroom atmosphere, tolerant communication, cooperative learning, peer assistance, and participation in group activities help the child overcome isolation and develop confidence. In this sense, inclusive education has not only an instructional function but also a humanistic and socializing function.

Thus, the educational cluster provides broad methodological opportunities for adapting hard-of-hearing children to inclusive education. It strengthens continuity between family, school, specialists, and higher education institutions; improves teacher competence; supports individualized learning; and creates a stable system of pedagogical assistance. The effectiveness of inclusive education depends on the unity of organizational, methodological, psychological, and social conditions. Therefore, further improvement of inclusive practice should focus on expanding cluster cooperation, developing teacher training programs, improving diagnostic and methodological tools, and ensuring a barrier-free educational environment for every child with hearing impairment.

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