

Педагогіка

Kalmykova Iryna

*Speech therapist teacher, West Hollywood College Preparatory School
(Los Angeles, USA)*

IMPLEMENTATION OF INNOVATIVE METHODOLOGIES IN CORRECTIONAL AND DEVELOPMENTAL WORK WITH CHILDREN WITH SPECIAL EDUCATION

Summary. *The modern system of special education is undergoing an active transformation driven by the need to provide a high-quality educational process for students with special educational needs. Traditional approaches, despite their proven effectiveness, often prove inadequate in the face of rapidly changing socio-cultural and technological realities. Consequently, there is a growing demand for innovative methodologies—such as art-therapy practices, sensory integration, game-based and neuropsychological remedial modules, and digital tools—each of which supports the development of cognitive capacities, emotional regulation, and communication skills, thereby creating conditions for a personalized learning path and full inclusion of the child in society. These cutting-edge directions are inherently interdisciplinary and require a high level of professional training for educators, combined with sufficient resource support. Their advantages include increased learning motivation, reduced anxiety levels, improved communicative interaction, and successful integration of students into the educational environment. At the same time, challenges remain—such as staff shortages, limited material and technical resources, and a lack of robust evidence for efficacy. Nevertheless, these obstacles do not impede the rapid growth of inclusive practice and the enhancement of digital competence among teachers, setting the stage for expanded use of innovative tools designed to comprehensively support children with special educational needs. The conclusions drawn here will be of*

interest both to specialists examining this issue from scientific and medical perspectives and to practicing educators, psychologists, and other professionals working in the field of special education.

Keywords: *special education, innovative methodologies, inclusive education, individualized learning.*

Introduction. In an educational system undergoing intense transformation, the imperative to ensure accessible and high-quality instruction for all learners—especially children with special educational needs—has become ever more apparent. These students require specific provisions aimed at unlocking their individual potential and facilitating successful integration into society, which, in turn, elevates remedial and developmental activities to a fundamental component within a comprehensive support structure. Although traditional forms of pedagogical support possess well-documented effectiveness and rigorous scientific backing, they frequently fall short within the context of dynamic social, technological, and educational changes, underscoring the necessity to adopt innovative methodologies that reshape the content, design, and ultimate impact of remedial work.

Contemporary trends in remedial and developmental pedagogy are characterized by the integration of digital technologies, sensory modulation, neuropsychological approaches, and art-therapy practices. Employing these methodologies demands close interdisciplinary collaboration among specialists—defectologists and speech therapists, psychologists and educators, medical professionals and IT engineers. Through such multi-tiered coordination, it becomes possible to construct adaptive educational programs that are precisely tailored to each child’s unique parameters—their cognitive and emotional profile, zone of proximal development, and current learning challenges.

Methods and Materials

An in-depth analysis of current trends in special education was conducted, employing qualitative content analysis, thematic synthesis, and comparative study of the latest academic and professionally oriented publications.

One of the primary thematic vectors was the trial of art-therapy and sensory methodologies within specialized education. In particular, Regev [1] emphasizes the productivity of artistic-creative formats when working with children who have pronounced learning difficulties, demonstrating their impact on emotional self-expression and cognitive activity. At the same time, Ayres and Mayo [2] reconstruct Ayres's sensory integration model. Among other significant directions is the integration of digital innovations: Marino et al. [3] provide a multifaceted review of the application of advanced tools in special pedagogy, highlighting the potential of artificial intelligence. Similarly, in the study by Navas-Bonilla K. d. R., Guerra-Arango J. A., Oviedo-Guado D. A., and Murillo-Noriega D. E. [10], various types and properties of technologies aimed at ensuring inclusivity and accessibility of the learning environment are systematically catalogued.

Noteworthy is also the development of theoretical foundations for sensory processing: Tahir et al. [4] offer a conceptual retrospective on the evolution of the sensory model and its implementation in practice. This perspective is supplemented by the work of Bucchi, Moscoso, and Delorme [11], in which oculomotor patterns and postural control are examined as potential biomarkers of neurodevelopmental disorders—forming a basis for early detection of impairments at a neurophysiological level. The cognitive component within the structure of special education is explored in the research of Zhou et al. [5], who draw attention to students with congenital heart defects and emphasize the relationship between physiological state and learning potential.

The STAR Institute [7] released a series of expert presentations addressing issues of sensory well-being and the autism spectrum, enriching the applied aspect of this study. In addition, data from the National Association of Special Education Teachers [7] enabled the documentation of key profession-wide trends and

challenges on the threshold of 2024. A significant contribution is made by Fitas's article [9], which analyzes the application of AI tools to overcome language difficulties and create a personalized educational experience for young children with special educational needs.

Results and Discussion. Innovative approaches in special education encompass enhanced or original technologies aimed at improving the effectiveness of remedial and developmental activities. They integrate both pedagogical and psychotherapeutic components and rely heavily on the latest advancements in digital solutions and information interaction [1]. Implementing these methodologies requires not only appropriate material resources but also a transformation of educators' professional mindsets [2].

A specialist in remedial education must not only be proficient with established tools but also flexibly incorporate innovative instruments into the structure of corrective practice, thereby creating adaptive educational pathways [3]. In this context, the individualized approach takes on fundamental importance [4]. The primary innovations shaping today's trajectory in special pedagogy are summarized in Table 1.

Table 1

The main innovative directions

Direction	Functional
Art therapy	promotes emotional relaxation and the development of communication skills
Sensory integration	It is used when working with children with autism spectrum disorders and mental retardation.
Information and communication technologies (ICT)	interactive panels, educational applications, digital simulators and alternative communication systems
The neuropsychological approach	It takes into account the peculiarities of the child's brain functioning and contributes to the formation of basic cognitive functions
Techniques based on body-oriented therapy	Feldenkrais method (using soft and relaxed movements to increase awareness of your body and its capabilities), integrative

and ne uroplasticity	gymnastics, kinesiology
-------------------------	-------------------------

Source: compiled by the author

These remedial directions span a broad spectrum of practices, enabling a holistic approach to the correction and development of children with special educational needs. They target emotional, cognitive, and sensorimotor functioning.

Applying innovative methods increases children's motivation to learn, activates cognitive processes, and fosters autonomy. They also help to reduce anxiety and emotional stress while improving social adaptation [1]. Digital technologies allow for differentiated instruction, making learning more flexible and accessible for children with various developmental challenges [3]. Despite these advantages, multiple obstacles impede the widespread implementation of these methodologies. A common issue is the insufficient preparation of staff and the small number of specialized educators relative to the growing number of children born with diverse needs [7], preventing comprehensive coverage of those requiring innovative instruction. Material and technical limitations, as well as a lack of robust, long-term efficacy data for many innovative methods, present additional problems [8].

Whereas traditional teaching methods pay less attention to each child's individual profile and rely mainly on external motivators (grades, rewards), innovative methods emphasize a learner-centered, flexible approach that accounts for neuropsychological, sensory, and emotional characteristics [1]. Modern technology, interactive platforms, art therapy, and game-based learning are actively employed [2]. In this paradigm, the educator becomes more than a teacher—they become a partner in the child's development [3]. Table 2 illustrates the key differences between traditional and innovative methods in remedial and developmental work with children who have special educational needs.

Table 2

Comparison of traditional and innovative methods in special education

Criteria	Traditional Methodologies	Innovative Methodologies
An approach to learning	Standardized, teacher-centered	Individualized, flexible
Role of the educator	Main source of knowledge, authority figure	Facilitator, mentor, organizer of the learning environment
Methods and tools	Didactic materials, visual aids, verbal instructions	ICT, interactive platforms, multimedia, sensory technologies
Form of interaction	Verbal instruction, directive approach	Multisensory, play-based, emotional engagement
Consideration of individual needs	Limited (based on program or diagnosis)	High level of personalization, neuropsychological considerations
Student motivation	External (grades, rewards)	Internal (interest, engagement, active participation)
Feedback	Mostly evaluative, less interactive	Continuous, adaptive, formative feedback
Educational goals	Knowledge transfer and skill formation	Development of cognitive, emotional, and social abilities
Examples of methodologies	Classic speech therapy exercises, Zaitsev's method, Lysenko's techniques	Art therapy, TEACCH, Floortime, sensory integration, interactive learning platforms
Resource intensity	Relatively low (paper-based materials, oral instruction)	Often requires technology, software, and specialized spaces (e.g., sensory rooms)

Source: compiled by the author

As shown, innovative methodologies foster deeper engagement and more effective development of children's cognitive and social skills [1]. Among the most effective and in-demand approaches are art therapy [8], sensory integration [9], play therapy [10], and neuropsychological remediation [11]. Each methodology has its own specificity and application domain. A closer examination of each method follows, beginning with art therapy and sensory integration.

Art Therapy is a method that uses artistic creation as a means of expressing emotions, experiences, and one's inner state. It is especially effective when working with children who have communication difficulties, emotional-volitional disorders, or anxiety conditions [1]. Incorporating elements of dramatization, role-play, and improvisation into sessions with children allows them to practice social roles gently and effectively, learn to express emotions, and understand others. This is particularly important when working with children who have autistic traits [2].

Sensory Integration is an approach aimed at normalizing the perception and processing of sensory information. Many children with autism spectrum disorders (ASD), ADHD, or developmental delays experience difficulties processing visual, auditory, tactile, and other sensory stimuli. A specially organized sensory environment—sensory rooms, equipment, various textures, and movement activities—helps a child's brain learn to respond appropriately to these stimuli [3]. Speech therapists, special educators, and occupational therapists widely use this method. Augmented and virtual reality technologies expand educators' ability to simulate situations previously unavailable in a regular classroom: from training social interactions to visualizing emotions and role-playing scenarios [6]. Sensory integration also lays the foundation for further cognitive and speech development [7].

Play Therapy is based on using play as the primary activity for preschool- and early-school-age children. Through play scenarios, children learn social interaction, enact life situations, and develop communication skills, attention, self-regulation, and self-expression. Play therapy can be used both individually and in groups, incorporating elements of role-play games, board games, and active games [8].

Neuropsychological Correction is a crucial element of modern remedial intervention. This approach, grounded in knowledge of brain function and interhemispheric organization of mental processes, aims to develop and restore

fundamental cognitive functions: memory, attention, spatial perception, motor skills, and thinking [9]. Within the neuropsychological framework, methods diagnose the functional state of different brain regions, and corresponding exercises are selected to stimulate weaker areas: memory exercises, attention drills, motor-planning tasks, as well as biofeedback methods (neurofeedback) [10]. Implementing such programs in educational settings has shown positive outcomes in children with attention-deficit/hyperactivity syndrome [10]. Recent studies confirm that including neuropsychological correction in an individualized development program improves the effectiveness of the learning process and shortens adaptation periods for children with special educational needs in school environments. This method is especially effective for children with developmental delays, learning difficulties, dyslexia, and other disorders. Neuropsychological correction programs are typically tailored individually, taking into account the child’s diagnosis and neuropsychological profile.

Below is a summary of which innovative methods are most effective for various developmental disorders in children (see Table 3).

Table 3

Innovative techniques suitable for children with various disorders

Condition/Disorder	Recommended Methodologies
Autism Spectrum Disorder (ASD)	Sensory Integration. Helps regulate sensory processing Art Therapy. Supports emotional expression and communication Play Therapy. Encourages social interaction
ADHD (Attention Deficit Hyperactivity Disorder)	Neuropsychological Correction. Improves attention, executive functions ICT Tools. Engaging digital platforms for structured learning
Speech and Language Delay	Art Therapy. Enhances verbal and non-verbal communication Neuropsychological Correction. Strengthens cognitive and speech-related brain functions
Emotional and Behavioral Disorders	Art Therapy. Facilitates emotional expression Play Therapy. Builds emotional regulation and social skills
Developmental Delay	Neuropsychological Correction. Targets core cognitive functions Sensory Integration. Stimulates basic perceptual and motor

	responses ICT Tools. Personalized, interactive learning paths
--	------------------------------------------------------------------

Source: compiled by the author

It is important to emphasize that the effectiveness of innovative methodologies in remedial pedagogy largely depends on the professional competence of practitioners. Equally significant are the institution's material and technical resources, the availability of methodological support for teachers, and the willingness of parents and administrators to embrace new approaches.

Conclusion. Thus, innovative methodologies in remedial and developmental work with children who have special educational needs represent an effective resource capable of significantly enhancing the educational process's outcomes, improving the child's quality of life, and expanding opportunities for social integration. Their future development lies in further interdisciplinary integration, rigorous scientific validation of practices, and institutional support for educators working in contexts of high educational complexity.

Innovative approaches in special education open new horizons for the full support and growth of children with special needs. Their implementation must be evidence-based, systematic, and reinforced by interdisciplinary collaboration. Education becomes not only a space for learning but also a zone of support, therapy, and personal development.

Prospects for advancing these methodologies include expanding scientific research, digitalizing the educational environment, and strengthening professionals' competencies. Contemporary approaches—such as art therapy, sensory integration, play therapy, and neuropsychological remediation—foster the development of key cognitive, emotional, and social skills that children need for successful adaptation in both academic and social spheres. In an era of rapid change and educational digitalization, innovative methods become not merely relevant but essential for creating an inclusive, flexible, and effective learning environment.

References

1. Ayres, A. J., & Mailloux, Z. (2024). *Ayres Sensory Integration® with children ages 0 to 12. American Journal of Occupational Therapy*, 79(3), 7903205180.
<https://research.aota.org/ajot/article/79/3/7903205180/27150/Ayres-Sensory-IntegrationR-With-Children-Ages-0-to>
2. Bonilla-Sánchez, M. d. R. (2024). Clinical experiences of intervention of neurodevelopmental disorders and learning difficulties through neuropsychological methods. *Frontiers in Education*.
<https://www.frontiersin.org/journals/education/articles/10.3389/feduc.2024.1291732/pdf>
3. Bucci, M. P., Moscoso, A., & Delorme, R. (2024). Eye movements and postural control in children: Biomarkers of neurodevelopmental disorders. *Journal of Pediatric Neuropsychology*, 10(3), 231–242.
<https://psycnet.apa.org/record/2025-46447-005>
4. Fitas, R. (2025). *Inclusive education with AI: Supporting special needs and tackling language barriers*. <https://arxiv.org/abs/2504.14120>
5. Marino, M. T., Xu, M., Keller, M. J., & Walters, L. (2024). Integrating emerging technologies to enhance special education: A review of recent advances. *Journal of Research in Innovative Teaching & Learning*, 17(2), 123–138.
<https://www.emerald.com/insight/content/doi/10.1108/jrit-08-2024-0208/full/html>
6. National Association of Special Education Teachers. (2024). *August 2024 - Special Educator e-Journal*. <https://www.naset.org/publications/special-educator-e-journal-latest-and-archived-issues/august-2024-special-educator-e-journal>
7. Navas-Bonilla, C. d. R., Guerra-Arango, J. A., Oviedo-Guado, D. A., & Murillo-Noriega, D. E. (2025). Inclusive education through technology: A systematic review of types, tools and characteristics. *Frontiers in Education*.

<https://www.frontiersin.org/journals/education/articles/10.3389/feduc.2025.1527851/full>

8. Regev, D. (2023). *Art therapy with special education students*. New York, NY: Routledge.
https://www.researchgate.net/publication/374302436_Art_Therapy_with_Special_Education_Students_Dafna_Regev_2023

9. STAR Institute. (2024). *2024 Sensory health and autism speakers*.
<https://sensoryhealth.org/basic/2024-sensory-health-and-autism-speakers>

10. Tahir, M. A., Ahmed, S., Khan, A., & Hussain, S. (2024). Sensory processing measure and sensory integration theory: A review. *Behavioral Sciences*, 15(3), 395. <https://www.mdpi.com/2076-328X/15/3/395>

11. Zhou, Y., Wang, X., Liu, L., Chen, J., & Zhang, H. (2024). Current research status and progress in neuropsychological development in children with congenital heart disease. *Medicine*, 103(10), e33745.
https://journals.lww.com/md-journal/fulltext/2024/11010/current_research_status_and_progress_in.11.aspx