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PROBLEMS RELATED TO SENSORY DEVELOPMENT IN SPECIAL EDUCATION AND APPROACHES TO OVERCOMING THEM

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Abstract. This article examines the main challenges of sensory development in special education and discusses pedagogical approaches to supporting children with diverse educational needs. Particular attention is paid to visual, auditory, tactile, vestibular, and proprioceptive difficulties and their effects on learning, communication, motor coordination, and social participation. Drawing on the work of Uzbek scholars in special education, the article discusses individualized instruction, multisensory learning, corrective and developmental activities, assistive technologies, and interdisciplinary collaboration. It also reviews the legal framework for inclusive education in Uzbekistan. The article emphasizes that effective support should be based on functional assessment, appropriate educational accommodations, and the individual characteristics of each child.

Keywords: special education, sensory development, sensory perception, inclusive education, Uzbek scholars, individualized instruction, multisensory learning, corrective pedagogy, assistive technologies.

Annotatsiya. Ushbu maqola maxsus ta'limda sensor rivojlanishning asosiy muammolarini ko'rib chiqadi va turli xil ta'lim ehtiyojlariga ega bolalarni qo'llab-quvvatlashga pedagogik yondashuvlarni muhokama qiladi. Vizual, eshitish, taktil, vestibulyar va proprioseptiv qiyinchiliklarga hamda ularning o'rganish, muloqot, harakatlarni muvofiqlashtirish va ijtimoiy ishtirokga ta'siriga alohida e'tibor qaratiladi. Maxsus ta'lim sohasidagi o'zbek olimlarining ishlariga tayanib, maqolada individuallashtirilgan ta'lim, ko'p sensorli o'rganish, tuzatish va rivojlantirish faoliyati, yordamchi texnologiyalar va fanlararo hamkorlik muhokama qilinadi. Shuningdek, u O'zbekistonda inklyuziv ta'limning huquqiy asoslarini ko'rib chiqadi. Maqolada samarali qo'llab-quvvatlash funktsional baholash, tegishli ta'lim moslamalari va har bir bolaning individual xususiyatlariga asoslangan bo'lishi kerakligi ta'kidlangan.

Kalit so'zlar: maxsus ta'lim, sensor rivojlanish, sensor idrok, inklyuziv ta'lim, o'zbek olimlari, individuallashtirilgan ta'lim, ko'p sensorli o'rganish, tuzatish pedagogikasi, yordamchi texnologiyalar.

Аннотация. В данной статье рассматриваются основные проблемы сенсорного развития в специальном образовании и обсуждаются педагогические подходы к поддержке детей с различными образовательными потребностями. Особое внимание уделяется зрительным, слуховым, тактильным, вестибулярным и проприоцептивным нарушениям и их влиянию на обучение, общение, координацию движений и социальное участие. Опираясь на работы узбекских ученых в области специального образования, в статье рассматриваются индивидуализированное обучение, мультисенсорное обучение, коррекционные и развивающие мероприятия, вспомогательные технологии и междисциплинарное сотрудничество. Также рассматривается правовая база инклюзивного образования в Узбекистане. В статье подчеркивается, что эффективная поддержка должна основываться на функциональной оценке,

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соответствующих образовательных адаптациях и индивидуальных особенностях каждого ребенка.

Ключевые слова: специальное образование, сенсорное развитие, сенсорное восприятие, инклюзивное образование, узбекские ученые, индивидуализированное обучение, мультисенсорное обучение, коррекционная педагогика, вспомогательные технологии.

Sensory development plays a fundamental role in children's cognitive, linguistic, motor, and social development. Through their sensory systems, children obtain information about the environment, distinguish objects and sounds, coordinate movements, and develop the skills necessary for learning. Difficulties in receiving or processing sensory information may hinder educational participation, particularly among children with disabilities and other special educational needs.

In Uzbekistan, the scientific and methodological foundations of special education have been developed by several national researchers. In her work on special pedagogy, P. M. Po'latova examines the organization of instruction, teaching methods, and corrective and developmental activities for children with intellectual disabilities. Her pedagogical approach provides a basis for adapting learning tasks to students' developmental characteristics.

Difficulties in sensory development may take various forms. Visual impairment can affect spatial orientation, reading, and object recognition. Hearing impairment may limit access to spoken instructions and classroom communication. Tactile sensitivity may affect participation in practical activities, while vestibular and proprioceptive difficulties may influence balance, body awareness, and motor coordination. However, sensory impairments and differences in sensory processing should not be treated as identical conditions, since they may require different forms of assessment and support.

In this regard, the work of Uzbek scholars in the fields of education for learners with hearing impairments (surdopedagogy) and visual impairments (typhlopedagogy) is particularly important. D. B. Yakubjonova and Z. N. Mamarajabova have contributed to methodological discussions on educating children with hearing impairments, while Sh. M. Amirsaidova, L. Sh. Nurmuxamedova, and A. D. Sultonova examine support and teaching methods for children with visual impairments in a jointly authored textbook. Their work emphasizes the importance of adapting educational content, teaching methods, and learning environments to students' functional needs. Uzbekistan's legislative framework supports these educational principles. Article 20 of the Law of the Republic of Uzbekistan "On Education," No. O'RQ-637 of September 23, 2020, defines inclusive education as an approach intended to ensure equal educational opportunities while taking account of individual abilities and special educational needs. It explicitly addresses the organization of inclusive education for children with physical, intellectual, sensory, or psychological disabilities.

Furthermore, the Law "On the Rights of Persons with Disabilities," No. O'RQ-641 of October 15, 2020, establishes a rights-based foundation for access to education. Presidential Resolution No. PQ-4860 of October 13, 2020, and Cabinet of Ministers Resolution No. 638 of October 12, 2021, establish additional measures and procedures relating to the education of children with special educational needs.

Table 1. Effects of Sensory Development Difficulties on Education and Areas of Pedagogical Support

Sensory domain	Potential difficulty	Barrier to learning	Accommodation and support	Outcome assessment criterion
Vision	Difficulty distinguishing	Difficulties with reading, writing,	Braille or large print, tactile graphics,	Degree of independence in

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	text, images, and spatial cues	and understanding diagrams and maps	audio descriptions, screen readers	completing tasks and using materials
Hearing	Limited access to speech sounds and spoken instructions	Reduced access to classroom communication and oral explanations	Written and visual instructions, captions, sign language, suitable hearing technology	Understanding instructions, communicating, and participating in class
Tactile sensitivity	Heightened or reduced responses to certain textures or touch	Avoidance of hands-on work, crafts, or certain learning tools	Gradual introduction of materials, alternative tools, and voluntary choice	Comfort and sustained participation in practical activities
Vestibular system	Difficulty with balance and adapting to head movement	Discomfort during active games, physical education, or sitting	Safe movement environment, adapted physical exercises, breaks	Safe and active participation in tasks requiring balance
Proprioceptive system	Difficulty regulating body position, force, and movement	Difficulties with handwriting, using scissors, and motor coordination	Ergonomic aids, larger grips, step-by-step motor tasks	Accuracy, independence, and quality of everyday task performance
Multisensory processing	Difficulty coping with simultaneous sensory signals	Difficulty maintaining attention and continuing activities in noisy or crowded classrooms	Visual schedule, predictable routine, noise reduction, quiet break area	Sustaining attention, returning to tasks, and completing activities
Emotional responses related to sensory needs	Distress in response to bright light, sound, or touch	Anxiety, withdrawal from lessons, or reduced social participation	Advance notice, individualized adjustments, respect for the child's choices	Changes in well-being, self-regulation, and social participation

As the table shows, sensory development difficulties do not manifest in the same way in every child. Visual and hearing limitations primarily affect access to information, whereas tactile, vestibular, and proprioceptive difficulties may be more apparent in practical tasks, posture, and motor control. Therefore, applying the same corrective method to all students is not advisable.

Effective support begins not merely with a child's diagnosis but with identifying precisely which classroom task has become difficult. For example, if a student cannot complete a written assignment, the underlying reasons may differ: visual ability, fine motor skills, understanding of instructions, or an unsuitable learning environment. Functional assessment and individualized educational goals help practitioners plan targeted support.

Using several sensory channels may make comprehension easier for some students; however, activating all sensory channels simultaneously is not always beneficial. Excessive light, noise, or tactile stimulation may increase distress in some children. Multisensory materials should therefore be selected according to the child's needs and consent, the purpose of the task, and observable outcomes.

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The effectiveness of pedagogical support should be assessed not simply by the number of sensory exercises completed, but by changes in authentic learning tasks. For example, indicators such as independent reading, understanding instructions, classroom participation, comfort during writing, and interaction with peers can be compared between initial and subsequent observations.

Collaboration among the special education teacher, classroom teacher, psychologist, relevant specialists, and parents helps ensure that accommodations are implemented consistently in everyday activities. Observations reported by the family complement information gathered at school. When necessary, medical or rehabilitation assessments should be conducted separately from pedagogical assessments by appropriately qualified professionals.

The analysis indicates that the main condition for reducing educational barriers related to sensory development is the integration of instruction tailored to functional needs, an accessible and supportive learning environment, assistive technologies, and ongoing pedagogical monitoring. The central criterion is not the sensory characteristic itself, but improvement in the child's ability to learn, communicate, move independently, and participate in social life.

An important approach to overcoming sensory-related educational barriers is individualized instruction. Teachers should identify how specific difficulties affect classroom participation and select suitable materials, communication methods, and learning activities. For example, children with visual impairments may benefit from tactile diagrams, Braille materials, audio resources, and accessible digital technologies. Children with hearing impairments may benefit from visual instructions, written explanations, sign-language support, or appropriate hearing-assistance technologies.

Corrective and developmental activities may also support practical learning skills. Exercises involving object classification, spatial orientation, fine motor coordination, and sensory discrimination may be included in individualized education plans. Their effectiveness should be evaluated through observable improvements in meaningful activities, rather than assuming that every sensory exercise produces broad developmental benefits.

Sensory development difficulties in special education require individualized, interdisciplinary, and evidence-based approaches. The methodological contributions of Uzbek scholars, particularly P. M. Po'latova and the co-authors of the textbook "Special Pedagogy," provide a valuable national foundation for adapting education for children with intellectual, hearing, and visual impairments. Effective educational support should combine functional assessment, accessible learning materials, appropriate multisensory activities, assistive technologies, and cooperation with families. Uzbekistan's legal framework reinforces these measures by recognizing the right of children with special educational needs to receive education under appropriate conditions. The main goal is not simply to reduce sensory difficulties, but to improve meaningful learning, independence, communication, and participation.

References

1. Republic of Uzbekistan. Law "On Education," No. O'RQ-637, September 23, 2020. https://lex.uz/docs/-5013007.
2. Republic of Uzbekistan. Law "On the Rights of Persons with Disabilities," No. O'RQ-641, October 15, 2020. https://lex.uz/docs/-5049511.
3. President of the Republic of Uzbekistan. Resolution No. PQ-4860, "On Measures to Further Improve the System of Education and Upbringing for Children with Special Educational Needs," October 13, 2020. https://lex.uz/docs/-5044711.
4. Cabinet of Ministers of the Republic of Uzbekistan. Resolution No. 638, "On Approval of Regulatory Legal Documents Relating to the Education of Children with Special Educational Needs," October 12, 2021. https://lex.uz/docs/-5679836.

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5. Po‘latova, P. M. Special Pedagogy: Education of Children with Intellectual Disabilities [Maxsus pedagogika. Oligofrenopedagogika]. Tashkent: G‘afur G‘ulom Publishing House, 2005. 224 pp.
6. Po‘latova, P. M., Nurmuxamedova, L. Sh., Yakubjonova, D. B., Mamarajabova, Z. N., Amirsaidova, Sh. M., and Sultonova, A. D. Special Pedagogy [Maxsus pedagogika]. Tashkent: Fan va texnologiya, 2014. 368 pp.
7. Ayres, A. J. Sensory Integration and the Child. Los Angeles: Western Psychological Services, 1979.
8. Zimmer, M., and Desch, L. “Sensory Integration Therapies for Children With Developmental and Behavioral Disorders.” Pediatrics 129, no. 6 (2012): 1186–1189. https://doi.org/10.1542/peds.2012-0876.