



The research underscores the pivotal role of spatial imagination in engineering graphics education. By applying structured methodologies, students significantly improved their ability to interpret and construct mental images from technical drawings, enhancing their readiness for real-world applications. Encouraging the development of spatial skills through drawing analysis can lead to increased graphic literacy and better preparedness for engineering challenges. The study concludes that spatial imagination training not only aids students in comprehending engineering concepts but also contributes to their overall analytical and creative skills, making them more competent and adaptive to future professional demands.

### References:

- [1] Ro'ziyev E.I., Ashirboyev A.O. "Muhandislik grafikasini o'qitish metodikasi," Toshkent: *Yangi asr avlodi*, 2010.
- [2] Murodov Sh.K. va boshq. "Yaqqol tasvirlar nazariyasi (aksonometrik proyeksiyalar)," Toshkent: *TDPU rizograi*, 2010.
- [3] Adilov P., Ismatullayev R., Xalimov M., Tashimov N. "Chizmachilik (qurilishchizmachiligi)," *Toshkent*, 2013.
- [4] Saydaliyev S.S., Xamroqulova M.M. "Muhandislik grafikasi (Qurilish chizmachilik)," o'quv qo'llanma *Toshkent*, 2017.
- [5] Davletov I., Nurmetov M., Xo'janiyozov Sh. "Muhandislik grafikasi," Buxoro "Bukhara hamd print" darslik 2022.
- [6] Shukurov A.R., "Chizmachilik (Proyeksion chizmachilik)," o'quv qo'llanma-Buxoro: "Bukhara hamd print" nashriyoti, 2024.

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## PHYSICAL EDUCATION OF STUDENTS WITH HEARING IMPAIRMENT

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**Annotatsiya.** ushbu maqolada eshitish qobiliyati zaif talabalarning jismoniy tarbiyasi masalasi nazariy tahlil qilingan.

**Kalit so'zlar:** ta'lim va zaif auditoriya o'rganuvchisi, fusisal ta'lim, auditorlar qobiliyatlar.

**Аннотация.** В данной статье проведен теоретический анализ проблемы физического воспитания студентов с нарушениями слуха.

**Ключевые слова:** воспитание, слабослышащий ученик, физическое воспитание, слуховой, способность.

**Abstract.** In this article, the theoretical analysis of the issue of physical education of students with hearing impairment has been carried out.

**Keywords:** *education, a weak auditory learner, physical education, auditory ability.*

## **Introduction**

In various international documents, the right of a person to have health without any restrictions is reflected. In the main document of the World Health Organization, it is specially noted that everyone has the highest level of health regardless of race, religion, political opinion, economic and social status, and that living with pleasure is his primary human right [1]. In developing the physical education of students with hearing impairment all over the world and educating them in accordance with their capacity to know, their adaptation and interpersonal skills to the society is currently a pressing problem because the indicators show that children are growing at an immutable level throughout their lifetime [2-7].

In our country, the education of children with hearing impairment is disputed by legal normative acts. In particular, in accordance with the laws “on education,” “on guarantees of the rights of the child,” “on the national program of training of personnel,” as well as the law “on social protection of Disabled Persons in the Republic of Uzbekistan,” the Cabinet of Ministers adopted Resolution № 256 on the 13<sup>th</sup> of September in 2013, which determined the educational and educational processes of children.

## **Literature Review**

In addition, in order to contribute to the sustainable development of our country and the increase of the standard of living of the population, the international public fund “Zamin” was established in our country. The activities of the fund “Zamin” are based on 4 directions, consisting of long-term, strategic importance and sustainable projects, of which 4-th direction is an indicator of improving the living conditions and educational conditions of children with hearing impairment. Within the framework of the direction, the program “Development of Education for hearing impaired children” was introduced into practice. Such approaches are aimed at solving the problem of adaptation of children with hearing impairment to life through education.

Children with disabilities usually face a number of difficulties, one of which is the lack of the opportunity to get a full education. Partial or complete loss of hearing deprives children of an important source of information and limits the process of visual development.

In the process of improving physical education and health with children with hearing and speech impairments, the main emphasis should be placed on revealing the characteristics of the child, creating an individual program of correction and development for him on the basis of each complete study of the characteristics of his development.

The main purpose of early diagnosis and assistance to the child is to ensure social, emotional, intellectual and physical growth and achieve maximum success in the development of his or her abilities. It is known that the study of a child with a defect can not only be limited to determining the degree and severity of the deficiency, but also include the process of compensation.

Full development of children with hearing impairment is not possible without physical education, which ensures not only the necessary level of physical development, but also the correction of deviations in various areas of deaf children's activities. Abramova N. noted that from the birth of a deaf child, hearing impairment does not develop. Some compensation for this gap depends on the degree of distortion of the hearing analyzer, and its activation is carried out only with a long-term and systematic work on the development of the hearing perception [2, 3]. There are two main groups of children with hearing impairment: hearing impairment (diagnosed with hearing loss) and deaf (diagnosed with deafness). The hearing-impaired group includes children with hearing impairment, in which at least a minimum level of independent speech development is possible.

The hearing condition of children with hearing impairment is characterized by a very diverse range: from a slight violation of the perception of speech pitch, to a sharp restriction of speech in the oral voice [4]. Given the state of speech, two categories of hearing-impaired children have been identified.

The first category includes children with hearing impairment, when they come to school, poor development of speech (single words, short, incorrectly formed phrases, gross violation of the lexical, grammatical, phonetic structure of speech). The second category includes children with hearing impairment who are well versed in vocabulary combinations with slight deviations in terms of grammatical structure and phonetic structure. To the group of children with hearing impairment - children whose hearing condition does not have the opportunity to spontaneously form speech (without special training).

The deaf are divided into two categories according to the case of speech: The first category is "speechless" children who were born deaf in the period before the formation of speech (up to about two years) or who have lost hearing - these are early deaf children. The second category - children with different levels of speech, whose speech has already lost hearing in the formed period.

Vebitsky G.I. determined the stratified categories of the study of his speech, based on the different methods of perception of speech and the different methods of its formation on the basis of the identification of groups of children with defects in speech [5].

Different types of groups are organized for children divided into groups: 1) group of deaf children; 2) a group of children with a weak hearing and subsequently deaf.

-Chapter One - students whose speech is poorly developed due to hearing impairment;  
-Chapter Two-pupils whose speech is not fully formed due to low hearing.

Thus, students with low hearing and limited hearing have similar characteristics, but the first one, learning separately, develops faster and soon loses some similarity to each other. This is achieved by distinguishing the system of teaching for this category of students.

## **Research Methodology**

In general, the problem of teaching children with different levels of hearing impairment is a complex problem that is associated not only with the spiritual development of schoolchildren with different levels of hearing impairment, but also

with their physical education. The role of physiologists, otologists, teachers of the deaf, defectologists, psychologists, sociologists and educators of adaptive physical culture plays a special role in this. There are several ways of developing speech. Tension, intensity, rhythm and spatial orientation are the biological components of a person.

They are also present in action and speech.

Organized movement-develops a sense of perception, forming the fluency, duration, speed, accentuation of the child's speech. Then it can be easier to manage it in macro movements, switching to the control of the micro movements of the articulation muscles. The action will help the imagination of children, bring them to an impressive state (in specially organized games). It produces a self-generated sound and their ability to hear the sound itself. Hearing is closely related to movement, and auditory signals, like visual signals, are involved in the regulation of movements.

There is a close functional link between hearing impairment, speech impairment and motor system [6].

Deaf pupils can distinguish the following distinctive features of the motor sphere: - lack of confidence in sufficiently clear coordination and actions; - difficulty maintaining static and dynamic balance in the deaf; - relatively low level of development of the spatial orientation; - relatively low level of spatial orientation; - the speed, strength, endurance of the development of vital physical abilities, which characterize the physical preparation of children and teenagers, etc.

Violations in the motor sphere of deaf pupils (noted above) are interrelated, the following causes are the basis for them: - hearing impairment structure; - insufficient speech function; - decrease in incoming data volume; - the state of the motor analyzer and the level of functional activity.

The combination of these causes is clearly manifested, especially in coordination abilities, since they are carried out on the basis of the defect of the sensory systems associated with the management of movements. For this reason, deaf learners spend more time mastering complex coordination skills, have a lower level of maximum achievement in terms of accuracy and time of movements, and also have a lower level of hearing impairment in terms of static and dynamic balance.

In the case of a violation of the balance of deaf children of primary school age, slowness, stiffness and small amplitude of movements are noted.

Hearing impairment is associated with memory impairment, especially in primary and secondary school age students. One of the most important components of this function is the ability to coordinate. Also, the ability to coordinate is the basis for the successful formation and improvement of physical attributes. The concept of "coordination skills" is distinguished from the concept of "dexterity," which is common in everyday life and in scientific, methodological literature on Physical Education. These concepts are close in meaning, but not identical in meaning.

Coordination skills are, first of all, the ability to build inalienable motor movements; second, the ability to change the forms of developed movements, or the transition from one to another in accordance with the requirements in changing conditions.

At the moment, there are a lot of definitions of coordination. Coordination skills are a set of human characteristics that are manifested in the process of solving the tasks of

movement, managing their movements, regulating them, the complexity of different coordination. The leading role in the physical interpretation of coordination abilities is assigned to the coordination functions of the central nervous system [8].

## **Analysis and Results**

The ability to qualitatively coordinate movements, to change new, increasingly complex forms of movements is the most necessary process in life. The period of development of coordination skills consists of a number of genetically programmed stages. This period is considered critical or sensitive, that is, sensitive to environmental influences, and is characterized by an increase in reactivity, a tendency of the body to study certain movements. After that, there are short-term periods during which it is possible to leap in the development of motor skills and move to a new level of performance [9].

In children with auditory analyzer pathology, various deviations are noted, which are responsible for determining the position of the body in space, in the work of the vestibular ligaments as a result of the main violation. The degree of deviation will depend on the degree of hearing impairment. Thus, deviations in the work of the vestibular ligaments are less pronounced due to the fact that in school students with hearing impairment there is little damage to the hearing analyzer, and the management of movements can be much easier. However, practice shows that such statements are inaccurate, and hearing-impaired schoolchildren have shown greater impairment in motion management than deaf peers in some exercises. In people who do not hear, compensation mechanism is more accurately manifested due to deep damage to the hearing analyzer and, accordingly, the vestibular apparatus. In the scientific literature, there are data on high indicators of proprioceptive sensitivity tests among deaf people.

Students with limited hearing are likely to leave their peers behind in terms of orientation to space under normal conditions. That is, in order to adequately develop coordination skills, it is necessary to clearly determine how to overcome motor deviations in hearing impaired and deaf learners.

Under normal conditions, the listener perceives the condition of the child's body and perceives any changes in his condition. With the change of conditions or before the implementation of the events that occurred, many muscles begin to contract and the body returns to its normal state. This reaction often prevents miscarriage.

In students with different hearing abilities, reactions to changes in body condition are significantly reduced. An important role is also played by muscle sensation or proprioceptive sensitivity in the direction of space. The composition of the muscles includes receptors that give irritation when pulled [9].

At the same time, there are violations in the perception of muscles in children with different degrees of damage to the hearing analyzer. They lose the accuracy of the movement and are forced to always check them with their eyes, which plays a key role in the direction of the category of children. In the case of weightlessness, when the force of gravity does not affect the body, direction with the help of a muscular sensation in space is practically impossible. Similar feelings are experienced by people with disorders in the hearing analyzer.

Sensitive periods of the level of development of coordination skills in hearing impaired and deaf students coincide with different age periods and do not coincide with those of students with hearing impaired (by weight). In many coordination skills in hearing impaired students, the smoothness of age dynamics (low indicators of age growth) is noted, while in hearing impaired students, more often the sensitive periods in coordination abilities are more clearly expressed.

Considering the degree of the underlying disease, the methods of perception of information, the violation of species coordination and the period of development of intuition can serve as the basis for a differentiated approach, even for each of the coordination abilities and load parameters in the selection of tools, methods, methodological techniques. The importance of differentiation within the group in the implementation of correction and development methods for external differentiation in hearing impaired and deaf students is significant. Speed training in the program (running, jumping, throwing) training of the deaf at school age is also of great importance.

Korotkova E.A. believes that the expediency of using speed and strength exercises is confirmed by two theoretical positions of orientation: the types of basic coordination skills include these coordination exercises. The purposeful use of walking, running, jumping, running and daily activities, speed training necessary for the implementation of any movements, also creates favorable conditions for increasing the level of physical development [9].

The training process is based on the speed-direction methodology principle. Corrective effect of physical education includes balance development, activation exercises for schoolchildren with hearing impairment. Children are rhythmic beats of the drum; the tambourine is first visually perceived by the voice.

Through the development of speed qualities in students, different types of running in the process of physical education: jumping, throwing, performing exercises with a ball are practiced. The main methods-playful and competitive, relay races, plot play compositions, organization of round-the-clock lessons, repeated training. In the lessons of differential physical therapy, exercises such as the use of special exercises for the development and strengthening of this necessary muscle-ligament, breathing and correction exercises, exercises and stretching of muscles for balance are performed.

Personal lessons include: - Individual special exercises; -motor lessons for deaf children; The hands of teachers and children move at the same time as well as the quality of pronunciation tasks is strengthened by exercises. In order to maintain **OPTIONALITY**, it is necessary to use a wide range of exercises, exercises in the form of a game.

When training with defective children of primary school age, the teacher should be more motivated to give the children. One of the stylistic requirements when conducting classes with children who have a defect in the ear: This is the presence of mirrors in the gym, which allows them to be visually evaluated.

In the opinion of Shapkova L.V. in the lessons of physical education in special schools, schoolchildren should be taken individually and stratified [10].



## Conclusions

In place of the conclusion, we can say that a special approach to the education and training of children with hearing impairments is required, precisely because of the shortcomings existing in physical education classes, the correct choice of teaching methods and tools will have a positive impact on their future.

## References:

- [1] “O‘zbekiston qonun xujjatlari to‘plami,” 37-son, 380-modda, 2011.
- [2] Abramova M.P. “Mogil’niskiy. Gluxonemota, gluxota i tugouxost,” L.: *Prosveshenie*, 1996, p. 205.
- [3] Abramova M.G. “Ispol’zovanie taktil’no-vibratsionnoy chuvstvitel’nosti v pedagogicheskom prosesse s gluxonemimi,” M.: *Prosveshenie*, 1998, p. 123.
- [4] Vartanyan I.A. “Fiziologiya sensomix sistem: Rukovodstvo,” Ser. *Mir medisini*, SPb.: Lan’, 1999, p. 224.
- [5] Vlasova T.A. “O detyax s otkloneniyami v razvitii,” M., 1993, p. 175.
- [6] Jahon sog’liqni saqlash tashkiloti “Jamoatchilik Asosidagi Reabilitatsiya (JAR) bo’yicha yo’riqnoma,” 2010.
- [7] Korotkova Ye.A. “Differensiasiya fizkul’turnogo obrazovaniya uchashixsya osnovnoy obshey shkoli: ucheb. Posobie,” Tyumen’: *Vektor Buk*, 2000, p. 48.
- [8] Korotkova Ye.A. “Differensirovanoe obuchenie po fizicheskoy kul’ture shkol’nikov srednego vozrasta v zavisimosti ot urovnya fizicheskoy podgotovlennosti,” avtoref. dis. ... kand. ped. Nauk, *Omsk*, 1996, p. 23.
- [9] Komlev I.O. “Organizatsiya fizicheskogo vospitaniya uchashixsya mladshix klassov obsheobrazovatel’nix shkol s uchetom klimaticheskix sezonov kalendarnogo goda,” avtoref. dis. ... kand. ped. Nauk, *Krasnodar*, 2008, p. 24.
- [10] Shapkova L.V. “Chastnie metodiki adaptivnoy fizicheskoy kul’turi,” *Sovetskiy sport*, 2009.