The influence of the development of coordination on the social adaptation of children with hearing impairments

Novikov Ivan Vladislavovich
Lecturer
South Ural State University, Chelyabinsk, Russia

Novikov Vladislav Vladimirovich
Associate Professor
South Ural State University, Chelyabinsk, Russia

Novikova Mariia Vladislavovna
postgraduate
Czech University of Life Sciences, Prague, Czech Republic

Abstract. This article deals with the social adaptation of children with hearing impairments. We propose a solution to the problem of social adaptation of hearing-impaired children through the development of their coordination.

We carried out a pedagogical experiment on the development of coordination abilities in hearing-impaired boys, and analyzed the influence of the development of coordination abilities on social adaptation.

Keywords: children with hearing impairments; coordination abilities; methodology; physical development; social adaptation.

Introduction

The self-fulfillment and the development of a child directly depend on the level of his/her socialization. Socialization is defined as a process during which the social norms transmitted by society are assimilated and then retransmitted by a person throughout his or her life.

Socialization also provides an individual with the qualities, behavioral patterns, and values necessary to live in society. This process is two-way: society transfers the rules and norms of interpersonal communication, social behavior in certain social roles, and a person should take an active part in assimilating this information. If one of the parties does not fulfill its function for any reason, the process will be disrupted [2, p. 68].

Hearing loss and deafness are physical problems affecting socialization. Vygotsky called these “social slips” since a physical disability provokes a social disability [9, p. 83].

The main task of teachers working with children with hearing impairments is to do their utmost so that such a child does not feel “defective” or “not like everyone else.” Modern society can help treat blindness, deafness, and dementia both with the help of progressive medical technologies and social education [1, p. 47].

In Russia, hearing-impaired and deaf people are defined as a special segment of the population requiring individually organized work and educational conditions, education in special

institutions, or within a framework of inclusion. Consequently, the socialization of such children lies in uniting them with society so that they can successfully acquire social norms and values.

Socialization is a set of many conditions, but one of the most important is preparation for an independent life as a full member of society. This is possible with the normalization of relations in the child's family, and pedagogical interaction with teachers. We should not ignore the fact that the development of the cognitive activity and personality of such children generally differs from the development of healthy children. Deaf and impaired-hearing people have psychological peculiarities of perception and response, which need to be taken into account when arranging education, interaction, and social integration [3, p. 10; 6, p. 152].

Sports and physical education affect the formation of the child's personality. Sports and physical exercise are social situations. These help to develop life experience and build a system of social guidelines and attitudes.

Culture can be developed only if a person makes cultural achievements and develops him- or herself as a social being, analyzing and improving the previous culture. If this process is reduced to a spiritual or purely moral component, and all aspects and possibilities of physical culture and sports, physical development, and education are ignored and neglected, the process itself will be impoverished and disrupted.

Hearing impairment is accompanied by the following physical development disorders [7, p. 17]:

– the impairment of physical cognitive processes (speech, attention, thinking, imagination, and memory),

– disfunction of the vestibular system,

– delayed mental and motor development,

– postural disorders and uneven physical development,

– disfunction of internal organs,

– respiratory diseases,

– the impairment of balance, coordination, spatial and temporal orientation, precision in movements, etc.

It has been proven that hearing children are 1–3 years ahead of non-hearing children in their psychophysical development.

Regular physical education of children with hearing impairments allows them to develop thinking, attention, memory, space mental capacity, improve posture, etc.

These shifts in the development of the child also affect the level of his or her socialization, significantly improving it compared to those who are not engaged in physical activity [5, p. 180].

Hearing impairment is a big obstacle for cognition and the exploration of the environment, and can also lead to intercurrent diseases. Significant differences between normally hearing children and children with hearing impairment are physical inactivity and asthenia. Children's physical development is slower in growth, in the development of the chest circumference, in body weight, and muscle weakness.

Developmental pediatricians have not ignored the motional sphere of deaf and impaired-hearing children. There are numerous studies in this field allowing us combine educational activities and physical education. During clinical studies of deaf and hearing-impaired schoolchildren, certain features of their physical development, health in general, and the state of the vestibular and visual apparatus were identified. The dependence of their state on sports or physical exercise was also noticed [8, p. 6].

Pedagogical observations and biomedical studies have revealed several motional activity disorders in deaf schoolchildren [10, p. 107]:

– low development of vital abilities (strength, speed-strength, endurance, etc.),

– poorly developed spatial orientation,

– poorly maintained dynamic and static balance,

– tentative movements, lack of coordination,

– the slow formation of motor skills,

– deficiencies in fine motor skills and in the spatiotemporal characteristics of movement,

– reflexes and movement initiation and continuation were slow.

All these disorders in the motor sphere of deaf children are interconnected, because they have common causes, for example, insufficiently developed speech functions, the general nature of the hearing defect, the reduced volume of information from the outside world, and the state of the motor analyzer.

Physical exercises selected and designed for the development of the vestibular apparatus improve the stability of the vestibular system to various influences and irritators.

Studies confirm the mutual influence of motor and sound analyzers; with a long absence (or degradation) of auditory information, there is a significant deterioration in the perception of space and the coordination of movements. The reason that the lack of auditory information is accompanied by a slowdown in the perception of space is that hearing plays an important role in the processing and analysis of incoming information on movements (duration, speed, etc.) [4, p. 39].

As a deaf or hearing-impaired child grows older, spatial orientation improves because the motor analyzer takes over some of the spatial orientation functions, which helps to compensate for the insufficiently developed vestibular system.

Children with severe hearing impairments have specific coordination disabilities. They are manifested in the reduced ability to feel rhythm and to maintain balance, reduced spatial awareness, a reduced ability to separate the parameters and trajectories of movement, and reduced vestibular stability. These abilities are formed over a long period and with difficultly compared to children without hearing impairments.

Modern society faces problems in the education, training, socialization, and development of children with hearing impairments. These can be alleviated with the application of physical education so that the socialization of such children occurs in the same way as that of their healthy peers. It is in our hands to change "children with limited health capacities" into children with increased needs.

Purpose of the research: to prove the connection between the development of coordination abilities of children with hearing impairments and the improvement of socialization and adaptation.

Research hypothesis: the purposeful development of coordination abilities in children with hearing impairments will have a positive effect on social adaptation.

Research organization and methodology

We carried out a pedagogical experiment to determine the influence of the development of coordination on the socialization of children with hearing impairments. The study involved 44 7–9 y.o. boys with hearing impairments. Two homogeneous groups were formed balanced for the level of their coordination, hearing impairment, and social adaptation. The study was based on a methodology for investigating the degree of socialization of the children's personality developed by Rozhkov.

The pedagogical experiment lasted for six months. Coordination was tested according to four indicators, using pre- and post-tests. The test results were processed by the mathematical statistics methods.

The experimental methodology of the development of coordination abilities included two-hour gymnastics classes three times a week:

1. Exercises on gymnastic apparatus: floor exercises; pommel horse; rings; parallel bars; crossbar.

2. Exercises to develop flexibility: epee; gymnastic bridge; leg swings to the sides; arm twists with a broom handle.

3. Exercises to maintain balance: maintaining balance on a gymnastic balance beam; "horizontal position on one leg" balance; hand balance.

4. Dynamic exercises while maintaining balance: swings on parallel bars; swings on the horizontal bar and rotations; swings on the rings; leg swings with hand support.

The exercises were selected taking into account the boys' physical fitness. This includes the selection and use of exercises according to the technical complexity and the degree of load corresponding to the development level of the trainees' motor abilities, as well as supervision and assistance in performing technically complex exercises on the gymnastics equipment.

Research results

After the experiment, the level of coordination in the experimental group became higher than that of the subjects of the control group. The results in all four tests characterizing coordination abilities in the children of the experimental group improved:

– In the dynamic balance test "walking on a gymnastic beam", the experimental group improved by 17%; the result of the control group remained at the same level.

– In the test "three forward rolls", the experimental group improved by 10%; the result of the control group remained at the same level.

– In the accuracy test "goal ball" the experimental group improved by 11.5%; the result of the control group remained at the same level.

– In the accuracy test "3x10 shuttle run" the experimental group improved by 12.5%; the result of the control group remained at the same level.

The results show that the level of coordination abilities in the subjects of the experimental group became higher than in the subjects of the control group for all of the tests.

We then tested the level of social adaptation of hearing-impaired boys before and after the experiment. After the coordination experiment, the level of social adaptation in the experimental group improved as compared to the subjects of the control group. Before the experiment, there was an approximately equal level of social adaptation in both groups (1.9 points in the control group and 2.0 points in the experimental group). These data indicate the low level of the children's social adaptation. After the coordination experiment, the social adaptation of the control group remained almost at the same level (2.0 points), while in the subjects of the experimental group, the result was 2.8 points. A level higher than two points is interpreted as a normal (but not high) level of social adaptation for children.

Teachers working with the children from both groups also noted that the children of the experimental group became more confident and sociable.

Findings

We found a relationship between the indicators of coordination and socialization of children with hearing impairments. Due to the development of coordination abilities with gymnastics exercises, social adaptation improved in the experimental group with hearing impairments as compared to the control group.

Conclusion

Physical education and sports have a positive effect on the socialization of children, which is connected with the specifics of communication and the relationships between people during sports and physical exercise. Classes aimed at the development of coordination help to improve the motor sphere of children with hearing impairments and increase their movement precision. The development of coordination also improves the smoothness of movement.

This experimental study indicates a significant influence of the development of coordination on the socialization of children with hearing impairments. Children who showed a higher level of motor coordination had better social relations with their peers and felt more confident. This proves our assumption that the development of coordination abilities has a positive effect on the social adaptation of children with hearing impairments.

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