

COMPARATIVE CHARACTERISTICS OF THE DEVELOPMENT OF PSYCHOMOTOR SPHERE DEAF PRIMARY SCHOOL CHILDREN AND THEIR PEERS WITH HEARING PRESERVATION

Ivahnenko A.A.

Zaporozhia National Technical University

Annotation. *Purpose:* to identify indicators of development of psychomotor function deaf children aged 7-10 years and find out the characteristic features of their manifestation. *Material:* the study involved 242 children aged 7-10 years, 128 of them deaf. *Results:* psychomotor development indicators defined functions deaf children aged 7-10 years. A comparative analysis with indicators of their peers with hearing preservation. Lagging indicators revealed psychomotor function deaf children (ability to regulate spatio-temporal parameters and dynamic movements, orientation in space, coordination movements, the ability to preserve static and dynamic balance, motor memory, a sense of rhythm, the ability to arbitrarily relax muscles, hands and coordination micromovements fingers capable of simultaneously performing movements coordination ballistic movements) averaging 14.6 % to 60.6 %. *Conclusions:* It was found that deaf children of primary school age the development of psychomotor function occurs more slowly compared with hearing children their age.

Keywords: children, school, deafness, psychomotor, development, especially.

Introduction

Democratization of society, which takes place in Ukraine, conditions demand in substantial changes in educational process, including special education. National doctrine of education in Ukraine in 21st century stresses on renewal of content and improvement of education system of children with mental-physiological problems; on implementation of new approaches, form and methods of teaching and education, ensuring development of personality, facilitating children's maximal physical and mental rehabilitation, socialization and integration in society.

Advanced domestic and foreign scientists made substantial contribution in studying of development, teaching and education of children with problems of hearing (N. Baykina [4], R. Boskis [6], L. Vygodskiy [7], V. Zasenka [10], I. Liakhova et al.). It has been proved that affection of hearing results in a number of secondary abnormalities, first of all in detention of speech development that breaks interconnection with environment, influences on development of cognitive processes of such children. Breaching of hearing function influences also on motion analyzer and mastering of different motion functions and as a result there appear specific features of deaf children's psycho-motor functions.

At present scientists determine psycho-motor system as main kind of objectification of psyche in sensorimotor, ideo-motor and emotional-motor responses and acts (K. Pltonov [14]); objective perceiving by a person of all forms of reflection of reality, starting from sensing and finishing with complex forms of intellectual functioning (Ye. Surkov [17], P. Mussen [20]); ability of a person to reflect objective information about his (her) motion functioning, to precisely and effectively control own movements (V. Ozerov [13]); objectification of all forms of mental reflection, which are determined by appropriate movements (L. Rogovyk [15]). In all definitions dualistic nature of psycho-motor responses is underlined, their combined function, that combine action of higher mental processes and human motion functioning in one integral system. So, psycho-motor functioning is objectification of all forms of mental reflection in motion actions. Development of psycho-motor function of deaf children is a regular age and qualitative increment of indicators of mental and motor sphere of deaf children under influence of targeted correction-pedagogic process.

It has been proved that peculiarities of development of junior school age deaf children's psycho-motor sphere are conditioned by steady disorder of hearing, which results in insufficient development of speech function, functional disorder of some physiological systems (vestibular apparatus, cardio-vascular and respiratory systems), in weakening of motion functioning and insufficient motor experience. Affection of hearing causes of junior school age children's lagging behind such mental processes as perception, memory, thinking, attention, imagination, formation of oral speaking (R. Boskis [6]).

Specificity of development of junior school age deaf children's motor sphere is, mainly, manifested in poor coordination and insufficient accuracy of movements (Ye. Abilova [1], N. Leshiy [11], I. Liakhova [12], O. Forostian [18]), in poor balance (R. Babenkova [2], M. Bessarabov [5], I. Grybovska [9]), in insufficient orientation in space (O. Romanenko [16]), in weakening of quickness and speed-power abilities (I. Babiy [3], A. Kostanian [10]), in delay of motion abilities' and skills' mastering and reducing of separate movements' quickness as well as the whole temp of motion functioning (O. Gozova [8]).

In spite of significance of deaf children's psycho-physical defects' correction, their social rehabilitation, these problems still have been remaining insufficiently solved in theory and practice of correcting pedagogic. Analysis of modern scientific-methodic works, which deal with general problems of teaching and education of such nosologic group of children, showed that psycho-motor sphere of junior school age deaf children ias paid insufficient attention to. Basing on it we determined the topic of our research "Comparative characteristic of development of junior school age deaf children's psycho-motor sphere and their healthy peers".

The topic of our research is connected with realization of State national program “Education” (“Ukraine in 21st century”), of National doctrine of development of education in Ukraine in 21st century.

Purpose, tasks of the work, material and methods

The purpose of the research is fulfillment of comparative analysis of development of 7-10 years old deaf children’s psycho-motor sphere and their healthy peers and specificities of its development in above mentioned nosologic group.

The tasks of the research: 1. Analysis of state of problems, relating to development of deaf children’s psycho-motor function, in theory and practice of correction work. 2. Determination of psycho-motor function’s and emotional welfare’s indicators of deaf 7-10 years old children and their healthy peers; carry out comparative analysis of resulting data. 3. Determine characteristic peculiarities of psycho-motor sphere’s development of junior school age deaf children.

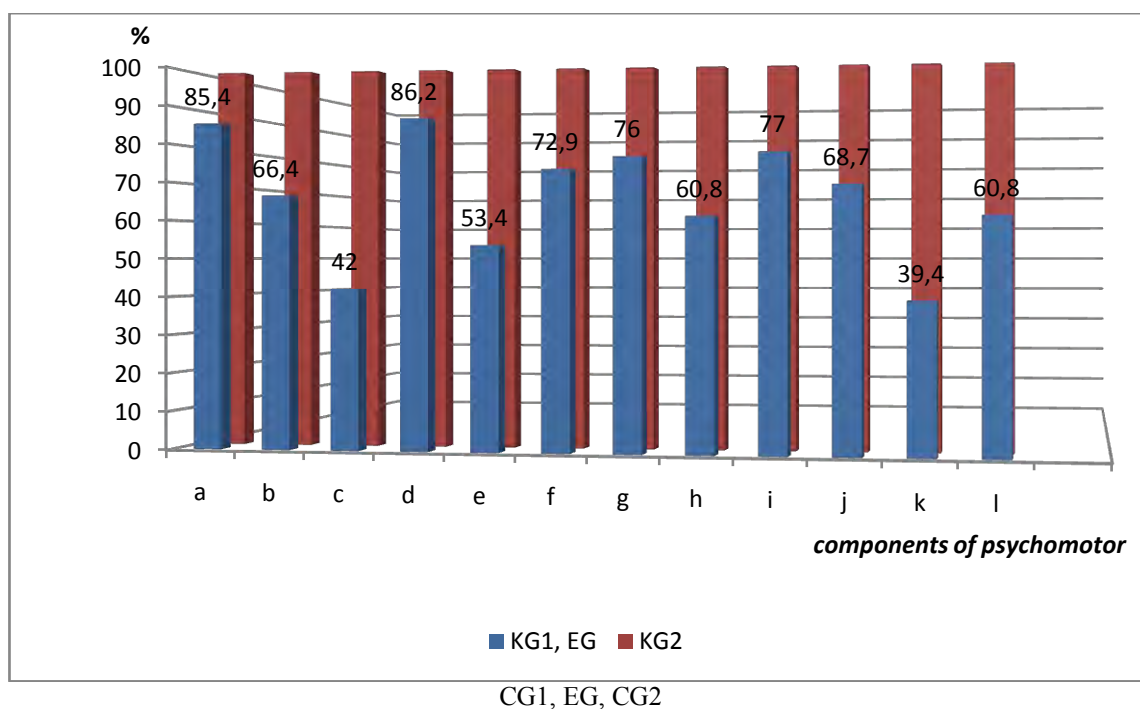
The methods of the research: for solution of our tasks we used theoretical methods (studying and analysis of scientific-methodic literature, generalization of psychological-pedagogic experience in the researched problem), empirical methods (pedagogic observations and testing); methods of mathematical statistics.

In order to determine the state of psycho-motor function’s development of junior school age deaf children and their healthy peers we carried out diagnostic by the following indicators: ability to evaluate and regulate space-time and dynamic parameters of movements (with tests “shuttle run with carrying cubes by spiral trajectory” (by L. Sergiyenko), “evaluation of time sensing” by methodic of B. Yeremeyev; test for “accuracy of throwing” and “catching of ball” by metric scale of M. Ozeretskiy); orientation in space (by test “Walking on straight line with closed eyes” of L. Sergiyenko); balance (by metric scale of M. Ozeretskiy with test “turns, sitting on gymnastic bench” by methodic of V. Liakh); coordination (by test “overstepping of gymnastic stick” by methodic of D. Pavlyk and “tests-exercises for determination of motion memory” of L. Sergiyenko); sensing of rhythm (by test “rhythmic coordination” of M. Ozeretskiy); ability for relaxation of muscles (by methodic of L. Sergiyenko with test “evaluation of mimic movements and sensing of muscles” by metric scale of M. Ozeretskiy); fine motor functioning (with test “dexterity and coordination of micro-movements and hand and fingers”); ability to simultaneous fulfillment of movements (with test “jumps on one leg with simultaneous arms’ rotation”); speed-power parameters of movements, accuracy and amplitude (with the help of unified test for evaluation of ballistic coordination of movements).

For carrying out of research we formed: control group of deaf children (CG1) of 7-10 years old age (29 boys and 34 girls), control group of healthy 7-10 years old children (CG2) (65 boys and 49 girls) and experimental group of deaf children of the sane age (EG (33 boys and 32 girls). The content of CG1 and EG (deaf children of junior school age children) was maximally equal by degree of hearing function’s disorder: hearing deprivation was 75-80 dB and more, by classification of L.V. Neyman.

Results of the research

Comparative analysis of diagnostic’s results of junior school age deaf children of CG1 and EG showed absence of significant differences between them ($t_p < t_{\alpha}$, with $\alpha=0,05$). Significant confident differences of indicators of psycho-motor function were determined between hearing 7-10 years old children of CG2 and deaf children of EG ($P < 0.05$). We stated lagging of deaf children behind their hearing peers in development of psycho-motor function by the following indicators: ability for regulation of space-time and dynamic parameters of movements – by 14.6%; sensing of time – by 33.6%; orientation in space – by 58%; coordination of movements – by 13.8%; ability to keep static and dynamic balance – by 46.6%; motion memory – by 27.1%; sense of rhythm – by 24%; ability for spontaneous relaxation of muscles – by 39.2%, coordination of micro-movements of hand and fingers – by 23%; ability for simultaneous fulfillment of movements – by 31.3%; ballistic coordination of movements – by 60%; mimic movements and sense of muscles – by 39.2% (see fig.1).



CG1, EG, CG2
(0-100 – indicators of psycho-motor components' development,%))

Fig. 1. Difference between indicators of main psycho-motor components of junior school age deaf children (EG and CG1) and their hearing peers (CG2):

% – indicators of psycho-motor components' development (all CG2 indicators are presented for their comparing with EG and CG1 indicators as 100%); CG2 – control; group of healthy children; CG1, EG – control and experimental groups of deaf children.

a – ability for regulation of space-time and dynamic movements' parameters; b-sensing of time; c- orientation in space; d- coordination of movements; e- ability for keeping of static and dynamic balance; f- motion memory; g – sense of rhythm; h – ability for spontaneous relaxation of muscles; I – coordination of micro-movements of hand and fingers; j – ability for simultaneous fulfillment of movements; k – ballistic coordination of movements; l – mimic movements and sensing of muscles.

Analysis of tests' results by sex of the tested did not show substantial difference between indicators of junior school age boys and girls' psycho-motor functions. Besides, we determined gradual age increment of psycho-motor functions' indicators of 7-10 years old deaf children.

The fulfilled work permitted to reveal specific peculiarities of psycho-motor function of junior school age deaf children. For example, when testing ability to evaluation and regulation of space-time and dynamic parameters of movements there were registered some difficulties in perceiving and analyzing of offered by the test movements; presence of vague images of dynamic, time and space characteristics of movements of own bodies and their different parts; reducing of operative control over parameters of the fulfilled movements. Deaf children of junior school age had difficulties in formation of plan and specific mean of solution of appropriate movement task. As per evaluation of the set time intervals of EG children, mean value of errors was 1.9 sec.; mean value of healthy children's mistakes was 1.1 sec. Besides, time understanding of deaf children differed from understanding of time by their healthy peers: they poorly understand relations between units of time measuring (second, minute, hour), time sequence, "filling" of time segments. Thus, insufficiency of speech functioning, reduced scope of information, which is obtained by deaf children, influence on correctness of time segments perceiving in the process of motion actions and, as a result, they have slow time structure.

With diagnostic of ability for space orientation of junior school age deaf children it was noted that it is difficult for them to promptly evaluate space conditions (space disorientation), which appears during fulfillment of motion tasks, and to response to it with rational movements.

With fulfilling of control tasks for determination of static balance indicators of deaf children the most often we notices the following mistakes: losing of of initial position during fulfillment of movement task; balancing; dropping of heels on floor, when it was required to stand on tips toes. In the process of fulfillment of test for dynamic balance by deaf children of junior school age children it was registered that attention of deaf children was concentrated not on final result but on cautiousness during execution of turns that resulted in slow temp. Most of pupils constantly looked for support from the side of instructor (children hold instructor by hand); there were some cases of not fulfilled tasks.

In the course of determination of deaf 7-10 years old age children's abilities for coordination of movements it was determined that for such children irrational manifestation of motion functions is characteristic, insufficient development of motion memory (difficulties in mastering of new movements), insufficient reservoir of motion skills

and abilities. Results of testing of deaf children's sense of rhythm showed that absence of hearing and insufficient development of motor sphere negatively influence on perception and reproduction of the set rhythm of movements or its detention, in spite of the fact that movements, offered in tests, were quite simple.

With diagnostic of ability for spontaneous relaxation of muscles we noticed increased straining of muscles, which substantially decreased coordination of movements of deaf children of junior school age. Besides, in the course of fulfillment of mimic exercises by deaf children we registered absence of control over relaxation of face and body muscles.

The obtained results of testing of hand's and fingers' movements coordination witness that main disadvantages of fine hand motor functions of deaf junior schoolchildren are low level of accuracy, and quickness of movements, insufficient differentiation of hands' movements, low level of visual-motion coordination, disorders and detention of movements' temp.

Test for ballistic coordination of movements resulted in the fact that worsening of this test's results, fulfilled by deaf, 7-10 years old children, was, first of all, influenced by reducing of quickness of this task's fulfillment. Deaf children often stopped in initial position and were slow in movements during the whole test. Quickness of fulfillment was reduced in average by 13.6 sec., comparing with peers without hearing problems. It should also be noted that most of deaf junior school age children do not show sufficient level of jump techniques that influenced on general result of testing.

Conclusions:

So, final results of testing witnessed significant lagging of 7-10 years old deaf children behind their healthy peers by indicators, which characterize psycho-motor functions (abilities for regulation of time-space and dynamic parameters of movements, orientation in space, coordination of movements, ability for keeping of static and dynamic balance, motion memory, sense of rhythm, ability for spontaneous relaxation of muscles, coordination of micro-movements of hands and fingers, ability for simultaneous fulfillment of movements, ballistic coordination of movements) in average from 14.6% to 60.6%. Thus, all above presented permits to make conclusion that development of psycho-motor function of junior school age deaf children requires appropriate correction-pedagogical influence.

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Information about the author:

Ivaknenko A.A.: ORCID: 0000-0002-3711-6045; ivanna78-78@mail.ru; Zaporozhia National Technical University; Zhukovskogo str. 64, Zaporozhia, 69000, Ukraine.

Cite this article as: Ivaknenko A.A. Comparative characteristics of the development of psychomotor sphere deaf primary school children and their peers with hearing preservation. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 201, vol.1, pp. 13-17. doi:10.6084/m9.figshare.894385

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Received: 29.10.2013

Published: 28.12.2013