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**METHODS OF MOTOR-COORDINATION ABILITIES OF CHILDREN  
BEGINNING TO LEARN THE PIANO**

*SUMMARY. This article considers the concept of “motor-coordination abilities”, defines the basic techniques of development motor-coordination abilities of children at the initial stage of training to play the piano, and reveals the essence of developing tasks.*

*KEY WORDS. Motor-coordination abilities, methods and stage of development motor-coordination abilities.*

One of the peculiarities of piano playing (unlike the majority of other instruments) is that a pianist must cover the elements of musical fabric, coordinating them with each other, so that the slightest details will be clear to the audience. Coordination is obligatory for a pianist to save the independence of musical elements while playing, not to destroy the harmonious relationship of the individual lines, subordinating them to the main direction of motion and music development. As practice shows, children coming to school at the age of 6-7 years old do not have coordination and accuracy of movements, many children cannot control their own body and have a low level of fine motor skills development. The problem of motor-coordination ability development is of vital importance, because each movement of a person depends on coordination. Thus, successful performance of any task connected with movement depends on the coordinated work of body muscles.

Abilities, as a complex and many-sided education, are studied by various sciences: psychology and pedagogy, philosophy, and sociology, as well as aesthetics. In addition, each concrete science treats human abilities from its own position. According to L.S. Vygotsky, “if the objects of the philosophical approach are general social laws basic for human abilities, the object of psychological analysis is particularly mental processes [...] in the operation and development of human abilities [...] in a separate, single individual” [1, 10].

Much attention is paid to the nature of abilities by such scholars as S.L. Rubinstein, B.M. Teplov, A.N. Leontiev, N.S. Leites, A.N. Landau, E. Nazaikinskii, L.S. Vygotsky, B.G. Ananiev, K.K. Platonov, A.G. Kovalev, V.N. Myasishchev, G.S. Kostyuk and others. In the works of these scholars there are main preconditions for a comprehensive analysis of the problem. Further research into the general theory of abilities development and the challenges of special abilities development were held by

K.A. Abulkhanova-Slavskaia, T.I. Artemyev, L.L. Bochkarev, L.A. Wenger, A.L. Gotsdiner, K.V. Tarasov and others.

The term “ability”, despite not being new and widely used in different definitions in literature, is understood in different ways. The concept of capacity was introduced to science by the ancient Greek philosopher Plato in the 4<sup>th</sup> century BC, but so far there is no one point of view on what the ability is and how to identify it. [2]

Let us take the definition of an Encyclopedic Dictionary as the basic one, “abilities are individual personality features which are subjective conditions of a certain type of activity. They are not limited to knowledge, skills and experience and are found both in speed, strength and in depth and mastery of methods and techniques of activity. A high level of ability developments is expressed by the concepts of giftedness, talent and genius” [3, 1255].

The Latin word “*coordinatio*” (*co*—together and *ordinate*—ordering) means relationship, coordination, subordination, alignment. Co-ordination is a person’s ability to coordinate and measure movement, and to take and hold a desired position [4]. Motor coordination is a consistency in the activity of different muscle groups to achieve a certain target effect or a specific purpose. First of all it is the accuracy, adequacy, ability to dose correctly strength, speed, distance of movements [5]. Coordination abilities are expressed in the accuracy and speed of motor-muscle reaction, in the interconnectedness of auditory, visual and motor systems, as well as in a good level of psychological and motor-muscular effort coordination [6]. Motor skills are understood as individual characteristics that determine the level of motor capabilities of a man [7, 144].

So, motor-coordination ability characteristics are:

- the rate of motor habits (which may be a sign of potentially high motor learning);
- the accuracy of feeling and remembering the distances;
- the developed muscle-tactile feeling (causing subtlety of gradations, figurative semantic accuracy sensation of touching the keyboard);
- the accuracy of muscular effort (timeliness of tension and relaxation of muscles, and the transition from movement to rest and vice versa);
- coherence and control of the motor apparatus (the ability to perform different types of movement simultaneously with different hands (hand and foot));
- the exact imitation of movements (“grasp” and play them entirely).

Motor-coordination abilities in playing the piano include the option to make a movement with a free, unrestricted hand, the weight of which (by itself, without muscle tension) is sufficient to produce a sound. It is also necessary to produce the natural rotational movements of the forearm (around the longitudinal axis, which runs from the elbow to the base of the hand) and the interaction of muscle coordination (from the shoulders to the finger tips). When you play an instrument, it is impossible either theoretically or experimentally to determine reduction and muscle tension. Undoubtedly, relaxed hands is one of the conditions of natural playing, but it is important to understand that hand relaxation is relative. Even the smallest movement

cannot be done without muscle tension. Every motion has tension. In this case, we should not speak about absolute freedom, relaxation but about of the desire of energy saving. Only instinctively, controlling yourself, you can learn to control the muscles at the lowest tension. Taking different positions and movements while playing, right from the physiological point of view are those that require the least amount of muscle tension, leaving most of them relaxed [6], [8], [9].

We have worked out the method of motor-coordination abilities development in children at the early stage of learning to play the piano. We were guided by the following didactic principles: accessibility in training and education, regularity and consistency as well as the principle age correlation. Involving a student with the help of playing in the searching activity, we create in class the situation of success, in which the potential of a child is fully revealed. Regular use of background music in our classes allows students to accumulate emotional experience, various developmental tasks increase the experience of various musical activities, and with the help of children's musical creativity the cultural environment of a child is created. [10]

The method of motor-coordination abilities development in children at the initial stage of learning to play the piano includes the following interrelated steps—pre-instrumental (i.e. outside the instrument) and instrumental. Each stage has its own specific problems in setting up the necessary playing feeling and movements. Division into stages allows the student not only to understand and feel clearly the interaction of all parts of the body, but also to lay the foundation of hand coordination. At each stage, their own methods and techniques were applied. Methods at the “pre-instrumental” stage are the following: exercises, play techniques, plastic intonation and its variety/plastic improvisation. In the second, so-called “instrumental” stage, exercises based on a combination of different techniques are used: legato-staccato, legato-non legato.

It is necessary from the first lesson to start preparing the hands for the first touch of the keyboard. Freedom, flexibility and rhythm of the pianist's movements is the basis of the initial formation of motor skills in which it is obligatory to seek freedom not only for the hands but for the whole body (shoulders and neck). Exercises preparing the students' body to play a musical instrument can be divided into two stages: “pre-instrumental” (outside the instrument) and “instrumental”, associated with specific instrumental techniques. At the pre-instrumental stage, it is important to prepare the student's body for new motor feelings, basic education movement feelings using each hand separately and in coordination. In this stage in our practice we use preparatory, supplementary gymnastics and touch playing. In the second, so called instrumental stage, exercises on a combination of different techniques are used legato-staccato, legato-non legato.

Let's take the gymnastic exercises used in our practice with beginners who have just begun learning to play the piano:

1. “Breath restoration”

This exercise enables you to feel the muscular groups of the back, located in the upper and lower parts of it—the areas of the shoulder girdle and lower back. These

muscular groups are the generators of the pianist's strength, their active work forms the basis of the correct functioning and proper operation and accurate interaction of all parts of the arms.

Take a breath slowly rising on tiptoes and simultaneously raise both hands up. Then the hands fall down rapidly (exhalation) and hang out like whips. Before starting the exercise in order to create a playing situation, tell the child to imagine as if he ran for a long time, was out of breath and he needs to restore a breath. The children's eyes usually light up immediately and they do this exercise quite right, but the teacher must ensure that the child's hands are completely free doing the action of "exhaling". Sometimes, fulfilling this exercise, children do it with straight hands without a feeling of full freedom.

## 2. "Humpty Dumpty"

This exercise is based on the feeling of the weight of the hand as a united integral system with the interaction of two utmost point zones: the shoulder muscle groups and the muscle groups of the wrist and fingers.

Hands down freely, bend forward slightly. Swing hands towards each other more and more intensively. In this exercise there can be the same problems as in the previous one: children not always feel full freedom of the hands, the teacher should focus their attention on it. It should be noted that few of today's children know who Humpty Dumpty is and who wrote this poem. Therefore we learn this English folk song (it was translated by Marshak):

Humpty Dumpty sat on a wall.  
Humpty Dumpty had a great fall.  
All the King's horses and all the King's men  
Couldn't put Humpty together again.

It is already necessary to give special attention to the search for natural feelings during the pre-instrumental period. Not without reason, V.H. Mazel notes the importance of feelings and only then the importance of movements [8; 104]. It is necessary to put special emphasis on the development of tactile feelings at the earliest stage of familiarization with the piano, with the help of cards with various surfaces. The culture of sound is based on using these important activities. Otherwise the child will press the piano keys more than necessary, beat on them trying to play this or that melody.

The favorite kind of activity of students from the initial classes is exercises with cards which can be found in I. E. Safarova's methodical recommendations [11]. One set is given to the student, another to the teacher. The different surface of the cards (beads, buttons, wax, matches, sandpaper, thick flannelette) attracts attention and interest to the touch process, the sensitivity of the finger-tips becomes better. Tasks such as "do as I" do when it is necessary to put the card in the same order as the teacher does, develop not only tactile but visual memory. The main goal of learning is how to play an instrument is involving the child in the sphere of art, interesting

classes, finding ways to facilitate the identification and development of natural inclinations. The insufficient functional maturity of the left cerebral hemisphere and prevalence of functions of the right hemisphere demand the application of mainly visual teaching methods of training, deep feeling of movements by children, use of imitative reactions. The high emotionality of children demands the wide application of various playing means [5], [12].

The use in lessons of plastic intonation can reveal the creative abilities of the child deeply. As the child is involved in the creative process individually, he finds such kinds of movements as can express the character of musical composition thanks to the accumulated experience of imagination and fantasy. Most often the teacher chooses and uses such musical compositions which have program content for plastic intoning or such works where the musical image is revealed clearly. There are kinds of plastic intoning: playing imaginary instruments, free movements of hands, the body, the head in the character of music, the transfer of the musical image by means of typical movements, in staging songs, nursery rhymes and musical compositions.

The imagination of children, especially of primary school age, is usually quite bright and vivid. They are happy to listen to “musical pictures”, try to guess the character and mood of musical compositions. However, children often wait to show the ready version of the plastic expression, so the teacher should encourage them to find their own moving expression of music. More often, the students respond to music by simple movements—rocking, jumps, spinning, they use their own movements which they appropriate to the nature of music by intuition. These independent finds should be welcomed, furthermore it is necessary for the teacher to develop children’s ability to improvise without preliminary preparation. The value of plastic improvisation consists of readiness for the expression of a state of mind, impression by means of movements but not in the ability of creation of a musical construction.

In order to help the child to get free and feel the abilities of the body, the teacher can suggest using various rhythmic and plastic exercises and games.

So-called “muscular freedom” is a necessary condition of the solution of the following tasks:

- the development of the motor-coordination abilities of children (agility, mobility, flexibility, endurance);
- the development of plastic expression (rhythm, musicality, responsiveness, coordination of movements);
- development of the imagination (the ability of plastic improvisation).

As mentioned above, the second “instrumental” stage of motor-coordination abilities is directly related to playing the piano. The motor coordination problems of children who first come to Music School are quite understandable: previously they have never used such actions that are necessary when playing an instrument. The use of such methods of playing as non-legato, legato and staccato usually is not connected with their previous activities. The stroke (German *Strich*—line ) is the way of sound

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production from a musical instrument which has expressive importance. Technically it is connected with various movements of the shoulders, hands, fingers and their subsequent relaxation. In the case of rendition of legato, non-legato and staccato the concepts of “method” and “stroke” coincide, and we apply both these concepts. There is a combination of opposite strokes, such as legato-staccato and legato-non legato. It is especially difficult. Children have so-called “compression of arms” when they master every individual method and in combination quite often. As exercises, we use playing the scale of C-dur in one octave with parallel movement of the hands, thus one hand renders a legato scale, and the other a staccato. If this task is well done from the outset, it can be complicated by changing the stroke for each hand. At the following stages is added the combination of “legato” and “non-legato” strokes, and also various durations (quarter and eighths). Later it is possible to play not only on one octave, but two, and if desired, and four octaves.

Motor-coordination abilities of children depend on the age-range of mental functions: muscular-motion feelings and perceptions, sensory-motor processes, memory, thought and attention. Speed of movement increases among children aged 6-7 years, but their accuracy is still low: there are many “excess”, unconscious movements. Thinking, distribution and switching of attention are insufficiently developed at this age, and it complicates the mastering of motor skills. Children’s imagination is shown and formed most clearly in games. Storing also happens best of all in the process of games as the main kind of activity for the child. Therefore while planning a lesson, it is necessary to be guided by the principle of alternation of some playing tasks with others. The combination of different kinds of activity in a lesson opens the imaginative sphere of musical art to the child, allows him to get involved in direct musical activity by visual, acoustic, moving manifestations. Furthermore, the accumulation of impressions promotes creative development of the child that gives freedom to his self-expression in the further process of training.

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